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# GUILLAIN-BARRÉ SYNDROME: CAUSES, EPIDEMIOLOGY, IMMUNOPATHOGENIC MECHANISMS, DIAGNOSIS, EVALUATION, DIFFERENTIAL AND TREATMENT

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## SUMMARY

**Introduction:** Guillain-Barré syndrome is an uncommon, yet potentially fatal, immune-mediated disease affecting peripheral nerves and nerve roots that is commonly generated by infections. Recent studies have shown a strong relationship between Guillain-Barré syndrome and SARS-CoV-2, making SARS-CoV-2 a potential trigger for GBS.

**Objective:** to detail the current information related to Guillain-Barré syndrome, causes, epidemiology, immunopathogenic mechanisms, diagnosis, evaluation, differential and treatment.

**Methodology:** a total of 42 articles were analyzed in this review, including review and original articles, as well as clinical cases, of which 33 bibliographies were used because the other articles were not relevant for this study. The sources of information were PubMed, Google Scholar and Cochrane; the terms used to search for information in Spanish, Portuguese and English were: Guillain-Barré, peripheral nerves, SARS-CoV-2, nerve roots, epidemics, inflammatory disease of the peripheral nervous system.

**Results:** Approximately 70% of affected individuals show signs of previous illness 1 to 6 weeks before the debut of Guillain-Barré syndrome. GBS post influenza infection is up to 7 times more likely than post-vaccine GBS. The studies reviewed indicate a strong relationship between Guillain-Barré syndrome and SARS-CoV-2, the latter being a potential trigger for GBS. Cerebrospinal fluid (CSF) shows a classic pattern of albuminocytologic dissociation. Generally, most individuals affected with GBS present good prognosis, and about 85 % of those present independent ambulation with recovery; however, significant morbidity is present.



**Conclusions:** Guillain-Barré syndrome can become difficult to diagnose and treat, as its clinical manifestations are heterogeneous. Treatment of GBS can be challenging during periods of infectious outbreaks, as seen in the Zika virus and SARS-CoV-2 epidemics. Since not all individuals affected by this syndrome are labeled as positive for antiganglioside antibodies, more quality research is needed to clarify the role of antiganglioside antibodies in Guillain-Barré syndrome as a secondary origin or phenomenon. In proportion to the evolution of scientific information and knowledge of Guillain-Barré syndrome, the diagnosis, management and prognosis are improving all the time.

**KEYWORDS:** guillain-barré, GBS, neuropathy, immune-mediated, postinfectious.

## INTRODUCTION

Guillain-Barré syndrome (GBS) was first discovered more than 100 years ago. Among the advances of the past century have been the recognition of the spectrum of presentations, the advancement of diagnostic modalities, the development of randomized treatment trials to improve outcomes, research into the immune-mediated pathophysiology of the disease, and prognostic models. As a result of the untreated morbidity of this syndrome, all physicians need to increase their knowledge of this rare disease(1-4).

Guillain-Barré syndrome is an uncommon, yet potentially fatal, immune-mediated disease of the peripheral nerves and nerve roots that is commonly caused by infections. It is therefore of utmost importance to understand that the incidence of GBS can increase in infectious disease outbreaks, as presented in the Zika virus epidemics in 2013 in French Polynesia and later in 2015 in Latin America. Recently analyzed studies present a strong relationship between Guillain-Barré syndrome and SARS-CoV-2, thus SARS-CoV-2 is potentially triggering GBS(5,6).

## METHODOLOGY

A total of 42 articles were analyzed in this review, including review and original articles, as well as cases and clinical trials, of which 33 bibliographies were used because the information collected was not important enough to be included in this study. The sources of information were Cochrane, PubMed, and Google Scholar; the terms used to search for information in Spanish, Portuguese and English were: Guillain-Barré, peripheral nerves, SARS-CoV-2, nerve roots, epidemics, inflammatory disease of the peripheral nervous system.

The choice of bibliography exposes elements related to Guillain-Barré syndrome; causes, epidemiology, immunopathogenic mechanisms, diagnosis, evaluation, differential and treatment.

## DEVELOPMENT

### Causes

Guillain-Barré syndrome and its variants are considered post-infectious immune-mediated neuropathies, and studies in animal specimens suggest the fundamental role of molecular mimicry. In gastrointestinal infections caused by *Campylobacter jejuni*, a lipooligosaccharide found in the external membrane of the bacterium is very similar to the gangliosides that are part of the structure of the peripheral nerves; which suggests that when facing an infection the immune system can generate a response or cross-reaction in the nerves of the affected individual. Many infections have been correlated with this syndrome, being more

frequent its relation with pulmonary and gastrointestinal infections. Approximately 70% of affected individuals show signs of previous illness 1 to 6 weeks prior to the debut of Guillain-Barré syndrome. In the Zika virus outbreak, several cases identified as GBS occurred. Case studies in particular describe several other possible etiologies that may be linked to the origin of Guillain-Barré syndrome such as medications and surgeries(2,7,8).

In 1976, post-influenza vaccination specifically against the influenza A/H1N1 antigen led to an adequately recorded increase in the incidence of GBS, however, supplemental surveillance data from influenza vaccines in consecutive years have reported only one extra case of GBS per million vaccinations. Shortly thereafter, scientific research determined that developing GBS post-influenza infection is up to 7 times more likely than developing GBS post-vaccination. Multiple trials and reviewed studies indicate a strong relationship between Guillain-Barré syndrome and SARS-CoV-2, the latter being a potential trigger for GBS(5,6,9-11).

### Epidemiology

GBS is an inflammatory disease of the peripheral nervous system and is the most common cause of acute flaccid paralysis, with an annual incidence of about 1-2 per 100,000 person-years(5).

Males have a higher incidence than females. Other bibliographies report an incidence of 0.4 to 2 per 100,000, demonstrating that it is an infrequent pathology and that this syndrome has notable effects on the health system, especially on the cost of medical care, since the monetary value for an individual with GBS can be high. Annually, it is assumed that 100,000 individuals will contract GBS worldwide(2,12,13).

### Immunopathogenic mechanisms

There are reports of previous infections in about 70% of individuals with Guillain-Barré syndrome, suggesting that molecular mimicry is fundamental in the understanding of the pathology, especially the axonal variant. As previously mentioned, *Campylobacter jejuni* lipooligosaccharide is very similar to gangliosides of peripheral nerve membranes. Clinical trials have shown that passive immunization of mammalian lagomorphs with these ganglioside-identical lipooligosaccharides have resulted in similar clinical syndromes of flaccid tetraplegia, which is very similar to the acute motor axonal neuropathy variant of GBS. Research has also shown that antibodies to gangliosides target different peripheral nerves. Anti-GD1a antibodies bind to paranodal myelin, nodes of Ranvier and neuromuscular junction. GM1 and GQ1B antibodies bind to a peripheral nerve or



neuromuscular junction. Possibly the different peripheral nerve targets play a role in the heterogeneity of the clinical manifestation of the disease. The complement cascade is activated and has a fundamental role in the pathogenesis of GBS(2,8,14,15).

Some gangliosides are probably related to certain specific manifestations, as is the case of GBS.

as is the case of Miller-Fisher syndrome which is closely related to the anti-GQ1B antibody. The pharyngeal/cervical/brachial variant of Guillain-Barré syndrome may be associated with anti-GT1A antibodies and the axonal motor neuropathy variant is suggested to be linked to anti-GM1 antibodies. However, despite the association of Miller-Fisher syndrome with anti-GQ1B antibodies, the specificity and sensitivity of all antibodies for specific subtypes perform minimally to moderately well for clinical use(2,16).

Since not all individuals affected by this syndrome are labeled positive for antiganglioside antibodies, more quality research is needed to clarify the role of antiganglioside antibodies in Guillain-Barré syndrome as a secondary origin or phenomenon. The pathophysiology of the acute inflammatory demyelinating polyneuropathy (AIDP) variant of GBS, which is very common especially in North America, is not well elucidated at the moment(2,15-18).

### Diagnosis

Guillain-Barré syndrome includes ascending weakness, sensory disturbances that are not length-dependent. By definition, the lowest point is usually reached at 4 weeks. Symmetry is an essential feature of GBS. GBS is usually considered monophasic; therefore, a recurrent or remitting evolution at presentation would be considered out of normality. Previous events or recurrence of GBS is rare, occurring in less than 10% of all affected individuals. If the patient reports progression beyond 8 weeks, other diagnoses should be considered. This syndrome frequently manifests within 1 to 6 weeks of the previous illness. As already mentioned, other related causal factors are a history of

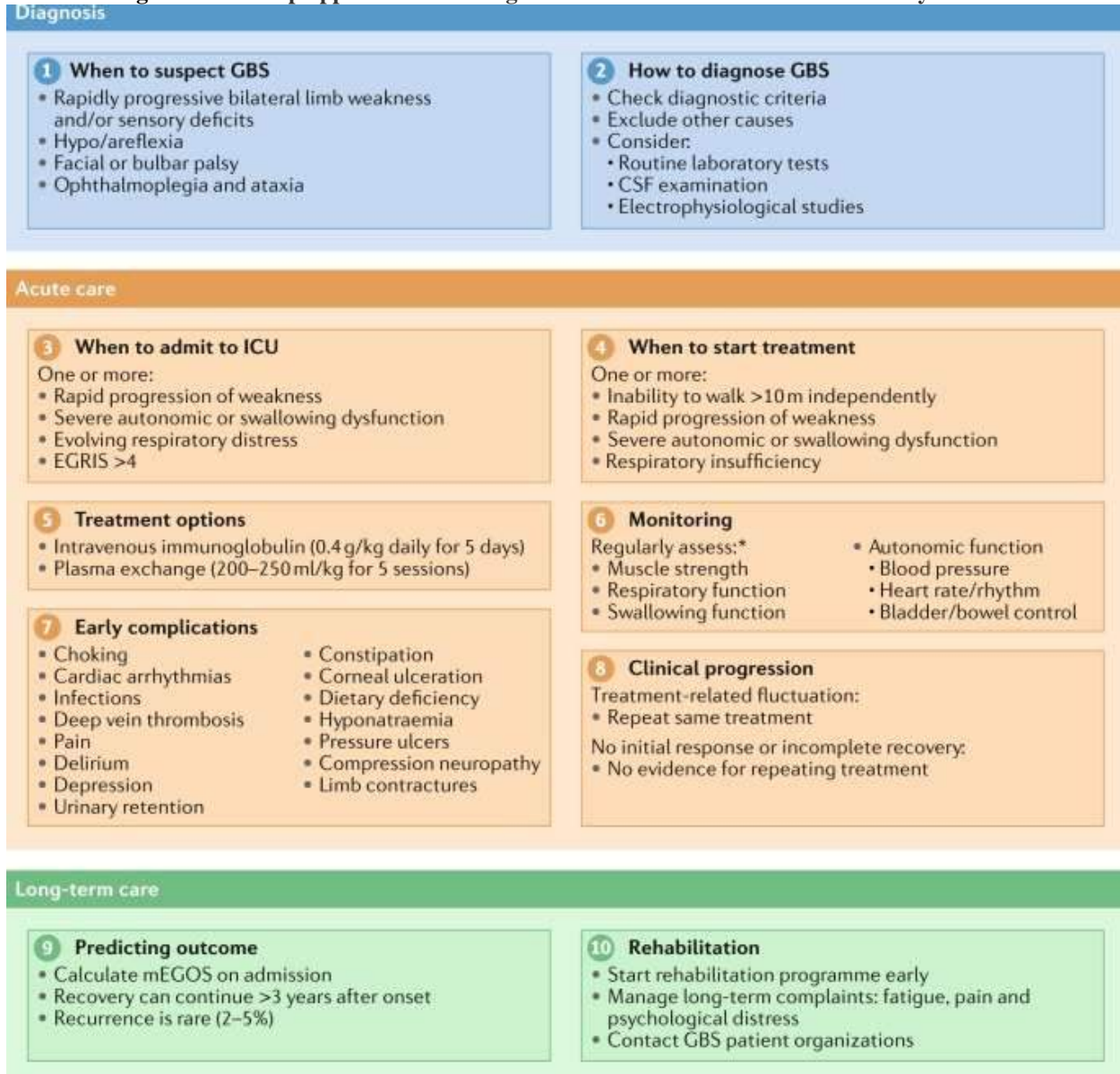
vaccination, especially the 1976 swine flu vaccine strain, trauma, other infections and surgery(2,7,19-21).

Originally individuals with GBS will have the pattern of proximal and distal weakness, which is flaccid and, not infrequently, deep. It may be accompanied by significant weakness in neck flexion and which may indicate the need for intubation. In addition there is also areflexia or hyporeflexia, in some uncommon cases there is no hypo-arreflexia, especially in the AMAN variant. In addition to flaccid weakness and areflexia, affected individuals often present with sensory symptoms that are not length-dependent; therefore, in contrast to the more common chronic neuropathies, such as diabetic neuropathy, affected individuals may show clinical features of dysesthesias in the hands and later in the feet. Patients often present with facial diplegia due to disruption of the two facial cranial nerves. In addition to that, they may show dysphagia due to involvement of the glossopharyngeal, vagus and hypoglossal cranial nerves. Autonomic nerves can cause relatively significant morbidity. Intermediate or intensive care monitoring is recommended because of possible blood pressure instability and cardiac arrhythmias. Dysautonomia is a primary basis for attributable mortality and morbidity. Nerve impairment of the respiratory muscles may necessitate artificial ventilation. Respiratory failure may be as frequent as in up to 30% of individuals, usually resulting in prolonged hospitalization and recovery(2,7).

Also, multiple variant forms of GBS have been reported, such as the variant with pure motor involvement called "AMAN (acute motor axonal neuropathy)" which is frequently observed in Asian countries. Infrequently, these individuals may have normal reflexes. There is a regional variant that especially affects the pharyngeal, neck and upper extremity muscles called "pharyngeal-cervical-brachial" variant; other variants may involve the central nervous system, called "Bickerstaff's encephalitis". There is another variant that develops paraparesis. The most popular variant is Miller-Fisher syndrome, characterized by the triad of ophthalmoplegia, areflexia and ataxia(2,22).



**Figure 1. Ten-step approach to the diagnosis and treatment of Guillain-Barré syndrome.**



**Source:** Leonhard SE, Mandarakas MR, Gondim FAA, Bateman K, Ferreira MLB, Cornblath DR, et al. Diagnosis and management of Guillain-Barré syndrome in ten steps. *Nat Rev Neurol.* 2019(5).

**Evaluation**

The diagnosis is clinical. For atypical cases or infrequent subtypes, complementary tests may be helpful. Electromyography and nerve conduction can be used to distinguish GBS from its similar forms. Nerve conduction (NCS) uses technology that allows differentiation between demyelinating and axonal forms of neuropathy. Needle electromyography allows determination of the acuity of a patient's symptoms. These studies can be used to distinguish neuromuscular junction disorders or diabetic neuropathy. Normally, electrodiagnostic studies should be done 10 to 14 days

after the onset of symptoms due to the time of Wallerian degeneration of sensory and motor nerve fibers, some trials show that early and non-specific findings can be helpful in the diagnosis of GBS 3 to 7 days after the onset of symptoms(2,23).

The most frequent initial electrodiagnostic findings in this syndrome are absent or prolonged H-reflexes and/or F-wave latencies. The pattern of sural preservation is thought to be specific for GBS as opposed to other polyneuropathies. This pattern would present a preserved sural sensory effect with abnormal sensory disturbances in the upper extremities. Acute





inflammatory demyelinating demyelinating polyneuropathy presumably presents with partial motor conduction block, temporal dispersion, slow conduction velocities, prolonged-absent F-wave latencies, and prolonged distal latencies. AMAN will usually evidence a pattern of low compound muscle action potential amplitudes or even nonexcitable motor nerves. However, partial motor conduction block or complete conduction block may be seen on the AMAN nerve conduction study. This is due to "reversible conduction failure". Complement is stored in the nodes of Ranvier and in the paranodal regions of the peripheral nerves. After this, the nerves undergo Wallerian degeneration leading to axonal alteration. Acute motor and sensory axonal neuropathy (AMSAN) would present low amplitude motor and sensory potentials. Miller-Fisher syndrome shows diminished or non-existent sensory nerve action potentials(2,5,23,24).

Cerebrospinal fluid (CSF) shows a classic pattern of albuminocytologic dissociation. This term means that the cerebrospinal fluid shows a normal number of white blood cells and a high level of CSF protein. However, this pattern is only present in 80% of individuals 2 weeks after the onset of symptoms. This being so, the absence of this classic finding does not exclude the diagnosis. When the white blood cell count is increased, this should prompt consideration of other agents such as HIV seroconversion(2,3,5,7).

Several ganglioside antibodies have been associated with Guillain-Barré syndrome. Among the antibodies are anti-GM1, anti-GD1A, anti-GT1A and anti-GQ1B. These antibodies vary in sensitivity from 60% in anti-GM1 antibodies in acute motor axonal neuropathy to more than 90% in anti-GQ1B antibodies in Miller Fisher syndrome. Imaging studies, such as magnetic resonance imaging (MRI) of the spine, may show nerve root enhancement, which would be compatible with a breakdown of the blood-nerve barrier due to inflammation in GBS. Currently, MRI in GBS is more useful for differential diagnosis with other entities that may cause tetraparesis or facial diplegia, such as transverse myelitis or intracranial disease, in addition to infection of the brainstem, inflammation of the anterior horn cells or spinal cord, stroke, nerve root compression or leptomeningeal malignancy(2,8,20).

It is advisable to perform a negative inspiratory force (NIF) in individuals with suspected GBS. Serial NIF should be maintained in individuals at high risk for respiratory compromise. Those individuals who cannot perform a NIF of -20 to -30 cm H<sub>2</sub>O should be considered at very high risk. Peripheral nerve ultrasound shows enlarged cervical nerve roots at the onset of the disease, which shows the relevance of spinal root inflammation as an early pathologic form (2,5).

### Differential

Following the elimination of poliovirus, Guillain-Barré syndrome is the most common source of acute or subacute flaccid neuromuscular weakness worldwide; however, other pathologies may resemble GBS. When flaccid weakness is shown in a critically ill individual with multiorgan impairment, neuropathy and critical illness myopathy should be thought of. Among the different etiologies that are similar to GBS are:

- Tick paralysis.
- Neuromuscular junction disorder.
- Spinal cord disorders.
- Toxic neuropathies.
- Acute intermittent porphyria.
- HIV infection.
- West Nile virus.
- Rabies.

Other infrequent clinical manifestations suggest other diagnoses such as early bowel and bladder involvement, asymmetric features and hyperreflexia or normal reflexes(2).

To differentiate GBS from its look-alikes, a rigorous evaluation of the history, clinical manifestation and complementary data is necessary. Within the clinical manifestations, the presence of dilated pupils leads the diagnosis towards tick paralysis or botulism. Complementary tests, such as electromyography and nerve conduction studies, differentiate GBS from critical illness neuropathy-myopathy, in addition to the patient's clinical manifestations. Cerebrospinal fluid tests with pleocytosis instead of classical albuminocytologic dissociation suggest the possibility of infectious diseases such as HIV or West Nile virus(2).

Patients with Guillain-Barré syndrome usually present a series of complications which are described in Table 1.



**Table 1. Important complications of Guillain–Barré syndrome.**

Complication	When to be alert
Choking	Bulbar palsy
Cardiac arrhythmias	All patients
Hospital-acquired infections (e.g., pneumonia, sepsis or urinary tract infection)	Bulbar and facial palsy, immobility, bladder dysfunction, mechanical ventilation
Pain and tactile allodynia	Limited communication
Delirium	Limited communication
Depression	Limited communication
Urinary retention	All patients
Constipation	Immobility
Corneal ulceration	Facial palsy
Dietary deficiency	Bulbar and facial palsy
Hyponatraemia	All patients
Pressure ulcers	Immobility
Compression neuropathy	Immobility
Limb contractures and ossifications	Severe weakness for prolonged period of time

**Source:** Vereniging Spierziekten Nederland, Nederlandse Vereniging voor Neurologie & Nederlandse Vereniging van Revalidatieartsen [Dutch Association of Muscular Diseases & Dutch Society of Rehabilitation Specialists]. in Multidisciplinary guideline Guillain-Barré syndrome [Multidisciplinary guideline Guillain-Barré syndrome(33).

**Treatment**

The literature reports 2 types of treatment that are currently considered the gold standard for individuals with Guillain-Barré syndrome, these are:

- Intravenous immunoglobulin (IVIG): thought to exhibit an immunomodulatory action; however, the exact mechanism is not yet clear. Generally, 2 grams/kilogram is administered over 5 days.
- Plasmapheresis: It is thought to act by eliminating pathogenic antibodies, humoral mediators and complement proteins involved in the pathogenesis of GBS. Like IVIG, its precise mechanism of action is not clearly proven. It is usually administered as an exchange volume over five sessions.

Results from randomized clinical trials demonstrate that plasmapheresis and IVIG are similar in efficacy. Results are present when either of these treatments is given in the first 4 weeks, however the most potent result may be shown if therapy is given in the first 2 weeks. Interestingly, corticosteroids such as oral prednisone and venous methylprednisolone have not shown improvement compared to placebo or in combination with IVIG and plasmapheresis in any of the individual categories. Treatment is commonly thought to decrease the recovery period for GBS. Some studies show that properly managed individuals had earlier ambulation compared to those who did not receive treatment, approximately 32 days faster(2,25-28).

Generally, most of the individuals affected with GBS have a good prognosis, and about 85% of them have independent ambulation with recovery; however, there is significant morbidity. Other

studies present the same results previously cited, finding that plasmapheresis followed by IVIG and IVIG together with steroids have not presented a significant improvement. At the moment there are ongoing trials of complement inhibitors in individuals with refractory GBS(2,29-32).

**CONCLUSIONS**

Guillain-Barré syndrome can become difficult to diagnose and treat, as its clinical manifestations are heterogeneous. Treatment of GBS can be challenging in periods of infectious outbreaks, as observed in the Zika virus and SARS-CoV-2 epidemics. Since not all individuals affected by this syndrome are labeled as positive for antiganglioside antibodies, more quality research is needed to clarify the role of antiganglioside antibodies in Guillain-Barré syndrome as a secondary origin or phenomenon. In proportion to the evolution of scientific information and knowledge of Guillain-Barré syndrome, the diagnosis, management and prognosis are improving all the time.

**BIBLIOGRAPHY**

1. Govoni V, Granieri E. *Epidemiology of the Guillain-Barré syndrome. Curr Opin Neurol.* 2001 Oct;14(5):605–13.
2. Nguyen TP, Taylor RS. *Guillain-Barre Syndrome. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2023 [cited 2023 Jun 17]. Available from: <http://www.ncbi.nlm.nih.gov/books/NBK532254/>*
3. Guillain G, Barré JA, Strohl A. *[Radiculoneuritis syndrome with hyperalbuminosis of cerebrospinal fluid without cellular reaction. Notes on clinical features and graphs of tendon reflexes. 1916]. Ann Med Interne (Paris).* 1999 Jan;150(1):24–32.





4. Lehmann HC, Hughes RAC, Kieseier BC, Hartung HP. Recent developments and future directions in Guillain-Barré syndrome. *J Peripher Nerv Syst JPNS*. 2012 Dec;17 Suppl 3:57–70.
5. Leonhard SE, Mandarakas MR, Gondim FAA, Bateman K, Ferreira MLB, Cornblath DR, et al. Diagnosis and management of Guillain-Barré syndrome in ten steps. *Nat Rev Neurol*. 2019 Nov;15(11):671–83.
6. Trujillo Gittermann LM, Valenzuela Feris SN, von Oetinger Giacomani A. Relation between COVID-19 and Guillain-Barré syndrome in adults. Systematic review. *Neurologia*. 2020;35(9):646–54.
7. Fokke C, van den Berg B, Drenthen J, Walgaard C, van Doorn PA, Jacobs BC. Diagnosis of Guillain-Barré syndrome and validation of Brighton criteria. *Brain J Neurol*. 2014 Jan;137(Pt 1):33–43.
8. Yuki N, Taki T, Inagaki F, Kasama T, Takahashi M, Saito K, et al. A bacterium lipopolysaccharide that elicits Guillain-Barré syndrome has a GM1 ganglioside-like structure. *J Exp Med*. 1993 Nov 1;178(5):1771–5.
9. Cao-Lormeau VM, Blake A, Mons S, Lastère S, Roche C, Vanhomwegen J, et al. Guillain-Barré Syndrome outbreak associated with Zika virus infection in French Polynesia: a case-control study. *Lancet Lond Engl*. 2016 Apr 9;387(10027):1531–9.
10. Campbell AM. The aetiology of polyneuritis. *Proc R Soc Med*. 1958 Mar;51(3):157–9.
11. Lasky T, Terracciano GJ, Magder L, Koski CL, Ballesteros M, Nash D, et al. The Guillain-Barré syndrome and the 1992–1993 and 1993–1994 influenza vaccines. *N Engl J Med*. 1998 Dec 17;339(25):1797–802.
12. Nawodzinska-Burchart M. [The standardized vestibular plate modified by a threshold or dam]. *Stomatol DDR*. 1981 Jul;31(7):501–4.
13. Sejvar JJ, Baughman AL, Wise M, Morgan OW. Population incidence of Guillain-Barré syndrome: a systematic review and meta-analysis. *Neuroepidemiology*. 2011;36(2):123–33.
14. Goodfellow JA, Bowes T, Sheikh K, Odaka M, Halstead SK, Humphreys PD, et al. Overexpression of GD1a ganglioside sensitizes motor nerve terminals to anti-GD1a antibody-mediated injury in a model of acute motor axonal neuropathy. *J Neurosci Off J Soc Neurosci*. 2005 Feb 16;25(7):1620–8.
15. Jacobs BC, Rothbarth PH, van der Meché FG, Herbrink P, Schmitz PI, de Klerk MA, et al. The spectrum of antecedent infections in Guillain-Barré syndrome: a case-control study. *Neurology*. 1998 Oct;51(4):1110–5.
16. O'Leary CP, Veitch J, Durward WF, Thomas AM, Rees JH, Willison HJ. Acute oropharyngeal palsy is associated with antibodies to GQ1b and GT1a gangliosides. *J Neurol Neurosurg Psychiatry*. 1996 Dec;61(6):649–51.
17. Susuki K, Nishimoto Y, Yamada M, Baba M, Ueda S, Hirata K, et al. Acute motor axonal neuropathy rabbit model: immune attack on nerve root axons. *Ann Neurol*. 2003 Sep;54(3):383–8.
18. Willison HJ, O'Hanlon G, Paterson G, O'Leary CP, Veitch J, Wilson G, et al. Mechanisms of action of anti-GM1 and anti-GQ1b ganglioside antibodies in Guillain-Barré syndrome. *J Infect Dis*. 1997 Dec;176 Suppl 2:S144–149.
19. Koga M, Yuki N, Hirata K. Antecedent symptoms in Guillain-Barré syndrome: an important indicator for clinical and serological subgroups. *Acta Neurol Scand*. 2001 May;103(5):278–87.
20. Ho TW, Mishu B, Li CY, Gao CY, Cornblath DR, Griffin JW, et al. Guillain-Barré syndrome in northern China. Relationship to *Campylobacter jejuni* infection and anti-glycolipid antibodies. *Brain J Neurol*. 1995 Jun;118 ( Pt 3):597–605.
21. Ishii J, Yuki N, Kawamoto M, Yoshimura H, Kusunoki S, Kohara N. Recurrent Guillain-Barré syndrome, Miller Fisher syndrome and Bickerstaff brainstem encephalitis. *J Neurol Sci*. 2016 May 15;364:59–64.
22. Tosun A, Dursun Ş, Akyildiz UO, Oktay S, Tataroğlu C. Acute motor-sensory axonal neuropathy with hyperreflexia in Guillain-Barré syndrome. *J Child Neurol*. 2015 Apr;30(5):637–40.
23. Chanson JB, Echaniz-Laguna A. Early electrodiagnostic abnormalities in acute inflammatory demyelinating polyneuropathy: a retrospective study of 58 patients. *Clin Neurophysiol Off J Int Fed Clin Neurophysiol*. 2014 Sep;125(9):1900–5.
24. Derksen A, Ritter C, Athar P, Kieseier BC, Mancias P, Hartung HP, et al. Sural sparing pattern discriminates Guillain-Barré syndrome from its mimics. *Muscle Nerve*. 2014 Nov;50(5):780–4.
25. van der Meché FG, Schmitz PI. A randomized trial comparing intravenous immune globulin and plasma exchange in Guillain-Barré syndrome. Dutch Guillain-Barré Study Group. *N Engl J Med*. 1992 Apr 23;326(17):1123–9.
26. Hughes RA. Plasma exchange versus intravenous immunoglobulin for Guillain-Barré syndrome. *Ther Apher Off J Int Soc Apher Jpn Soc Apher*. 1997 May;1(2):129–30.
27. Plasmapheresis and acute Guillain-Barré syndrome. The Guillain-Barré syndrome Study Group. *Neurology*. 1985 Aug;35(8):1096–104.
28. McKhann GM, Griffin JW, Cornblath DR, Mellits ED, Fisher RS, Quaskey SA. Plasmapheresis and Guillain-Barré syndrome: analysis of prognostic factors and the effect of plasmapheresis. *Ann Neurol*. 1988 Apr;23(4):347–53.
29. Walgaard C, Jacobs BC, Lingsma HF, Steyerberg EW, Cornblath DR, van Doorn PA, et al. Second IVIg course in Guillain-Barré syndrome patients with poor prognosis (SID-GBS trial): Protocol for a double-blind randomized, placebo-controlled clinical trial. *J Peripher Nerv Syst JPNS*. 2018 Dec;23(4):210–5.
30. Randomised trial of plasma exchange, intravenous immunoglobulin, and combined treatments in Guillain-Barré syndrome. Plasma Exchange/Sandoglobulin Guillain-Barré Syndrome Trial Group. *Lancet Lond Engl*. 1997 Jan 25;349(9047):225–30.
31. van Koningsveld R, Schmitz PIM, Meché FGA, Visser LH, Meulstee J, van Doorn PA, et al. Effect of methylprednisolone when added to standard treatment with intravenous immunoglobulin for Guillain-Barré syndrome: randomised trial. *Lancet Lond Engl*. 2004 Jan 17;363(9404):192–6.
32. van Doorn PA. Diagnosis, treatment and prognosis of Guillain-Barré syndrome (GBS). *Presse Medicale Paris Fr*. 1983. 2013 Jun;42(6 Pt 2):e193–201.
33. Dutch Association of Muscular Diseases & Dutch Society of Rehabilitation Specialists in M richtlijn GB syndroom [Multidisciplinary guideline GB syndrome]. *Vereniging Spierziekten Nederland, Nederlandse Vereniging voor Neurologie & Nederlandse Vereniging van Revalidatieartsen*



*[Internet]. 2011. Available from:  
[https://www.spierziekten.nl/fileadmin/user\\_upload/VSN/docu-  
menten/Hulpverleners\\_overig/R030-  
RichtlijnGBSherdruk2011metbijlagen.pdf](https://www.spierziekten.nl/fileadmin/user_upload/VSN/docu-<br/>menten/Hulpverleners_overig/R030-<br/>RichtlijnGBSherdruk2011metbijlagen.pdf)*

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# AN OVERVIEW ON SUGARCANE INDUSTRY IN INDIA

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## ABSTRACT

*Sugarcane is an important industrial and cash crop. It is grown in almost in all areas in India, But commercial basis sugarcane is produced in tropical and sub tropical states. Because of available of raw materials, most of the sugar mills are located in these areas. Sugarcane production in India has been attributes to lack of rainfall, reduction in cultivation area. Also production of sugarcane affects due to drought and decrease in soil health, high level input cost. This paper presents an overview of sugar industries, state wise area of cultivation, production, productivity. This paper is descriptive in nature and completely based on the data and information available from secondary sources. Time frame of the study is ten years from 1<sup>st</sup> April, 2012 to 31<sup>st</sup> March, 2022.*

**KEYWORDS** – Production of Sugarcane, sugarcane cultivation, export & import of Sugar, fair and remunerative price of Sugar

## I. INTRODUCTION

Sugarcane is a perennial grass reaching 2 to 6 meters in height and comprised by jointed. Though it was started to cultivate around 327 BC in the Indian subcontinent, it way to the rest of the world via trade routes through Middle East as well as other routes. Later, it reached and flourished as an industry. It was originally cultivated to warm tropical and sub tropical regions of Asian continent. After early civilizations found out about its usefulness of sugarcane and it quickly spread throughout the world. This improves the sugar production with crossbreeding. All over the world, Sugarcane is one of the important commercial crops. It is the important principle sources of sugar but also ethanol and jaggery. It's by-products are used as fodder to feed livestock in many countries. Brazil, India, China, Thailand and Pakistan, United States, Mexico, Russia, Germany are the top ten countries that produces large amount of sugarcane. It is the second largest agro based business in India after cotton industry. 50 lakh hectares or 2.57 of total planted are taken up by the crop. Around 50 million farmers grow sugarcane and 5 lakh workers in sugar mills.

## II. REVIEW OF LITERATURES

A study carried out by **Deshmukh (1983)** pointed out that the instability of the prices of sugarcane and Jaggery has created on rest among the sugarcane cultivators and Jaggery growing regions of Kolhapur District of Maharashtra. Moreover, the price of the inputs has increased while there is no corresponding increase in the price of Jaggery. In order to reduce the instability of the Jaggery industry and to make it's come stable. Intercropping was suggested Jaggery industry is an important economic activity in the Kolhapur Region, but it does not earn ever reasonable profits due to increase in the cost of sugarcane cultivation. Consequently, the supply of Jaggery has been

decreasing.

**Problem of Sugar Industry by M.P Gandhi:** This book is an in-depth analysis of prospects of re-organization an interesting insight into the state and influence of India's Sugar Industry. The Chapter i.e "The Indian Sugar Industry in World perspective" are detailed elaborated about the sugar industry.

**History of Sugar Industry In India by S. Pruthi:** This book elaborated widely about the sugar industry in India. Prosperity of sugar industry is mention in depth analysis in the books

**Co-operative sugar industry of India by Dr. Kishor Barad & Prof. V K Sapavadia:** It is one of the major agro based industries in India. And it has been instrumental in resource mobilization, employment generation, income generation and creating social infrastructure in rural area.

## III. STATEMENT OF THE PROBLEM

Sugarcane is a crop that requires a lot of water. The amount of economic output produced per cubic metre of extracted fresh water is referred to as water productivity. Sugarcane uses over 70% of the nation's irrigation resources. Since groundwater provides the majority of this, it has had a significant negative impact on the water table in many areas. Sugar mills find it difficult to buy sugarcane from farmers because of the high Fair and Remunerative Price (FRP) and limitations imposed by the Cane Reservation Area (CRA). In our nation, the level of mechanization in sugarcane cultivation is often less than 40%. Due to labor shortage and high production costs, the sector is now vulnerable



**IV. OBJECTIVES OF STUDY**

The following specific objectives are set as mentioned below:

- a) To measure and compare the area of production, no. of production and productive.
- b) To analyze the roll of sugarcane industry in foreign trade of India.
- c) To comparative study of FRP for ten years.

**V. RESEARCH METHODOLOGY**

Research methodology has many dimension . This study is fully based on secondary data. The data collected from various sources like books, journal, websites etc. Collection source are department of agriculture service,

Indian sugar miils accociation, department of cooperation & farmers welfare, various annuals reports etc.

**VI. DATA ANALYSIS AND INTERPRETATION**

**In World**

The position of India in production of Sugarcane is highest in the year of 2021-12. Sugarcane is a verities type of production, used in making sugar, jiggery, khan sari etc. Top ten countries of sugarcane production for the year of 2021-22 are shown in the following table.

**Table 1: Major countries production of sugarcane in the World- 2021-22**

Sl. No	Country	Production in last year (MT)
1	India	36880.00
2	Brazil	35450.00
3	European Union	16479.00
4	Thailand	10157.00
5	China	9600.00
6	United States	8287.00
7	Pakistan	7140.00
8	Russia	6000.00
9	Mexico	6556.00
10	Australia	4120.00

Source: <https://www.statista.com/statistics/495973/sugar-production-worldwide/>

**Interpretation:** From the above table it is observed that, India tops the list of sugarcane production with the production of 36880MT and Australia with the production of 4120 MT.

**In India**

India is one of the most important agrarian economies in the world. India is the home to almost every kindof crop grown in globally. Majority of the Indian population’s occupation is agriculture. Sugarcane is one of the most popular crops in India More than 60% of India’s land area is under cultivation. Sugarcane is one of the most important crops in rural economy of India. About 50 million farmers’ families are dependent on sugarcane cultivation and our country produces approximately

30 to 33 million tons of sugar annually which makes as one of the largest producers of the world,

- A. In fiscal year 2021-22, the area of cultivation for sugarcane in India was estimated to be approximately five million hectares. Sugarcane is an important commercial crop that is indigenous to India. The western India was the leading area of production for sugarcane. The western part of India forms the core of sugarcane production in the country along with the Ganges and Yamuna. Major states for producing area in India are shown in following table for last ten years.

**Table 2: Major production area in the country state wise from 2012-13 to 2021-22.**

(Lakh per ha)

Sl.No	States / UT	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22*	Average	Rank
1	Uttar Pradesh	22.12	22.28	21.41	21.69	21.60	22.34	22.24	22.08	21.80	21.77	21.69	1st
2	Maharashtra	9.33	9.37	10.30	9.87	6.33	9.02	11.63	8.22	11.43	12.32	9.63	2nd
3	Karnataka	4.25	4.20	4.80	4.50	3.97	3.70	4.71	4.29	4.43	5.88	4.36	3rd
4	Bihar	2.50	2.58	2.54	2.44	2.40	2.34	2.26	2.24	2.19	2.11	2.26	5th
5	Gujarat	1.76	1.74	2.08	1.57	1.69	1.82	1.55	1.61	2.15	2.23	1.82	6th
6	Tamil Nadu	3.47	3.13	2.63	2.52	2.18	1.72	1.66	1.31	1.25	1.45	2.37	4th
7	Madhya Pradesh	0.59	0.73	1.11	1.03	0.92	0.98	1.08	1.25	1.10	0.94	0.90	9th
8	Haryana	0.10	1.02	0.97	0.93	1.02	1.14	1.09	0.96	0.99	1.08	0.91	8th
9	Punjab	0.83	0.89	0.94	0.90	0.88	0.96	0.95	0.91	0.89	0.88	0.86	10th
10	Andhra Pradesh	1.96	1.53	1.39	1.22	1.03	0.99	1.02	0.86	0.55	0.47	1.27	7th



**Interpretation:** From the above table it is observed that, Uttar Pradesh tops the list of production area in the country with the average area of production is 21.69 lakh per ha.

**B.** Sugarcane (*Saccharum officinarum*) family Gramineae (Poaceae) is widely grown crop in India. Broadly there are two distinct agro-climatic regions of sugarcane cultivation

in India, i.e. tropical and subtropical. Tropical region shared about 45% and 55% of total sugarcane area and production in the country. Sub-tropical region accounted for about 55% and 45% of total sugarcane area and production in the country. State wise major production of sugar cane is shown in following table.

**Table 3: State wise major production of Sugarcane in the country from 2012-13 to 2021-22**

Sl No	States / UT	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22*	Average	Rank
1	Uttar Pradesh	132.43	134.70	133.06	145.39	140.17	177.03	179.71	179.54	177.67	177.43	157.71	1st
2	Maharashtra	69.65	76.90	84.70	73.68	52.26	82.98	89.77	69.31	101.60	113.37	81.42	2nd
3	Karnataka	35.73	37.91	43.78	37.83	27.38	31.14	42.41	38.18	42.09	56.45	39.29	3rd
4	Tamil Nadu	33.92	32.45	28.09	25.49	18.99	17.15	17.14	14.12	12.80	14.53	21.47	4th
5	Bihar	12.74	12.88	14.03	12.65	13.04	13.83	20.12	13.58	10.71	13.97	13.76	5th
6	Gujarat	12.69	12.55	14.33	11.12	11.95	12.07	11.33	11.57	15.85	17.44	13.09	6th
7	Haryana	7.44	7.50	7.17	6.69	8.22	9.63	8.51	7.73	8.53	8.75	8.02	8th
8	Punjab	5.92	6.68	7.04	6.61	7.15	8.02	7.77	7.30	7.49	7.51	7.15	9th
9	Andhra Pradesh	15.57	12.01	9.99	9.35	7.83	7.80	8.09	6.72	4.12	3.65	8.51	7th
10	Madhya Pradesh	2.64	3.17	4.57	5.28	4.73	5.43	5.28	7.43	5.88	5.45	4.99	10th

**Interpretation:** From the above table it is observed that Uttar Pradesh tops the list of production of sugarcane in the country with the production of average 157.71 MT.

**C.** In tropical zone Maharashtra is the major sugarcane growing state covering about 9.4 lakh hectare area with production of 61.32 million ton, whereas the productivity

of Tamil Nadu is highest in tropical zones. Uttar Pradesh is the highest sugarcane producing state in the sub tropical zone having area about 22.77 lakh hectare with the production of 135.64 million ton cane whereas Haryana has highest productivity of sugarcane in sub tropical zones. States wise productivity of sugarcane from 2012-13 to 2021-22 are shown in the following table.

**Table 4: State wise productivity of Sugarcane in the country during 2012-13 to 2021-22 (Tonnes/ha)**

S.No	States / UT	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22*	Average	Rank
1	Tamil Nadu	97.70	103.70	106.80	101.06	87.00	99.81	103.00	107.62	102.73	100.00	100.94	1 <sup>st</sup>
2	Karnataka	84.10	90.30	91.20	84.08	68.96	84.08	90.00	89.00	95.00	96.00	87.27	2 <sup>nd</sup>
3	Maharashtra	74.60	82.10	82.20	71.65	82.52	92.00	77.20	84.28	88.90	92.00	82.75	3 <sup>rd</sup>
4	Punjab	71.30	75.00	74.90	73.41	81.27	83.58	81.82	80.24	83.82	85.34	79.07	4 <sup>th</sup>
5	Haryana	73.60	73.50	73.90	71.96	80.62	84.50	78.24	80.27	86.18	81.23	78.40	5 <sup>th</sup>
6	Uttar Pradesh	59.90	60.50	62.10	67.03	64.89	79.25	80.81	81.31	81.50	81.50	71.88	6 <sup>th</sup>
7	Andhra Pradesh	79.40	78.50	71.80	76.66	76.02	78.68	79.36	78.19	74.88	77.75	77.12	8 <sup>th</sup>
8	Gujarat	72.10	72.10	68.90	70.83	70.71	66.33	73.17	71.89	73.69	78.31	71.80	7 <sup>th</sup>
9	Bihar	51.00	49.90	55.30	51.84	54.42	59.14	89.01	60.65	48.92	66.25	58.64	9 <sup>th</sup>
10	Madhya Pradesh	44.78	43.47	41.14	51.27	51.41	55.41	48.90	59.47	53.45	58.00	50.73	10 <sup>th</sup>

**Interpretation:** From the above table it is observed that Tamil Nadu tops the list of productivity of sugarcane in the country with the average productivity is 100.94 tonnes/ha Whereas Uttar Pradesh tops the list of production area and production of sugarcane.

**D.** In financial year 2021-22, the yield of sugarcane produced across the India was estimated to be approximately 84

metric ton per hectare. This was an increase from previous fiscal year's yield around 80 metric ton per hectare. Sugarcane is an important cash crop in the country. Uttar Pradesh produced the highest volume of sugarcane that year, followed by Maharashtra, Tamil Nadu and Orissa. Year wise area, production and yield of sugarcane of top ten states are shown in following table.





**Table 5: Area, Production and Yield of Sugarcane in India**

Sl. No	Year	Area (Lack Ha)	Production (MT)	Yield (kg/hectare)
1	2012-13	47.97	329.67	68725
2	2013-14	49.93	352.14	70522
3	2014-15	51.44	359.33	69857
4	2015-16	49.27	348.45	70720
5	2016-17	44.36	306.07	69001
6	2017-18	47.32	376.9	79650
7	2018-19	50.61	405.42	80106
8	2019-20	46.03	370.50	80490
9	2020-21	48.57	399.26	82203
10	2021-22	50.98	430.50	84444

**Interpretation:** From the above table it is observed that the year of 2014-15 tops the list of area of production with 51.44 lack hectars. And the year of 2021-22 tops the list of production of sugarcane in India with 430.50 MT. And the year of 2021-22 tops the list of yield (kg/hectare) with 84444 kg/hectare)

E. Sugar industry is an important agro- based industry that impacts rural livelihood of about 50 million sugarcane farmers and around 5 lakh workers directly employed in

sugar mills. Employment is also generated in various ancillary activities relating to transport, trade serving of machinery and supply of agriculture inputs. The value of sugar exports from India amounted to over five billion US dollars in fiscal year 2022. This was a significant increase from the previous fiscal year. A consistent increase in value of exports of sugar was seen form fiscal year 2018. Last 10 year’s data of India’s export and imports are shown in following table.

**Table 6: India’s Export, Import and of Sugar**

Year	Export		Import		Stock (In lakh MT)
	Quantity (Ton)	Value (Rs./Crore)	Quantity (Ton)	Value (Rs./Crore)	
2012-13	2784489	8576.83	1122259	3094.38	91.09
2013-14	2473483	7152.17	880519	2279.21	72.12
2014-15	1950931	5296.53	1537830	3645.15	88.76
2015-16	3128275	9787.95	1600027	4011.03	77.10
2016-17	2538230	8621.61	2144429	6849.63	39.77
2017-18	1750724	5180.54	2401484	6017.22	106.73
2018-19	3977639	9451.57	1487677	3147.50	145.00
2019-20	5787322	13910.31	1114828	2441.95	110.00
2020-21	7506555	20577.09	1963233	4698.64	85.00

**Interpretation:** From the above table it is observed that India export sugar maximum in the year of 2020-21 with 7506555 ton. India import sugar maximum in the year 2017-18 with 2401484 ton.

F. Fair and Remunerative Price (FRP) is the minimum price at which rate sugarcane is to be purchased by sugar mills

from farmers. The FRP is fixed by Union Government (Cabinet Committee on Economic Affairs (CCEA)) on the basis of recommendation of Commission for Agriculture Costs and Prices (CACP). The FRP of sugarcane is determined under Sugarcane (Control) Order, 1966. Last 10 years FRP of sugar are shown in following table.

**Table 7: FRP of sugar in India from 2012-13 to 2021-22**

Year	FRP (Rs. Per quintal)	Basic Recovery Level
2012-13	170	9.5%
2013-14	210	9.5%
2014-15	220	9.5%
2015-16	230	9.5%
2016-17	230	9.5%
2017-18	255	9.5%
2018-19	275	10%
2019-20	275	10%
2020-21	285	10%
2021-22	290	10%





**Interpretation:** The FRP on sugarcane has been on a steady increase, going from Rs. 170/ quintal in 2012-13 to Rs. 290/ quintal in 2021-22. The industry's financial struggle highlights the need for government intervention to balance the FRP and protect the interest of both farmers and sugar producers.

## FINDINGS

- India tops the list of sugarcane production with the production of 36880MT.
- Uttar Pradesh tops the list of production area in India with the average area of production is 21.69 lakh per ha.
- Uttar Pradesh tops the list of production of sugarcane in India with the production of average 157.71 MT.
- Tamil Nadu tops the list of productivity of sugarcane with the average productivity is 100.94 tonnes/ha.
- The year of 2014-15 tops the list of area of production with 51.44 lack hectores. And the year of 2021-22 tops the list of production of sugarcane in India with 430.50 MT. And the year of 2021-22 tops the list of yield (kg/hectare) with 84444 kg/hectare).
- India export sugar maximum in the year of 2020-21 with 7506555 ton. India import sugar maximum in the year 2017-18 with 2401484 ton.
- The FRP on sugarcane has been on a steady increase, going from Rs. 170/ quintal in 2012-13 to Rs. 290/ quintal in 2021-22.

## VII. RECOMMENDATION & CONCLUSION

- Sugarcane has to compete with several other food and cash crops like cotton, oil seeds, rice etc.
- Sugar production is a seasonal industry with a short crushing season varying normally from 4 to 7 months in a year. It causes financial loss and

seasonal employment for workers and lack of full utilization of sugar mills.

- Most of the sugar mills in India are of small size with a capacity of 1000 to 1500 tonnes per day thus fail to take advantage of economies of scale. High cost of sugarcane, inefficient technology, uneconomic process of production and heavy excise duty result in high cost of manufacturing.

It is concluded from the research finding that although sugarcane is the main crop but farmers faced a lot of problems regarding sugarcane production. Its sector are facing major challenges are irrigational problems, decrease in soil health, high levelinput cost, sugarcane price is low level.

## REFERENCES

1. *Problems of Sugar Industry In India*, by M.P Gandhi, Publisher : Read Books (15 March 2007), Language: English, Paperback : 372 pages, ISBN-10 : 1406747009, ISBN-13 : 978-1406747003
2. *History of Sugar Industry* by S. Pruthi, Language : English, ISBN-10 : 8185972966, ISBN-13 : 978-8185972961
3. *Co-operative Sugar Industry of India* by Prof. VK Sapovadia & Dr. Kishor Barad, ASIN : 3639277163, Publisher : VDM Verlag (21 July 2010), Language : English, ISBN-10: 9783639277166, ISBN-13: 978-3639277166
4. *Deshmukh S.B. (1983) Gur and Sugar Industries in Kolhapur District an unpublished Ph.D. thesis in Geography, Shivaji University, Kolhapur*
5. <http://agricoop.gov.in/acts-and-rules-listing>
6. <https://www.atlasbig.com/en-us/countries-sugarcane-production>
7. <https://www.isosugar.org/sugarsector/sugar>
8. <https://www.trendrr.net/735/top-10-largest-sugarcane>
9. <https://www.drishtiiias.com/to-the-points/paper3/sugar-industry>



# SUBSTANCE USE IN THE HOME AS PREDICTOR OF AGGRESSION AND DRUG ABUSE AMONG SECONDARY SCHOOL STUDENTS IN RIVERS STATE

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## ABSTRACT

*Substance use in the home is an issue that has impacted society in a variety of ways. There are parents who abuse various types of substances like opioids, alcohol, marijuana, cocaine, and tobacco. These drugs have very devastating effects on family members. Children who are raised in homes where one or both parents' abuse drugs are often introduced to drugs and eventually become dependent on them later in life. Many of these children are neglected and poorly trained because their parents lack the physical resources and moral capacity to enforce discipline. Children who live in homes where substances are used go on to become aggressive and dependent on drugs. This study included a sample of 800 secondary students in Rivers State. This correlational study measured Substance use in the home using the Substance Use in the Home Scale (SUHS), aggression using the Behaviour Problems Checklist (BPC), and drug abuse using the Drug Abuse Screening Test (DAST-10). The data was analysed using linear and multiple regression. The outcomes of the study revealed that substance use in the home significantly predicts aggression and drug abuse among secondary school students in Rivers State. It is recommended that parents be taught about the impact their use of substances in the home has on their children and be helped to be rehabilitated. Also, children who have anger problems and aggression should be taught anger management. Adolescents who have been identified as being dependent on substances need to be retrained and restored.*

**KEYWORDS:** Substance use, home, aggression, drug abuse.

## 1. INTRODUCTION

Thatcher (2020) describes substance use in the home as the deliberate abuse of mood-altering substances like tobacco, alcohol, and prescription medication by parents for the sole aim of evading or running away from one's emotional or physical challenges. Substance use is not limited to the indiscriminate consumption of illicit drugs alone; it also takes place with the use of prescription medication. When a patient is administered a medicine, takes it for a longer period than prescribed, and cannot do without the drug, it has become an addiction.

According to the NSPCC (2021), parental drug dependency is the long-term misuse of psychoactive substances and alcohol by a parent. In many instances, for something to be an addiction, it must affect the individual's day-to-day normal functioning. They are not able to stay without using drugs and alcohol. These parents very frequently consume high amounts of alcohol, tobacco, cocaine, marijuana, or even prescription medicines. The use of these substances and possible intoxication may interfere with their work and their capacity to work effectively, as well as their productivity at home and in the workplace.

Marijuana is the most commonly available and frequently used illegal drug in the world. Many people grow it in their homes in



pots or in their gardens, trade it, distribute it, and consume it. It is mostly used by young people (Cooper, 2014). Parents use them as well because it is one of the substances that is easily accessible to them.

Tobacco and alcohol dependency, as well, constitute one of the most common forms of substance dependency (Hall, 2014). Similarly, Adamson et al. (2010) posit that the substances that most parents are addicted to in Nigeria are alcohol, cannabis, sedatives, and tobacco. According to a 2012 UNODC report, about 30% of people worldwide have misused tobacco at some point in their lives. Also, about 230 million people, which makes up about 5% of the world's population aged 15–16, consumed mind-altering substances illegally.

Oyieno (2018) states that in many homes that have parents who smoke cigarettes, there is the challenge of smoke inhalation, which can serve as a health menace to the children involved. Parents who smoke marijuana or cannabis become secondary smokers of the product, and this may impair their physical and psychological functioning.

According to the UNODC (2018), Parents who are given to using drugs and alcohol are not likely to excel in carrying out their parental responsibilities as expected, and this is due to the physical and mental impairment that the parent experiences as a result of being under the influence of substances and alcohol. In addition, such parents are known for frivolously spending the scarce resources of the family on mental stimulants and alcohol instead of family upkeep.

According to information from around the world, about 20% of people who have substance use disorders are parents who take care of young children (Chrzan-Detkos & Walczak, 2017). The kind of parents that exist at this age are more versed in the use and abuse of substances than those before them. Many of them use these substances as a way of coping with the challenges of making a living and training children at the same time.

According to Thakur and Grewal (2021), aggression is when people assault or cause harm to themselves or others. When acts of aggression occur, they are done with the intent to cause hurt and pain to the other party involved. It is not a mistake or something that happens without planning. Aggression as a term is one that many have taken to be mostly physical in nature and have impacts that are visible to the human eye, but this is not so.

Aggression takes many forms, such as Physical, verbal, and emotional. When aggression is done physically, the one who carries out the brutality often picks out the victim and unleashes beatings on him. This can take forms such as slapping, pinching, biting, choking, gang beating, pulling, and threats to do the aforementioned. Sometimes, the manifestation of the acts of aggression may not be seen with the eyes in the form of bruises, black eyes, or broken bones but may take other forms such as

withdrawal, anxiety, or depression, as in the case of verbal or emotional aggression.

Such individuals may manifest such behaviours as lying and deception, running away from home, violent outbursts at people and animals, and destruction of objects within reach and other property. It manifests in an emotionally charged and unpleasant relationship with one's peers, challenges with interacting with others, and poor academic attainment (Frick, 2016). In other instances, aggression has caused children to have rounds of fights with schoolmates, and infractions of school rules have led them to be suspended, placed in detention, or eventually expelled. When students are being picked on repeatedly by another student, they may one day decide to teach the student a lesson, so they stop picking on them, and this eventually leads to them breaking school rules (Frick, 2012).

Aggression in childhood, if left unmanaged, predicts challenges much later in adolescence and adulthood. Such dilemmas include drug dependency, school challenges like truancy, poor academic attainment, and dropping out. It will lead to challenges in handling social situations and relationships like marriage and friendship. Further, it will impact the individual negatively in the workplace in the form of decreased work performance and unemployment (Canino et al., 2010). Severe hostility has been known to lead to mental and psychiatric disorders, thoughts of suicide, problems with law enforcement, jail time, and premature death (Breslau et al., 2012). When a person has been involved in several incidents of violent outbursts, it will lead them to develop a negative reputation, which may affect their chances of turning over a new leaf even if they wanted to. This can lead to depression and the individual's thoughts of taking their lives. Continued assault, especially involving sharp objects and weapons, will lead the individuals to imprisonment and instant death.

Denson et al. (2011) state that some elements predispose children and adolescents to cruel outbursts that constitute aggression. These elements involve the child nursing thoughts that are brutal in nature, especially against someone they don't like or who hurt them, especially thoughts of vengeance. These thoughts, when they occur frequently, inhibit the individual's capacity to control their impulses. Children who constantly think about fighting others or picking a fight with others, especially to deal with a person who has treated them poorly, lead to eventual berserk behaviour. According to the United Nations Office on Drugs and Crime (UNODC, 2012), alcohol is the most abused substance by adolescents. This is because alcohol is a drug that is easily available to young people. Cannabis, mixtures, and prescription drugs are closely behind this.

According to Kann et al. (2016), some young people within the 9<sup>th</sup> and 12<sup>th</sup> grades were surveyed in the Youth Risk Behaviour Study in 2015. The outcomes of the study revealed that 32.8% of the young people who took part in the study had used alcohol, and about 10.8% of them had smoked cigarettes in the last 30 days.



E-cigarettes and vaping are more common among adolescents because of their covert nature. Similarly, Johnston et al. (2018) stated that within the same population, one in five adolescents had used marijuana. A considerable increase in marijuana use was recorded in 2017 because the adolescents had used marijuana and no longer viewed the substance as harmful or capable of causing any serious health condition that could not be managed. Substance use gets worse as young people get older; they get more adventurous with the substance, and their bodies have gotten used to the dopamine releases they get when the substance has been ingested into their bodies. Hence, they have to use higher quantities of these substances in order to feel the euphoria that they are used to and crave.

According to Kulak and Griswold (2019), the greatest indicator of substance use by young people is having parents who use substances. When young people see their parents' using substances, it sends a message to them that this is acceptable behaviour. In some cases, parents offer their children alcohol to have a sip, especially their male children, who get to try this at this young age. As well, watching their favourite celebrities use and abuse psychoactive materials sends an endorsement of that lifestyle to the youngster, so they are inclined to try it out for themselves. When children are doing poorly in their academics or undergoing victimisation as a result of intimidating or pugnacious acts, they are more likely to use substances (Sonuga-Barke & Halperin, 2010). This is partly due to the fact that they have parents who do not have time to listen to and interact with them, or parents who will insist that they go on to retaliate against such acts to prove they are equally strong. Hence, they turn to substances as a companion and a means of escape, albeit temporarily, from the existing challenge. This is because they lack the requisite skills necessary to deal with and effectively manage such challenges (Sonuga-Barke & Halperin, 2010). They use these substances because they want to excel in every area. Some see their friends use opioids before athletic games and then decide to stay on top of things. Many use the substances because of the thrill that comes with experimenting and conquering new territories.

There are some mixtures being created as substances out of common foods. An example of this is a mixture of TomTom, a candy whose major ingredient is menthol, and LaCasera, which is an apple-flavoured soda drink. Young people would typically put some TomTom bars in the LaCasera drink and allow them to dissolve to form a syrup. This mixture is popularly referred to as "Laca Tom Tom.". The effect of this is similar to taking dopamine-inducing illicit substances, and the users report experiencing extra bursts of zest. It is also a cheaper substance than cocaine and other commonly abused substances. In addition, there has been a widespread trend of people, both male and female, going to sewage points within their neighbourhood and inhaling dangerous gases that are emitted therein. This produces an intoxicating effect on those who inhale it. Other inhalants that are used are fuel and otherwise harmful gases (Eti, 2023).

When substances are used by young people, it puts them at risk for high mortality, fighting, suspension and expulsion from school, low performance in school, brain damage, organ damage or breakdown, somatic illnesses and affective disorders like depression, engaging in criminal behaviour, and engaging in impulsive sexual activity. The recurring nature of the use of mind-changing substances by parents in the home and the resultant effects on the children watching and imitating their behaviours and becoming belligerent as well as being dependent on the substances are what motivated this study to be initiated and carried out.

## 2. OBJECTIVES OF THE STUDY

The aim of this study is to investigate substance use in the home as a predictor of aggression and drug abuse among secondary school students in Rivers State.

Specifically, the study intends to:

1. Investigate to what extent substance use in the home jointly predicts drug abuse and PTSD among secondary school students in Rivers State.
2. Find out to what extent substance use in the home predicts aggression among secondary school students in Rivers State.
3. Identify to what extent substance use in the home predicts drug abuse among secondary school students in Rivers State.

## Research Questions

The following research questions guided the study:

1. To what extent does substance use in the home jointly predict aggression and drug abuse among secondary school students in Rivers State?
2. To what extent does substance use in the home predict aggression among secondary school students in Rivers State?
3. To what extent does substance use in the home predict drug abuse among secondary school students in Rivers State?

## Hypotheses

The following null hypotheses were tested at the 0.05 level of significance and were formulated to guide this study:

1. Substance use in the home does not significantly predict aggression and drug abuse among secondary school students in Rivers State.
2. Substance use in the home does not significantly predict aggression among secondary school students in Rivers State.
3. Substance use in the home does not significantly predict drug abuse among secondary school students in Rivers State.





### 3. METHODOLOGY

This study is a correlational study that is used to determine and establish possible relationships between variables in this study, which are substance use in the home, aggression, and drug abuse. This study was conducted in Rivers State, in the South-South geopolitical area of Nigeria.

### 4 SAMPLING DESIGN

A sample size of 800 secondary school students was used for this study. The participants in this study were both male and female, from junior high to Senior secondary. The sample size was derived through a multi-stage process. The Substance Use in the Home Scale (SUHS) was used to measure substance use in the home. It is a 10-item self-report measure that seeks to measure

constructs such as substance use. There is also an option for stating what kinds of substances were abused and by who (father or mother). While the Drug Abuse Screening Test (DAST-10) was adapted and used to measure drug abuse in students. The instrument was administered directly with the assistance of the class teachers and research assistants.

### 5. STATISTICAL DESIGN

A total of 800 questionnaires were distributed to the students. Of the 800 questionnaires that were distributed to the secondary school students, 783 copies were retrieved after they were completed. Simple linear regression and multiple regression were used to analyse the data generated from the research instruments.

### 6. RESULTS

**Hypothesis one:** Substance use in the home does not significantly predict aggression and drug abuse among secondary school students in Rivers State.

**Table 1: summary of multiple Regression Analysis on the extent to which Substance use in the home predicts aggression and drug abuse among secondary school students in Rivers State**

R	R <sup>2</sup>	Adj. R <sup>2</sup>	Std. Error	Unstandardised Error				
	0.933	0.871	0.870	2.656	1.001			
Model		Sum of sq.	df	Mean sq.	f	α	sig	remarks
ANOVA								
1	Regression	7033.615	1	7033.615	13.119	0.005	0.00 <sup>b</sup>	rejected
	Residual	5497.241	782	170.571				
	<b>Total</b>	<b>42530.856</b>	<b>783</b>					

From the analysis of variance in Table 1, R = 0.933 and R<sup>2</sup> = 0.871. Adjusted R<sup>2</sup> = 0.870, while the unstandardized B = 1.001. From the regression square (R<sup>2</sup>) value, it is evident that substance use in the home explains only about 0.87% of the variance of aggression and drug abuse among senior secondary school students in Rivers State. The unstandardized B value also indicates that for every one unit increase or decrease in values for substance use in the home, there is a corresponding 1.001 unit increase or decrease in aggression and drug abuse among the

students. The analysis of variance associated with the regression also reveals the sum of squares for the regression and residual to be 7033.615 and 5497.241, respectively. The mean squares were 7033.615 and 170.571, respectively. F = 13.119, and the sig value = 0.005. Since the calculated F (p = 0.0005) is less than 0.05 alpha, the null hypothesis is rejected. Hence, the predicting variable, substance use in the home, significantly predicts aggression and drug abuse.

**Hypothesis Two:** Substance use in the home does not significantly predict aggression among secondary school students in Rivers State.

**Table 2: Summary of analysis of linear regression on the extent to which substance use in the home predicts aggression among secondary school students in Rivers State**

R	R <sup>2</sup>	Adj. R <sup>2</sup>	Std. Error	Unstandardised Error				
	0.873	0.762	0.749	4.779	2.139			
Model		Sum of sq.	df	Mean sq.	f	α	sig	remarks
ANOVA								
1	Regression	523.110	1	523.110	4.695	0.005	0.00 <sup>b</sup>	rejected
	Residual	42007.746	782	176.47				
	<b>Total</b>	<b>42530.856</b>	<b>783</b>					

From the analysis of variance in Table 2, R = 0.873 and R<sup>2</sup> = 0.762. Adjusted R<sup>2</sup> = 0.749, while the unstandardized B = 2.139.

From the regression square (R<sup>2</sup>) value, it is evident that substance use in the home explains only about 0.76% of the variance of



aggression among senior secondary school students in Rivers State. The unstandardized B value also indicates that for every one unit increase or decrease in values for substance use in the home, there is a corresponding 2.139 increase or decrease in aggression among the students. The analysis of variance associated with the regression also reveals the sum of squares for

the regression and residual to be 523.110 and 42007.746, respectively. The mean squares were 523.110 and 176.470, respectively.  $F = 4.695$ , and the sig value is 0.00. Since the calculated  $F$  ( $p = 0.000.05$ ) is less than 0.05 alpha, the null hypothesis is rejected. Hence, the predicting variable, substance use in the home, significantly predicts aggression.

**Hypothesis Three:** Substance use in the home does not significantly predict drug abuse among secondary school students in Rivers State.

**Table 3: Summary of analysis of linear regression on the extent to which substance use in the home predicts drug abuse among secondary school students in Rivers State**

R	R <sup>2</sup>	Adj. R <sup>2</sup>	Std. Error	Unstandardised Error			
0.800	0.641	0.631	2.680	1.021			
Model	Sum of sq. df		Mean sq. f	$\alpha$	sig	remarks	
ANOVA							
1	Regression	2734.180	1	2734.18	7.381	0.005	0.00 <sup>b</sup> rejected
	Residual	39796.676	782	430.27			
	<b>Total</b>	<b>42530.856</b>	<b>783</b>				

From the analysis of variance in Table 3,  $R = 0.800$  and  $R^2 = 0.641$ . Adjusted  $R^2 = 0.631$ , while the unstandardized  $B = 1.021$ . From the regression square ( $R^2$ ) value, it is evident that substance use in the home explains only about 0.64% of the variance of drug abuse among senior secondary school students in Rivers State. The unstandardized B value also indicates that for every one unit increase or decrease in values for substance use in the home, there is a corresponding 1.021 increase or decrease in drug abuse among the students. The analysis of variance associated with the regression also reveals the sum of squares for the regression and residual to be 2734.180 and 39796.676, respectively. The mean squares were 2734.180 and 430.240, respectively.  $F = 7.381$ , and the sig value is 0.00. Since the calculated  $F$  ( $p = 0.000.05$ ) is less than 0.05 alpha, the null hypothesis is rejected. Hence, the predicting variable, substance use in the home, significantly predicts drug abuse.

## 7. DISCUSSION

The results of the analysis revealed that of the substances being used in the home, alcohol was the most commonly used, followed by cigarettes, tobacco products, and marijuana. The following were the substances consumed and their levels: alcohol ( $n = 587$ , 74.96%), cigarettes and tobacco products ( $n = 521$ , 66.53%), and marijuana ( $n = 471$ , 60.15%).

Also, the adolescents that indicated positive for aggression had physical and verbal aggression as the most common among them. Physical aggression ( $n = 671$ , 85.69%) and verbal aggression ( $n = 506$ , 64.62%)

In addition, substance use in the home significantly predicts drug abuse. Based on the study, the respondents revealed that of the 783 responses collected, about 569 (72.66%) of them were abusing drugs actively. The substances on which they were most

dependent were marijuana and mixtures. The respondents were not keen on revealing the composition of the mixtures that they took.

Additionally, parents consumed alcohol the most frequently, then cigarettes and marijuana. They could be turning to substances to help them forget their present predicament, feel numb, and feel good. In extreme situations where the adolescents have attempted to use substances as an escape without success, after the effect of the substance wears off, they are brought back to reality.

These outcomes buttress the fact that substance use in the home has more far-reaching impacts on the children who live in such homes than can be imagined. In many societies, substance use is seen as the norm, not taking into consideration the children who have to deal with the after-effects of the use of these substances on their mental health and interactions with others.

## 7. CONCLUSIONS

Based on the findings of the study, marijuana, cigarettes, and tobacco products are the most commonly used substances in homes. This indicates that alcohol is the most widely used and accepted substance in the home. Furthermore, the study suggests that cigarettes, tobacco products, and marijuana, while not as widely used as alcohol, are still being used in the home. The results of this study can help inform policy decisions and public health initiatives related to the use of substances in the home.

## 8. RECOMMENDATIONS

Based on the findings, the following recommendations were made:

1. The children of parents who use substances in the home especially need to be given the requisite attention by way of counselling and therapy in order to teach them the effects of substance use and adequate coping methods





instead of what they have observed being modelled by their parents. They must also be tested and reclaimed through psychotherapy from the substances and their effects that they have been involved in.

2. That the government at all levels should undertake programmes where children from these homes will be taught the best ways to resolve conflict instead of becoming belligerent towards others that they come into contact with.
3. Volunteers from the Ministry of Education and religious organisations should educate parents about the harmful effects of substance use in the home, which will reduce the number of drug abuse cases in the community.

## 9. REFERENCES

1. Adamson, T. A., Onifade, P. O., & Ogunwale, A. O. (2010). Trends in socio demographic and drug abuse variables in patients with alcohol and drug use disorders in a treatment facility. *West African Journal of Medicine*, 29, 12-18.
2. Breslau, J., Saito, N., Tancredi, D. J., Nock, M., & Gilman, S. E. (2012). classes of conduct disorder symptoms and their life course correlates in a US national sample. *Psychological Medicine*, 42(5), 1081–1089. <https://doi.org/doi:10.1017/S003329171100198X>
3. Canino, G., Polanczyk, G., Bauermeister, J. J., Rohde, L. A., & Frick, P. J. (2010). Does the prevalence of CD and ODD vary across cultures? *Social Psychiatry and Psychiatric Epidemiology*, 45, 695–704. <https://doi.org/doi:10.1007/s00127-010-0242>
4. Chrzan-Detkos, M., & Walczak, T. (2017). Addicted parents – vulnerable children. disturbances of addicted mother's functioning in relationship with their infants and possibilities of effective help. *Psychoterapia*, 181(2), 21-36. <https://doi.org/https://dx.doi.org/10.1016%2Fj.drugalcdep.2014.07.036>
5. Cooper, Z. D., Haney, M. (2014). Investigation of sex-dependent effects of cannabis in daily cannabis smokers. *Drug And Alcohol Dependence*, 136(0), 85-91. <https://doi.org/https://dx.doi.org/10.1016/j.drugalcdep.2013.12.013>
6. Denson, T. F., Pedersen, W. C., Friese, M., Hahm, A., & Roberts, L. (2011). Understanding impulsive aggression: angry rumination and reduced self-control capacity are mechanisms underlying the provocation-aggression relationship. *Personality & Social Psychology Bulletin*, 37(6), 850–862. <https://doi.org/doi:10.1177/0146167211401420>
7. Eti, C. O. (2023). Parental and environmental variables as predictors of behaviour problems among secondary students in Rivers state. [Unpublished thesis for Doctor of Philosophy] University of Port Harcourt.
8. Frick, P. J. (2012). Developmental pathways to conduct disorder: implications for future directions in Research, Assessment, And Treatment. *Journal of Clinical Child and Adolescent Psychology*, 41, 378–389. <https://doi.org/doi:10.1080/15374416.2012.664815>
9. Frick, P. J. (2016). Current research on conduct disorder in children and adolescents. *South African Journal of Psychology*, 46(2), 160-174.
10. Hall, W., Degenhardt, L. (2014). The Adverse Health Effects Of Chronic Cannabis Use. *Drug Testing and Analysis*, 6(1), 39-45. <https://doi.org/doi:10.1002/dta.1506>
11. Johnston, L. D., Miech, R. A., O'Malley, P. M., Bachman, J. G., Schulenberg, J. E., & Patrick, M. E. (2018). National Survey Results on Drug Use 1975–2018. *Monitoring Future 1-30*.
12. Kann, L., McManus, T., Harris, W. A., Shanklin, S. L., Flint, K. H., Hawkins, J., Queen, B., Lowry, R., Olsen, E. O., Chyen, D., Whittle, L., Thornton, J., Lim, C., Yamakawa, Y., Brener, N., & Zaza, S. (2016, Jun 10). Youth risk behavior surveillance - United States, 2015. *MMWR Surveill Summ*, 65(6), 1-174. <https://doi.org/10.15585/mmwr.ss6506a1>
13. Kulak, J. A., & Griswold, K. S. (2019, Jun 1). Adolescent substance use and misuse: recognition and management. *Am Fam Physician*, 99(11), 689-696.
14. National Society for the Prevention of Cruelty to Children. (2021). Parental substance misuse: children and families at risk <https://learning.nspcc.org.uk/children-and-families-at-risk/parental-substance-misuse/>
15. Oyieno, O. M. (2018). Implications of parental drug abuse on their participation in pre-school children's education in Embulbul, Kajiado County, Kenya [Research Dissertation For the Award of Master of Education]. Kenyatta University.
16. Sonuga-Barke, E., & Halperin, J. (2010). Developmental phenotypes and causal pathways in attention deficit/hyperactivity disorder: potential targets for early intervention? *Journal of Child Psychology and Psychiatry*, 51, 368–389.
17. Thakur, S., & Grewal, K. K. (2021, 2021/01/30). A study of aggression among adolescents. *International Research Journal on Advanced Science Hub*, 3(Special Issue ICES 15), 46-51. <https://doi.org/10.47392/irjash.2021.019>
18. Thatcher, T. (2020). Families in crisis: how parental substance abuse and mental health impacts kids. *Valley Behavioural Health*.
19. UNODC. (2012). Comparative study on drug consumption in six countries in South America [Executive Summary, United Nations Publication]. <https://doi.org/www.un.org>
20. UNODC. (2018). World drug report 2018 (U. Nations, Ed.). United Nations.



# ASSESSMENT OF EFFECTIVE UPTAKE OF TeleMANAS SERVICE IN INDIA

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## ABSTRACT

*To provide universal access to equitable, accessible, affordable and quality mental health care through 24X7 and extending the mental health services to vulnerable groups of the population and difficult to reach populations. Government of India (GoI) in its Union Budget 2022, announced the National Tele Mental Health Programme of India, Tele Mental Health Assistance and Networking Across States (Tele MANAS) and entrusted the Ministry of Health and Family Welfare (MoHFW) to guide its overall implementation. Consequently, the MoHFW formed a National Technical Advisory Group (NTAG) and three technical advisory sub-committees (Mental Health Service Delivery, Information Technology Architecture and Health Systems) to achieve specific goals and objectives of Tele MANAS.*

*This study aims at assessing awareness and determining the effective uptake of the service among the community. It was a cross-sectional study conducted among individuals aged 18 and above in Chandigarh, India with the sample size of 332 participants, and data was collected using a structured questionnaire. The results show the urgency of mental health care. Also, showed a drastic change in the perception and knowledge of individuals regarding the TeleMANAS service. The ethical clearance was taken from the competent authority for the conduct of the research along with individual participation consent.*

**KEY WORDS:** *TeleMANAS, Mental health, uptake, awareness, implementation.*

## INTRODUCTION

The World Health Organization (WHO) defines mental health as a “state of well-being in which the individual realizes his or her own abilities, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to his or her community” (Barbosa, n.d.).

Within India, mental health has been discussed in some capacity since ancient times. Various mental health issues find mentions in vedic texts, specifically the atharva- veda which attributes these illnesses to devine curses. The vedic text vividly mentions mental illnesses such as schizophrenia and bipolar disorder. Other traditional medical systems such as Siddha, also recognize mental disorders, ancient epics such as the mahabharata and the ramayana also make mentions of mental illnesses and the means of coping with them (Mitchell, 1986.). Policies regarding mental health had their genesis during the colonial period with the Lunacy Act (also called Act No. 36) in the year 1858 followed by the Indian Lunacy Act of 1912. Additionally, during this time period, numerous mental health facilities were established in important cities across the nation, including Patna, Dacca, Calcutta, Berhampur, Waltair, Trichinapally, Colaba, Poona,

Dharwar, Ahmedabad, Ratnagiri, Hyderabad (Sind), Jabalpur, Banaras, Agra, Bareilly, Tezpur, and Lahore with The first mental hospital in India established at Bombay in 1745, which was made to accommodate around 30 mentally ill patients. Post independence, the Mid-1950 witnessed rapid development in the spread to general hospital psychiatric units (GHPUs) in India.. The Bhore Committee's recommendations led to the establishment of the All India Institute of Mental Health in 1954, which later changed its name to the National Institute of Mental Health and Neurosciences (NIMHANS) in Bangalore. During the 1980s, there was a resurgence of activity resulting in the passage of the Mental Health Act in 1987 and the District Mental Health Program (DMHP, 1996). In the past decade, India launched her national mental health policy (NMHPolicy) in 2014. (//, n.d.) The policy was in line with WHO's mental health policy (2005), and the United Nations Convention on the Rights of Persons with Disabilities (UNCRPD, 2007 Mental Healthcare Act (MHCA, 2017), etc. (Gupta & Sagar, 2022, 510-515)

Between 1990 and 2019, the global number of DALYs due to mental disorders increased from 80.8 million (95% uncertainty interval [UI] 59.5–105.9) to 125.3 million (93.0–163.2), and the proportion of global DALYs attributed to mental disorders



increased from 3.1% (95% UI 2.4–3.9) to 4.9% (3.9–6.1). According to GBD 2019, there has been no global evidence of a burden reduction since 1990, and mental diseases continue to rank among the top 10 leading sources of burden globally. The predicted YLLs for mental illnesses were incredibly low, and did not account for early mortality in those with mental illnesses. (“Global, Regional, and National Burden of 12 Mental Disorders in 204 Countries and Territories, 1990–2019: A Systematic Analysis for the Global Burden of Disease Study 2019,” 2022.)

Mental health disorders pose a significant global public health challenge, affecting individuals across all age groups, socio-economic backgrounds and cultures. In recent years, there has been growing recognition of the magnitude and impact of mental health issues in India. According to the national mental health survey 2015–2016, the overall weighted prevalence for any mental morbidity was 13.7% lifetime and 10.6% current mental morbidity. (R, n.d., #).

The availability and accessibility of mental health services in India remain limited, particularly in rural and underserved areas, in this context. Treatment gap for mental disorders ranged between 70% and 92% for different disorders: common mental disorder - 85.0%; severe mental disorder - 73.6%; psychosis - 75.5%; BPAD - 70.4%; alcohol use disorder - 86.3%; and tobacco use - 91.8%. The median duration for seeking care from the time of the onset of symptoms varied from 2.5 months for depressive disorder. (R, n.d.) There are many factors that lead to gaps in treatment, inadequate healthcare infrastructure, distance, levels of stigma attached to mental health disorders, lack of knowledge of public mental health services, high economic cost of accessing private mental healthcare.

With the onset of the COVID-19 pandemic, the burden of mental health disorders worsened. The WHO has also expressed its concern over the pandemic’s mental health and psycho-social consequences. According to WHO, new policies like self-isolation and quarantine have changed how individuals go about their daily lives, routines, and activities, which could result in a rise in loneliness, anxiety, depression, insomnia, harmful alcohol, drug use, and self-harm or suicidal behaviour. (World Health Organization, n.d.,)

In this context, the Government of India, acknowledging the mental health crisis and an urgent need to establish a digital mental health network, announced the National Tele Mental Health Programme (NTMHP) in the Union Budget 2022–23. and the corresponding Tele MANAS service was started on World Mental Health day October 10<sup>th</sup> 2022. (“Press Information Bureau,” 2022).

Under the Tele- MANAS service a toll-free, 24/7 helpline number -14416 has been set up across the country allowing callers to avail mental health services in their own regional language. (PIB Delhi, n.d.)

Specialised care is being envisioned through the programme by linking Tele-MANAS with other services like National tele-consultation service, e-Sanjeevani, Ayushman Bharat Digital Mission, mental health professionals, Ayushman Bharat health and wellness centres and emergency psychiatric facilities.

## LITERATURE REVIEW

A literature search was conducted of social science and medical journals in India and abroad. The authors conducted an on-line search of Pubmed using MeSH terms ‘psychiatry AND India’, ‘mental disorders AND india’, ‘mental health services AND India’, ‘mental health AND India’, ‘Covid-19 AND mental health’, ‘tele- mental health AND India’, in addition, grey literature from newspaper articles, government manuals, websites such as WHO, and PIB were also referenced. references from selected papers were also included in the review.

Ninety-one articles published between 2013 and 2023 were identified of which 31 were included in this research.

Studies talked about this being an opportune time to explore existing innovative mental health initiatives in the country and integrate viable interventions to primary healthcare facilities to strengthen public mental healthcare delivery. Stating that the new innovations would not only boost the accessibility and affordability of the services but also possibly aid in early detection of cases, thus preventing worsening of disorders and appropriate treatment delivered in a convenient way. (Pandya & Shah, 2020)

In a study assessing the profile of distress callers and service utilisation of tele counselling in Assam during COVID showed that males formed an overwhelming majority of over 79% between the age group of 19–35. Two-thirds of the callers wanted advice for their own problems, while one-third wanted it for their loved ones or acquaintances. Suicidal thoughts (5.44%), anxiety (46%), depression (8.3%), and depressive symptoms not consistent with depression (14%) were all present in the callers. Supportive interventions were used the most frequently with callers (77.8%), then psychoeducation (30.5%), cognitive behaviour therapy (24.7%), relaxation (23.6%), and behaviour therapy (13.4%). The majority of the callers used many types of therapy. Overall, the majority of callers expressed satisfaction and gratitude for the tele-counselling services. (Hazarika & Das, n.d)

A feasibility study done in Goa on telemental health integration in primary health care yielded positive results showing significant decrease in both General Health Questionnaire-12 (GHQ-12) and World Health Organisation Disability Adjustment Schedule (WHODAS) 2.0 score. Concluding that Treatment of mental illness through a tele-psychiatry platform appears to be received favourably and corresponds to better clinical results. A new model of aided tele-psychiatry incorporated into primary care can be a significant approach to improve access to mental healthcare in low-resource settings because of its potential for scaling. (Garg & Agrawal, 2022)



Another study discussed that due to uneven service delivery, a shortage of qualified mental health practitioners, and inefficient central monitoring and assessment, the National Mental Health Programme (NMHP) and District Mental Health Programme (DMHP) in India confront difficulties in their successful implementation. These problems can be effectively resolved with the help of tele-mental health services, which deliver high-quality therapy in a convenient, cost-effective, and discrete setting.

However, For the NTMHP to be implemented successfully in India, there are obstacles to be overcome. Uncertainty about the organisation, scope of services, and cultural background are a few of these. Care must be taken to customize these services for various geographic areas, combining local therapeutic modalities and providing psychoeducation on the bio-psycho-social paradigm. (Sagar & Singh, 2022) (Jayarajan & Sivakumar, 2020)

## METHODOLOGY

### Study design and study area

A cross-sectional study was done to determine effective uptake and gaps in the tele-MANAS services among the population of Chandigarh aged 18 and above.

### Sample size

Sample size of 322 participants was selected for the study. Initially, A pilot study on 10 participants was undertaken among the randomly selected population of age group of 18 and above in order to determine the feasibility of conduct of the study and

establishing validity and reliability of the study instrument and ensuring that the instrument was easily comprehended by the respondents.

### Data collection tool

Following the pilot study, and ensuring the reliability and validity of the tool the quantitative measuring tool employed in the form of Structured Questionnaire with close ended questions was used for the collection of the data.

### Exclusion criteria

- Those who were not residents of Chandigarh;
- Those who were less than 18 years of age;
- Those who were unwilling to give informed consent;
- Those deemed medically unsound.

### Data compilation and analysis

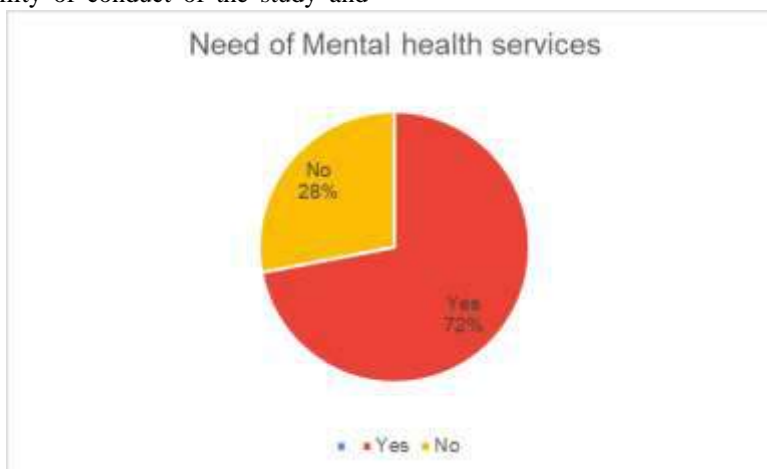
Data was compiled and analyzed using SPSS and some parameters were compiled using the Microsoft excel.

### Ethical clearance

Ethical clearance to conduct the study in Chandigarh was obtained from competent authority.

## RESULTS

**Need for Mental Health Services Access:** Among the total respondents, 72% expressed the need to access mental health services.



**Figure1: Percentage of respondents who feel the Need to access Mental health services**

**Actual Utilization of Mental Health Services:** Among those in need, only 37% of respondents had ever accessed mental health services, indicating a significant gap in services utilization.



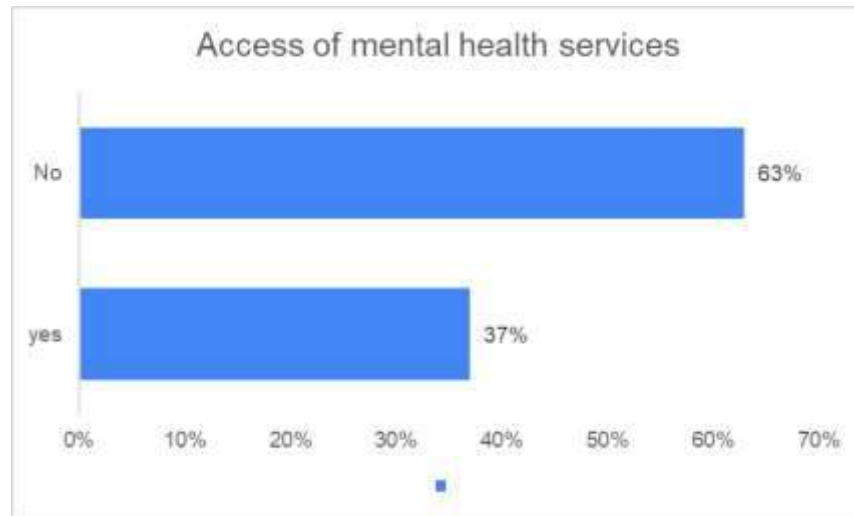


Figure 2: Percentage of respondents who have accessed Mental health services

**Stigma and Discrimination:** Approximately 26.5% of respondents agreed that there is a stigma and discrimination associated with mental health conditions. In contrast, 36% of

respondents felt that there is no stigma or discrimination. Interestingly, 37.5% of individuals had mixed opinions on the matter.

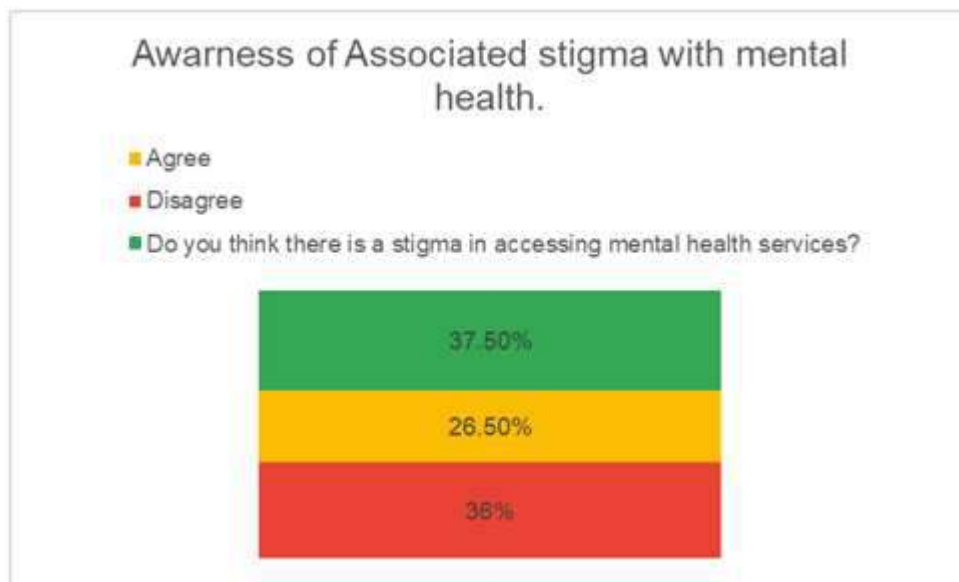


Figure 3: Percentage of respondents having Awareness of Associated stigma with mental health

**Awareness of TeleMANAS:** Only 33% of respondents were aware of the TeleMANAS initiative, while the majority, 67% had no knowledge of it.



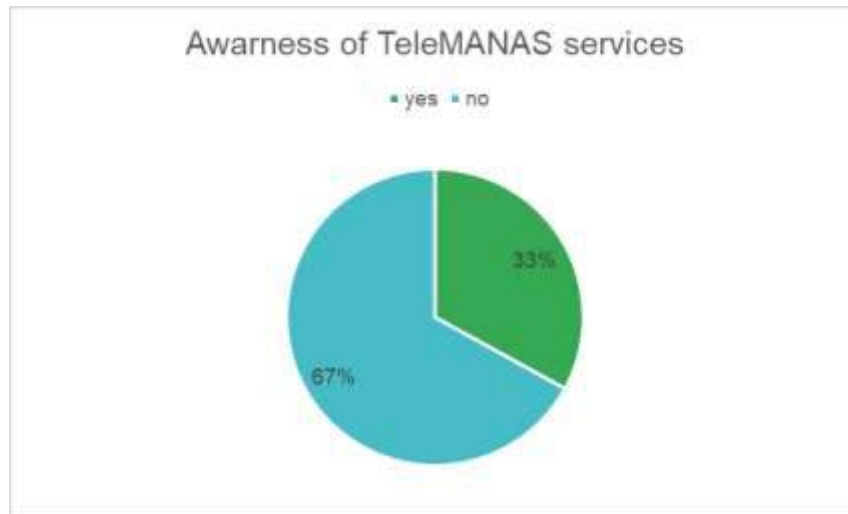


Figure 4: Percentage of respondents that are aware of TeleMANAS service

**Source of Awareness:** Among those who knew about TeleMANAS, Various Communication mediums played a role in disseminating information. The sources included newspaper

(12.5%), social media (37.5%), TV news (26%), friends and family (13.5%) and internet search engines (10.5%).

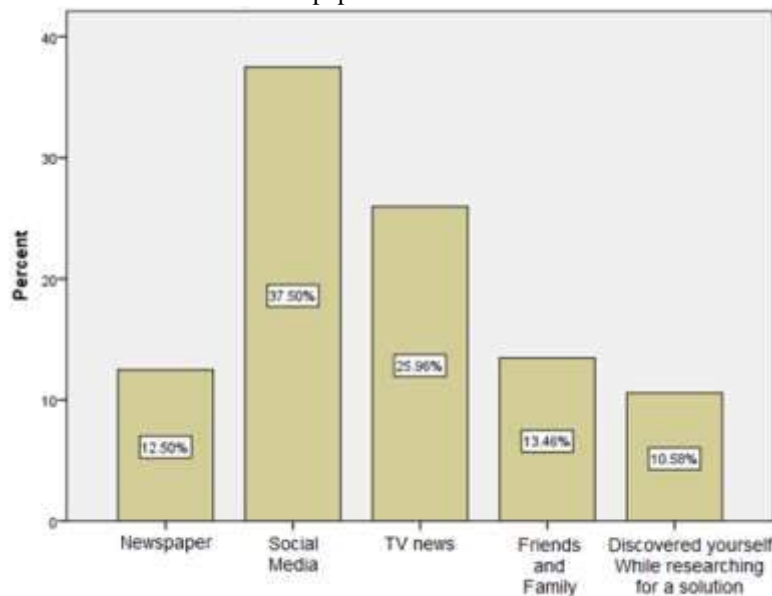
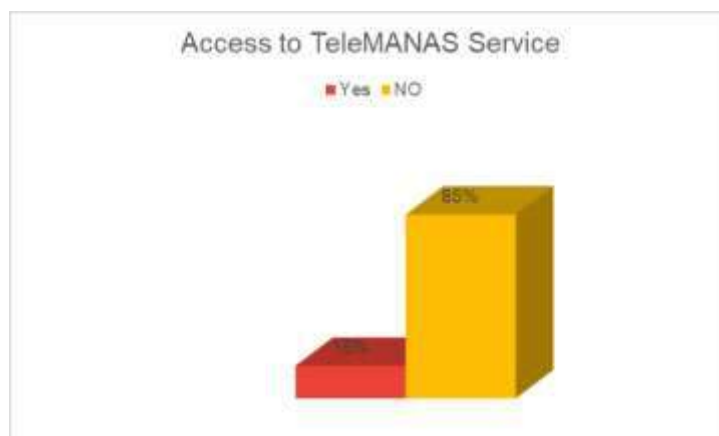


Figure5: Source of information about TeleMANAS

**Uptake of TeleMANAS:** Among the respondents who were aware of TeleMANAS, only 15% reported using the

TeleMANAS services, while the remaining 85% did not take it up.



**Figure 6: Uptake of TeleMANAS service**

## CONCLUSION

On obtaining the results from the collected data, it may be concluded that the TeleMANAS service is one of the progressive and advantageous program launched by the ministry of health and family welfare, the achievements made under this program till date are remarkable and it is considered as one of the most convenient mental health initiative with no stigma and discrimination. However, it is worth note that the uptake of the TeleMANAS service is still facing some kind of the challenges which are generally the awareness based and hence it should be given focused to rollout the program across whole nation remarkably.

## SUGGESTIONS

There is need for the increasing the mass awareness of the program via various modes for the robust success of the program. It would be much more advantageous if the suicide prevention helpline number could also be merged with the single number of TeleMANAS.

## DISCUSSION

The accessibility, quality, and cost-control of eHealth initiatives determine whether they are successful or unsuccessful. The fundamental goal of eHealth services is to increase people's access to primary health care that is of high quality and is affordable. With one in seven Indians suffering from mental health issues, (India State-Level Disease Burden Initiative Mental Disorders Collaborators, 2020,) it is of urgent importance that more robust mental health infrastructure be put in place. Launching a digital platform dedicated to psychiatric concerns would require considerable governmental commitment to attract, develop, and keep a sufficient pool of human resources for high-quality services. There may also be consideration given to the option of delivery of drugs and lab facilities for supplementary medical attention to the patient.

The tip of the iceberg is represented by the patients that arrive at a hospital's door. The treatment of mental illness is still hampered by a lack of understanding, stigma, neglect, and expense. It has been discovered that telepsychiatry can be somewhat useful in resolving these problems. However, in order to meet the needs of particular groups, accessibility to telepsychiatry services will need to be strongly encouraged. Although it may seem that digital platforms are easily accessible, it should be remembered that not all platforms or websites are visited equally. The decision to use a specific agency for telepsychiatric care or counselling would be heavily influenced by the platform's popularity and patient-centricity, which in turn depends on the design, waiting period, 24/7 accessibility, online and offline, etc. (Samudyatha et al., 2022)

If the goal The Government's objective includes expanding free, top-notch If a government wants to use telepsychiatry, it needs spend money on marketing and awareness generation for the services to ensure adequate uptake to fulfill the gap in delivery of services

The findings of the study on the effective uptake of the TeleMANAS service in India provide important insights into the current state of mental health service utilization and awareness. The discussion of these findings can shed light on the challenges and opportunities for improving access to mental health services in the country.

Firstly, the study reveals a significant need for mental health service access, with 72% of respondents expressing the need to access such services. This highlights the growing recognition of mental health issues and the increasing demand for appropriate care and support. However, the actual utilization of mental health services remains low, with only 37% of those in need having accessed them. This suggests that there are barriers preventing individuals from seeking and receiving the mental health services they require.



One possible barrier identified in the study is the presence of stigma and discrimination associated with mental health conditions. Approximately 26.5% of respondents acknowledged the existence of such stigma, indicating that negative societal attitudes may discourage individuals from seeking help. Efforts to address and reduce stigma are crucial to promote open discussions about mental health and encourage individuals to seek the necessary support without fear of judgment or discrimination.

Another key finding is the relatively low awareness of the TeleMANAS initiative, with only 33% of respondents being aware of it. This lack of awareness highlights the need for enhanced dissemination strategies and outreach efforts to ensure that individuals are informed about the availability of TeleMANAS as a viable mental health service option. The study reveals various communication mediums through which individuals became aware of TeleMANAS, including newspapers, social media, television, and word-of-mouth. Leveraging these channels effectively can help increase awareness and reach a wider audience.

However, despite the awareness of TeleMANAS, the uptake of the service remains low, with only 15% of those who were aware actually utilizing it. This suggests that there may be additional factors contributing to the underutilization of the service, such as perceived barriers, lack of accessibility, or preference for other forms of mental health support. Understanding these factors and addressing them appropriately can help increase the uptake of TeleMANAS and ensure that individuals receive the mental health care they need.

Overall, the study highlights the challenges and opportunities for improving access to mental health services in India. It emphasizes the need to combat stigma, enhance awareness, and address barriers that prevent individuals from seeking and utilizing mental health services effectively. Collaborative efforts involving healthcare providers, policymakers, community organizations, and the general public are crucial for creating a supportive environment that promotes mental well-being and encourages individuals to access available services, including TeleMANAS.

## REFERENCES

1. <https://mhpolicy.wordpress.com/>
2. <https://www.nhp.gov.in/sites/default/files/pdf/national%20mental%20health%20policy%20of%20india%202014.pdf>
3. Barbosa, J. (n.d.). *Mental Health*. PAHO. Retrieved June 30, 2023, <https://www.paho.org/en/topics/mental-health>
4. Garg, A., & Agrawal, R. (2022). *Integrating assisted tele-psychiatry into primary healthcare in Goa, India: a feasibility study*. *Global mental health (Cambridge, England)*, 9(1), 26-36. 10.1017/gmh.2021.47
5. *Global, regional, and national burden of 12 mental disorders in 204 countries and territories, 1990–2019: a systematic analysis for the Global Burden of Disease Study 2019*. (2022, February). *The Lancet*, 9(2), 137- 150. [https://www.thelancet.com/journals/lanpsy/article/PIIS2215-0366\(21\)00395-3/fulltext](https://www.thelancet.com/journals/lanpsy/article/PIIS2215-0366(21)00395-3/fulltext)
7. Gupta, S., & Sagar, R. (2022). *National Mental Health Policy, India (2014): Where Have We Reached?* *Indian journal of psychological medicine*, 44(5), 510-515.
8. Hazarika, M., & Das, B. (n.d.). *Profile of distress callers and service utilisation of tele-counselling among the population of Assam, India: an exploratory study during COVID-19*. *Open journal of psychiatry & allied sciences*, 12(1), 7-12. 10.5958/2394-2061.2021.00001.x
9. *India State-Level Disease Burden Initiative Mental Disorders Collaborators*. (2020). *The burden of mental disorders across the states of India: the global burden of disease study 1990–2017*. *Lancet Psychiatry*, 7(1), 148-161. 10.1016/S2215-0366(19)30475-4.
10. Jayarajan, D., & Sivakumar, T. (2020). *Telerehabilitation in Psychiatry*. *Indian J Psychol Med*, 42(5 suppl), 57S- 62S. 10.1177/0253717620963202
11. Mitchell, W. (1986). *History of psychiatry in India*. *Samiksha*, (11), 31-45.
12. Pandya, A., & Shah, K. (2020, february 28). *Innovative mental health initiatives in India: A scope for strengthening primary healthcare services*. *J Family Med Prim Care*, 9(2), 502- 507. 10.4103/jfmpc.jfmpc\_977\_19. PMID: 32318372
13. *Press Information Bureau*. (2022, October 10). *Press Information Bureau*. <https://pib.gov.in/PressReleasePage.aspx?PRID=1866498>
14. R, M. S. (n.d.). *National Mental Health Survey of India 2015-2016*. *Indian journal of psychiatry*, 59(1), 21-26. 10.4103/psychiatry.IndianJPsychiatry\_102\_17
15. Sagar, R., & Singh, S. (2022). *National Tele-Mental Health Program in India: A step towards mental health care for all?*. *Indian journal of psychiatry*, 64(2), 117-119. 10.4103/indianjpsychiatry.indianjpsychiatry\_145\_22
16. Samudiyatha, U., Tesia, P., & Tesia, S. (2022, JANUARY-JUNE). *Roadmap to Integrate National Telemental Health Program and MHCA: Signboards that cannot be Ignored*. *Indian Journal of Private Psychiatry*, 16(1), 50-52. 10.5005/jp-journals-10067-0111
17. <https://www.who.int/docs/default-source/coronaviruse/mental-health-considerations.pdf>



# MOLECULAR AND GENETIC BASIS OF PROGNOSTICS OF METABOLIC SYNDROME

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## ABSTRACT

*In the course of the study, in 183 patients with MS and MI, the associative relationship A/G polymorphism of the PPAR $\alpha$  gene in the formation of pathology data was analyzed. In the studied groups, the actual distribution of polymorphism/G polymorphism of the PPAR $\alpha$  gene genotypes corresponded to those expected at the Hardy-Weinberg equilibrium (HWE) ( $p < 0.05$ ).*

**KEY WORDS:** metabolic syndrome, obesity, insulin, allele, genetic A/G polymorphism of the PPAR $\alpha$  gene, genotype.

## 1. INTRODUCTION

According to WHO experts, "... we are facing a new pandemic of the XXI century, covering industrialized countries. This could prove to be a demographic disaster for developing countries. The prevalence of metabolic syndrome is 2 times higher than the prevalence of diabetes mellitus, and its growth rate is expected to increase by 50% in the next 25 years" [3].

As is known, metabolic syndrome increases the risk of developing type 2 diabetes mellitus, atherosclerosis, arterial hypertension and other diseases [1]. To date, epidemiological indicators, for all their importance, still do not fully reveal the relevance of the MS problem. It is important for the clinician not only as a widespread pathology, but above all as a life-threatening condition. Of course, this syndrome plays a significant role in accelerating the development and progression of diseases associated with atherosclerosis and occupying, according to WHO experts, the first place among the causes of mortality of the population of industrially developed countries of the world [6].

In recent years, there has been an idea that metabolic syndrome (MS) is a common risk factor (FR) for the development of both coronary heart disease (CHD) and type 2 diabetes mellitus [2,5]. Cardiovascular diseases are the main cause of death in the world and account for 30% of total mortality, or 17.5 million deaths per year. Mortality rates from CVD are steadily increasing from year to year all over the world [4].

## 2. PURPOSE OF THE STUDY

To study the associative relationship of the A/G polymorphism of the PPAR $\alpha$  gene in the development of MS and MI.

## 3. MATERIAL AND METHODS OF RESEARCH

The peripheral blood of 183 patients with MS and MI (the main group) and 155 conditionally healthy donors (the control group) served as the material for molecular genetic research. The main group was divided into 3 subgroups: among them patients with MS + IM-64; MS without IM-61 and with IM without MS-58. In the main study group of patients, the median age was 60.4 $\pm$ 0.7 years. Testing of A/G polymorphism in the PPAR $\alpha$  gene was carried out on a Rotor-Gene Q device (Quagen, Germany), using a commercial test kit of Syntol LLC (Russia). Statistical processing of the results was performed using the standard OpenEpi V.9.2 application software package. Molecular genetic studies were carried out in the Department of Molecular Medicine and Cellular Technologies of the RSSPMC of Hematology of the Republic of Uzbekistan.

The frequency distribution of alleles and genotypes in the studied genes was checked for compliance with the Hardy-Weinberg equilibrium.

## 4. THE RESULTS OBTAINED AND THEIR DISCUSSION

As shown in Table 1, in patients with MI without MS, the degree of difference in the frequency of detection of A major and G minor type alleles was OR=0.9 at  $\chi^2=0.1$  and  $p=0.9$  and OR=1.1 at  $\chi^2=0.1$  and  $p=0.9$  compared to the reference (see Table 1).



**Table 1. Associative relationship between polymorphism of the PPARD gene in patient IM without MS and control groups.**

Alleles and genotypes	Number of alleles and genotypes examined				$\chi^2$	p	OR	95%CI
	IM without MS		Control group					
	n	%	n	%				
A	92	79,3	249	80,3	0,1	0,90	0,9	0,55 - 1,59
G	24	20,7	61	19,7	0,1	0,90	1,1	0,63 - 1,81
A/A	37	63,8	101	65,2	0,0	0,90	0,9	0,5 - 1,77
A/G	18	31,0	47	30,3	0,0	0,95	1,0	0,54 - 1,99
G/G	3	5,2	7	4,5	0,0	0,90	1,2	0,29 - 4,61

The distribution of genotypes according to the A/G polymorphism of the PPARD gene within the groups showed that in the main group of patients with MI without MS, the wild homozygous genotype A/A was 63.8%, the heterozygous genotype A/G was 31.0%, and the mutant homozygous genotype G/G was 5.2%.

The obtained results of statistical treatments showed that in terms of indicators, the control group differed slightly from the main group of patients with MI without MS. That is, it was found that in the group of patients with MI without MS, the homozygous genotype A/A is almost 1 times less common, the heterozygous genotype A/G is 1 times more common, and the mutant genotype G/G is 1.2 times more common.

Further, differences in the frequency of occurrence of alleles and genotypes of A/G polymorphism of the PPARD gene between the main group of patients were investigated.

It was revealed that 77.3% of all examined patients with MS+MI were carriers of the wild allele A of the A/G polymorphism of the PPARD gene associated with the risk of developing cardiovascular diseases, whereas this allele was detected in 79.3% of patients with MI without MS. Among patients with MS+MI and in patients with MI without metabolic syndrome, there were no significant differences in the frequency of carrying the T allele (at  $\chi^2 < 0.1$ ,  $p > 0.8$ , 95%CI:0.48-1.64, OR=0.9) (see Table 2).

And the unfavorable G allele of the A/G polymorphism of the PPARD gene was slightly higher in patients with MS+MI compared to the 3rd group of patients with MI without MS revealed (at  $\chi^2 < 0.1$ ,  $p > 0.8$ , 95%CI:0.61–2.07, OR=1.1) (see Table 2).

**Table 2. Associative relationship between polymorphism of the PPARD gene in patient MS + IM and IM without MS.**

Alleles and genotypes	Number of alleles and genotypes examined				$\chi^2$	p	OR	95%CI
	MS + IM		IM without MS					
	n	%	n	%				
A	99	77,3	92	79,3	0,1	0,80	0,9	0,48 - 1,64
G	29	22,7	24	20,7	0,1	0,80	1,1	0,61 - 2,07
A/A	39	60,9	37	63,8	0,1	0,80	0,9	0,42 - 1,84
A/G	21	32,8	18	31,0	0,0	0,90	1,1	0,51 - 2,33
G/G	4	6,3	3	5,2	0,1	0,80	1,2	0,26 - 5,69

In group 1 of the studied patients with MS+MI, the frequency of occurrence of wild genotype A/A was 60.9%, and in patients with MI without MS 63.8%, the difference does not reach the level of statistical reliability (at  $\chi^2 < 0.1$ ,  $p > 0.8$ , 95%CI: 0.42-1.84, OR=0.9) (see table 2).

When comparing the frequency of occurrence of the heterozygous A/G genotype of the A/G polymorphism of the PPARD gene in the group with MS+MI and MI without it, the heterozygous A/G genotype was found by 1.1 times insignificantly often in patients with MS+MI compared with MI without MS (32.8% vs. 31.0% at  $\chi^2 < 0.0$ ,  $p > 0.9$ , 95%CI:0.5 -2.33, OR=1.1) (see Table 2).

According to the data obtained, in MS+MI, the unfavorable haplotype G/G of the A/G polymorphism of the PPARD gene occurs in 6.3% of patients.

It should be noted that only 5.2% of patients with MI without MS have a carrier of the mutant haplotype G/G

polymorphism A/G of the PPARD gene. From Table 2, it can be concluded that the differences in the frequency of occurrence of G/G polymorphism A/G of the PPARD gene were not statistically significant (see Table 2).

In the comparison groups of MS without MI and IM without MS, two equivalent comparable values of the occurrence of alleles and genotypes of the polymorphic marker A/G of the PPARD gene were determined (see Table 3).

However, the calculation of the frequency of identification of alleles and genotypes above the indicated marker showed that the difference in the frequency of distribution of alleles and genotypes between the 2nd group of patients with MS without MI compared with patients with MI without MS was not significant ( $\chi^2 < 3.84$ ,  $p > 0.05$ ) (see Table 3).





**Table 3. Associative relationship between polymorphism of the PPARD gene in patient MS without IM and IM without MS.**

Alleles and genotypes	Number of alleles and genotypes examined				$\chi^2$	p	OR	95%CI
	MS without IM		IM without MS					
	n	%	n	%				
A	96	78,7	92	79,3	0,0	0,95	1,0	0,52 - 1,8
G	26	21,3	24	20,7	0,0	0,95	1,0	0,56 - 1,94
A/A	38	62,3	37	63,8	0,0	0,90	0,9	0,45 - 1,97
A/G	20	32,8	18	31,0	0,0	0,90	1,1	0,5 - 2,34
G/G	3	4,9	3	5,2	0,0	0,95	1,0	0,18 - 4,9

## 5. CONCLUSION

Thus, the distribution of frequencies of genotypes and alleles by polymorphism A/G of the PPARG gene is the same in all the compared subgroups. There were no statistically significant differences in the frequency distribution of genotypes and alleles for this polymorphism between the main group of patients with MS+MI and MS without MI and MI without MS.

## REFERENCES

1. McCracken, Emma et al. "Pathophysiology of the metabolic syndrome." *Clinics in dermatology* vol. 36,1 (2018): 14-20. doi:10.1016/j.clindermatol.2017.09.004.
2. Saklayen, Mohammad G. "The Global Epidemic of the Metabolic Syndrome." *Current hypertension reports* vol. 20,2 12. 26 Feb. 2018, doi:10.1007/s11906-018-0812-z.
3. Fahed, Gracia et al. "Metabolic Syndrome: Updates on Pathophysiology and Management in 2021." *International journal of molecular sciences* vol. 23,2 786. 12 Jan. 2022, doi:10.3390/ijms23020786
4. Silveira Rossi, João Leonardo et al. "Metabolic syndrome and cardiovascular diseases: Going beyond traditional risk factors." *Diabetes/metabolism research and reviews* vol. 38,3 (2022): e3502. doi:10.1002/dmrr.3502
5. Iqbal, Jahangir et al. "Metabolic Syndrome, Dyslipidemia and Regulation of Lipoprotein Metabolism." *Current diabetes reviews* vol. 14,5 (2018): 427-433. doi:10.2174/1573399813666170705161039
6. Guo, Yi et al. "Intermittent Fasting Improves Cardiometabolic Risk Factors and Alters Gut Microbiota in Metabolic Syndrome Patients." *The Journal of clinical endocrinology and metabolism* vol. 106,1 (2021): 64-79. doi:10.1210/clinem/dgaa644



# TRIPLE THERAPY IN COPD: A GAME-CHANGER? - EXAMINING ETHOS, IMPACT & TRIBUTE STUDIES

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## ABSTRACT

*Chronic obstructive pulmonary disease (COPD) is a progressive respiratory disease affecting millions worldwide. In recent years, the use of triple therapy, which combines an inhaled corticosteroid (ICS), a long-acting beta-agonist (LABA), and a long-acting muscarinic antagonist (LAMA), has most recommended for the management of COPD. Triple therapy has been shown to improve lung function, reduce exacerbations, and improve quality of life compared to other treatments, especially in patients with more severe COPD. This study aims to compare dual therapies and triple therapies according to the pivot studies namely IMPACT, TRIBUTE, and ETHOS. This review shows the safety and effectiveness of triple therapy. However, as with any medication, there are potential side effects and risks associated with triple therapy, and it is important for healthcare providers to carefully consider each patient's individual needs and risks before prescribing this treatment. Overall, triple therapy has emerged as a valuable treatment option for patients with COPD.*

**KEYWORDS:-** COPD, triple therapy, safety, effectiveness, exacerbation, pneumonia.

## INTRODUCTION

The Global Initiative for Chronic Obstructive Lung Disease (GOLD) 2023 report defines Chronic Obstructive Pulmonary Disease (COPD) as "a heterogeneous lung condition characterized by chronic respiratory symptoms (shortness of breath, cough, expectoration, exacerbations) due to abnormalities of the airways (bronchitis, bronchiolitis) and/or alveoli (emphysema) that cause persistent, often progressive, airflow hindrance." [1] The GOLD initiative defines COPD as "a disease state that differentiates by airflow limitation that is not fully reversible [2]. For high-risk patients with severe symptoms (GOLD GROUP D) who experience subsequent exacerbations after receiving dual bronchodilation (the preferred initial therapy) or LABA/ICS (the alternate initial therapy), GOLD currently advises triple therapy (ICS plus LABA plus LAMA). This suggestion is based on investigations that used previous GOLD guidelines to determine "high-risk" patients (those with severe-to-very serious airway obstruction or a history of exacerbation). According to WHO, around 65 million people have moderate to severe COPD Mortality: COPD is the third leading cause of death globally, accounting for 3 million deaths in 2019, which represent 5% of all deaths globally.

COPD is more common in older adults and is usually diagnosed after the age of 40. The disease is more prevailing in males than in females. Global burden: COPD is a major

public health problem worldwide, and its burden is expected to increase in the coming years due to aging populations, increased tobacco uses in developing countries, and exposure to air pollution. [3]. A Few of the symptoms such as dyspnea, cough, and sputum production worsen during exacerbations of COPD, which are associated with accelerated mortality [4]. To lower the symptoms and the exacerbation, triple or dual - inhaled bronchodilators are recommended for the treatment depending on the severity. If the patients have severe symptoms and a history of exacerbations, the inclusion of inhaled corticosteroid (ICS) to the long-acting muscarinic antagonist (LAMA) and long-acting beta-agonist (LABA) combination therapy has been recommended because it lowers the incidence of exacerbations [5]. Triple fixed-dose combination therapies providing an ICS, a LAMA, and LABA in a single inhaler are a recent addition to the range of available treatment options for COPD [6-7]. A study examining the efficacy of triple therapy with fixed-dose ICS/LAMA/LABA showed positive effects on lung function, quality of life, and exacerbation rates compared to dual therapy with LAMA/LABA and ICS/LABA. [8,9]. In patients receiving ICS the blood eosinophils levels should be monitored. The cost-effectiveness analysis of triple therapy (LAMA/LABA/ICS) compared with dual therapy (LAMA/LABA OR LABA/ICS) shows economic benefits by the decrease in moderate to severe exacerbation and shows significant



improvement in quality of life and improvement in FEV1 function.[10]

### OBJECTIVE

A Review of the study to compare the efficacy of triple with dual combination therapies in COPD is the primary objective of the study.

### DISCUSSION

Triple inhaled therapy is used for chronic obstructive pulmonary disease which includes an inhaled LAMA, LABA, and a glucocorticoid (ICS) [11]. The GOLD guidelines suggested the inclusion of ICS-induced bronchodilation (LAMA + LABA) for patients with symptomatic disease and a history of frequent exacerbations [12]. The recent studies conducted on the availability of triple therapy combinations are IMPACT, ETHOS, and TRIBUTE [11,12,13].

According to the IMPACT study, the total number of populations involved in the randomized trial is 10,355. Compared to a period time of 52 weeks. The patients included in the impact trial who had moderate to severe COPD, if the Fev1 is lesser than 50% ( $Fev1 < 50\%$ ) and history of more than one ( $>1$ ) moderate or severe COPD exacerbation in the past 12 months (GOLD B) or the patients with 50-80% of Fev1 predicted and a history of more than 2 ( $>2$ ) moderate exacerbations (GOLD D) or the patients with the history of more than 1 ( $>1$ ) severe COPD exacerbations. Involved the comparison of fluticasone furoate (ICS), umeclidinium (LAMA), and vilanterol (LABA) in the doses of 100 µg, 62.5µg, and 25 µg respectively with ICS+LABA (fluticasone furoate + vilanterol) in doses of (100 µg+ 25 µg) and with another dual bronchodilator LAMA + LABA (umeclidinium + vilanterol) in the doses of (62.5ug +25 ug) respectively. This study documented the outcomes such as exacerbations, mortality, and safety-related issues like pneumonia. Results have shown triple therapy has a significantly lower rate of moderate or severe COPD exacerbations, improved lung function, and enhanced quality of life than other dual therapies i.e., ICS+LABA and LAMA+LABA combinations. By evaluating the above results, we determined that triple therapy and dual therapy (ICS+LABA) showed a decreased rate of mortality than umeclidinium + vilanterol [11]. However, the decrease in mortality rate with triple therapy might be mainly due to a lower rate of fatal cardiovascular events [14].

In severe COPD patients, the add-on of ICS would lead to an increased incidence of pneumonia [14]. The results showed a greater incidence of pneumonia in the groups containing inhaled glucocorticosteroids than in the umeclidinium and vilanterol groups. In glucocorticoid groups also, triple therapy has a higher incidence of pneumonia than the ICS+LABA combination. But still, triple therapy is taken into consideration because of lower exacerbation, a better quality of life score, and higher trough Fev1 [11]. Triple therapy has resulted in more clinical benefits and health outcomes and has a moderate cost increment than dual therapy. Triple therapy more chosen in the case of cost-effectiveness because of greater fev1 benefit, quality of life, and exacerbations led to improved survival and decreased overall lifetime cost by reducing frequent hospitalizations [15].

In the ETHOS study, the total population involved is

8509 patients compared to 52 weeks. this trial comprises the comparison of a single inhaler twice daily triple therapy with two different doses of ICS (BUDENOSIDE) along with twice daily dual therapy. The therapy consists of budesonide (320 /160µg), glycopyrrolate (18µg), and formoterol (9.6µg). the dual therapies consist of LABA +LAMA (formoterol 9.6µg + glycopyrrolate 18µg) and LABA +ICS (formoterol 9.6µg + budesonide 320µg) the outcomes evaluated in this study are moderate to severe exacerbations, mortality, quality of life and adverse events like pneumonia and bronchitis. The exacerbations seen in patients treated with triple therapy (budesonide 320µg) have no exacerbations. The patients treated with triple therapy (budesonide 160µg) had one exacerbation in a year. the patients treated with LAMA +LABA (glycopyrrolate 18µg +formoterol fumarate 9.6µg) and LABA +ICS (formoterol fumarate 9.6µg + budesonide 320µg) have experienced less than one exacerbation. Overall, patients receiving triple therapy (budesonide 320µg) have no exacerbations seen compared to other triple and dual therapies.

The rate of mortality seen in patients with triple therapy is less when compared with other dual therapies. The rate of mortality in triple therapy in a dose of ICS (budesonide 320µg) is less when compared with triple therapy in a dose of ICS (budesonide 160µg). The majorly seen risk factors in the patients in the study are pneumonia and bronchitis. The incidence of pneumonia in the patients receiving ICS+LABA is high and low in patients receiving LAMA+LABA when compared with the other therapies in the study. The incidence of bronchitis in the patients receiving LAMA+LABA is high compared with the other therapies. The patients receiving triple therapy have shown improved quality of life in a year compared with the other dual therapies [12]. The total expense of triple therapy (BGF) was higher than that of dual therapy (GFF or BFF) but BGF was more cost-effective over a patient's lifetime. BGF is preferable therapy to other therapies because it abates hospitalizations and enhances the quality of daily life [16].

In the TRIBUTE study total number of populations involved is 1532 with symptomatic COPD, severe airflow obstruction ( $fev1 < 50\%$ ), and at least one moderate or severe exacerbation in a year. This study involves the comparison of twice daily single inhaler triple therapy (SITT) consisting of ICS+LABA+LAMA [ beclomethasone dipropionate (BDP) 87µg+ formoterol fumarate (FF)5µg+ glycopyrrolate (GLY)9µg] versus once-daily single inhaler dual therapy consists of LAMA+LABA [indacaterol (IND)85 µg+glycopyrrolate (GLY)43µg].

Patients were priorly receiving IND/GLY for a run period of 2 weeks. later the patients were divided into two groups in a ratio of 1:1. One group started receiving triple therapy and the other group with dual bronchodilator therapy. The findings evaluated in this study were, that triple therapy reduced the annual rate of severe or moderate exacerbations by 15% when compared with dual therapy. The SGRQ score has significantly enhanced in triple therapy when compared with dual therapy, but there is no notifiable improvement in the Fev1 value. The incidence of risk of pneumonia in both groups shows identical outcomes [13,17].



## CONCLUSION

The analysis of the ETHOS, IMPACT, and TRIBUTE studies demonstrates that triple therapy can be an effective option for controlling exacerbations and improving lung function in patients with moderate to severe COPD. However, the use of inhaled corticosteroids in triple therapy may increase the risk of pneumonia and careful consideration of the benefits and risks is required before making a treatment decision. Regular monitoring and follow-up are essential to ensure the therapy is effective and well-tolerated over time.

## REFERENCES

1. Alvar Agustí, Bartolome R. Celli, Gerard J. Criner, David Halpin, Antonio Anzueto, Global Initiative for Chronic Obstructive Lung Disease 2023 Report: GOLD Executive Summary *European Respiratory Journal* 2023 61: 2300239; DOI: 10.1183/13993003.00239-2023 <https://erj.ersjournals.com/content/61/4/2300239>
2. Pauwels RA, Buist AS, Calverley PM, et al. Global strategy for the diagnosis, management, and prevention of chronic obstructive pulmonary disease: NHLBI/WHO Global Initiative for Chronic Obstructive Pulmonary Disease (GOLD) Workshop summary. *Am J Respir Crit Care Med.* 2001; 163: 1256–1276 <https://pubmed.ncbi.nlm.nih.gov/11316667/>
3. Lozano R, Naghavi M, Foreman K, Lim S, Shibuya K, Aboyans V, et al. Global and regional mortality from 235 causes of death for 20 age groups in 1990 and 2010: a systematic analysis for the Global Burden of Disease Study 2010. *Lancet.* 2012;380:2095–2128. doi: 10.1016/S0140-736(12)61728-0 <https://pubmed.ncbi.nlm.nih.gov/23245604/>
4. Soler-Cataluña JJ, Martínez-García MA, Román Sánchez P, Salcedo E, Navarro M, Ochando R. Severe acute exacerbations and mortality in patients with chronic obstructive pulmonary disease. *Thorax.* 2005;60:925–931. doi: 10.1136/thx.2005.040527. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1747235/>
5. Singh D, Agustí A, Anzueto A, Barnes PJ, Bourbeau J, Celli BR, et al. Global strategy for the diagnosis, management, and prevention of chronic obstructive lung disease: the GOLD science committee report 2019. *Eur Respir J.* 2019;53:1900164. doi: 10.1183/13993003.00164-2019 <https://pubmed.ncbi.nlm.nih.gov/30846476/>
6. D.A. Lipson, F. Barnhart, N. Brealey, J. Brooks, G.J. Criner, N.C. Day, M.T. Dransfield, Once-daily single-inhaler triple versus dual therapy in patients with COPD. *N. Engl. J. Med.*, 378 (18) (2018), pp. 1671–1680 <https://pubmed.ncbi.nlm.nih.gov/29668352/>
7. Lipson DA, Crim C, Criner GJ, et al. Reduction in All-Cause mortality with fluticasone furoate/umeclidinium/vilanterol in patients with chronic obstructive pulmonary disease. *Am J Respir Crit Care Med.* 2020;201(12):1508–1516 <https://www.atsjournals.org/doi/10.1164/rccm.201911-2207OC>
8. Ferguson GT, Rabe KF, Martinez FJ, et al. Triple therapy with budesonide/glycopyrrolate/formoterol fumarate with co-suspension delivery technology versus dual therapies in chronic obstructive pulmonary disease (KRONOS): a double-blind, parallel-group, multicentre, phase 3 randomized controlled trial. *Lancet Respir Med* 2018;6:747-758. [https://www.thelancet.com/journals/lanres/article/PIIS2213-2600\(18\)30327-8/fulltext](https://www.thelancet.com/journals/lanres/article/PIIS2213-2600(18)30327-8/fulltext)
9. Singh D, Papi A, Corradi M, et al. Single inhaler triple therapy versus inhaled corticosteroid plus long-acting  $\beta_2$ -agonist therapy for chronic obstructive pulmonary disease (TRILOGY): a double-blind, parallel-group, randomised controlled trial. *Lancet* 2016;388:963-973. [https://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(16\)31354-X/fulltext](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(16)31354-X/fulltext)
10. Huang WC, Chen CY, Liao WC, et al. A real world study to assess the effectiveness of switching to once daily closed triple therapy from mono/dual combination or open triple therapy in patients with chronic obstructive pulmonary disease. *Int J Chron Obstruct Pulmon Dis.* 2021;16:1555–1568. doi:10.2147/COPD.S308911 <https://pubmed.ncbi.nlm.nih.gov/34113089/>
11. David A. Lipson, M.D., Frank Barnhart et al. Once-Daily Single-Inhaler Triple versus Dual Therapy in Patients with COPD. *The new England journal of medicine.* DOI: 10.1056/NEJMoa1713901. May 3, 2018 <https://pubmed.ncbi.nlm.nih.gov/29668352/>
12. Klaus F. Rabe et al. Triple Inhaled Therapy at Two Glucocorticoid Doses in Moderate-to-Very-Severe COPD. *The new England journal of medicine.* DOI: 10.1056/NEJMoa1916046. July 2, 2020 <https://www.nejm.org/doi/full/10.1056/NEJMoa1916046>
13. Prof Alberto Papi, MD et al. Extrafine inhaled triple therapy versus dual bronchodilator therapy in chronic obstructive pulmonary disease (TRIBUTE): a double-blind, parallel group, randomised controlled trial. February 18 2018. [https://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(18\)30206-X/fulltext](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(18)30206-X/fulltext)
14. Koarai A, Yamada M, Ichikawa T, Fujino N, Kawayama T, Sugiura H. Triple versus LAMA/LABA combination therapy for patients with COPD: a systematic review and meta-analysis. *Respir Res.* 2021 Jun 22;22(1):183. doi: 10.1186/s12931-021-01777-x. PMID: 34154582; PMCID: PMC8218448 <https://pubmed.ncbi.nlm.nih.gov/34154582/>
15. Paly VF, Vallejo-Aparicio LA, Martin A, Izquierdo JL, Riesco JA, Soler-Cataluña JJ, Abreu C, Biswas C, Ismaila AS. Cost-Effectiveness of Once-Daily Single-Inhaler COPD Triple Therapy in Spain: IMPACT Trial. *Int J Chron Obstruct Pulmon Dis.* 2022 Dec 16;17:3097-3109. doi: 10.2147/COPD.S366765. PMID: 36561129; PMCID: PMC9766529. <https://pubmed.ncbi.nlm.nih.gov/36561129/>
16. de Nigris E, Treharne C, Brighton N, Holmgren U, Walker A, Haughney J. Cost-Effectiveness of Triple Therapy with Budesonide/Glycopyrronium/Formoterol Fumarate Dihydrate versus Dual Therapies in Moderate-to-Very Severe Chronic Obstructive Pulmonary Disease: United Kingdom Analysis Using the ETHOS Study. *Int J Chron Obstruct Pulmon Dis.* 2022 Nov 22;17:2987-3000. doi: 10.2147/COPD.S381138. PMID: 36444374; <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9700475/>
17. Bourbeau J, Bafadhel M, Barnes NC, Compton C, Di Boscio V, Lipson DA, Jones PW, Martin N, Weiss G, Halpin DMG. Benefit/Risk Profile of Single-Inhaler Triple Therapy in COPD. *Int J Chron Obstruct Pulmon Dis.* March 1 2021 <https://pubmed.ncbi.nlm.nih.gov/33688176/>





# MEDITATION AND PSYCHOSIS: WHERE DO WE STAND!

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## ABSTRACT

*“Meditation” is the practice where one focus his or her mind for a period of time, in silence or with the aid of chanting, for religious or spiritual purposes or a method of relaxation. There are a lot of established literature guiding towards beneficial effects of the same in wide spectrum of psychiatric illnesses. Many mechanisms have been proposed for the same. However, there are contradictory evidences too. So, in depth longitudinal study is the need of the hour.*

## FULL ARTICLE

“Meditation” is the practice where one focus his or her mind for a period of time, in silence or with the aid of chanting, for religious or spiritual purposes or a method of relaxation<sup>1</sup> With the advent of counter-cultural movements during the 1960s and early 1970s, a more Eastern meaning of this term was disseminated into Western culture: meditation became a phenomenon that not only engage the thinking process but, on the other hand, seeks to disengage it<sup>2</sup>. Nowadays, meditation is a term commonly used for various mental exercises consisting of techniques of concentration or contemplation, such as sitting meditation, walking meditation, repeating a mantra, breathing exercises, tai chi, qigong, some aspects of yoga, etc.<sup>3</sup>

Meditation has been opted to as treatment modality for both psychotic and neurotic spectrum disorders. Though their use as therapeutic modality is becoming widespread, the exact biological mechanism is still elusive; in some studies they have shown significant relief of symptoms.<sup>4</sup>

One of the first studies investigating the role of mindfulness in the treatment of psychosis, Chadwick et al. (2005) conducted an uncontrolled study in which mindfulness was taught to individuals with current, subjectively distressing psychosis<sup>5</sup>. During the six-session (each of 90-min duration) group intervention, participants practised a range of mindfulness techniques including: (1) a brief body scan, (2) mindfulness of breathing, and (3) ‘choice awareness’.

Mindfulness meditation is a practice that aims to achieve a state of consciousness in which the person intentionally pays attention, in the present moment, without judgment, to the unfolding experience moment by moment.<sup>6</sup> Historically, this practice stems from the Buddhist religion, and it was first adapted to a therapeutic context (mindfulness-based intervention) in the form of a group intervention to improve the management of stress and chronic pain: the Mindfulness Based Stress Reduction (MBSR) program<sup>7</sup>

Inspired by the MBSR program, and enriched with elements from cognitive and behavioural therapy (CBT), the Mindfulness Based Cognitive Therapy (MBCT) program was subsequently developed to treat depression, and above all, prevent depressive relapse.<sup>8</sup>

Prolonged periods of silence were avoided and participants received an audiotape of guided meditations to facilitate at-home practice<sup>9</sup>

However, evidences of these practices triggering psychotic breakdown have been documented in literature. In some instances there have been relapse of old psychotic illness and in some there are incidences of new onset psychosis.<sup>10</sup>

Many mechanisms for the same have been proposed that includes alterations of mono amine pathways involving mostly serotonin and dopamine. The Ventral Tegmental Area has been implicated for the same. Despite all these suggested propositions there is nothing concrete to suggest it’s beneficial or detrimental role in relation to Psychiatric illnesses.

There is a need of longitudinal in-depth research to delineate the association between meditation and psychosis in general and the role of different types of meditation and mediators.

## REFERENCES

1. Kuijpers HJ, Van der Heijden FM, Tuinier S, Verhoeven WM. Meditation-induced psychosis. *Psychopathology*. 2007 Sep 11;40(6):461-4.
2. Chan-Ob TI, Boonyanaruthee V. Meditation in association with psychosis. *J Med Assoc Thai*. 1999 Sep;82(9):925-30.
3. Sharma P, Mahapatra A, Gupta R. Meditation-induced psychosis: a narrative review and individual patient data analysis. *Irish Journal of Psychological Medicine*. 2022 Dec;39(4):391-7.
4. Shonin E, Van Gordon W, Griffiths MD. Do mindfulness-based therapies have a role in the treatment of psychosis?. *Australian & New Zealand Journal of Psychiatry*. 2014 Feb;48(2):124-7.





5. Chadwick P, Taylor KN, Abba N. Mindfulness groups for people with psychosis. *Behavioural and cognitive psychotherapy*. 2005 Jul;33(3):351-9.
6. Jacobsen P, Morris E, Johns L, Hodkinson K. Mindfulness groups for psychosis; key issues for implementation on an inpatient unit. *Behavioural and Cognitive Psychotherapy*. 2011 May;39(3):349-53.
7. Uhlir J. Chemistry and technology of Molten Salt Reactors—history and perspectives. *Journal of nuclear materials*. 2007 Jan 15;360(1):6-11.
8. Igna R, Ștefan S, Onac I, Onac I, Ungur RA, Tatar AS. MINDFULNESS-BASED COGNITIVE-BEHAVIOR THERAPY (MCBT) VERSUS VIRTUAL REALITY (VR) ENHANCED CBT, VERSUS TREATMENT AS USUAL FOR CHRONIC BACK PAIN. A CLINICAL TRIAL. *Journal of Evidence-Based Psychotherapies*. 2014 Sep 1;14(2).
9. Feize L, Faver C, Gorabi V. Employing experiential learning as a tool to teach mindfulness cognitive behavioral therapy (MCBT) to Latino social work graduate students. *Journal of teaching in social work*. 2021 Jan 1;41(1):16-41.
10. O'Mahen H, Himle JA, Fedock G, Henshaw E, Flynn H. A pilot randomized controlled trial of cognitive behavioral therapy for perinatal depression adapted for women with low incomes. *Depression and anxiety*. 2013 Jul;30(7):679-87.



# ARCHITECTURAL PLANNING FOR AN EFFICIENT BURN UNIT: DESIGNING SPACES FOR OPTIMAL PATIENT CARE AND RECOVERY

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## ABSTRACT

*Architectural planning plays a vital role in creating efficient and effective healthcare environments, especially in specialized units such as burn units. This article explores the importance of thoughtful design in burn unit architecture, focusing on creating spaces that promote optimal patient care and recovery. The objective is to enhance patient outcomes, ensure staff efficiency, and foster a healing environment. The article begins by highlighting the unique challenges associated with burn care, including infection control, specialized equipment needs, and patient comfort. It then delves into the key principles that should guide architectural planning for burn units, such as patient flow optimization, and spatial organization.*

*Lastly, the article discusses the importance of collaboration between architects, healthcare professionals, and burn care experts throughout the design process. By incorporating their diverse perspectives and expertise, architects can create spaces that align with the specific needs of burn units, ensuring a patient-centered approach.*

**KEYWORDS:** *effective healthcare environments, architectural planning, burn ward design, burn ward planning*

## METHODOLOGY

Systematic qualitative research was performed which included books papers and research done after 2010 only along with observational research throughout random hospitals with burn wards in Delhi in carrying out the results along with interviews and discussions with associated professionals which included healthcare architects (which has previously designed 200 or more bedded hospital at least), doctors along with hospital support staff (both which has worked or is working in burn wards).

## INTRODUCTION

The architectural planning of a burn unit plays a crucial role in the overall functioning and effectiveness of the facility. Burn units are specialized medical spaces that require careful consideration of design elements to provide a safe, comfortable, and efficient environment for patients, staff, and visitors. A different group of people which includes patients, attendants, and working staff are very susceptible to infections in the burn unit (Karim Rafla, 2011). This article explores the key considerations and best practices for architectural planning in burn units, aiming to enhance patient care and support the recovery process.

### Patient Rooms and Care Areas

Patient rooms in a burn unit require specific design considerations to address the unique needs of burn victims. These rooms should be spacious enough to accommodate specialized burn care equipment, such as wound therapy systems and ventilators (Kalu1, 2020). Adequate space for the presence of family members or caregivers is also essential to provide emotional support to patients during their recovery

(Mohammadi, 2021). Furthermore, the materials and finishes used in patient rooms should prioritize infection control and ease of cleaning. Smooth, non-porous surfaces and appropriate ventilation systems help maintain a sterile environment and prevent the spread of infections. Natural light and views to the outdoors can contribute to a positive healing environment (Palmieri, 21 Feb 2019).

### Location and Layout

The location of a burn unit within a hospital or medical facility is of utmost importance. It should be in close proximity to emergency departments and surgical suites to ensure quick access to critical care services in cases of hazards (Amir Hossein Aghapour a, November 2019). Ideally, the burn unit should have its own dedicated entrance to facilitate patient transportation and minimize the risk of cross-contamination (C. Beggs, october 2014). The layout of the burn unit should be designed to promote efficient workflows and patient safety. The unit should be divided into distinct zones, such as patient care areas, treatment rooms, and support spaces. A centralized nursing station allows for improved staff coordination and supervision, ensuring prompt response times and effective communication (Centralization of Intensive Care Units: Process Reengineering in a Hospital, 2010).

### Treatment and Procedure Rooms

Burn units typically house treatment and procedure rooms for wound care, dressing changes, and surgeries. These spaces should be strategically located to minimize patient transportation and ensure efficient access for medical staff. Special attention should be given to the layout and organization of treatment rooms to optimize workflow. Protective isolation



is preferred as it helps in decreasing in infection and colonization risk in patients (Katrien Raes a, 2017) Equipment and supplies should be readily accessible, and ample counter space should be available for medical personnel to work efficiently. Adequate lighting, temperature control, and ventilation systems are essential to maintain a sterile environment and promote patient comfort (Eduardo Gus, June 2021).

### Dedicated Areas for Triage and Decontamination

Triage and decontamination areas within a burn ward are crucial for efficient patient management, infection control, and the prevention of cross-contamination. A dedicated triage area allows healthcare providers to quickly assess the severity of burns and prioritize patient treatment based on the extent of the injury. This area should be equipped with necessary tools, such as burn assessment charts, pain assessment tools, and emergency medications, to ensure accurate and efficient triaging.

### Rehabilitation and Therapy Areas

Burn patients often require extensive rehabilitation and therapy during their recovery process. Designing dedicated spaces for physical and occupational therapy is crucial. These areas should be equipped with appropriate exercise equipment, therapy tools, and adaptive technology (Holavanahalli, March-April 2011). Incorporating natural light, soothing colours, and views of nature can contribute to a calming and motivating environment. The layout should allow for privacy during therapy sessions while still providing supervision and monitoring capabilities for healthcare professionals (Mohammadi, 2021).

### Staff and Support Spaces

Architectural planning for burn units should not overlook the needs of the medical staff. Adequate staff and support spaces, such as locker rooms, break rooms, and administrative areas, are essential to ensure the well-being and efficiency of healthcare professionals. Efficient communication systems, including nurse call systems and patient monitoring technology, should be integrated throughout the unit (Mohammed, 2016). These systems help facilitate rapid response times, enhance patient safety and streamline communication between staff members.

### CONCLUSION

Architectural planning plays a significant role in creating an effective and efficient burn unit. By considering the unique needs of burn patients, healthcare providers, and medical staff, architects and designers can create spaces that promote optimal patient care, safety, and recovery. From well-designed patient rooms and treatment areas to rehabilitation spaces and support areas, every aspect of the burn unit should be carefully planned to create an environment that fosters healing, comfort, and positive outcomes for burn victims.

Efficient patient flow is a critical consideration in burn unit design, encompassing the movement of patients, staff, and supplies throughout the unit. Also, strategically located

treatment rooms play a vital role in the burn ward by offering immediate access to medical interventions and enhancing patient care. By situating these rooms in close proximity to the entrance, emergency department, and other critical areas, healthcare providers can ensure swift and efficient transportation of burn patients. The proximity of treatment rooms also facilitates the timely administration of pain management, wound care, and life-saving interventions, minimizing delays and reducing the risk of complications. The strategic placement of treatment rooms, well-designed corridors, and dedicated areas for triage and decontamination within a burn ward significantly contributes to enhanced patient care and safety. These elements optimize the workflow, facilitate prompt interventions, improve patient outcomes, and prevent the spread of infections or hazardous materials. By creating designated zones for different stages of burn care, including assessment, treatment, and rehabilitation, architects can ensure streamlined workflows and minimize cross-contamination risks. Additionally, the incorporation of communal spaces and natural lighting is explored as means to promote patient well-being and psychological healing.

Overall findings emphasize the significance of architectural planning in creating efficient burn units. By considering patient flow optimization, spatial organization, integration of advanced technologies, and collaboration with healthcare professionals, architects can design spaces that enhance patient care, facilitate staff efficiency, and contribute to the overall well-being and recovery of burn patients.

As development and futuristic progress are made, hospitals should also emphasize the integration of advanced technologies, such as telemedicine, electronic health records, and smart monitoring systems, into the architectural design. These technologies enhance communication, data management, and monitoring capabilities, leading to improved patient care and more efficient workflows. By incorporating these features into the design and organization of a burn ward, healthcare facilities can provide an environment that fosters the highest quality of care for patients with severe burns.

### DISCUSSION

Much research is still needed on this subject to provide more concrete results which could be implemented throughout the hospital without taking into account its typology. Burn wards and centers with all the advancement present today still lack behind in terms of architectural concept and planning in comparison to other architectural projects. Multiple pieces of research can be done taking the aspect of the impact and influence of futuristic technologies and the incorporation of artificial intelligence and robotics.

**Conflict of Interest:** None.

### BIBLIOGRAPHY

1. Amir Hossein Aghapour a, M. Y. (November 2019). Capacity planning and reconfiguration for disaster-resilient health infrastructure. *Journal of Building Engineering*, 26.



2. C. Beggs, L. D. (October 2014). *Environmental contamination and hospital-acquired infection factors that are easily overlooked*. 25(5), 462-474.
3. *Centralization of Intensive Care Units: Process Reengineering in a Hospital*. (2010). *International Journal of Engineering Business Management*, Sage Journals.
4. Eduardo Gus, M. S. (June 2021). *Burn Unit Design—The Missing Link for Quality and Safety*. *Journal of Burn Care Research*, 42(3), 369-375.
5. Holavanahalli, R. K. (March-April 2011). *Select Practices in Management and Rehabilitation of Burns: A Survey Report*. *Journal of Burn Care & Research*, Pages 210–223.
6. Kalul, U. E. (2020). *Architectural design strategies for infection prevention and control (IPC) in health-care facilities: towards curbing the spread of Covid-19*. *SpringerLink*, 18, 1699-1707.
7. Karim Rafla, E. E. (2011). *Infection control in the burn unit*. Elsevier; 37(1), 5-15.
8. Katrien Raes a, K. B. (2017). *Protective isolation precautions for the prevention of nosocomial colonisation and infection in burn patients: A systematic review and meta-analysis*. Elsevier; *Intensive and Critical Care Nursing*, 42, 22-29.
9. Mohammadi, M. B. (2021). *Ethical challenges of caring for burn patients: a qualitative study*. *BMC Med Ethics*, 22.
10. Mohammed, S. A. (2016). *Develop personal & professional skills under the guidance of experienced faculty*. *IOSR Journal of Nursing and Health Science (IOSR-JNHS)*, 5(5), 06-16.
11. Palmieri, T. L. (21 Feb 2019). *Infection Prevention: Unique Aspects of Burn Units*. *Surgical Infections*, 20(2), 111-114.



# THE EFFECT OF INTERNET ON STUDENTS' STUDIES: A REVIEW

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## ABSTRACT

*An analysis of the literature on the impact of internet use on academic achievement is presented in this study. This study's primary goal is to evaluate the variables that influence how kids use the internet. The research report also tries to identify the numerous tasks that pupils do online. As well as evaluate the many internet-accessing tools that kids employ. The researcher went through a number of papers. All of the articles we analysed dealt with issues related to the internet usage of kids. Nine of the twelve articles examined the ways in which the Internet can be used by students for their activities, and fourteen others focused on the devices that they use to access the Internet. Only articles dealing with tertiary education were targeted by the inclusion criteria. The internet has a significant impact on students' academic performance since it enables them to access publications and articles that are otherwise unavailable in libraries. The study came to the conclusion that increased internet usage was very helpful in enhancing learning results. The study also identified the detrimental effects of internet use, which results in distraction as people spend more time on social media than studying. Therefore, it is suggested that authorities issue directives to aid students in overcoming some of the difficulties encountered when utilising the Internet.*

**KEYWORD:** Internet, Internet Technology, Information Technology

## INTRODUCTION

The internet has had a profound and far-reaching effect on students' studies, revolutionising the way they access information, interact with educational content, and collaborate with others. One of the most significant advantages of the Internet is its ability to provide students with easy access to a vast amount of information. With a few clicks, students can conduct research, find scholarly articles, access educational resources, and explore various perspectives on a given topic. This instant access to information has greatly expanded the scope and depth of students' learning, empowering them to delve into diverse subjects and explore new areas of interest.

Furthermore, the internet has transformed the learning experience itself. Online platforms and educational tools offer interactive and engaging learning materials, such as videos, simulations, and gamified content. These resources provide dynamic and immersive ways for students to understand complex concepts, making their studies more enjoyable and effective. Additionally, the internet facilitates personalised learning experiences, allowing students to tailor their educational journey to their own pace, style, and interests.

Collaboration and communication have also been significantly enhanced by the internet. Students can connect with peers, experts, and educators from around the world through online platforms, discussion forums, and social media groups. This global connectivity fosters collaboration, knowledge-sharing, and the exchange of ideas, enriching the learning process. Online platforms also enable students to work on group projects

remotely, improving teamwork and communication skills that are crucial in today's interconnected world.

However, it is important to acknowledge that the internet also poses challenges for students. The abundance of information available online can be overwhelming, and students must develop critical thinking skills to assess the credibility and reliability of sources. Distractions from social media, entertainment, and other online activities can also hinder students' focus and productivity if not managed effectively. Digital literacy skills, including information evaluation, time management, and online etiquette, are essential for students to navigate the online landscape successfully.

In conclusion, the internet has had a transformative impact on students' studies. It has expanded access to information, provided interactive and personalised learning experiences, facilitated global collaboration, and offered new avenues for creativity and self-expression. However, students must also develop the necessary skills to navigate the digital world responsibly and effectively. With the proper guidance and digital literacy education, students can harness the full potential of the internet to enhance their studies and prepare themselves for the demands of a knowledge-based society.

There are advantages and disadvantages to students in higher education using information and communication technologies (ICTs), such as the internet (Nyakwende, 2011). Students can easily get the information they need to do their assignments on the internet with just one search on a search engine. It also





allowed people to communicate with one another while conversing and exchanging thoughts and knowledge across vast distances. The internet was the main information and communication technology that caused a major shift in the world's information landscape. Students can get many points of view on a topic debate through interaction by sharing their own learning efforts with other students and talking about problem-solving strategies. Siraj (2015).

According to Akin Adaeamola (2014), the internet was created to provide a platform for different social activities for all age groups. A technology that has significantly impacted peoples' daily lives is the internet. The internet was introduced to academic institutions as a tool to improve students' academic experience in the mid-1990s because of its capacity to serve as a support medium in various activities for which people utilise it (Ngoumandjoka, 2012).

Internet connectivity has greatly increased over the past few decades and is now accessible everywhere, including homes, workplaces, travel destinations, and schools (Ellore, 2014). Access to information can affect students' academic performance, according to recent empirical studies (Akende, 2015). For academic research, using reliable online sources is crucial, especially in challenging courses where a review of the literature is required (Sahin, 2010). According to Kim (201), the key to adolescent academic success is using internships for educational purposes. The majority of students have access to the internet on their cellphones because it is practically universally available (Ellore, 2014).

### STATEMENT OF THE PROBLEM

Lack of funding for the efficient operation of universities, particularly their libraries, has negatively impacted the adequate provision of contemporary books, updated literate materials, and journals where available, are now expensive as warranted by the economic downturn, international political crises, and currency devaluation, compounded by the information explosion we have witnessed in the global electronic village that the world has turned to. Ghanaian students are now focusing on using the internet for studying, performing research, and acquiring general knowledge as a result of the aforementioned issues. Therefore, students who have access to this technology may become less interested in visiting the library as a result of the increased focus on the internet as a result of its many advantages. Therefore, the purpose of this study is to determine how the internet affects students' learning outcomes.

### OBJECTIVES OF THE STUDY

1. Identify the factors that influence how children use the internet.
2. Describe the issues with student internet use.

Which elements have an impact on pupils' internet use?

What are some of the difficulties students may encounter when using the internet?

### REVIEW OF LITERATURE

Information and communication technology (ICT) has been a tool for innovation and raising academic standards in many sectors around the world. For high school students, ICT has been a crucial component of teaching and learning from both within and outside the classroom in the educational sector. In order to facilitate international communication and access to data resources, the internet is a vast network system that connects a variety of commercial, public, business, academic, and governmental networks. Although they are not synonymous, the terms "Internet" and "World Wide Web" are frequently used interchangeably. While the internet refers to the global network of communications that includes hardware and infrastructure, the Web is only one of the services offered by the internet (Techopedia, 2020).

Users of the internet were divided into heavy and light users by Ngoumandjoka (2012). He thinks that the primary reason college students utilise the internet is for academic purposes. Students who were labeled as heavy users were discovered to utilise the internet more for leisure activities than students who were categorised as light users. His study further stated that the perception of the internet's beneficial impact on academic grades increased with its use for academic purposes. Many authors (Torres, 2016) concurred that using the internet has a beneficial effect on academic achievement. They believed that students who utilise the internet more frequently for educational materials are less likely to perform poorly on exams.

According to Singh (2013), using the internet primarily for social networking and mailing causes psychological issues such as mood swings, changing conduct, a withdrawn attitude, and loneliness. This is because they still exist in some sort of online virtual environment. (Turel & Toraman, 2015) found in their study that students' average levels of internet addiction decrease as their academic accomplishment increases. This implies that internet addiction has an effect on students' academic performance.

Aitokhuehi (2014) also made note of the fact that students who are adept with computers but are not dependent on them perform better than those who are. According to Kakkar (2015), internet addiction has a significant detrimental effect on kids' academic performance and mental health. He made it clear that students in the severe and profound category of internet addiction were shown to have a detrimental influence on their academic performance and physical health, in contrast to children who use the internet moderately.

Austin (2011) arrived at a similar conclusion in their study, which divided internet users into three groups: light, moderate, and intense users. They discovered that students who use the internet in moderation at school and at home perform better academically than those who don't. Additionally, school-only internet users (light users) performed worse academically than non-users.

The major obstacles to fully utilising the internet, according to Sahin (2010), include limited access, inherent risks, and



problems like pornography and frauds, among other things. The fact that students are more interested in internet resources than traditional sources does not change the challenges they encounter. Therefore, it is crucial that internet connection be provided continuously and that lecturers or professors point students to academic websites for more relevant content.

Internet use causes consumers to become more aware of their surroundings and how large the globe is. According to Akin-Adaeamola (2014) and Yebowaah (2018), the internet collects a variety of data that is used by college students and seniors in high school. If people can access the internet without being hindered, internet use will increase (Olatokun, 2008). According to recent research, the internet allows people to access websites that provide data such as social networking sites, online gaming, and cybersex (Yebowaah, 2018). According to research by Ellore et al. (2014) on the impact of internet use on academic progress and face-to-face communication, most students have internet access on their mobile phones due to the accessibility of the internet. This will help students broaden their intellectual perspectives (Akin-Adaeamola, 2014; Yebowaah, 2018).

According to Olatokun (2008), the main obstacles to broad internet use include problems with inadequacy, accessibility risks, concerns with pornography, fraud, and other challenges.

Despite opposition to these findings, studies have indicated that students favour online services to traditional media (Siraj et al., 2015). If students have constant access to the internet for additional in-depth knowledge, teachers or lecturers may direct them there (Osunnade, 2003). It was discovered that SHS students don't have enough access to the internet. It is disheartening to realise that some pupils are unable to even utilise a computer despite spending years in education (Samual, 2010). In addition to entrance, this.

## SUMMARY, CONCLUSIONS

Reviewing previous studies on how internet use affects students' learning results is the project's main goal. The study examines the following subjects: the factors that influence how frequently kids use the internet, the various online activities that students take part in, the various means that kids use to access the internet. The internet was found to be one of the methods utilised to gauge students' learning outcomes after the study examined more than 35 papers and journals. Prior research has shown that a sizable percentage of respondents to representative e studies use the internet for a variety of academic study-related activities. Although technology surely has enhanced education, it has also undoubtedly had some negative repercussions.

The conclusions of the study are based on a review of the literature on how internet use affects students' learning outcomes. specific reasons why students use the internet. The study discovered that students' perceptions of the internet's value and attitudes towards it played a significant role in predicting their behavioural intentions to utilise it for academic purposes. The study of online learning indicates how students' attitudes, opinions, and judgements of its usefulness as well as

the social influence of their referent group are all acknowledged as significant drivers of their motivation to practise online. Male students are more prone than female students, according to a study, to use the internet in a way that has a negative effect on their performance.

Several different technologies are used by students to access the internet. When connecting to the internet, software and hardware technologies are both used. The survey indicates that 0% of people use desktop computers, while 70% use smartphones and 20% use laptops to access the internet. Most students use software tools, such as apps, to assist them while they are online; some of these apps are expressly used for communication, entertainment, and educational purposes. Students at higher institutions can use the internet to enhance their educational development by using their cellphones, tablets, computers, and other technical gadgets. However, the primary problems that students encounter are more frequently identified as a poor internet connection and a high subscription cost. Due to its accessibility, the internet has aided in the globalisation of education.

In conclusion, the internet has had a significant and transformative effect on students' studies. It has revolutionised the way students access information, interact with educational content, and collaborate with others. The internet provides easy access to a vast amount of information, empowering students to conduct research, explore diverse subjects, and expand their knowledge base. Online platforms and tools offer interactive and personalised learning experiences, making studies more engaging and effective. The internet also facilitates global collaboration and communication, allowing students to connect with peers and experts from around the world. However, students must also navigate the challenges posed by the internet, such as information overload and digital distractions. Developing critical thinking, digital literacy, and time management skills are crucial for students to make the most of the internet's benefits while mitigating its drawbacks. Overall, the internet has revolutionised education, offering unprecedented opportunities for students to enhance their learning journey, broaden their intellectual horizons, and prepare for a digitally driven world.

The internet has had a profound and multifaceted effect on students' studies. Its vast availability of information and resources has empowered students to conduct research, access educational content, and explore diverse subjects like never before. The interactive and personalised learning experiences offered by online platforms have made studying more engaging and effective. Additionally, the internet's capacity for global connectivity has facilitated collaboration and knowledge-sharing among students, promoting a deeper understanding of subjects and fostering essential communication and teamwork skills.

However, while the internet presents numerous benefits, it also poses challenges that students must address. The abundance of information requires students to develop critical thinking and digital literacy skills to discern reliable sources and avoid



misinformation. Managing distractions from social media and other online activities is crucial for maintaining focus and productivity in studies. Emphasising digital literacy education can equip students with the necessary tools to navigate the online world responsibly and effectively.

Overall, the internet has revolutionised education, providing students with unparalleled opportunities to expand their knowledge, connect with peers globally, and prepare for the demands of a digitally driven world. By harnessing the positive aspects of the internet while being mindful of its potential pitfalls, students can fully maximise its impact on their studies and academic success.

## REFERENCES

1. Adegoke, S. P. 2013. Socio economic background and access to internet correlates of students' achievement in agricultural science. *International Journal of evaluation and research in education*. 2(3):123-128.
2. Adeleke, D. S. 2016. Relationship between information literacy and use of electronic information resources by post graduate student of Ibadan. *Library philosophy and practice*.
3. Anderson, T. &. 2011. The three generations of distance education pedagogy. *International review of research in open & distance learning*. 12(3):82-94.
4. Awodele, O. K. 2011. A new dimension to learning system. *World of computer science and information technology*. 1(3): 71-78.
5. Aydemir, M. O. 2015. A theoretical framework on open and distance learning. *Procedia-social and behavioral sciences*, 1750-1757.
6. Bragdon, R. A. 2016. College student technology use and academic performance. *International journal of humanities and social science*. 6(1): 12-22.
7. Diaz, J.C.T., Montoliu, J. M.D., & Becerra, M. H. 2018. Plagiarism, internet and academic success at the university. *Journal of new approaches in educational research*. 7(2): 98- 104.
8. Edem, M. B. 2010. Reading and internets use activities of undergraduate students of the University of Calabar. *African journal of library, archives and information science*. 20(1): 11.
9. Ellore, S. B. 2014. The influence of internet usage on academic performance and face -to-face communication. *Journal of psychology and behavioural science*. 2(2): 163-186.
10. Friesen, N. 2011. Rethink eLearning research. Retrieved from foundation method and practice [ebook] peter lang-education: <http://books.google.co.uk/books?id>
11. Garcia, E. E. 2015. Student use of Facebook for informal learning and peer support. *The international journal of information and learning technology*. 32(5): 286-299.
12. Godlewska, A. B. 2019. Converting a lager lecture class to an active blended learning class. *Journal of geography in higher education*. 43(1): 115.
13. Greitemeyer, 2014. A mental review of the effects of violent and prosocial videogame play. *Personality and social psychology bulletin*. 22(5): 578-589
14. Healy, K. 2017. Public sociology in the age of social media. *Perspectives on politics*. 15(3): 771- 780.
15. Hsieh, J. Y. 2011. What influences internet-based learning? *Social behavior and personality: an international journal*. 39 (7): 887-896.
16. Kakkar, N. A. 2014. Influence of internet addiction on the academic performance and mental health of college students. *Scholarly research journal for interdisciplinary studies*. 3(21).
17. Kirschner, P. A. 2010. Facebook and academic performance. *Computer inhuman behaviour*. 26(6):1237-1245.
18. Kontinen, I. (ZL0) LCarnrg 1or development. *Journal of development research*. 22: 591-592.
19. Kuss, D. J. 2012. Internet gaming addiction: a systematic review of empirical research. *International journal of mental addiction*. 10(32): 278-296.
20. Lenhart, A. P. 2010. Social media and mobile internet use among teens and young adults. Retrieved from social-media-and youngadults.aspx: <http://pewinternet.org>.
21. Macharia, J. &. 2011. Gender differences in internet use intentions for learning in higher education. *Journal of language, technology & entrepreneurship in Africa*. 3(1): 244-254.
22. Merriam-Webster. (N.D). Internet in Merriam-Webster.com dictionary. Retrieved February 9, 2021, from <http://www.merriam-webster.com/dictionary/internet>.
23. Ngoumandjoka, U. 2012. Correlation between internet use and academic performance among university students. Johannesburg: University of the Witwatersrand.
24. Ngoumandjoka, U. T. 2014. Correlation between internet use and academic performance among university students. *Canadian social science*. 7(5).
25. Nwezeh, C. M. 2010. The impact of internet use on teaching, learning and research activities in nigeria universities. *Electronic library*. 28(5): 688-701.
26. Ogedebe, P. M. 2012. Internet use and students' academic performance in Nigeria tertiary: a case study of university of maidugri . *Academic research international*. 2(3): 334-343. Paris,
27. S. R. 2010. Adolescent learning and internet. *The education digest*. 75(6): 10.
28. Picciano, A. 2017. Theories and frameworks for online education: seeking an integrated model. *online learning*.
29. Reinecke, L. A. 2017. The effects of communication load and internetmultitasking on perceived stress and psychological health impairment in German probability sample. *Media psychology*. 20 (21), 90-115.
30. Rouis S., L. M. 2011. Impact of Facebook use on student's academic achievement. *Electronic journal of research in educational psychology*. 9(3): 961-994.
31. Rouis, S. 2012. Impact of cognitive absorption on Facebook on students' achievement. *Cyberpsychology, behaviour and social networking*. 15(6): 296-303.
32. Sefton-Green, J. 2016. The class: living and learning in the digital age. *International journal of nyu press*.1.
33. Serrano, D.R., Dea-Ayuela, M. A., Gonzalez & Lalatsa. (2019). Technology enhanced learning in higher education. *European journal of education*. 54(2), 273-286.
34. Siraj. H.H. 2015. Professional leaning community: literature review. *The online journal of quality higher education*. 2(2): 65-78.
35. Siraj, H. H. 2015. Internet use and accademic performance. A study in Malaysian public university. *International medical journal*. 22(2), 83-86.
36. Stover, W. J. 2019. Information technology in the third world: can information technology lead to humane national development Routledge.
37. Sushma M., P. D. 2014. The impact of internet addiction on university students and its effects on subsequently academic success. *Issues on information systems*. 15(1): 344-352.



38. Tanis, C. J. 2020. *The seven principles of online learning. Research in learning technology.*
39. Torres-Díaz, 2016. *Internet use and academic success in university students. Media education Research journal. 61-70.*
40. Ullah, A. 2014. *Electronic media on academic performance of female student. International journal of economics, commerce and management.*
41. 2(9). *Wikipedia. 2012. Retrieved from <http://en.wikipedia.org/wiki/communications>.*
42. Wikstrom. 2010. *Young people's reading and writing in a new media. Landscape education inquiry, 41-56.*
43. Yesilyurt, E. B. 2014. *The effect of technological devices on student's academic success. Journal of internet and application management. 5(1): 39-47.*
44. Zheng, L. Z. 2019. *A literature review of trends of technology- supported collaborative learning settings. Journal of computers in education. 6(4): 529-561.*





# EFFICACY OF DECIMAL SCALE AND ITS APPLICATION IN TREATMENT OF ACUTE AND CHRONIC DISEASES

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## ABSTRACT

*Decimal scale is a fundamental aspect of homeopathy, a holistic system of medicine that emphasizes the use of highly diluted remedies to stimulate the body's innate healing abilities. The decimal scale is an integral part of the process of dilution and potentization of homeopathic remedies. This paper explores the importance of the decimal scale in homeopathy, its historical significance, and its role in enhancing the efficacy of homeopathic treatments. It highlights how the decimal scale allows for the production of highly potentized remedies while minimizing the risk of toxicity and side effects. The abstract concludes by emphasizing the crucial role of the decimal scale in the precise and individualized approach of homeopathy.*

**KEYWORDS:** decimal scale, acute disease, chronic disease, homeopathy, simillimum, dilution.

## INTRODUCTION

Homeopathy is a therapeutic system based on the principle of "like cures like," where substances that can produce symptoms in a healthy person are used in highly diluted and potentized form to treat similar symptoms in a diseased individual. The process of dilution and potentization is a hallmark of homeopathy, and the decimal scale plays a vital role in this process. The decimal scale represents the ratio of dilution and is denoted by the number of parts of the original substance mixed with ten parts of the diluting agent. For example, a 1:10 dilution on the decimal scale indicates that one part of the original substance is mixed with ten parts of the diluent.

Application of decimal scale in homeopathic treatment:

In homeopathic treatment, decimal scale potency is one of the dilution scales used to prepare homeopathic remedies. It is a scale that involves a dilution factor of 1:10, where one part of the original substance is diluted with nine parts of a diluent (typically alcohol or water) to create the next potency.

The application of decimal scale in acute and chronic diseases in homeopathic treatment follows the principles of individualization and simillimum. Homeopathy aims to treat the individual as a whole, considering their unique symptoms, mental and emotional state, and overall health condition. The selection of the potency and repetition of the remedy depend on various factors, including the severity and nature of the disease, the sensitivity of the patient, and the response to previous treatments.

In acute diseases, which are typically short-term and characterized by sudden onset, the use of lower potencies in the decimal scale (such as 6X, 12X, or 30X) may be preferred. These lower potencies are believed to act more on the physical

level and provide relatively faster relief. They are often repeated at shorter intervals to address the acute symptoms until improvement occurs.

Chronic diseases, on the other hand, are long-lasting conditions that develop over time. They require a deeper and more holistic approach to treatment. In chronic cases, higher potencies on the decimal scale (such as 200X, 1M, or 10M) are commonly used. These higher potencies are believed to act more deeply on the vital force and address the underlying imbalances that contribute to the chronic condition. The repetition of the remedy in chronic cases may be less frequent compared to acute cases, allowing time for the healing response to occur.

It is important to note that the selection of the potency and repetition in homeopathic treatment is highly individualized and depends on the specific needs of the patient. It requires the expertise and experience of a qualified homeopathic practitioner to determine the appropriate potency and dosing regimen for each case.

The importance of the decimal scale in homeopathy lies in its ability to facilitate the production of highly diluted and potentized remedies. Dilution on the decimal scale can range from 1X (1:10) to higher potencies like 30X (1:10<sup>30</sup>), where the original substance is diluted to an extraordinary degree. Each increase in potency involves a successive dilution by a factor of ten and vigorous succussion (shaking) of the solution to enhance its therapeutic properties. The decimal scale allows for the precise control of dilution ratios, ensuring the production of remedies with desired potencies and therapeutic effects.

In homeopathy, the decimal scale is particularly significant because it enables the creation of remedies that are gentle, safe,





and free from toxic side effects. The process of dilution and potentization serves to remove any potential toxicity from the original substance while retaining its energetic and healing properties. Homeopathic remedies prepared on the decimal scale are highly individualized and tailored to the specific symptoms and constitution of each patient. This personalized approach aligns with the holistic principles of homeopathy, which recognizes the unique nature of each individual and aims to stimulate their self-healing mechanisms.

## CONCLUSION

The decimal scale is a crucial component of the dilution and potentization process in homeopathy. It allows for the production of highly diluted and potentized remedies that are safe, gentle, and tailored to individual patients. The decimal scale ensures precise control over the dilution ratio, enabling the creation of remedies with desired potencies and therapeutic effects. By harnessing the principles of dilution, succussion, and potentization, homeopathy seeks to enhance the inherent healing abilities of the body. The use of the decimal scale in homeopathy highlights the precision and individualized nature of this therapeutic system, reinforcing its significance in the field of alternative medicine.

## REFERENCE

1. Samuel Hahnemann "*Organon of Medicine*"
2. Mandal and Mandal "*A Textbook of Homoeopathic Pharmacy*"
3. Herbert A. Roberts "*The Principles and Art of Cure by Homoeopathy*" by
4. Nicole Pommier and Michel Struhar "*A Handbook of Homeopathic Pharmacy*"
5. Richard Hughes "*The Principles and Practice of Homoeopathy*"



# ANTAS NG KAKAYAHAN SA FILIPINO I NG MGA MAG-AARAL SA IKAPITONG BAITANG SA PAARALANG PAMPUBLIKONG SEKUNDARYA NG BAMBANG: BASEHAN PARA SA DEBELOPMENT AT BALIDASYON NG WORKTEXT

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Ang pangunahing layunin ng pag-aaral na ito ay upang makabuo ng Worktext sa Filipino I batay sa K-12 Kurikulum na magagamit ng mga guro at mag-aaral sa Ikapitong Baitang ng Bambang National High School, Bambang, Nueva Vizcaya.

Dahil dito sisikapang matugunan ng pag-aaral ang sumusunod na katanungan:

1. Ano ang antas ng kakayahan ng mga respondent sa Filipino I batay sa:

pangkabitan, pang-unawa, pagsusuri, paglalagom, paggamit, at pagpapahalaga?

2. Batay sa resulta ng pag-aaral, anong kagamitang pampagtuturo ang kailangang mabuo upang mapabisa ang pagkatuto ng mga mag-aaral sa Filipino I?

3. Ano ang lebel ng ebalwasyon ng mga guro/ulongguro at mga dalubhasa/eksperto sa Filipino sa nabuong worktext batay sa: layunin, aralin, pagsasanay at pagpapayamang-gawain?

4. Mayroon bang kapuna-punang pagkakaiba sa ebalwasyon ng dalawang pangkat ng mga respondent sa nabuong worktext sa Filipino I?

Ang pag-aaral na ito ay nakapokus sa mga aralin mula unang markahan hanggang ikaapat na markahan. Ito ay ginamitan ng metodolohiyang palarawan (descriptive) at pamaraang pagtataya (evaluation). Nababatay sa paghahanda ng worktext na ito sa Philippine Secondary Learning Competencies at silabus mula sa K-12 Kurikulum na ginamitan ng metodolohiyang palarawan, samantalang ang ebalwasyon ng worktext ay ginamitan ng pagtataya (evaluative). Isinagawa ang pagtataya ng mga guro/ulongguro at dalubhasa/ekspert sa paghahanda ng worktext bilang kagamitang pampagtuturo gamit ang Worktext evaluation form 1 at ng mga mag-aaral sa ikapitong baitang ng Science-A gamit ang Worktext evaluation form 2 upang malaman ang antas ng ebalwasyon nila sa pagtanggap sa

worktext ayon sa layunin, aralin, pagsasanay at pagpapayamang-gawain.

Makikita sa pag-aaral na ito ang kabuuang pagsusuri at ebalwasyon ng mga guro/ulongguro, dalubhasa/eksperto sa paglikom ng mga datos.

Sa pagtataya ng mga guro/ulongguro, nakita sa kinalabasan ng iba't ibang bahagi nito ang mga sumusunod:

1. Layunin. Lumabas sa layunin ng worktext na may panlahat na mean rating na 4.55 na may pasalitang deskripsyon na napakahusay. Ito ay nangangahulugang ang mga layunin ay tiyak, nasusukat, tumpak, sapat at relayabol. Nasusukat at nakakamtan sa itinakdang oras o panahon.
2. Aralin. Ito ay nagpapakita ng kabuuang mean rating na 4.67 at may pasalitang deskripsyon na napakahusay. Nangangahulugan na ang worktext ay naglalaman ng mga araling sapat sa pagkatuto at mga konseptong naaayon sa pangangailangan ng mga mag-aaral upang magkaroon ng komunikasyon sa ibang tao at magamit sa pang-araw-araw na pamumuhay.
3. Pagsasanay. Ito ay may panlahat na kabuuang mean rating na 4.67 na may pasalitang deskripsyon na napakahusay. Samakatwid, ang mga pagsasanay ay mabisa at komplimentari sa mga konsepto ng pagkatuto.
4. Pagpapayamang-gawain. Nakitang may panlahat na mean rating na 4.65 na may katumbas na pasalitang deskripsyon na napakahusay.

Batay sa isinagawang ebalwasyon ng dalawang pangkat ng mga respondent sa mga layunin, aralin, pagsasanay at pagpapayamang-gawain, ang kinalabasan ng worktext ay:

1. Ang nadebelop na worktext ay naaayon sa kaukulang istandard kaugnay ng mga layunin.
2. Ang worktext ay naglalaman ng mga araling makatutulong sa pagdebelop sa malawak na kasanayan sa pakikipagtalastasan.
3. Ang mga konsepto o nilalaman ng worktext ay kawili-wili at nagbibigay ng hamon sa mga mag-aaral.



4. Maayos ang pagkakagawa, madaling maintindihan at naglalaman ng mga pagpapahalagang dapat matutuhan ng mga mag-aaral.
5. Napakahusay at akma sa pag-aaral ng mga kabataan sa henerasyon ngayon.
6. Nahuhulma ang kaisipan ng mga mag-aaral dahil sa tiyak na mga layunin ng worktext.
7. Maganda at kaaya-aya. Ang mga kwento at nilalaman ng worktext ay ayon at akma sa lebel ng pang-unawa ng mga mag-aaral sa ikapitong baitang.
8. Ito ay nagsisilbing instrumento para matuto at mag-aral nang mabuti ang mga mag-aaral.
9. Makulay, kaiga-igaya at tama lamang ang laki ng mga titik sa bawat gawain sa aralin.
10. May mga napunang pagkakamali sa ayos at pagkakasunud-sunod ng mga gawain.
11. May mga naitalang "clerical errors" na dapat ayusin.
12. Walang babaguhin, ayusin lamang ang ilang bahagi.
13. Napakahusay ang pagkakabuo at pagkakasunud-sunod ng mga aralin sa bawat markahan.
14. Simple ang paglalahad ng mga ebalwasyon sa bawat aralin na siyang dapat para malaki ang tyansa ng mag-aaral upang pumasa.
15. Pagtuunan nang pansin ang baybay ng mga salita at ang wastong gamit ng malaking titik.
16. Matiyaga at mahusay ang gumawa ng worktext na ito.
17. Nakapupukaw ng interes ang iba't ibang istilo at istratohiyang ginamit sa mga aralin at pagsasanay.
18. Ayusin ang ibang panuto upang lalong maunawaan ang mga ito. Dapat lagyan ng paraan ng pagpupuntos o rubrics sa bawat aktibidades.
19. Bigyang-pansin ang bawat gawain kung gaano kadali o kahirap para alam kung kailan matatapos ng mga mag-aaral.
20. Sundin ang mga tuntunin at format sa pagsulat ng panuto.

Ang mga dalubhasa o eksperto ay nagsagawa rin ng kanilang pagtataya sa nabuong worktext batay sa pamantayan ng ebalwasyon. Natuklasan sa mga layunin, aralin, pagsasanay, at pagpapayamang-gawain ang mga sumusunod:

1. Ang layunin sa nabuong worktext ay may panlahat na mean rating na 4.63 na may pasalitang deskripsiyong napakahusay, na nakikita sa Table 8.
2. Kapansin-pansin din sa mga aralin na sa lahat ng aytem ay mayroong mataas na mean at ang panlahat na mean ay 4.64 na may pasalitang deskripsiyong napakahusay. Ito ay nangangahulugang ang kabuuan ng mga aralin ay angkop at maaaring gamitin ng mga mag-aaral sa kanilang pagkatuto.
3. Natuklasang may panlahat na mean na 4.69 na may pasalitang napakahusay ang worktext batay sa pagsasanay. Nakikita ito sa Table 10, at mariing sumasang-ayon ang mga dalubhasa at eksperto sa lahat ng aytem dito.

4. Ang huling tinaya ay ang pagpapayamang-gawain na nagresulta sa panlahat na mean na 4.65 at may pasalitang deskripsiyong napakahusay. Pinatutunayan ng mataas na mean na ang mga salitang ginamit sa gawain at pagsasanay ay akma at kawili-wili.

## MGA KONKLUSYON

Ang kinalabasan ng ebalwasyon ng mga respondent na mga guro, ulongguro, dalubhasa at eksperto, at sa pagsusuri ng mga nalikom ng mananaliksik na datos ang naging batayan ng mga sumusunod na konklusyon:

1. Ang nabuong worktext ay makatutulong bilang kagamitang pampagtuturo tungo sa epektibong pagkatuto ng mga mag-aaral.

2. Ang nabuong kagamitang pampagtuturo para mapabisa ang pagkatuto ng mga mag-aaral ay ang Nadebelop na worktext sa Filipino 1 na binubuo ng pagsasanay at mga pagpapayamang-gawain mula Unang markahan hanggang Ikaapat na Markahan ay maaaring gamitin ng mga mag-aaral sa anumang pampublikong paaralan batay sa K-12 kurikulum.

3. Ang nabuong worktext ay katanggap-tanggap bilang isang balidong instruksiyunal na materyal na makatutulong sa pagpapaunlad sa performans o antas ng kakayahan ng mga mag-aaral sa Filipino.

4. Halos walang pagkakaiba ang resulta ng ebalwasyon ng mga guro, ulongguro, dalubhasa at ekspert sapagkat nakikita sa mga datos na nalikom na magkakaparehong matataas ang panlahat na mean na may pasalitang deskripsiyong napakahusay.

## MGA REKOMENDASYON

Matapos masuri ng mananaliksik ang kinalabasan ng pag-aaral na ito, nabuo ang mga sumusunod na rekomendasyon:

1. Gamitin ang worktext bilang kagamitang pampagtuturo sa Filipino 1 para sa Ikapitong Baitang ng Bambang National High School at mga pampublikong paaralan sa Nueva Vizcaya.

2. Maaaring ipasubok din ang worktext na ito sa iba pang pampublikong paaralan ng Nueva Vizcaya upang lalong mapagtibay ang bisa nito.

3. Maging batayan ng iba pang mananaliksik upang madagdagan at matugunan ang kakulangan ng mga kagamitang pampagtuturo.

4. Ganyakin at hikayatin pa ang mga guro upang bumuo at gumawa ng worktext na ipagagamit sa mga mag-aaral, nang sa gayon ay magkaroon ng malaking tyansang pumasa sa asignaturang Filipino.

5. Magsagawa ng pag-aaral sa pagbuo ng worktext upang higit na maging kawili-wili ang proseso ng pagkatuto at mapaunlad ang antas ng performans sa Filipino.

Ang kurikulum sa edukasyon ay nagbabago upang lalong matugunan ang pangangailangan ng mga mag-aaral tungo sa pagkamit ng mas malawak at makabuluhang kaalaman. Ang



Filipino 1 sa binagong kurikulum sa sekundarya ay nagbigay ng panibagong tuon para matugunan ang mga suliraning namalas sa pagtuturo at pagkatuto nito. Kaya sa kasalukuyan ay lalong malilining ang kasanayan ng mga mag-aaral sa pagbabasa, pang-unawa, pagsulat at maging sa pagsasalita.

Upang mapadali ang proseso ng pagkatuto ng mga mag-aaral at lalo pang maiangat ang kakayahan ng mga guro mula sa tradisyonal na sistema ng pagtuturo, ang mananaliksik ay nahikayat na magsagawa ng isang pananaliksik. Bilang bahagi ng pananaliksik na ito, ay ang nabuong worktext sa Filipino 1 na nakatuon para sa mga mag-aaral sa ikapitong baitang.

Laman ng worktext na ito ang mga aralin alinsunod sa Philippine Secondary Learning Competencies ng DepEd Kurikulum, K-12, DepEd Memo no. 97, s. 2012. Nakapaloob sa Grade 7 Learning Package na ito, ang mga nakatakdang aralin sa bawat markahan. Kinapapalooban ito ng apat (4) na markahan.

Sa bawat aralin at pagtalakay ay may nakahandang mga pagsasanay, pagtataya at karagdagang-gawaing lilingan sa kakayahan ng mga mag-aaral na sumasagot sa mga kritikal na katanungan nang naaayon sa kanilang opinyon at nararamdaman. Sa pamamagitan nito, naipahahayag nila ang kanilang saloobin

nang makabuluhan, ayon sa hinihingi ng sitwasyon, kung hindi man nila nagagawa sa pasalitang aktibiti.

Sadyang iniakma ng mananaliksik ang mga gawaing nakapaloob para sa ikapitong baitang upang lalo pang malinang at mahasa ang kanilang mga kasanayang pampanitikan bukod pa sa kaalaman sa pagsulat, paggawa ng mga pag-aaral-suri, pananaliksik at pagtuklas ng iba pang karunungan.

Ang worktext na ito'y magiging katuwang ng guro upang lalong mapagaan at mapadali ang gawaing-pagtuturo. Lalo pang magkakaroon ang guro ng sapat na oras para sa pananaliksik ng makabagong istrateliya at sa paghahanda ng iba pang kagamitang pampagtuturo.

Inaasahang sa mapamaraan at masigasig na pamamatnubay ng guro sa paggamit ng worktext na ito, napauunlad ang mga mag-aaral tungo sa mabisang pakikipagtalastasan, mapalawak ang kanilang karanasan at magiging mahusay sa paggamit ng wikang Filipino sa lahat ng pagkakataon.

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# THE PATH TO HAPPINESS: FREEDOM FROM THE SHACKLES OF EXTERNAL EXPECTATIONS

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## ABSTRACT

*External expectations come from family, society and other aspects, which widely exist and have a great impact on individuals. This study explores how external expectations influence individual well-being and ways to reduce the impact of external expectations. The results show that external expectations can be generated through social comparison theory and belonging needs, and affect individuals through pressure and restraint. In order to achieve true inner happiness, individuals need to redefine the standard of happiness and enhance their sense of autonomy and psychological resilience. Reducing the impact of external expectations is not only conducive to the realization of inner happiness of individuals, but also conducive to the positive progress of society. To achieve happiness, individuals need to change their concepts and improve their mental toughness, in addition to changing external conditions. This study provides a new perspective on the realization of individual self-actualization.*

**KEY WORDS:** External expectations, Happiness, Self-realization Self-actualization, Autonomy, Psychological resilience

## I. INTRODUCTION

With the rapid development of globalization and information technology, people's pace of life is accelerating, and the pressure of competition is increasing. In this context, the influence of external expectations is gradually becoming prominent, and more and more people are subject to expectations from family, friends, colleagues, society, etc. These expectations have an important impact on individual happiness. However, paying too much attention to external expectations may lead individuals to ignore inner needs, thereby affecting their well-being. Therefore, it has become an issue worthy of attention to discuss getting rid of the shackles of external expectations in order to pursue true happiness.

The purpose of this study is to analyze the impact of external expectations on individual well-being, explore how to get rid of the shackles of external expectations to achieve real individual happiness, and the necessity of reshaping the concept of happiness. Studies have found that getting rid of the shackles of external expectations not only helps to improve individual well-being, but also promotes social harmony and progress. In order to achieve this goal, this paper first explains the concept of external expectations in detail, and analyzes the source and formation mechanism of external expectations. Then, this paper explores how external expectations affect individual well-being, and proposes practical ways to get rid of external expectations. Finally, the article summarizes the positive effects of getting rid of external expectations, and advocates a new concept and practice of happiness.

### 1.1. Research Purpose and Significance

The purpose of this study is to discuss the necessity of getting rid of external expectations and the necessity of reshaping the concept of happiness. In order to achieve this purpose, this

article will analyze from two levels of theory and practice. At the theoretical level, this article will explore the impact of external expectations on individual well-being, and analyze the theoretical basis for getting rid of external expectations. At the practical level, this article will propose a practical way to get rid of external expectations, and analyze the necessity of reshaping the concept of happiness. Through this research, this paper aims to provide theoretical guidance for individuals to pursue true happiness, while promoting social harmony and progress.

#### 1.1.1 The need to get rid of external expectations

External expectations refer to the expectations of individuals from others or society, and these expectations may come from family, friends, colleagues, etc. Excessive focus on external expectations may lead individuals to ignore inner needs, thereby affecting their well-being. Therefore, the necessity of getting rid of external expectations is mainly manifested in the following aspects:

- A. Improve individual happiness. Getting rid of external expectations can help individuals focus on their own inner needs, thereby improving happiness. When individuals are able to get rid of external expectations and focus on their true inner needs, they will be more free to pursue their own values and goals, thereby improving their sense of well-being.
- B. Promote individual growth and development. Getting rid of external expectations can help individuals recognize their own strengths and weaknesses, and grow and develop according to their own characteristics and interests. Such a process helps individuals improve their self-identity, enhance their self-esteem, and thus promote their growth and development.



- C. Maintain individual mental health. Excessive attention to external expectations may lead to psychological problems such as anxiety and depression. Getting rid of external expectations can help individuals reduce psychological pressure, maintain a good mental state, and maintain individual mental health.

### 1.1.2 The Necessity of Reshaping the Concept of Happiness

In modern society, the concept of happiness is affected by many external factors, such as social values, cultural traditions and so on. These external factors may cause individuals to misunderstand happiness, thus affecting the individual's sense of well-being. Therefore, the necessity of reshaping the concept of happiness is mainly manifested in the following aspects:

- A. Improve the level of individual happiness. By reshaping the concept of happiness, individuals can realize that true happiness does not come from external expectations, but from inner satisfaction, which helps to improve the level of individual happiness.
- B. Promote social harmony and progress. When individuals can get rid of external expectations and focus on their inner real needs, they will be more free to pursue their own values and goals, thereby promoting social harmony and progress.
- C. Enhance the individual's ability to resist stress. Reshaping the concept of happiness can help individuals establish correct values, thereby enhancing their ability to resist stress. When individuals can understand happiness correctly and realize that happiness is not completely affected by external expectations, they will be more able to cope with the stress and challenges in life.
- D. Promote the development of happiness research. Reshaping the concept of happiness will help promote the development of happiness research and provide a new theoretical perspective and practical basis for happiness research. By reshaping the concept of happiness, researchers can explore the nature of happiness more deeply, so as to provide more beneficial happiness suggestions for individuals and society.

### 1.2 Explanation of the basic concepts of external expectations

External expectations refer to the social environment in which an individual lives, the expectations from others or groups on individual behavior, achievements, status, etc. External expectations usually include different types such as family expectations, workplace expectations, and friends' expectations. In order to better understand the impact of external expectations on individual well-being, this section will explain the basic concepts of external expectations.

Family expectations refer to the expectations of individuals from family members (such as parents, spouses, children, etc.). These expectations may relate to career choices, marital status, children's education, and more. Family expectations are usually out of love and concern for individual well-being, but excessive

family expectations may lead to increased individual stress and affect their sense of well-being. In many families, parents may place high expectations on their children's academic, career and married life, hoping that their children can become pillars of society. However, high expectations may put children under a lot of psychological pressure, and even affect their physical and mental health.

Among family expectations, marriage and children's education are two key factors. Parents usually hope that their children can find a suitable partner so that they can lead a happy life. However, this expectation may lead individuals to be overly cautious in choosing a partner, or even give up their own feelings and interests. Similarly, when it comes to their children's education, parents may have extremely high expectations for their children's academic performance and future prospects, which may cause children to feel overwhelmed when faced with challenges and stress. Excessive family expectations may cause individuals to lose balance in the process of pursuing themselves, thereby affecting their sense of well-being.

Workplace expectations refer to the expectations of individuals from the workplace (such as superiors, colleagues, etc.). These expectations may relate to job performance, job promotion, teamwork, etc. Workplace expectations are usually to improve work efficiency and team cohesion, but excessive workplace expectations may lead to excessive work pressure for individuals and affect their mental health and well-being. In the workplace, employees need to face various expectations from their superiors and colleagues, which may make them feel great pressure in the process of pursuing professional success.

Job performance and job advancement are two major areas of workplace expectation. Supervisors and colleagues usually expect employees to demonstrate excellence in tasks and projects so that they can bring more profits and development to the company. However, high expectations can lead to panic and anxiety in the face of challenges that affect employees' productivity. Similarly, in terms of job promotion, employees need to compete with others for limited promotion places in a highly competitive environment. Excessive workplace expectations may lead individuals to ignore their physical and mental health in the process of pursuing career success, thus affecting their sense of well-being.

Friend expectations refer to the expectations of individuals from the circle of friends. These expectations may involve participation in social activities, handling relationships, and lifestyle choices. Friend expectations are usually to maintain the stability of friendship and social circles, but excessive friend expectations may lead to confusion in the pursuit of self-worth and affect their sense of well-being. In the process of communicating with friends, individuals need to meet the expectations of friends in order to maintain good interpersonal relationships. However, excessive friend expectations may interfere with individuals' pursuit of self-worth and goals, thereby affecting their well-being.



In friend expectation, participation in social activities and handling of interpersonal relationships are two key factors. Friends usually expect individuals to be socially active so that they can share joy and support. However, excessive anticipation may cause individuals to feel stressed and exhausted when participating in social activities, thereby affecting their mental health. Likewise, when it comes to dealing with relationships, individuals are confronted with various expectations from their friends, which can make it difficult for them to deal with conflict and disagreement. Excessive friend expectations may cause individuals to lose their own values when maintaining interpersonal relationships, thus affecting their well-being.

Social expectations refer to the expectations of individuals from the general public and cultural traditions. These expectations may involve moral concepts, values, lifestyles, etc. Social expectations are usually to maintain social order and cultural traditions, but excessive social expectations may lead to conflicts in individuals' pursuit of self-worth and affect their sense of well-being. When facing social expectations, individuals need to follow certain norms and standards to avoid criticism and accusations from society. However, high expectations may lead individuals to limit their pursuit of self-worth and goals, thereby affecting their well-being. Ethics and values are two major aspects of social expectations. The general public usually hopes that individuals can follow certain moral norms in order to maintain social stability and harmony. However, high expectations may cause individuals to feel troubled and conflicted when faced with moral dilemmas. Similarly, in terms of values, the general public may have expectations of individuals' lifestyles and concepts, which may put them under pressure when pursuing their own values. Excessive social expectations may lead individuals to limit their pursuit of self-worth and goals, thereby affecting their well-being.

To sum up, external expectations are a diverse and complex concept, covering expectations of various types and levels. When analyzing the impact of external expectations on individual well-being, it is necessary to comprehensively consider various expectations and pay attention to their possible negative effects. Understanding the basic concepts of external expectations will help us to explore how to get rid of excessive external expectations in order to achieve real individual happiness.

In order to cope with and manage external expectations, individuals need to learn to remain calm and rational in the face of various expectations. First, individuals should realize that external expectations do not necessarily represent their true worth and abilities. Second, individuals need to learn to pay attention to their own needs and interests while meeting external expectations. This means that individuals need not to lose sight of their own values and goals while pursuing the expectations of others. In addition, individuals can try to communicate with family, friends, and colleagues to understand their expectations and express their needs and feelings. By establishing a good communication mechanism, individuals can better manage and balance external expectations.

## 2. The restriction of external expectations on individual well-being

External expectations refer to expectations from society, family, friends, or the work environment. These expectations may not align with the individual's values, goals, or needs, thereby affecting the individual's well-being. The restriction of external expectations on individual well-being is mainly reflected in the following aspects:

The expectation of career success . In modern society, individuals face many external expectations, such as career success, family harmony, and social status. These expectations often stem from cultural traditions, social institutions, and personal relationships. On the career front, individuals may have expectations from family, friends, and colleagues to excel at work, receive promotions, and raise wages. However, these expectations may lead individuals to neglect their own interests and abilities, and thus fall into jobs that are not suitable for them. In this state for a long time, it is difficult for individuals to obtain a sense of accomplishment and satisfaction, which in turn affects their sense of well-being.

Second, social status expectations . Social status is one of the important symbols to measure an individual's status in society. In modern society, individuals are often expected from all sides, requiring them to obtain a certain status and prestige in society. However, these expectations may lead individuals to excessive pursuit of fame and fortune, and even unscrupulous efforts to improve their social status. This approach is likely to make the individual lose himself, and ultimately lead to a decrease in happiness.

Third, the expectations of academic performance . Education is a process that every individual goes through. However, during this process, individuals may be subject to expectations from family, school and society. These expectations may put enormous pressure on individuals, making them pay too much attention to superficial achievements such as scores and rankings, while ignoring the real interest and potential exploration. Such an educational environment and growth process can hardly bring individuals a sense of accomplishment and self-confidence, and may instead affect their sense of well-being.

Fourth, the expectations of interpersonal relationships . In interpersonal communication, individuals also face expectations from others. These expectations may require the individual to display qualities of friendliness, warmth, and caring for others. However, if individuals cater to others excessively and suppress their true emotions in order to meet these expectations, it may eventually lead to individuals losing their true self and reducing their sense of well-being.

Fifth, the expectation of a perfect body . In modern society, body shape has also become the focus of many people's attention. Individuals may be expected by society and others to have a perfect body. However, paying too much attention to these expectations can lead individuals to over-diet, over-exercise, or even go to extreme weight loss methods. Such behavior not only fails to bring individual happiness, but may cause serious damage to their physical and mental health.



In the face of external expectations, individuals should learn to maintain independent and autonomous thinking, pay attention to their own needs and development, and seek a lifestyle that truly suits them. Only in this way can individuals find their own sense of happiness in this society full of expectations.

## 2.1 The source and formation mechanism of external expectations

External expectation is an expectation formed by individuals in the process of social interaction, which comes from multiple factors such as society, culture, and family. These expectations may affect the individual's behavior and psychological state through direct or indirect ways, thus exerting a restrictive effect on well-being. The sources and formation mechanisms of external expectations are discussed below.

### 2.1.1 Social comparison theory

Social comparison theory is an important theory for studying the formation of external expectations. According to this theory, people tend to evaluate their abilities and status by comparing themselves with others. In this process, individuals may unconsciously absorb the expectations and evaluations of those around them and form their own expectations. When these expectations conflict with the individual's inner needs and values, it is easy to generate dissatisfaction, which leads to a decrease in happiness.

Social comparison is not a fixed, objective process. On the contrary, it is affected by various factors such as individual psychology, emotion, and cognition. These factors jointly determine what information an individual pays attention to in the process of social comparison, how to interpret this information, and how to transform this information into their own expectations. Thus, social comparison theory provides important insights into our understanding of the formation of external expectations.

It is worth noting that the sources of information in the process of social comparison are very rich, including other people's words and deeds, media reports, advertising and so on. This information will be transmitted to individuals through various channels, thereby affecting the formation of their expectations. Therefore, when studying external expectations, we need to pay attention to these sources of information and their impact on individuals.

The scope of application of social comparison theory goes far beyond the level of individual psychology. In fact, it has extensive practical value in many fields such as society, culture, and economy. In these fields, the core idea of social comparison theory is that when people face various information, they will unconsciously adjust their expectations and goals with reference to other people's performance, status and resources. This process is highly competitive and imitative, causing individuals to ignore their own inner needs and values in the process of constantly pursuing higher and better things. This phenomenon is especially obvious in modern society, because the speed of information dissemination and various channels

make individuals more likely to feel uneasy and confused when faced with the pressure of social comparison.

### 2.1.2 Driven by identity and belonging

Identity and belonging are one of the basic human needs. To achieve this feeling, individuals tend to connect with others and seek their approval. In this process, individuals are easily influenced by the expectations of others, thus forming external expectations. Especially in a group environment, individuals tend to follow the group's expectations and norms in order to gain recognition and a sense of belonging.

However, excessive pursuit of identity and belonging may lead individuals to ignore their inner needs, thereby reducing happiness. For example, in order to meet the expectations of others, individuals may give up their own interests and hobbies, thus losing inner motivation and satisfaction. Therefore, identification and belonging drive can explain the restrictive effect of external expectations on individual well-being to a certain extent.

In addition, the drive of identity and belonging may also lead to individual dependence. When individuals become overly dependent on the approval and support of others, they may become overly sensitive to external expectations, thus falling into a vicious circle. In this case, individuals need to increase their sense of well-being by enhancing their self-awareness and self-worth and reducing their dependence on external expectations.

## 2.2 How external expectations affect individual well-being

External expectations affect individual well-being through various channels. These pathways are often interrelated and together form a complex network of influences. These impact pathways are described below :

### 2.2.1 Creating pressure and psychological restraint

First of all, external expectations often exist in the form of pressure, which puts individuals under enormous psychological pressure in the process of pursuing self-realization. This stress can stem from concerns about the expectations of others, fear of being judged, and uncertainty about the future. In order to meet external expectations, individuals may be overworked, sacrificing time for rest and recreation, resulting in physical and mental exhaustion and reduced well-being.

In addition, external expectations can also make individuals feel psychologically constrained and lose their freedom and autonomy. In order to meet the expectations of others, individuals may make compromises in behavior and give up their own values and beliefs. Individuals who are in this state for a long time are prone to frustration and helplessness, which leads to a decrease in happiness.

At the same time, the psychological impact of external expectations on individuals may also manifest as tension and anxiety. When individuals face escalating expectations, they may have doubts about their abilities, self-doubt and feelings of inferiority. These negative emotions can further reduce the





individual's sense of well-being and mental health.

### 2.2.2 Influencing values and behaviors

Second, external expectations can change an individual's values and behavior. In order to meet the expectations of others, individuals may give up their own interests and hobbies, and pursue success standards recognized by others. This behavior makes individuals lose their inner drive and reduces their sense of well-being.

At the same time, external expectations may also lead to contradictions and conflicts where individuals have inconsistent values. When an individual's internal values conflict with external expectations, they may become entangled and confused, which affects their sense of well-being. In addition, the conflict of values may also lead to individual hesitation and struggle in behavior, thus affecting the quality of life and work.

In addition, the influence of external expectations on individual values and behaviors may also be manifested as over-adaptation. In order to conform to the expectations of others, individuals may make compromises in values and over-fit social norms and expectations. This over-adaptation may impair an individual's ability to think independently and innovate, thereby affecting their well-being and personal growth.

To sum up, external expectations restrict individual well-being in many ways. In order to improve happiness, individuals need to get rid of the shackles of external expectations to a certain extent, and pay attention to their own internal needs and values. At the same time, society and family should also provide individuals with a relaxed environment for growth, and alleviate the restrictive effect of external expectations on individual happiness.

### 3. Practical ways to get rid of external expectations and reshape the concept of happiness

In order to get rid of the negative impact of external expectations on individual well-being, we need to start from four aspects: redefine the standards of success and happiness, enhance self-awareness and inner autonomy, establish positive psychological defense mechanisms, and shape a social environment conducive to happiness. These four aspects are described in detail below:

#### 3.1 Redefining the Standards of Success and Happiness

In modern society, the criteria of success and happiness are often misinterpreted as external factors such as money, status and fame. This concept tends to lead individuals to pay too much attention to external expectations, thus affecting well-being. In order to change this status quo, we need to redefine the standards of success and happiness in the following ways:

1. Emphasize intrinsic values and core needs. Change the standard of success and happiness from external evaluation to the satisfaction of internal needs, and pay attention to the internal value and core needs of individuals to achieve a balance between self-worth and needs.

Second, the pursuit of self-realization and growth. Emphasis on the process of personal development rather than purely on results, encourages individuals to focus on self-realization and growth when pursuing success and happiness, and pay attention to the development of mind, intelligence and emotion.

3. Advocate a balanced lifestyle, and advocate that individuals take into account the overall development of mind, body and society in the process of pursuing success and happiness, so as to achieve balance in all aspects of life.

#### 3.2 Enhance self-awareness and inner autonomy

To break free from the shackles of external expectations, individuals need to increase self-awareness and inner autonomy. Specific practice paths include:

1. Reflect on your own needs and values. Individuals should have a deep understanding of their own needs and values, and clarify their personal goals and pursuits, so that they can maintain independent thinking and judgment in the face of external expectations.

2. Improve self-identity. Individuals should learn to strengthen their own values and beliefs, and improve their sense of self-identity, so that they can maintain their positions and principles in the face of external expectations.

3. Cultivate self-regulation ability. In the face of external expectations, individuals should learn to regulate their emotions and behaviors, improve their psychological endurance, and thus reduce the impact of external expectations on well-being.

#### 3.3 Establish a positive psychological defense mechanism

In order to maintain psychological balance in the face of external expectations, individuals need to establish a positive psychological defense mechanism. The specific practice methods include:

1. Cultivate an optimistic attitude. Learn to see the positive factors in life, and deal with the pressure brought by external expectations with a positive and optimistic attitude, so as to improve psychological adaptability.

2. Improve the ability to cope with stress. Individuals should reduce stress levels through exercise, meditation, etc., and improve their ability to cope with stress brought about by external expectations.

Third, establish an effective social support system. Individuals should establish a social support system such as relatives and friends, professional counseling, etc., to cope with the distress caused by external expectations, and obtain emotional support and psychological adjustment.

#### 3.4 Create a social environment conducive to well-being

The realization of individual happiness is inseparable from the support of the social environment. To get rid of the negative impact of external expectations on individual well-being, we need to work together to shape a social environment that is conducive to well-being. Specific practice paths include:

1. Advocate respect for individual differences. Advocate diversified values, respect individual differences, encourage individuals to develop according to their own characteristics and needs, and avoid blind pursuit of external expectations.

Second, pay attention to mental health education.





Improve the public's understanding of the concept of happiness, popularize mental health knowledge, and improve the individual's psychological quality when facing external expectations.

3. Improve relevant policies and systems . Improve education, medical care, social security and other policy systems to provide individuals with fair development opportunities and a good psychological environment, and reduce the impact of external expectations on individual well-being.

To sum up, getting rid of the influence of external expectations on individual well-being requires us to redefine the standards of success and happiness, enhance self-awareness and inner autonomy, establish positive psychological defense mechanisms, and create a social environment conducive to happiness. work together. Through these practical paths, we can gradually become free from the shackles of external expectations and achieve true happiness. In this process, both individuals and society need to constantly reflect and adjust to build a more harmonious, inclusive and conducive environment for individual well-being.

#### 4. Conclusion and Outlook

In this article, we analyze the impact of external expectations on an individual's well-being and explore practical ways to move away from them. At the same time, we put forward a new concept and practice of happiness. In this chapter, we will summarize the positive impact of getting rid of external expectations on individuals and society, and look forward to future research directions.

##### 4.1 The positive impact of getting rid of external expectations on individuals and society

First, getting rid of external expectations can significantly improve individual well-being. By redefining the standards of success and happiness and focusing on intrinsic values and core needs, individuals can better realize their self-worth and meet their needs, thereby improving their sense of well-being. This focus on inner values and needs helps individuals free themselves from excessive pursuit of external achievements and approval from others, and enables individuals to focus on what they really desire in their hearts, so as to obtain more lasting and profound happiness.

Second, getting rid of external expectations helps foster personal growth and development. Enhancing self-awareness and inner autonomy helps individuals maintain independent thinking and judgment in the face of external expectations. This independence enables individuals to better resist social pressure and the expectations of others, which is conducive to the overall development of individuals in terms of psychology, emotion, and behavior. In addition, independent thinking and judgment can also enable individuals to better balance their own needs and the requirements of the external environment in the process of personal growth, thereby achieving a more harmonious growth process.

In addition, getting rid of external expectations can help improve mental health. Establish a positive psychological

defense mechanism, improve the ability to cope with stress, reduce the risk of mental illness, and improve individual mental health. When individuals can get rid of external expectations, they will be more confident, optimistic and resilient, and thus more confident and powerful in facing challenges and difficulties in life. This positive state of mind helps individuals maintain good mental health and coping skills throughout life.

Finally, getting rid of external expectations can help build a harmonious social environment. Creating a social environment conducive to happiness and advocating respect for individual differences and diverse values will help build a more harmonious and inclusive social environment. In such a social environment, individuals can better reflect their own uniqueness and diversity in the process of pursuing self-worth and happiness, thereby promoting social progress and development.

##### 4.2 Advocate a new concept and practice of happiness

In order to achieve the above positive impact, we propose the following new concept and practice of happiness:

First, we need to focus on internal needs and values. It is advocated to start from the inner needs and pay attention to the inner value of the individual in order to realize true happiness. This means that in the process of pursuing happiness, we need to pay attention to the individual's spiritual needs, personality development and emotional expression, not just material wealth and social status. By focusing on inner needs and values, we can better understand the real needs of individuals at different life stages, thereby improving individual happiness and life satisfaction.

Second, we need to pursue all-round development and balance. Encourage individuals to take into account the overall development and balance of psychology, physiology and social aspects in the process of pursuing happiness. This requires individuals to pay attention to the interaction and relationship with others, care about social and environmental issues while paying attention to personal wishes and goals, so as to realize the harmonious coexistence of individuals and society. Through the pursuit of holistic development and balance, individuals can make progress in all areas and achieve a more comprehensive and lasting sense of well-being.

Again, we need to focus on self-actualization and growth. Advocate self-realization and growth as the goal, and pay attention to the development of mind, intelligence and emotion. This means that we should strive to improve the quality of individuals' self-awareness, creativity, and emotional intelligence, so as to achieve continuous growth and progress in the process of continuous pursuit of self-worth. By focusing on self-realization and growth, individuals can better adjust their mentality and behavior in the face of challenges and difficulties, and achieve inner peace and satisfaction.

Finally, we need to strengthen our psychological quality and coping ability. Mental health education and other means are advocated to improve the individual's psychological quality and coping ability in the face of external expectations. This includes



developing qualities such as self-regulation, stress resistance and social skills in individuals so that they can better cope and adjust in the face of external expectations and pressures. By strengthening psychological quality and coping ability, individuals can better cope with challenges and changes in life, and achieve higher happiness and life satisfaction.

#### 4.3 Outlook

In future research, we can conduct in-depth discussions from the following aspects:

First, cross-cultural comparative research. Discuss the influence of external expectations on individual well-being under different cultural backgrounds, and the practical ways to get rid of external expectations. This will help us better understand the happiness needs and pursuit patterns of individuals in different cultural backgrounds, and provide strong support for improving the level of happiness on a global scale.

Second, research on happiness intervention strategies. According to the characteristics and needs of different groups, research and formulate targeted happiness intervention strategies to improve the intervention effect. This will help us better help individuals cope with external expectations and improve their well-being and quality of life.

Thirdly, the exploration and practice of happiness education. Research on integrating new happiness concepts and practices into the education system to cultivate a new generation with happiness awareness and abilities. This will help us cultivate individuals with a healthy and happy outlook from the source, and lay the foundation for building a happier and more harmonious society.

Finally, policy and institutional innovation research. Discuss how to improve the policy and institutional environment to support the promotion and implementation of new concepts and practices of happiness. This will help us build a policy and institutional environment conducive to happiness at the national level, and create favorable conditions for the improvement of individual happiness.

#### 4.4 Conclusion

Starting from the impact of external expectations on individual well-being, this paper explores the ways and significance of getting rid of external expectations. We put forward a brand-new concept and practice of happiness, in order to provide more beneficial guidance for individuals on the road of pursuing happiness. At the same time, we look forward to the future research direction, hoping to provide inspiration for the development of happiness research and the progress of society. In short, by getting rid of external expectations and focusing on internal values and needs, individuals and society can achieve a higher level of happiness and build a more harmonious and inclusive world.

#### REFERENCES

1. Chen Yikang, Meng Jiaping, Liu Yifan, & Sun Ruifeng. (2021). *The relationship between personal struggle and subjective well-being of Chinese college students: The mediating role of self-efficacy*. *Advances in Psychology*, 11(4), 8.
2. Zhang Jintao. (2021). *Research on the construction of college students' psychological well-being from the perspective of self-realization*. *Scientific Consulting*.
3. Liu Chao, & Dai Yu. (2021). *What is happiness? How to achieve it?—Wise Men's "Endless Confusion"*. *Chinese Book Review* (5), 18.



# USING ML AND PYTHON IMPLEMENTING SMART COLLEGE CHATBOT

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## ABSTRACT

*The days of only captivating with the aid of a console are over. Clients are increasingly interacting with frameworks via voice collaborators and chatbots. A chatbot is a computer software that can converse with humans by utilising Artificial Intelligence in the informative phases. When the chatbot receives input from a client, it preserves the information and response, allowing a chatbot with limited starting information to evolve using constructed responses. As the number of responses increases, so does the chatbot's accuracy. The ultimate goal of this endeavour is to introduce a chatbot component and API for Matrusri Engineering College. This project will investigate how advancements in Artificial Intelligence and Machine Learning innovation are being used to operate on various administrations. Clearly, it will look into the advancement of Chatbots as a data distribution route. The computer selects the nearest matching reaction from the nearest matching proclamation that fits the input using WordNet, and then selects the reaction from a predefined set of articulations for that reaction. This task intended to implement an online chatbot framework to assist clients who access the school website, utilising devices that uncover Artificial Intelligence strategies, for example, Natural Language Processing, allowing clients to speak with the school chatbot utilising regular language input and to prepare the chatbot utilising appropriate Machine Learning techniques so that creating a response will be possible. There are several apps that combine a human look and hope to replicate human exchange, but in most cases, information on chatbots is saved in a data set created by a human master.*

**KEYWORDS:** Chatbot; Artificial Intelligence; Machine learning; WordNet; Natural Language Processing

## I. INTRODUCTION

Improvements in the realms of system administration and data innovation have been diverse in the implementation of Artificial Intelligent (AI) frameworks. These frameworks are becoming closer to human workouts, such as decision-making sincerely strong organisations, sophisticated mechanics, regular language handling, and so on. Without a certain, even in the phoney smart domains, there are a few combination methods and adaptable tactics that produce increasingly sophisticated strategies. That is true, yet presently there are a few Natural Language Processing (NLP) [1] and intelligent frameworks that can comprehend human language. Counterfeit sharp frameworks educate and recover information by analysing necessary electronic materials that have existing on the internet. A chatbot (also known as a loudmouth, Bot, or Artificial Conversational Entity) is an artificial intelligence (AI) programme [2] that replicates human conversations by remembering content and correspondence for natural language using artificial consciousness strategies such as Natural Language Processing (NLP), image and video handling, and voice investigation. The chatbot for school board framework was created using artificial consciousness calculations that inspect the client's inquiries. This chatbot framework is a web application that responds to a client's separate inquiries. Clients

must essentially choose the sequence for requests and then pose the question to the bot that will take note of it. To respond to the client's requirements, computerised reasoning has been integrated. After that, the client can secure the appropriate responses to their inquiries. Man-made consciousness computations are used to determine the appropriate reactions. Clients will not have to travel to the school or school location to make demands. Clients must enrol in the framework and must login to the framework. Clients can access the various assistance sections after logging in. There will be many assistance pages where customers with disabilities may communicate by asking questions about school activities. The framework responds to consumer enquiries using an appealing Graphical User Interface (GUI). With the use of this online application, the client may inquire about school-related exercises. Affirmations, scholastics, Intake, and other social exercises are examples of school-related activities. It will keep students/other clients interested in school activities. A chatbot is an Artificial Intelligence software that can converse with humans in natural language, similar to how people communicate with one another. It can substitute a human for some tasks like as responding queries. A chatbot is an expert who assists clients in using standard language. It was filled in as a scheme to fool others. A few functions of chatbots, such as



user care, client support, and so on, employ Artificial Intelligence Markup Language (AIML) [3] to visit with clients. One of the first goals of chatbots was to mimic a wise person and entice the recipient of the discussion to comprehend the genuine working alongside various plans and capacities for their usage has often expanded. These chatbots may appear to fool the client into believing that they are "talking" to a human; yet, they are limited in further extending their understanding base during runtime, and frequently have few mechanisms for monitoring all conversation data. Chatbots employ AI to appear at fake insight, aiding them in comprehending the client's inquiry and providing an appropriate response. For giving or assisting the client, chatbots are created utilising the Artificial Intelligence Markup Language (AIML). This includes programming that will use Artificial Intelligence to assist the customer in visiting with a computer. The client can inquire about the frameworks in the same way that he or she would with any other person. The following is an excess of paper: Area II is about the Survey Area III covers the suggested framework with philosophy, Area IV proposes outcomes and discussion. Finally, part V concludes the paper.

## II. WRITING SURVEY

Various applications may be fostered by utilising the science of Artificial Intelligence. A school chatbot framework is one of several mentioned in this study. Regardless of how a chatbot may be supplied in many industries such as advertising, training, banking, healthcare, and finance. The standard rule-based chatbots are being improved to be instructional, responsive, and capable of completing correspondence in conversational human language. This necessitates the integration of developments in Natural Language Processing (NLP) and Machine Learning (ML). the basis for school chatbots There is several approaches to dealing with that role. The geography of the chatbot, the features it intends to provide, the language of correspondence, the end client, and so on all influence the technique of choice. In this writing investigation, a fraction of the techniques is knowledgeable. Michael Maudlin created the "Babble Bot Algorithm" in 1994, which was published in the book Julia and was used to answer queries. Using this core concept, other projects were established to construct a chatbot framework. The client must first log in to the Chat-Bot programme. At that time, the client is free to file complaints and ask inquiries. When a client enquiry is made to the bot, the question setting is sensed and NLP is used is applied. To detect the feeling of the words, WordNet estimate [4] and linguistic structures marking are utilised. Client inquiries are genuinely examined in the information data collection. Assuming the correct reaction is found, the solution is subsequently sent to the client. If a specific query is not located in the data set, such requests are handled by the director. When the head responds to the enquiry, the appropriate response is dispatched to the client. Question and response are included in the data set so that if such requests are submitted, they are tended to authentically from the data collection. Because this manager does not need to handle the same query sincerely any longer. Various computations, such as the Porter Stemmer Algorithm [5], are used to remove postfixes from English words. The word demand vector procedure is used to

compare the word demand proximity of two phrases. Sentences with the exact same words but in different requests may attain varying degrees of significance. The customer is permitted to ask several foundation-related questions. Chatbots, after receiving a client enquiry, verify the certainty [6] score and provide a real response to the client's question. The catch match computation is performed after the client request has gone through three watchword matching calculations [7]. If the matching of catchphrases fails, the inquiry is supplied via 2 and 1 watchword coordinating with the data set. Even yet, if the inquiry doesn't have the proper catchphrase match, the chatbot programme will respond with No Answer Found. Another computation used for chatbot applications is the use of reasoning connections to select a response. The purpose of an information connector is to receive input from a bot source and then transform it into a configuration that a chatbot can understand. The chatbot system makes use of an exceptional reasoning connection, which enables it to choose the best reaction from all possible responses. The Multi Logic Adapter is used to select a single response from the responses produced by all of the logic connections that the visit bot has been configured to use. Word implanting completes data preprocessing. Each word is assigned to a vector, and the vector structure is addressed in a one-hot encoded structure [8], implying that 1 addresses the presence of a word and 0 addresses everything else. The Regular Language ToolKit (NLTK) is a Python module that aids with Natural Language Processing (NLP). Tokenizers are incorporated into NLTK [9]. The NLTK incorporates a broad range of tokenizers, including letters, ways, words, watchwords, class, N-gram, design, and so on. The word-punkt tokenizer [10], which separates sentences at obvious spaces, is the most often used tokenizer. The NLTK tokenizers' accuracy, speed, and viability are modelled. Head logs in and can conduct tasks such as removing incorrect responses or incorporating emphatic responses to specific requests. The chatbot programme replies to client inquiries with the assistance of updated thinking.

## III. PROPOSED SYSTEM

This College Chatbot System is a computer programme that responds to customer enquiries. Figure 1 depicts the framework design of the chatbot framework. Right away, the Chatbot greets the customer and invites him/her to login to the framework by providing his/her email address. The client then locates the buttons in the UI that compare to the various school categories. After going through the buttons, the chatbot framework asks the client if it is beneficial in providing a response. If the customer cannot find the desired response, he or she might continue with the visit to the school chatbot framework by briefly describing their inquiries.

After that, the chatbot framework uses Machine Learning computations to distinguish the client inquiries. When a customer asks a question, the catchphrases in the inquiry are identified using the WorldNet Algorithm. As the investigation progresses, the portrayal of each character might shift from one to the next. Clients may pose a similar inquiry in a variety of ways. One customer asks a query that is both fundamental and evident, yet another client may request the identical inquiry in

a completely different context. As a result, it is required to determine what precise facts the client is attempting to be aware of and to choose the appropriate response to the corresponding client inquiry. The chatbot architecture immediately removes

prohibit words from customer input, presuming they are present in the queries requested by the client. After removing the prohibit words from the client inquiries, the tokenization and lemmatization[11] processes are completed.

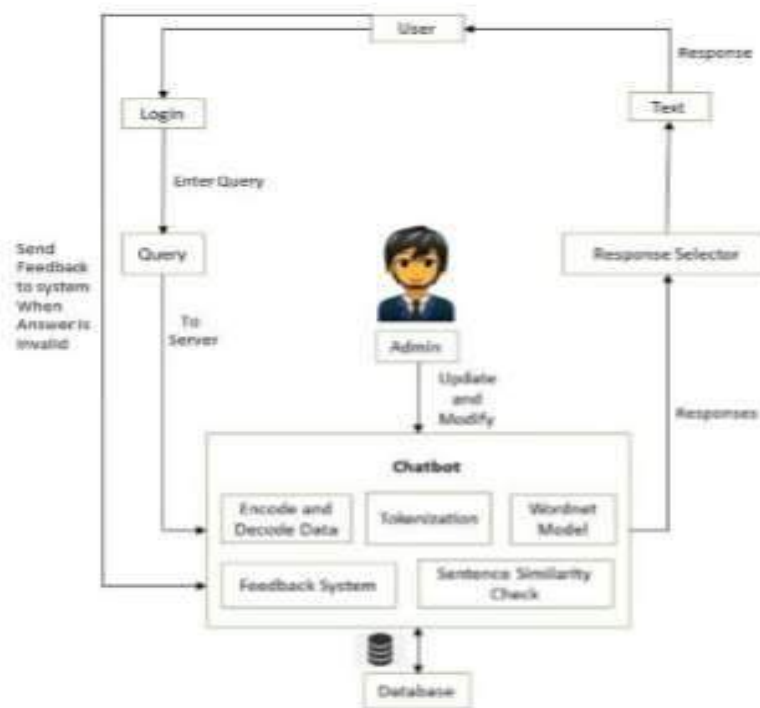


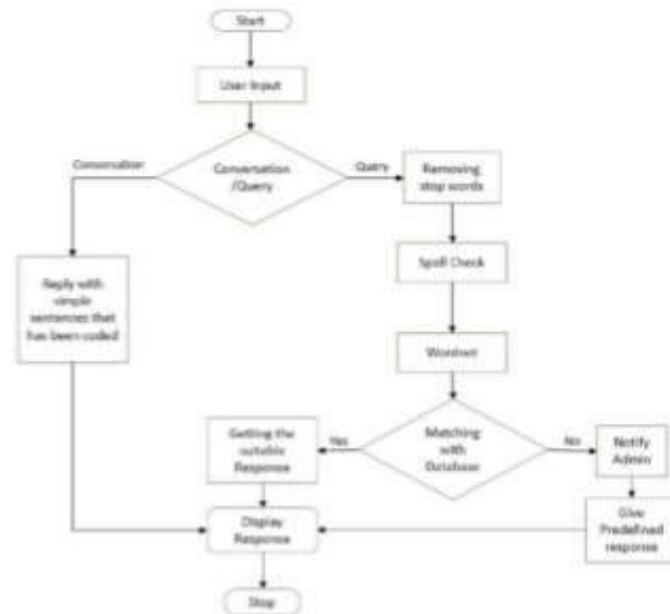
Fig.1. Engineering of a School Chatbot Framework

Tokenization is the process of breaking down a large message or message into individual words or phrases. Lemmatization is a sort of stemming that involves bringing together the many curvature types of a word so that they may be studied as a single item. The spell checker [12] is then used to detect and correct spelling errors in the query, after which a plausible response is examined in the information data set [14] by employing the sentence similitude and WordNet Algorithm [13]. WorldNet is an English-language semantic and lexical knowledge source. It is employed to It groups English words into groups of counterparts known as synsets [15], provides brief explanations and use models, and maintains various relationships between these equivalent word sets or their persons. If the response is located in the data set, it is displayed to the client; otherwise, the framework informs the administrator about the missing reaction in the data set and displays a predetermined reaction to the client. By registering into the administrator block on the site, the administrator may compose the missing reaction into

the data set, so that if the client asks a similar query later, he or she may obtain a suitable response. Toward the end of the talk, the school chatbot framework collects feedback from clients in order to improve the framework's competency.

- a. **Login:** After clicking on the chatbot, you will be sent to the school's website. The chatbot framework greets the customer and requests the client's email address. The chatbot then begins visiting with the client.
- b. **Botindex:** When the client continues to select chatbot to find a solution to his/her issue, the chatbot displays a page with few options for school and detects his/her categorization of inquiry. If the customer has his inquiry answered, the chatbot's task is completed.
- c. **Asking Queries:** If the customer is dissatisfied with the rule-based response, the chatbot framework invites him/her to express his/her inquiry in words, and the reasonable response is provided by the chatbot framework.





**Fig.2. Flowchart for the chatbot's User Module.**

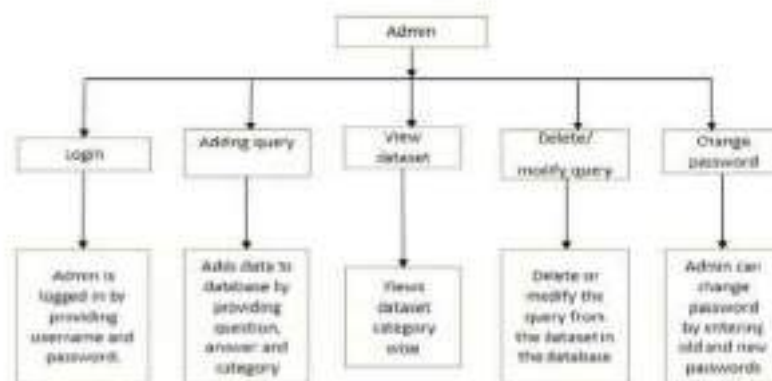
The client's inquiry is initially examined in the data set. If the query is significant, an appropriate response is delivered to the customer. If the inquiry is invalid, the chatbot instructs the customer to ask inquiries about the school. d. Contributing: Following the visit, the chatbot receives feedback from the client. Criticism is used to understand the clients' experiences with the chatbot. If the customer expresses strong criticism, the bot expresses gratitude and provides a crate to input any more questions. If the customer provides negative feedback, the bot suggests that the client elaborate on his/her query to be answered. The client's username is also saved, allowing the administrator to track client activity. On the other hand, the administrator who is in charge of maintaining the school chatbot framework contemporary has a few functions to do, such as adding the query to the knowledge base, changing the information, erasing the information, and viewing client criticism, among others. As seen in Fig. 3, all of the administrator's responsibilities are fully depicted below.

**a. Login:** There is just one administrator for the system (there is no enrollment for administrator). Administrators must login using their username and secret key, and the secret word is encoded using the SHA-256 Encryption computation. The login data is validated against the username and secret phrase that are saved in the data collection and are encoded using the SHA-1 Encryption computation. If the information provided is consistent with the data set, the administrator can enable the school chatbot framework.

**b. Add question:** If the administrator continues to add datasets, the chatbot allows the administrator to add questions in three ways: inquiry, reply, and selecting the specific categorization into which the dataset is included.

**c. View dataset:** If the administrator continues to see the dataset, the chatbot allows him to view the dataset by class. The chatbot also provides two more options: delete the dataset and change the dataset.

**d. Erase inquiry:** If the administrator continues to delete the question, the chatbot allows you to delete the question from the view page itself by selecting a specific class.



**Fig.3. Admin Module Flowchart**

**e. Adjust inquiry:** If the administrator continues to update current questions, the chatbot allows you to change the question from the view page itself by selecting a certain categorization.

**f. Change secret phrase:** If the administrator needs to update the secret word, the chatbot allows them to do so. To update the secret phrase, the administrator must enter the old secret phrase, the new secret phrase, and the new secret word on the change secret key site page. As a result, another secret phrase is created, jumbled, and stored in the code.

**g. Seeing invalid dataset:** If the administrator continues to receive faulty datasets, the chatbot allows them to view the datasets class by class. The faulty information is information that has received unfavourable feedback from the client or inquiries that the chatbot is unable to address. The chatbot also provides two other options: delete and alter the comparative inquiry.

**h. Alter Static responses:** The administrator can refresh or change the text displayed when a client selects buttons in the chatbot framework's GUI. The administrator may either refresh the data obtained by clicking the button on the website page or alter the capacity of the button by revising it in the data set. Each of the capacities enables the director to carry out any activity on the site without having to go through the data set.

#### IV. RESULTS AND DISCUSSION

The chatbot framework is used to suit the academic needs of the clients. A chatbot's recreation or generation of a response is information-based. Wordnet is responsible for retrieving the reactions, and in this case, it contains all rationales that are set off when the client setting is coordinated. When a client begins asking inquiries in the chatbot Graphical User Interface (GUI). The data set is searched for the answer to the query. If the response is located in the data set, it is displayed to the client; otherwise, the framework informs the administrator about the missing reaction in the data set and displays a predetermined reaction to the client. By logging into the administrator block on the site, the administrator can add the missing reaction to the data set. The chatbot is built on AIML, which is an Extensible Markup Language (XML). This enables various types of clients to obtain info such as most recent news, college rank holders, goals, updates regarding school examinations and exercises, and other scholastic data. Figs. 4, 5, and 6 each show a few pictures of the suggested chatbot structure.

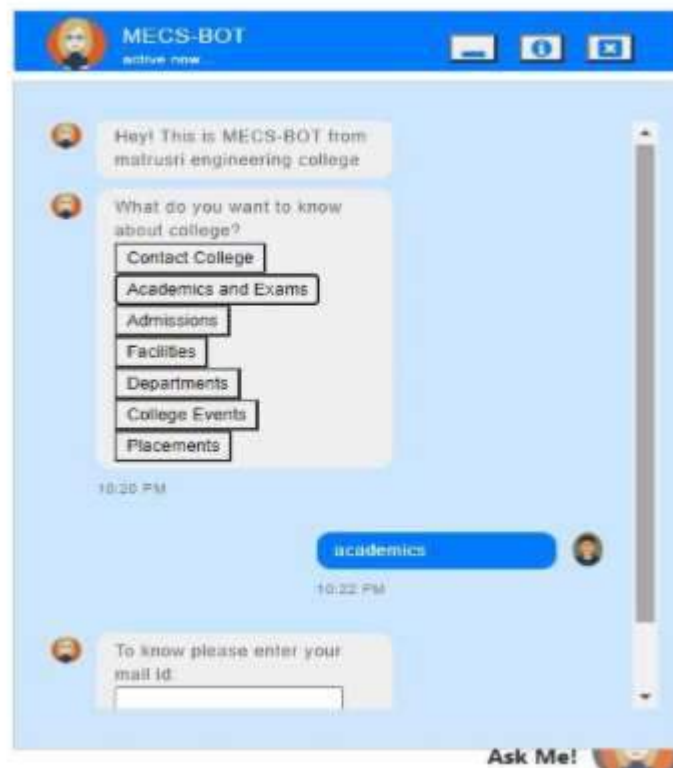
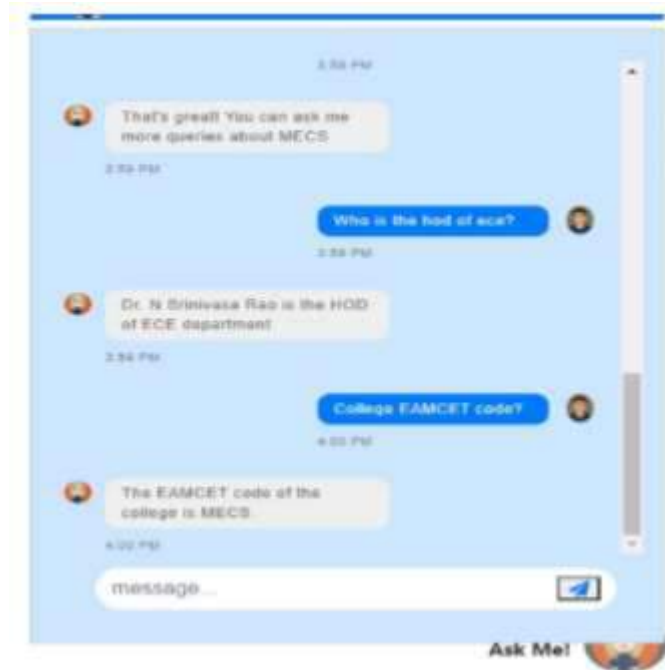


Fig.4. Chatbot menu with a list of options and a request for the client's email address

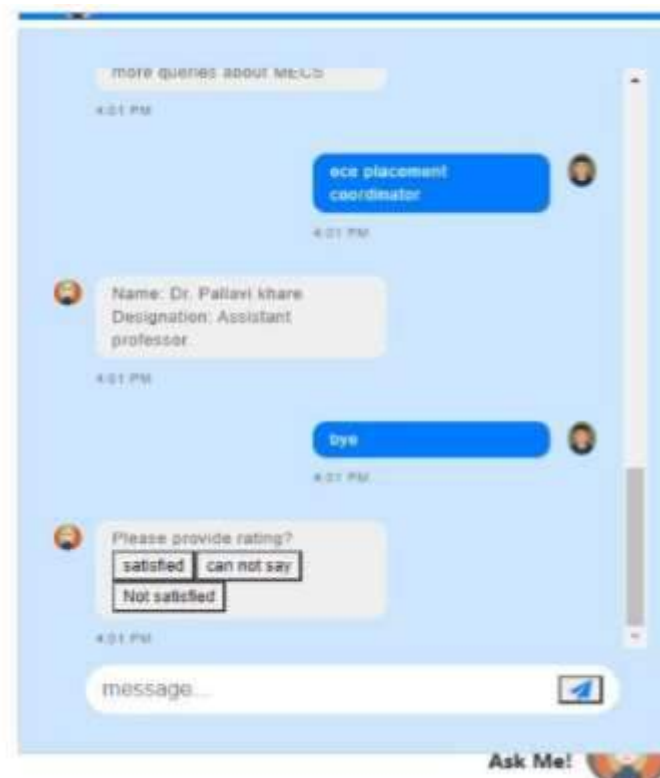
When a customer selects a category, the chatbot collects the client's email address. If the client's inquiry isn't met by the options, the chatbot framework provides an additional exchange box for him/her to compose his/her query about

education. Clients can ask any amount of inquiries about education to the chatbot system. Figure 5 depicts some of the client's questions. The chatbot framework immediately responds to any client enquiries.



**Fig.5. Client questions are being recorded by a chatbot.**

Following the conversation, the chatbot framework demands structure is used to determine if the client is satisfied that the customer provide feedback, as seen in Fig. 6. This input



**Fig. 6. System of Feedback**

System chatbot response to client questions. This critique is saved in the data collection, which may be used by the school to determine how well the chatbot is noting customer questions. To login, the administrator must provide a username and a secret word. Administrators are only authorised to access the data set with appropriate verification. After entering the right

username and secret phrase, the administrator is logged into the administrator menu page, as seen in Fig. 7. Where the administrator can perform activities such as adding information to the dataset, changing the current informational collection, viewing every invalid inquiry, changing the predefined information, viewing client criticism, erasing the current

information, and changing the administrator module's secret phrase. Every one of the progressions created here is clearly distinct in data.

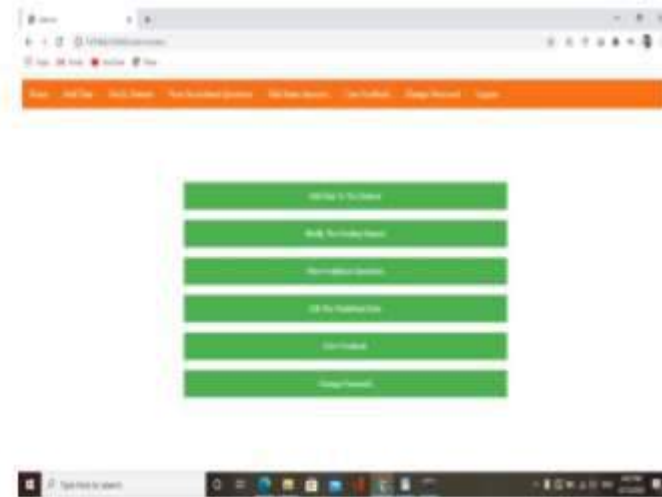


Fig.7. page of the ministrator menu

If the consumer is dissatisfied with the chatbot's responses, he or she will provide negative feedback. If the administrator considers the queries to be significant, the administrator might add a response to the specific inquiry. If not, the administrator can delete the question with a single click.

## V. CONCLUSION

In this project, we created a school explicit chatbot framework that can be customised to train space chatbots; the implementation of this chatbot framework in the school site will make the page more client intuitive because it answers the client's questions precisely because it is a space explicit chatbot framework; and we also investigated our school chatbot framework configuration stages and possibly a couple strategies by which the accuracy of the chatbot framework can be improved. To make the chatbot framework's responses more significant and exact, the executive must equip the chatbot framework with more facts about the school and expand the scope of the information base. Eventually, garnering criticism from a future client can be beneficial. eventually overhauling the client questions.

## VI. REFERENCES

1. A manual for Natural Language Processing, Available at [https://en.wikipedia.org/wiki/Natural\\_language\\_processing](https://en.wikipedia.org/wiki/Natural_language_processing)
2. Chatbot definition, Available at [https://medium.com/@mg/bot-is-ahilariously-distorted-trendy-expression-let-s-fix-thatf1d63abb8ba7#:~:text=A%20chatterbot%20\(also%20known%20as,via%20auditory%20or%20textual%20methods](https://medium.com/@mg/bot-is-ahilariously-distorted-trendy-expression-let-s-fix-thatf1d63abb8ba7#:~:text=A%20chatterbot%20(also%20known%20as,via%20auditory%20or%20textual%20methods)
3. Introduction to Artificial Intelligence Markup Language, Available at [https://www.tutorialspoint.com/aiml/aiml\\_introduction.htm](https://www.tutorialspoint.com/aiml/aiml_introduction.htm)
4. Prof.K.Bala, Mukesh Kumar, SayaliHulawale, SahilPandita,"Chat-Bot For College Management System Using A.I." *International Research Journal of Engineering and Technology (IRJET)* Volume: 04, Issue: 11, Page no: 2030-2033| Nov 2017.
5. Porter Stemmer Algorithm, Available at <http://snowball.tartarus.org/calculations/watchman/stemmer.html>
6. Guruswami Hiremath, AishwaryaHajare, PriyankaBhosale, RasikaNanaware, Dr. K. S. Wagh, "Chatbot for school system" *International Journal of Advance Research, Ideas and Innovations in Technology (IJARIIT)* ISSN: 2454-132X, Volume: 4, Issue: 3, Page no: 37-43|2018.
7. Amey Tiwari, Rahul Talekar, Prof.S.M.Patil, "School Information Chat Bot System" *International Journal of Engineering Research and General Science (IJERGS)* Volume: 5, Issue: 2, Page no: 131-137| March-April 2017.
8. K. Jwala, G.N.V.G Sirisha, G.V. Padma Raju, "Fostering a Chatbot utilizing Machine Learning" *International Journal of Recent Technology and Engineering (IJRTE)* ISSN: 2277-3878, Volume: 8 Issue: 1S3, Page no: 89-92| June 2019.
9. Basics of Natural Language Toolkit, Available at <https://www.nltk.org/>
10. JNaeun Lee, Kirak Kim, Taeseon Yoon, "Execution of Robot Journalism by Programming Custombot utilizing Tokenization and Custom Tagging" *International Conference on Advanced Communications Technology (ICACT)* Page no: 566-570| Feb 2017.
11. Fundamentals of Natural Language Processing - Tokenization, Lemmatization, Stemming and Sentence Segmentation, Available at [https://colab.research.google.com/github/dairai/journals/master/ace/\\_notebooks/2020-03-19nlp\\_basics\\_tokenization\\_segmentation.ipynb#scrollTo=H7gQFbUxOQt b](https://colab.research.google.com/github/dairai/journals/master/ace/_notebooks/2020-03-19nlp_basics_tokenization_segmentation.ipynb#scrollTo=H7gQFbUxOQt b)
12. Jazzy spell checker Library, Available at [http://jazzy.sourceforge.net/\[13\]WordNetAlgorithm, Available athttps://wordnet.princeton.edu/](http://jazzy.sourceforge.net/[13]WordNetAlgorithm, Available athttps://wordnet.princeton.edu/)
13. SetiajiBayu, Wibowo Ferry "Chatbot Using a Knowledge in Database: Human-to-Machine Conversation Modeling" *seventh International Conference on Intelligent Systems, Modeling and Simulation (ISMS)* Page no: 72-77| Jan 2016. DOI: 10.1109/ISMS.2016.53.
14. Synsets for a word in WordNet, Available at <https://www.geeksforgeeks.org/nlp-synsets-for-a-word-inwordnet/#:~:text=WordNet%20is%20the%20lexical%20database,that%20express%20the%20same%20concept>



# A NOVEL APPROACH TO BANKNOTE CLASSIFICATION USING TRANSFER LEARNING

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## ABSTRACT

*Banknote classification is a fundamental component of financial system architecture. Recognition as well as verifying the integrity of banknotes is extremely important for secure transactions at financial institutions. A highly precise multi-classification model can be created using deep learning along with an extensive image dataset of these currency notes featuring them in a myriad of conditions. In addition to providing accuracy, this would also assist reduce the amount of manual intervention required, which would result in greater employee efficiency. This study involves the implementation of transfer learning on a publicly available image dataset of Indian and Thai banknotes. The results of the study will help create an automatic banknote identification and integrity verification layer in the transaction system architecture of financial institutions.*

**KEYWORDS :** Banknote Classification, Banknote Identification, Multi classification, Machine learning

## INTRODUCTION

In a financial institution, withdrawals and deposits of cash are constantly and simultaneously occurring through ATMs (Automated Teller Machines). The validation layer in the transaction architecture of this machine is used to identify the banknotes as well as verify their integrity through the use of multiple parameters. The validator uses dimension, color and banknote identifiers and symbols to decipher the value of the note before carrying out the transaction. It scans the banknote in multiple spectrums (i.e. visible, magnetic, IR, UV). It employs magnetic sensors to detect the presence of magnetic ink. The validator maintains an electronic template of the banknote which includes any pictures or symbols and their multiple parameters such as size, brightness, contrast etc.

The steps performed by the validator to identify and validate banknote integrity have been carefully considered and incorporated within the architecture of the transaction system of the ATMs since they were pioneered. Despite the fact that significant effort and fine tuning was involved In taking and applying these measures for secure transactions there come circumstances when human intervention becomes necessary. Banknotes are constantly being folded and shoved into wallets and pockets which degrade the quality of the notes, especially in a country like India where the banknotes are entirely made of cotton, which is prone to tearing and staining. Banknotes with stains or tears are not accepted by ATMs since the ATM cannot verify the integrity of the note due to the modified parameters of the note. A slight fold in the corner of a note will often not be accepted by an ATM.

Using deep learning to overcome these problems could increase the competency of the ATMs while reducing the amount of human intervention required. The ATMs would be able to recognize notes with greater precision even in difficult conditions. The banknote can be validated through deep learning in special circumstances where a damaged note is being returned. Computer vision can be used to obtain the code printed on the currency and a pre-trained model trained on a vast database of banknote images can be used to verify the validity of the of the other parameters of the note. The currently active validator of the ATM can be used to match as many parameters as possible on the banknote. All these methods working In synergy could enable the ATM to perform an extremely wide range of tasks. Improving the ATM's capabilities would enable financial institutions to offer their customers a variety of services on their fingertips which would simultaneously increase the efficiency of the organization as a whole.

Our Study. In this work, we study the usage of transfer learning to facilitate a highly precise validation layer to be incorporated into an ATM's validator. The ResNet50 architecture has been used with ImageNet weights. As the dataset Is small, using transfer learning was key to obtain a high accuracy while maintaining an efficient model as the model already holds some knowledge due to the pre-training. The dataset also requires custom tuning of the model with a lower learning rate as it is essential to carefully traverse through the dataset and to obtain high precision. Using a pre-trained model with custom refinements in accordance with the dataset was beneficial as it





it helped the model converge in less epochs compared to a manually trained convolutional neural network.

The goal of this paper is to provide insight on the involvement of deep learning in the validation architecture of ATMs.

### RELATED WORK

ResNets can be used to overcome the vanishing gradient problem during the training of very deep convolutional networks [1]. Wide residual networks, which use wider convolutional layers to improve performance. Wider networks can achieve comparable or even better accuracy than deeper networks while requiring fewer parameters. [3]

K. Patil et al. [2] proposed the capturing of images in different lighting conditions as well as physical conditions of the objects. This would create an optimal dataset for both training and validation of models.

Transferring of features from pre-trained models as well as fine tuning the neural networks can lead to high accuracy even with limited target domain data [4]. Parallels have been drawn between human and computer learning regarding knowledge transfer from previous situations to facilitate learning in related tasks [5].

### METHODOLOGY

#### Data set

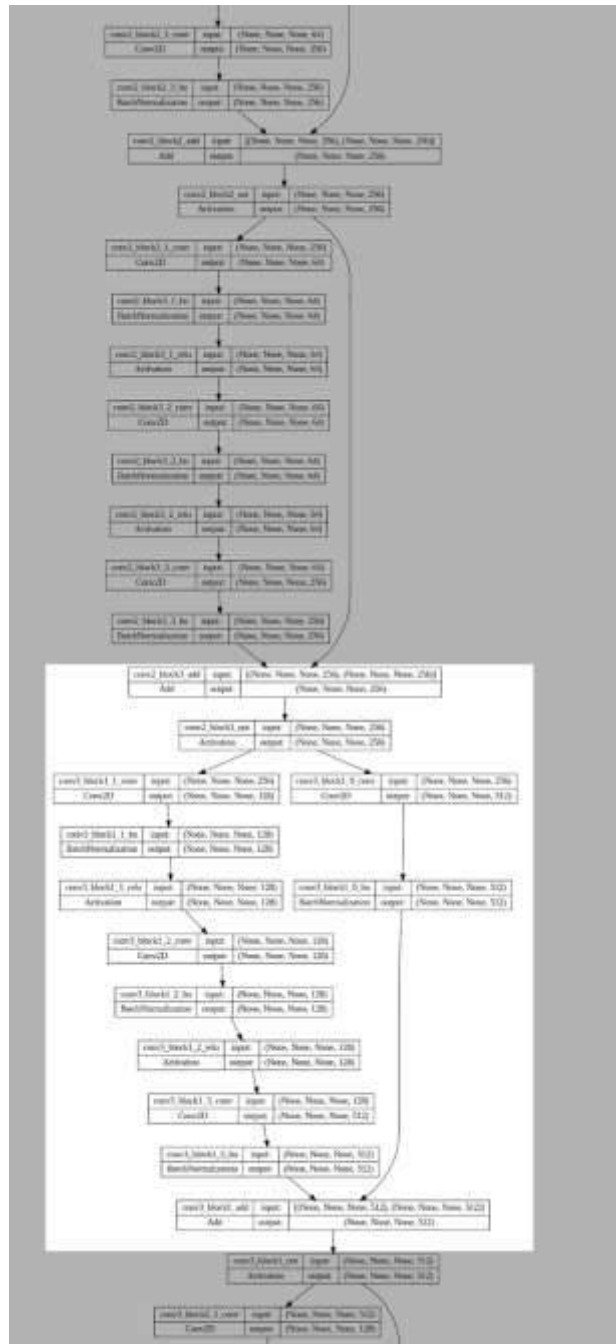
The following factors make the development of a banknote dataset extremely important: First, accurate banknote recognition is a task that automated teller machines and

currency recognition machines must complete; second, it is necessary to develop a system that can determine whether a banknote is genuine; and third, visually impaired individuals frequently struggle with banknote recognition.

The dataset consists of Indian and Thai banknotes. The Indian banknotes are classified into ten classes. The Thai banknotes are classified into five classes. Though pictures have been taken in a variety of light conditions and physical conditions, the pictures feature shadows, bright lights and cluttered environment. Additionally, pictures of partially folded and stained banknotes are used. These conditions are instrumental for the training of an accurate model.

#### Model

Transfer learning leverages pre-trained models to provide high accuracy and efficiency models. ResNet50 when used as a pre-trained model provides a high accuracy without manual adjustments. One of the key innovations of ResNet50 is the use of residual blocks. These blocks address the challenge of training very deep neural networks by mitigating the vanishing gradient problem, which can hinder the learning process. The residual blocks introduce skip connections, that enable the direct flow of information across layers. The skip connections in ResNet50 allow the network to learn residual mappings, capturing the difference or residual between the desired output and the current representation. By propagating the residual information, the network can effectively tackle the degradation problem that arises with deeper networks, where adding more layers leads to reduced accuracy.



Section of the ResNet50 model with the skip connection

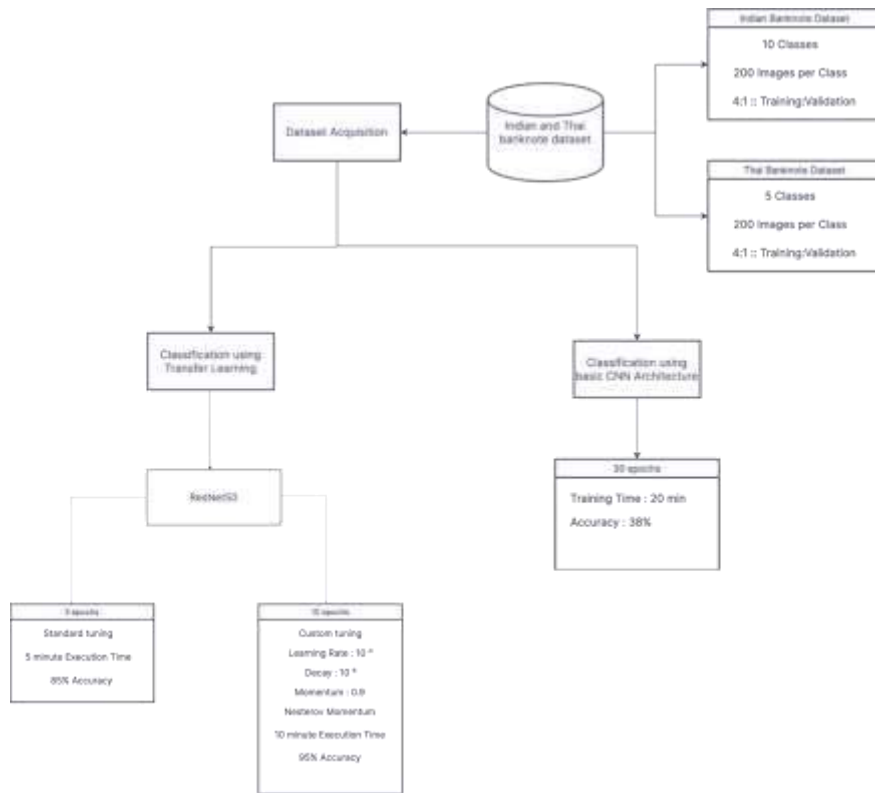
On training the model with no custom tuning an accuracy of about 85% was obtained. An accuracy significantly higher is required to make the model fit for financial institutions. Stochastic gradient descent is used to optimize the path to the global minima .Extreme fine tuning of the model is required to

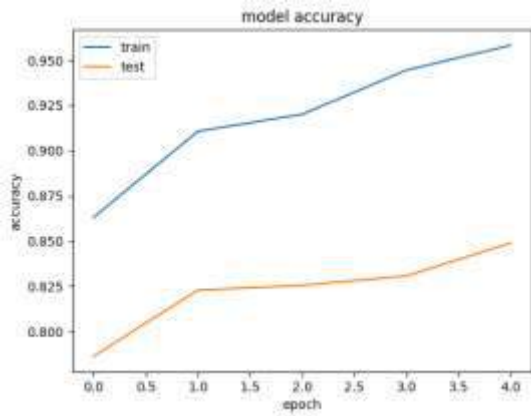
get a desired output. Decreasing the learning ratite the order of  $10^{-3}$ , setting the decay to the order of  $10^{-6}$ , and setting the momentum to 0.9 helped traverse the dataset with precision. Nesterov momentum is used to smooth out oscillations and for acceleration near convergence.



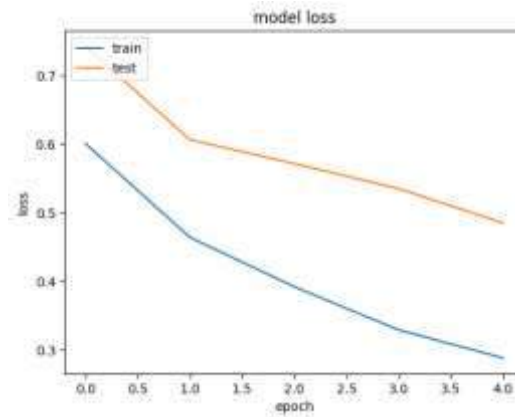
```

/usr/local/lib/python3.10/dist-packages/keras/optimizers/legacy/gradient_descent.py:114: UserWarning: The "lr" argument is deprecated, use "learning_rate" instead.
  super().__init__(name, **kwargs)
Epoch 1/10
25/25 [=====] - 43s 1s/step - loss: 0.7581 - accuracy: 0.8769 - val_loss: 0.4324 - val_accuracy: 0.8672
Epoch 2/10
25/25 [=====] - 54s 1s/step - loss: 0.1033 - accuracy: 0.9806 - val_loss: 0.2353 - val_accuracy: 0.8938
Epoch 3/10
25/25 [=====] - 55s 1s/step - loss: 0.2142 - accuracy: 0.9821 - val_loss: 0.2474 - val_accuracy: 0.9049
Epoch 4/10
25/25 [=====] - 53s 1s/step - loss: 0.1385 - accuracy: 0.9806 - val_loss: 0.2116 - val_accuracy: 0.9271
Epoch 5/10
25/25 [=====] - 53s 1s/step - loss: 0.1000 - accuracy: 0.9849 - val_loss: 0.2249 - val_accuracy: 0.9167
Epoch 6/10
25/25 [=====] - 53s 1s/step - loss: 0.0771 - accuracy: 0.9843 - val_loss: 0.1896 - val_accuracy: 0.9378
Epoch 7/10
25/25 [=====] - 54s 1s/step - loss: 0.0616 - accuracy: 0.9881 - val_loss: 0.1861 - val_accuracy: 0.9348
Epoch 8/10
25/25 [=====] - 54s 1s/step - loss: 0.0480 - accuracy: 0.9981 - val_loss: 0.1739 - val_accuracy: 0.9421
Epoch 9/10
25/25 [=====] - 55s 1s/step - loss: 0.0416 - accuracy: 0.9998 - val_loss: 0.1616 - val_accuracy: 0.9479
Epoch 10/10
25/25 [=====] - 52s 1s/step - loss: 0.0359 - accuracy: 0.9969 - val_loss: 0.1644 - val_accuracy: 0.9505
*keras.callbacks.History at 0x7f8640177700
    
```

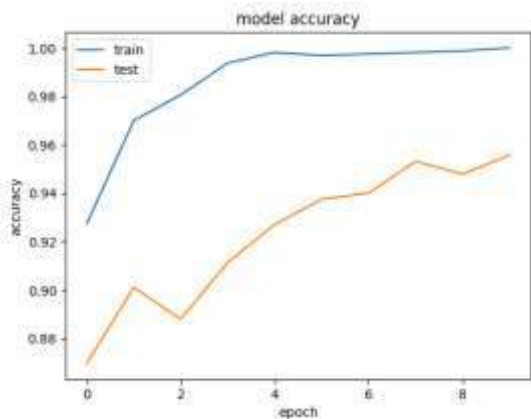




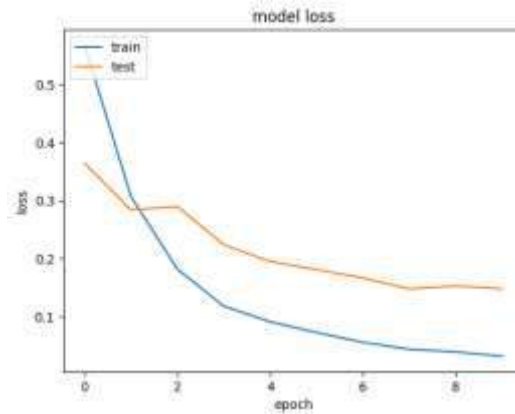
Visualization of accuracy obtained on using ResNet50 without custom tuning



Visualization of loss using ResNet50 without custom tuning



Visualization of accuracy obtained on using ResNet50 with custom tuning



Visualization of loss using ResNet50 with custom tuning

### Libraries Used

```
import os
import shutil
import numpy as np
import glob
import tensorflow as tf
from tensorflow import keras
from tensorflow.keras import layers, optimizers
from tensorflow.keras.layers import Input, Add,Dropout, Dense, Activation, ZeroPadding2D, \
BatchNormalization, Flatten, Conv2D, AveragePooling2D, MaxPooling2D, GlobalAveragePooling2D
from tensorflow.keras.models import Model, load_model
from tensorflow.keras.preprocessing import image
from tensorflow.keras.utils import plot_model
from tensorflow.keras.applications.imagenet_utils import preprocess_input
from tensorflow.keras.initializers import glorot_uniform
from tensorflow.keras.preprocessing.image import ImageDataGenerator, load_img, img_to_array
from tensorflow.keras.applications import ResNet50
from tensorflow.keras.applications.resnet50 import preprocess_input
from keras.preprocessing.image import ImageDataGenerator
from keras.models import Sequential
from keras.layers import Conv2D, MaxPool2D, Flatten, Dense, InputLayer, BatchNormalization, Dropout
from keras.visualizers import visualizer
from datetime import datetime

from IPython.display import SVG
import numpy.misc
from matplotlib.pyplot import imshow
import matplotlib.pyplot as plt
testplotlib.inlize
```



### Why ResNet was chosen

Compared to other available pre-trained models, ResNet has a deeper architecture enabling it to learn intricate details and patterns within the images. Even though the network is deep, the usage of residual blocks and skip connections enable the model to overcome the vanishing gradient problem. It allows the gradients to flow directly from earlier layers to later layers without any transformation. This helps the model adapt better to complex datasets.

The skip connections also provide shorter paths for the flow of information between layers. This leads to a reduction in the number of parameters. ResNet is more efficient in terms of memory usage and computational resources while providing an extremely high accuracy compared to other pre-trained models.

### CONCLUSION

Image classification using the ResNet architecture has proven to be a powerful and effective approach for various computer vision tasks. The deep residual networks have addressed the challenge of training deep neural networks by introducing skip connections that enable the network to learn residual mappings effectively. This architectural design has allowed ResNet to achieve remarkable precision and also outperforms other models significantly on benchmark datasets. ResNet has exhibited strong generalization capabilities, making it robust to noise, occlusions, and variations in lighting conditions.

Employing ResNet with small datasets has demonstrated its potential to address the challenges of limited data availability in image classification tasks. The ResNet architecture, with its deep residual networks, has showcased the ability to learn complex representations even with a reduced number of training samples. Fine-tuning the model to adapt to a smaller dataset worked exceptionally well with the ResNet architecture, resulting in high accuracy.

### REFERENCES

1. He, K., Zhang, X., Ren, S., & Sun, J. (2016). *Deep residual learning for image recognition*. 2016 IEEE Conference on Computer Vision and Pattern Recognition (CVPR). <https://doi.org/10.1109/cvpr.2016.90>
2. Suryawanshi, Y., Patil, K., & Chumchu, P. (2022). *VegNet: Dataset of vegetable quality images for machine learning applications*. *Data in Brief*, 45, 108657
3. Zagoruyko, S., & Komodakis, N. (2016). *Wide residual networks*. *Proceedings of the British Machine Vision Conference 2016*. <https://doi.org/10.5244/c.30.87>
4. Yosinski, J., Clune, J., Bengio, Y., & Lipson, H. (2014). *How Transferable Are Features in Deep Neural Networks? Proceedings of the 27th International Conference on Neural Information Processing Systems - Volume 2*, 3320–3328. Presented at the Montreal, Canada. Cambridge, MA, USA: MIT Press.
5. Flennerhag, S., Moreno, P. G., Lawrence, N., & Damianou, A. (2019). *Transferring knowledge across learning processes*. *ICLR 2019*. Retrieved from <https://www.amazon.science/publications/transferring-knowledge-across-learning-processes>

6. Chumchu, P., & Patil, K. (2023). *Dataset of cannabis seeds for machine learning applications*. *Data in Brief*, 47, 108954.
7. Laad, M., Kotecha, K., Patil, K., & Pise, R. (2022). *Cardiac Diagnosis with Machine Learning: A Paradigm Shift in Cardiac Care*. *Applied Artificial Intelligence*, 36(1), 2031816.
8. Pise, R., Patil, K., Laad, M., & Pise, N. (2022). *Dataset of vector mosquito images*. *Data in Brief*, 45, 108573.
9. Meshram, V., & Patil, K. (2022). *Border-Square net: a robust multi-grade fruit classification in IoT smart agriculture using feature extraction based Deep Maxout network*. *Multimedia Tools and Applications*, 81(28), 40709-40735.
10. Meshram, V., Patil, K., Meshram, V., Dhumane, A., Thepade, S., & Hanchate, D. (2022, August). *Smart Low Cost Fruit Picker for Indian Farmers*. In *2022 6th International Conference On Computing, Communication, Control And Automation (ICCUBEA)* (pp. 1-7). IEEE.
11. Pise, R., Patil, K., & Pise, N. (2022). *Automatic Classification Of Mosquito Genera Using Transfer Learning*. *Journal of Theoretical and Applied Information Technology*, 100(6), 1929-1940.
12. Bhutad, S., & Patil, K. (2022). *Dataset of road surface images with seasons for machine learning applications*. *Data in brief*, 42, 108023.
13. Bhutad, S., & Patil, K. (2022). *Dataset of Stagnant Water and Wet Surface Label Images for Detection*. *Data in Brief*, 40, 107752
14. Sonawani, S., Patil, K., & Natarajan, P. (2023). *Biomedical signal processing for health monitoring applications: a review*. *International Journal of Applied Systemic Studies*, 10(1), 44-69.
15. Meshram, V., Patil, K., & Chumchu, P. (2022). *Dataset of Indian and Thai banknotes with annotations*. *Data in brief*, 41, 108007.
16. Meshram, V., & Patil, K. (2022). *FruitNet: Indian fruits image dataset with quality for machine learning applications*. *Data in Brief*, 40, 107686.
17. Meshram, V., Patil, K., Meshram, V., Hanchate, D., & Ramkteke, S. D. (2021). *Machine learning in agriculture domain: A state-of-art survey*. *Artificial Intelligence in the Life Sciences*, 1, 100010.
18. Meshram, V. A., Patil, K., & Ramkteke, S. D. (2021). *MNet: A Framework to Reduce Fruit Image Misclassification*. *Ingénierie des Systèmes d'Inf.*, 26(2), 159-170.
19. Sonawani, S., Patil, K., & Chumchu, P. (2021). *NO2 pollutant concentration forecasting for air quality monitoring by using an optimised deep learning bidirectional GRU model*. *International Journal of Computational Science and Engineering*, 24(1), 64-73.
20. Testani, M. V., & Patil, K. (2021). *Integrating Lean Six Sigma and Design Thinking for a Superior Customer Experience*.
21. Meshram, V., Patil, K., & Hanchate, D. (2020). *Applications of machine learning in agriculture domain: A state-of-art survey*. *Int. J. Adv. Sci. Technol.*, 29, 5319-5343.
22. Meshram, V. V., Patil, K., Meshram, V. A., & Shu, F. C. (2019). *An astute assistive device for mobility and object recognition for visually impaired people*. *IEEE Transactions on Human-Machine Systems*, 49(5), 449-460.
23. Patil, K., Laad, M., Kamble, A., & Laad, S. (2019). *A consumer-based smart home with indoor air quality*





- monitoring system. *IETE Journal of Research*, 65(6), 758-770.
24. Patil, K., Jawadwala, Q., & Shu, F. C. (2018). Design and construction of electronic aid for visually impaired people. *IEEE Transactions on Human-Machine Systems*, 48(2), 172-182.
  25. Patil, K., Laad, M., Kamble, A., & Laad, S. (2018). A consumer-based smart home and health monitoring system. *International Journal of Computer Applications in Technology*, 58(1), 45-54.
  26. Shah, R., & Patil, K. (2018). A measurement study of the subresource integrity mechanism on real-world applications. *International Journal of Security and Networks*, 13(2), 129-138.
  27. Shah, R. N., & Patil, K. R. (2017). Securing third-party web resources using subresource integrity automation. *International Journal on Emerging Trends in Technology*, 4(2), 5.
  28. Patil, K. (2017). *An insecure wild web: A large-scale study of effectiveness of web security mechanisms*. Vishwakarma Institute of Information Technology, Pune.
  29. Kawate, S., & Patil, K. (2017). Analysis of foul language usage in social media text conversation. *International Journal of Social Media and Interactive Learning Environments*, 5(3), 227-251.
  30. Kawate, S., & Patil, K. (2017). An Approach For Reviewing And Ranking The Customers' reviews Through Quality Of Review (QoR). *ICTACT Journal on Soft Computing*, 7(2).
  31. Patil, K. (2017). Isolating malicious content scripts of browser extensions. *International Journal of Information Privacy, Security and Integrity*, 3(1), 18-37.
  32. Jawadwala, Q., & Patil, K. (2016, December). Design of a novel lightweight key establishment mechanism for smart home systems. In *2016 11th International Conference on Industrial and Information Systems (ICIIS)* (pp. 469-473). IEEE.
  33. Patil, K. (2016). Preventing click event hijacking by user intention inference. *ICTACT Journal on Communication Technology*, 7(4), 1408-1416.
  34. Shah, R., & Patil, K. (2016). Evaluating effectiveness of mobile browser security warnings. *ICTACT Journal on Communication Technology*, 7(3), 1373-1378.
  35. Patil, K., & Frederik, B. (2016). A Measurement Study of the Content Security Policy on Real-World Applications. *Int. J. Netw. Secur.*, 18(2), 383-392.
  36. Patil, D. K., & Patil, K. (2016). Automated Client-side Sanitizer for Code Injection Attacks. *International Journal of Information Technology and Computer Science*, 8(4), 86-95.
  37. Patil, K. (2016). Request dependency integrity: validating web requests using dependencies in the browser environment. *International Journal of Information Privacy, Security and Integrity*, 2(4), 281-306.
  38. Meshram, V., Meshram, V., & Patil, K. (2016). A survey on ubiquitous computing. *ICTACT Journal on Soft Computing*, 6(2), 1130-1135.
  39. Patil, D. K., & Patil, K. (2015). Client-side automated sanitizer for cross-site scripting vulnerabilities. *International Journal of Computer Applications*, 121(20), 1-7.
  40. Omanwar, S. S., Patil, K., & Pathak, N. P. (2015). Flexible and fine-grained optimal network bandwidth utilization using client side policy. *International Journal of Scientific and Engineering Research*, 6(7), 692-698.
  41. Kurlle, A. S., & Patil, K. R. (2015). Survey on privacy preserving mobile health monitoring system using cloud computing. *International Journal of Electrical, Electronics and Computer Science Engineering*, 3(4), 31-36.
  42. Dong, X., Patil, K., Mao, J., & Liang, Z. (2013, July). A comprehensive client-side behavior model for diagnosing attacks in ajax applications. In *2013 18th International Conference on Engineering of Complex Computer Systems* (pp. 177-187). IEEE.
  43. Patil, K., Vyas, T., Braun, F., Goodwin, M., & Liang, Z. (2013, July). Poster: UserCSP-user specified content security policies. In *Proceedings of Symposium on Usable Privacy and Security* (pp. 1-2).
  44. Patil, K., Dong, X., Li, X., Liang, Z., & Jiang, X. (2011, June). Towards fine-grained access control in javascript contexts. In *2011 31st International Conference on Distributed Computing Systems* (pp. 720-729). IEEE.
  45. Suryawanshi, Y. C. (2021). Hydroponic cultivation approaches to enhance the contents of the secondary metabolites in plants. In *Biotechnological Approaches to Enhance Plant Secondary Metabolites* (pp. 71-88). CRC Press.
  46. Kanorewala, B. Z., & Suryawanshi, Y. C. (2022). The Role of Alternate Nostril Breathing (Anuloma Viloma) Technique in Regulation of Blood Pressure. *Asian Pacific Journal of Health Sciences*, 9(2), 48-52.
  47. Suryawanshi, Y., & Patil, K. (2023). Advancing Agriculture Through Image-Based Datasets In Plant Science: A Review. *EPRA International Journal of Multidisciplinary Research (IJMR)*, 9(4), 233-236.



# PATELLAR DISLOCATION AND PATELLAR INSTABILITY PANORAMIC REVIEW

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## SUMMARY

**Introduction:** Primary patellar dislocation is usually the initial manifestation of patellofemoral instability. Among the long-term repercussions of this disorder are recurrent dislocation and indefinable knee dysfunction. At present, there is no agreement on the optimal treatment of patellar dislocation.

**Objective:** to detail the current information related to patellar dislocation, epidemiology, mechanism of action, clinical evaluation, imaging evaluation, classification, differential diagnosis, treatment and complications of the disease.

**Methodology:** a total of 30 articles were analyzed in this review, including review and original articles, as well as clinical cases, of which 22 bibliographies were used because the other articles were not relevant to this study. The sources of information were PubMed, Google Scholar and Cochrane; the terms used to search for information in Spanish, Portuguese and English were: patella, knee anatomy, patellar dislocation, knee instability.

**Results:** Approximately 5% of the time it is related to osteochondral fractures. To define whether a patella is high or low, a lateral radiograph should be taken with the knee in 30° of flexion to determine Blumensaat's line. The increase in the Q angle facilitates patellar dislocation. Most patellar dislocations are related to congenital anomalies of the patella or trochlea, high patella, hypoplasia of the vastus medialis and hypertrophy of the lateral retinaculum.

**Conclusions:** Patellar dislocation is usual in individuals with connective tissue disorders and hypermobility, the patella can be dislocated laterally, superiorly or intra-articularly, presenting different mechanisms of action for each case. It is important to have a good knowledge of the anatomy and to measure the Q angle because the increase of this angle facilitates patellar dislocation. It is essential to establish the etiology of the dislocation, especially in those with recurrent dislocations as this may alter the management plan. In addition to the clinical evaluation it is important to request anteroposterior, lateral knee and axial projections. When conservative treatment is chosen, reduction and immobilization with a cast or orthosis should be performed with the knee in extension, the long knee brace can be used, with or without arthrocentesis to relieve the symptomatology; surgical treatment is mostly used in recurrent dislocations. At the moment, no surgical technique is able to correct all the problems of patellar alignment. It should be kept in mind that the surgical procedure should take into account the individual's age, diagnosis, activity level and the situation of the patellofemoral joint. Patellofemoral instability should be treated with the goal of correcting all of the alignment issues. The usual complications are loss of knee mobility, recurrent dislocation and patellofemoral pain.

**KEY WORDS:** dislocation, patella, knee, instability.



## INTRODUCTION

Primary patellar dislocation is usually the initial manifestation of patellofemoral instability. Among the long-term repercussions of this disorder are recurrent dislocation and indefinable knee dysfunction. At the moment, there is no agreement on the optimal treatment of patellar dislocation(1).

Patellar instability is a condition in which the patella bone is pathologically disarticulated outside the patellofemoral joint, either by subluxation or complete dislocation. It is usually compromised by several factors, ranging from acute trauma, chronic ligament laxity, poor bony alignment, connective tissue disease or anatomic pathology. Individuals with patellar instability may manifest debilitating pain, limitations in basic function, as well as arthritis over time(2).

Modern literature expresses the importance of isometric strengthening of the quadriceps, especially the vastus medialis obliquus, and progression to more dynamic exercises involving the core and gluteal muscles. However, there is a lack of high quality evidence, international consensus or guidelines on conservative treatment(3-6).

## METHODOLOGY

A total of 30 articles were analyzed in this review, including review and original articles, as well as cases and clinical trials, of which 22 bibliographies were used because the information collected was not important enough to be included in this study. The sources of information were Cochrane, PubMed and Google Scholar; the terms used to search for information in Spanish, Portuguese and English were: patella, knee anatomy, patellar luxation, knee instability.

The choice of bibliography exposes elements related to patellar dislocation, epidemiology, mechanism of action, clinical assessment, imaging assessment, classification, differential diagnosis, treatment and complications of the disease.

## DEVELOPMENT

### Epidemiology

Patellar dislocation is more common in women due to their physiological laxity, as well as in individuals with connective

tissue disorders and hypermobility as seen in Marfan syndromes, as well as Ehlers-Danlos(7).

The incidence of patellar instability in the general population is 5.8 per 100,000 and approximately 29 per 100,000 in the 10 to 17 year age group. Patellar dislocations account for approximately 3% of all knee injuries. Most of the injuries and pathologies occur in young individuals. Frequently, individuals with patellar instability are between 10 and 16 years of age and are female. The recurrence rate after conservative management is around 15 to 44%. Individuals with a history of 2 or more dislocations are twice as likely to have recurrent dislocations. An anterior patellar dislocation increases the risk of persistent patellar instability in the future. In addition, individuals with MRI-confirmed medial patellofemoral ligament injury further increase the likelihood of recurrence. Individuals who dislocate for the first time overtime may continue to present with functional limitations, pain and instability(8).

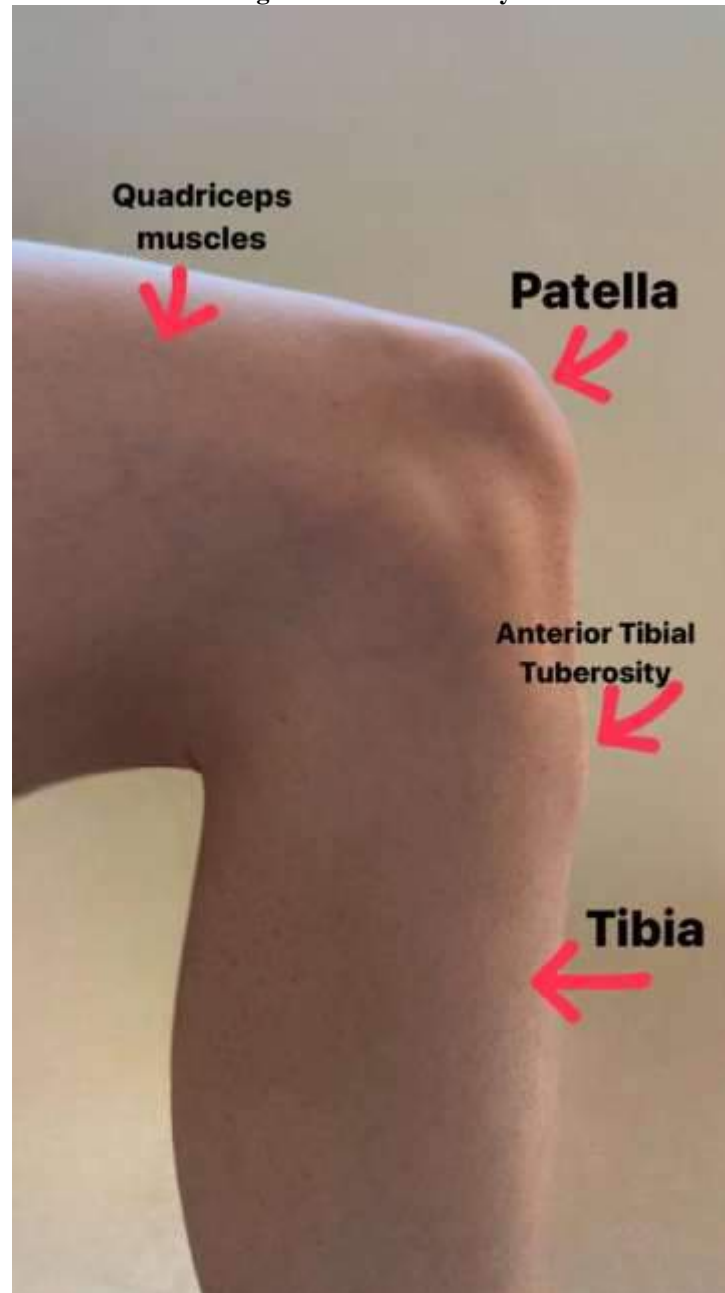
### Anatomy

The patella is a lens-shaped bone located at the front of the knee. It attaches to the tendon of the quadriceps muscle of the thigh and travels within a groove located at the lower end of the femur. Patellar dislocation is generated by displacing the patella completely outside of this groove. The angle created between the line that runs from the anterior superior iliac spine to the middle of the patella and the line that joins the middle of the patella to the anterior tuberosity of the tibia is called the Q angle, which ensures that the traction vector from the quadriceps action provides a lateral direction. This lateral direction force is generally counteracted by the tibial-patellar, patellofemoral and patellofemoral connecting components, the retinaculum, as well as the interdigitation of the patella with the trochlear groove. The increase in the Q angle facilitates patellar dislocation. Most patellar dislocations are related to congenital anomalies of the patella or trochlea, high patella, hypoplasia of the vastus medialis and hypertrophy of the lateral retinaculum(7,9,10).

Congenital dislocations occasionally occur, frequently in individuals with Down syndrome; due to a small patella and a hypoplastic condyle, they usually require surgical intervention for reduction(8).



Figure 1. Knee Anatomy.



**Source:** Image courtesy Regiane Maximiniano.

### Mechanism of Injury

Acute patellar dislocations usually result from trauma, often associated with a non-contact twisting injury to the knee, or from a direct blow to the medial aspect of the knee. A common mechanism of action is external tibial rotation with the foot fixed to the floor. So too, patellar dislocations often occur in individuals with generalized ligamentous laxity. However, these individuals are generally prone to recurrent patellar subluxations rather than outright dislocation(8).

- *Lateral dislocation:* the most common mechanism is forced internal rotation of the femur over the fixed tibia on the floor in external rotation and the knee in flexion. Approximately 5% of the time it is related to osteochondral fractures. Medial instability is infrequent, usually iatrogenic, congenital, traumatic or related to atrophy of the quadriceps femoris muscle.
- *Intra-articular dislocation:* unusual, however it can be observed in knee trauma, mostly in male adolescents. It



generates an avulsion of the patella from the quadriceps tendon, with rotation of the patella on the horizontal axis, so that the proximal pole is located in the intercondylar notch.

- *Superior dislocation*: usually in older adults due to forced hyperextension of the knee. The patella is located in the osteophytes of the anterior aspect of the femur(7,9).

### Clinical Assessment

Usually affected individuals with unreduced patellar dislocation manifest hemarthrosis, knee flexion incompetence, in addition to a palpable patellar displacement. Lateral dislocations may also generate pain in the medial retinaculum. Affected individuals with reduced or chronic patellar dislocation usually show a positive apprehension test, which consists of performing a lateral force on the patella while the knee is in extension, causing a sensation of imminent dislocation, generating pain and contraction of the quadriceps to prevent patellar movement(7,9).

The Q angle should also be evaluated and the J sign or excessive lateral translation in extension should be taken into account, which causes the patella to "jump" towards the trochlear groove when the patella engages the trochlea at the beginning of flexion. In addition, the general alignment of the extremities should be evaluated, taking into account the rotation of the hip and knee, the presence of large hemarthrosis, sensitivity of the medial side on the medial patellofemoral ligament, increased passive patellar translation compared to the contralateral side(2).

### Image Evaluation

For the evaluation it is important to request the anteroposterior and lateral projections of the knee, and in addition to the axial

projection also called sunrise of both the affected and unaffected patella. The bibliography shows other axial projections that could be used:

- *Hughston projection*: allows measurement of the groove angle and the patellar index. Knee flexed 55°.
- *Merchant projection*: allows measurement of the sulcus angle and the angle of congruence. Knee flexed 45°.
- Laurin projection: allows measurement of the patellofemoral index and patellofemoral angle. Knee flexed 20°.

To define whether a patella is high or low, the lateral radiograph should be taken with the knee in 30° of flexion to determine Blumensaat's line; the inferior pole of the patella should be located on the anterior projection line of the intercondylar notch. The Insall-Salvati ratio can also be performed, which is simply the quotient between the length of the patellar ligament measured from the inferior pole of the patella to the tubercle of the tibia with the length of the patella using its greater diagonal; the quotient must be equal to 1.0, if it is 1.2 it shows a high patella, if the measurement is 0.8 it shows a low patella(7,9).

The computed tomography can be used to evaluate the femoral anteversion, the tibial rotation, distance TT-TG (tibial tubercle to trochlear groove) that should be measured in axial images taking a line in an axial CT perpendicular to the posterior femoral condyles by means of the trochlear notch and a line crossing in the middle of the tibial tuberosity, it is normally of about 9 mm, greater to 20 mm is abnormal and greater to 90 % it presents relation with patellar instability. The resonance can also be used in certain cases(2).





Figure 2. Patella Dislocation



Source: Image courtesy S Bhimji MD. Hayat Z, El Bitar Y, Case JL. Patella Dislocation(8).

### Classification

Usually a very simple classification system is used and can be:

- Acute or traumatic versus chronic or recurrent.
- Reduced versus unreduced.
- Congenital versus acquired.
- Lateral, medial, intra-articular, superior(7).

### Differential Diagnosis

- Anterior cruciate ligament injury
- Medial collateral ligament injury
- Patellofemoral syndrome
- chondromalacia
- meniscal injury
- medial synovial plica(8).

### Treatment.

The acute treatment of an acute patellar dislocation is early reduction of the dislocation. This is usually done in the emergency and under sedation as needed. Reduction consists of flexing the hip, exerting gentle pressure on the lateral pole of the

patella, medially, while slowly extending the knee. The reduction maneuver can also be performed with the affected individual seated with the legs hanging off the side of the table(8).

The rationale for treatment for first-time dislocations that have no evidence of free bodies or intra-articular damage is conservative, and should encompass analgesia, ice and NSAIDs to decrease pain and swelling, physical therapy and activity modification. Wearing a J-brace or a patellar stabilizing sleeve may help in the first 2 to 4 weeks as soft tissue healing proceeds. After this time, physical therapy with emphasis on quadriceps and vastus medialis oblique strengthening, in addition to core strengthening and proprioception, is appropriate. The affected individual can be allowed to bear weight according to tolerance(8,11,12).

### Conservative Treatment

A reduction and immobilization with a cast or orthosis should be performed with the knee in extension, the long knee brace can be used, with or without arthrocentesis to alleviate the symptomatology. The affected individual can walk with the knee locked in extension for 3 weeks. Subsequently, progressive knee



flexion and quadriceps femoris muscle strengthening exercises are started. After 6 to 8 weeks, the removal of the orthosis should be evaluated according to tolerance. In acute dislocation, surgical treatment could be recommended depending on the level of activity, with restoration of the medial patellofemoral ligament. Surgical treatment is also indicated in case of a displaced osteochondral fracture, for intra-articular dislocations a reduction can be performed under anesthesia. The functional bandages presented in the physiotherapeutic literature show moderate results(7,9,13).

### **Surgical Treatment**

Mostly used in recurrent dislocations. At present, no surgical technique is capable of correcting all the problems of patellar alignment; the surgical procedure must take into account the age of the individual, diagnosis, level of activity and the situation of the patellofemoral joint. Patellofemoral instability should be treated with the goal of correcting all of the alignment issues. Degenerative joint modifications have a direct impact on the surgical alternative for alignment. There are several surgical techniques among which are:

- *Lateral release*: this can be performed by open surgery or arthroscopy and is generally indicated when there is lateral inclination of the patella with patellofemoral pain, also when the patella is lateralized with pain in the lateral retinaculum, as well as in lateral patellar impingement syndrome.
- *Medial plication*: performed at the time of lateral release to center the patella.
- *Proximal realignment of the patella*: medialization of the proximal patellar traction site is indicated when lateral release with medial plication fails to center the patella. The proximal lateral components are released taut and the traction of the medial support components, primarily the vastus medialis oblique, is reinforced with the intention of decreasing lateral patellar friction as well as improving patellofemoral joint congruency. Indications for this procedure include:
  - a) Acute dislocation in a young, athletic individual, particularly in the presence of avulsion fractures of the medial part of the patella or a lateral subluxation-angulation on radiographs after closed reduction.
  - b) Recurrent dislocation of the patella that does not improve after conservative treatment.
- *Distal realignment of the patella*: may be performed to realign the patellar ligament and tibial tubercle in the adult individual with recurrent patellar dislocation, as well as patellofemoral pain caused by abnormal alignment of the extensor mechanism. This realignment is not indicated in individuals with an open physis and a normal Q angle. It is done to bring forward and center the tibial tubercle, restoring the high patella and normalizing the Q angle(7,9).

Studies show that medial patellofemoral ligament reconstruction significantly reduces recurrent dislocation compared to medial patellofemoral ligament repair or conservative treatment, however it has a higher complication rate. The repair is considered less technically demanding and has a lower morbidity rate, which leads to reduced redistribution, allowing activity levels to return to their pre-injury state. Similarly, medial patellofemoral ligament reconstruction is also an effective surgical technique, providing better long-term functional results(1,14-22).

### **Complications**

Patellar dislocation presents some complications among the most common are:

- *Loss of knee mobility*: usually due to prolonged immobilization. The surgery can form adhesions and therefore arthrofibrosis. Therefore, intense and correct physiotherapy should be done to increase the tone of the quadriceps, preserve the alignment of the patella and the movement of the knee.
- Recurrent dislocation: generally in individuals under 20 years of age. It is an indication for surgical intervention.
- Patellofemoral pain: caused by the rupture of the retinaculum in the dislocation or by possible chondral alterations(7,9).

General surgical complications include infection, neurovascular injury, deep vein thrombosis or pulmonary embolism(8).

### **CONCLUSIONS**

Patellar dislocation is common in individuals with connective tissue disorders and hypermobility, the patella can be dislocated laterally, superiorly or intra-articularly, presenting different mechanisms of action for each case. It is important to have a good knowledge of the anatomy and to measure the Q angle because the increase of this angle facilitates patellar dislocation. It is essential to establish the etiology of the dislocation, especially in those with recurrent dislocations as this may alter the management plan. In addition to the clinical evaluation it is important to request anteroposterior, lateral knee and axial projections. When conservative treatment is chosen, reduction and immobilization with a cast or orthosis should be performed with the knee in extension, the long knee brace can be used, with or without arthrocentesis to relieve the symptomatology; surgical treatment is mostly used in recurrent dislocations. At the moment, no surgical technique is able to correct all the problems of patellar alignment. It should be kept in mind that the surgical procedure should take into account the individual's age, diagnosis, activity level and the situation of the patellofemoral joint. Patellofemoral instability should be treated with the goal of correcting all of the alignment issues. The usual complications are loss of knee mobility, recurrent dislocation and patellofemoral pain.

**BIBLIOGRAPHY**

1. Frings J, Balcarek P, Tscholl P, Liebensteiner M, Dirisamer F, Koenen P. Conservative Versus Surgical Treatment for Primary Patellar Dislocation. *Dtsch Arztebl Int* [Internet]. 2020 Apr 17 [cited 2023 Jul 5]; Available from: <https://www.aerzteblatt.de/10.3238/arztebl.2020.0279>
2. Wolfe S, Varacallo M, Thomas JD, Carroll JJ, Kahwaji CI. Patellar Instability. In: *StatPearls* [Internet]. Treasure Island (FL): StatPearls Publishing; 2023 [cited 2023 Jul 6]. Available from: <http://www.ncbi.nlm.nih.gov/books/NBK482427/>
3. Brightwell BD, Stone A, Li X, Hardy P, Thompson K, Noehren B, et al. Blood flow Restriction training After patellar INSTability (BRAINS Trial). *Trials*. 2022 Dec;23(1):88.
4. Flores GW, de Oliveira DF, Ramos APS, Sanada LS, Migliorini F, Maffulli N, et al. Conservative management following patellar dislocation: a level I systematic review. *J Orthop Surg*. 2023 May 30;18(1):393.
5. Liebensteiner M, Keiler A, El Attal R, Balcarek P, Dirisamer F, Giesinger J, et al. Conservative versus tailored surgical treatment in patients with first time lateral patella dislocation: a randomized-controlled trial. *J Orthop Surg*. 2021 Jun 13;16(1):378.
6. Krych AJ, O'Malley MP, Johnson NR, Mohan R, Hewett TE, Stuart MJ, et al. Functional testing and return to sport following stabilization surgery for recurrent lateral patellar instability in competitive athletes. *Knee Surg Sports Traumatol Arthrosc*. 2018 Mar;26(3):711–8.
7. Koval KJ, Zuckerman JD. *Fracturas y luxaciones*. 2 ed. Madrid: Marban; 2003.
8. Hayat Z, El Bitar Y, Case JL. Patella Dislocation. In: *StatPearls* [Internet]. Treasure Island (FL): StatPearls Publishing; 2023 [cited 2023 Jul 7]. Available from: <http://www.ncbi.nlm.nih.gov/books/NBK538288/>
9. Bucholz RW, Heckman JD, Rockwood CA, Green DP. *Rockwood & Green's fracturas en el adulto*. Madrid: Marbán; 2003.
10. Hing CB, Smith TO, Donell S, Song F. Surgical versus non-surgical interventions for treating patellar dislocation. *Cochrane Database Syst Rev*. 2011 Nov 9;(11):CD008106.
11. Fithian DC, Paxton EW, Stone ML, Silva P, Davis DK, Elias DA, et al. Epidemiology and natural history of acute patellar dislocation. *Am J Sports Med*. 2004;32(5):1114–21.
12. Smith TO, Donell S, Song F, Hing CB. Surgical versus non-surgical interventions for treating patellar dislocation. *Cochrane Database Syst Rev*. 2015 Feb 26;(2):CD008106.
13. Bulgheroni E, Vasso M, Losco M, Di Giacomo G, Benigni G, Bertoldi L, et al. Management of the First Patellar Dislocation: A Narrative Review. *Joints*. 2019 Sep;07(03):107–14.
14. Liu Z, Yi Q, He L, Yao C, Zhang L, Lu F, et al. Comparing Nonoperative Treatment, MPFL Repair, and MPFL Reconstruction for Patients With Patellar Dislocation: A Systematic Review and Network Meta-analysis. *Orthop J Sports Med*. 2021 Sep 1;9(9):232596712110266.
15. Mikashima Y, Kimura M, Kobayashi Y, Miyawaki M, Tomatsu T. Clinical results of isolated reconstruction of the medial patellofemoral ligament for recurrent dislocation and subluxation of the patella. *Acta Orthop Belg*. 2006 Jan;72(1):65–71.
16. Brady JM. In Children with Traumatic Lateral Patellar Dislocations, Arthroscopic Repair of the MPFL Reduced Redislacements but Did Not Improve Knee Function. *J Bone Jt Surg*. 2019 Feb 20;101(4):370–370.
17. Nomura E, Inoue M, Kobayashi S. Long-term Follow-up and Knee Osteoarthritis Change after Medial Patellofemoral Ligament Reconstruction for Recurrent Patellar Dislocation. *Am J Sports Med*. 2007 Nov;35(11):1851–8.
18. Camp CL, Krych AJ, Dahm DL, Levy BA, Stuart MJ. Medial Patellofemoral Ligament Repair for Recurrent Patellar Dislocation. *Am J Sports Med*. 2010 Nov;38(11):2248–54.
19. Askenberger M, Bengtsson Moström E, Ekström W, Arendt EA, Hellsten A, Mikkelsen C, et al. Operative Repair of Medial Patellofemoral Ligament Injury Versus Knee Brace in Children With an Acute First-Time Traumatic Patellar Dislocation: A Randomized Controlled Trial. *Am J Sports Med*. 2018 Aug;46(10):2328–40.
20. Lippacher S, Dreyhaupt J, Williams SRM, Reichel H, Nelitz M. Reconstruction of the Medial Patellofemoral Ligament: Clinical Outcomes and Return to Sports. *Am J Sports Med*. 2014 Jul;42(7):1661–8.
21. Previtali D, Milev SR, Pagliuzzi G, Filardo G, Zaffagnini S, Candrian C. Recurrent Patellar Dislocations Without Untreated Predisposing Factors: Medial Patellofemoral Ligament Reconstruction Versus Other Medial Soft-Tissue Surgical Techniques—A Meta-analysis. *Arthrosc J Arthrosc Relat Surg*. 2020 Jun;36(6):1725–34.
22. Matic GT, Magnussen RA, Kolovich GP, Flanigan DC. Return to Activity After Medial Patellofemoral Ligament Repair or Reconstruction. *Arthrosc J Arthrosc Relat Surg*. 2014 Aug;30(8):1018–25.

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# PLOTS, CHILDREN HEROES AND OTHER ELEMENTS IN ARUP KUMAR DUTTA'S *TROUBLE AT KOLONGIJAN*, *THE BLIND WITNESS* AND IN *SMACK*

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## ABSTRACT

*In this article, plots, heroes and other elements of the three children's novels viz, Trouble At Kolongijan, The Blind Witness and in Smack of Arup Kumar Dutta are discussed. They are discussed individually. The plots are discussed in the beginning and there after the heroes' characteristics are discussed. Some where both are intermingled. And at last others elements which helps to delineate the characters and the stories of the novels are also discussed.*

**KEY WORDS:** Children's Novels, Detective novels, Assam's novels, Flood in Assam etc.

## INTRODUCTION

Arup Kumar Dutta is an award winner novelist of Assam. Perhaps, he is the first novelist from this region (NE Region of India). He has written more than 16 children's novels. His novels are praised worldwide. In this article, plots, heroes and other elements of the three children's novels viz, *Trouble At Kolongijan*, *The Blind Witness* and in *Smack* of Arup Kumar Dutta are discussed one by one.

## TROUBLE AT KOLONGIJAN

**Plot:** In the second novel "Trouble at Kolongijan", the writer writes about the flood of Assam and its associate problems and the evil activities of some miscreants during the flood. The novel is about the breaking of the embankment of the river Kolongijan by some miscreants. The hero Moina with the help of his friend Ponakan and maternal uncle Debeshwar could nab the miscreants.

In the *TAK* we find the description of village nearby a river. The fictional river is the true portrait of the rivers of Assam in summer. The breaking of embankment whether by natural agency or by people is a great problem for the people who live near a river. Again, when the author sets the plot of the novel outside Assam then we feel the story of the novel is somewhere nearby Delhi or any other Hindi speaking state of Assam. There are two novels (*The Blind Witness* and *Smack*) where we find the background of the novels are not Assam but outside of Assam. The plots are outside Assam but the readers find the same curiosity of detective novels in the two novels also.

**Hero:** The hero of the novel is Moina, a teenage boy. His friend Ponakan is also, a teenage boy. The three main characters-Moina his friend Ponakan his maternal uncle Debeshwar along with the villagers fight against the miscreants-Tularam, a moneylender, Mr. Baruah a corrupted contractor and his accomplices. Debeshwar is a young man; Moina is about thirteen years old and his closest friend Ponakan is fourteen-

year-old boy. Although all the characters are involved in the story of the novel yet Moina is more involved. As the second lead role we have to mention the name of Ponakan. Debeshwar's role is also indelible. In the novel the role of police, like Mr Goswami and others also very noteworthy. Mr Goswami is a good police officer and he and Mr Saikia, the Superintendent of Police of that district and their men could help Moina, Ponakan and Debeshwar in the right time and could nab the criminals.

**Other Elements:** Flood is a natural calamity in Assam. There are many places like Kolongijan in Assam. The fictional place indicates many such places of Assam. The havoc of flood is not described here but hinted.

"He (Debeshwar) was born and brought up in Kolongijan. His parents had died in a flood while he was still a baby." (Dutta Arup Kumar, *Trouble at Kolongijan* -p 94)

In the novel we see how a dog named Cheekah helped Moina to execute his plan. The dog is a normal village dog but it acted as a trained dog to nab the criminals. Cheekah helped Goswami to catch Baruah, the corrupted and miscreant.

"With a vicious growl Cheekah sprang at Baruah, digging his claws into his flesh." (Dutta, *TAK* p-151)

Then Goswami could arrest him. The role of animals in Arup Kr Dutta's novels is very significant.

Like other English novels written by Assamese writer in the novels also we find many Assamese words which help to delineate the true picture of the plot and the characters. Some words are:

1. *Mama* (uncle),
2. *Kon au, kon au* (who is there)?
3. *Dhor, Dhor*, (catch them) etc.

Ponakan and Moina are the sons of fisher men. They know about the current of the river very much. The lines show it:

"You see the currents are not equally fierce in every part of the river. In fact, between fast currents, there are





stretches of water calm as a baby asleep. We fisher folk have learnt every trick the river has to teach us." (Dutta, *TAK* p-119)

As this novel is also written in the background of Assam so we find the name of many Assamese people in the novel. The characters here are Assamese. Some names are - Ponakan, Debashwar, Goswami etc. Moina is the hero and Ponakan can be a supporting character of the hero.

In the *TAK* we find Moina and his friend Ponakan were courageous boys. They could swim in the river. Their fate was good. The search of Moina in the river by the miscreants is well described. He was hidden in a boat. As if God helped him for his good deed and good motive.

Readers get a reason why the embankment fell down in the summer. The blast in the embankment in the rainy weather is creditable. Such tricks of the contractor can be seen in the real life also. When they get a contract of making embankment, they make it very temporarily and ordinarily. A slight rise of water can break such embankment. Such contractors usually live in good houses and in cities. They always remain safe during the flood. Only the lower strata of people had to suffer.

In the villager a man menace is a money lender. Such money lender is a disguised helpful person. Such a person is Tularam He sucks the blood of the poor villagers as he took high interest of the money he lends. He lends money at the time of flood. So, he involved himself with the breaking of the embankment. The author does not tolerate the injustice. He creates a character that fights with such tainted govt. officials, contractor, engineer, rich *mahajan*, and rich villager. The character is Debeshwar.

## THE BLIND WITNESS

**Plot:** In the novel, *The Blind Witness* also we find a teen hero. Ramu the blind school-going boy was the hero of the novel. His parents are poor workers. Here the plot is outside of Assam. The people are Hindi speaking people. The state is not mentioned. It may be Delhi or any other nearby state of Delhi. Although Ramu is blind he has extraordinary sense and intelligence. He and his friend Sunil are main characters in the novel. The two boys helped the police to nab a murderer and some smugglers in the novel. In the novel we find Mr Gopalan who helped the police and is murdered by the miscreants. The murderers are smugglers of statues and other valuable things. The role of police is good in the novel. Generally, it is seen that the detectives are honest. But here in, *The Blind Witness* we have seen the private detective Mr. Om Prakash was mingled with the culprits. The private detective Mr. Om Prakash is a fraud. In the novel we find that the author makes the blind boy a hero to express the extraordinary qualities of such people.

**Hero:** In the novel, the readers have the breath-taking experience lest the culprits will be able to catch the teen hero or whether the blind boy Ramu will fall when he has been staying outside of a window in a very narrow balcony while trying to hide him from the miscreants.

Many people think that blindness is a disease. But it is not like that. Blindness is not a disease. By making the blind boy a hero of the juvenile detective novel the author wants to prove it. He wants to tell the readers that how a blind boy may have some extra ordinary qualities. The author writes on blindness like this:

"Blindness was not a disease. It was simply that he was born without one of his senses." (Dutta Arup Kumar, *The Blind Witness* p-164)

**Other Elements:** It is seen that the disables are not completely disables. They are not able only in one or two matters. Otherwise, they are able like any other normal person. The author makes his blind hero differently capable. He writes about Ramu like this:

"There was something about their voices that aroused Ramu's curiosity. He could read voices as others could read gestures or facial expressions." (Dutta, *TBW* p-158)

The differently able persons always want dignity, love like other persons in the society. They do not want only pity and negligence. But there are some persons in the society who treated such persons as other individuals without showing any pity.

"Mr. Gopalan was one of the few persons, who had behaved normally with Ramu, had encouraged him, taught himself -respect." (Dutta, *TBW* p-165)

Ramu, the blind boy could give witness and statement of Mr. Gopalan's murder in the police station.

"I, a witness!' Ramu exclaimed, as if quite puzzled. 'I don't even have eyes, sa'ab. A blind witness, indeed!'" (Dutta, *TBW* p-231)

But the police are able to nab the culprits with the help of Ramu and Sunil. When Ramu does excellent job of nabbing the culprits with the help of the police then he is welcomed and felicitated by the Head Master of the school. It helps the school going readers to imagine that Ramu is like them. This makes them easy to imagine the story of the novel and assume themselves as common people with heroes' qualities.

Ramu's sense organs are very strong. "He could read voices as others could read gestures or facial expressions" (Dutta, *TBW*-p-158). He could perceive the surroundings of him without the least difficulty. Although he could not see he could judge the persons who are good and who are bad. He knew that Mr. Gopalan was a good person. He was killed some miscreants. He could recognise who killed him. It seemed a strange thing that a blind boy can be a witness. But there was no other way. The reason is that there was no one when Gopalan was dead. Ramu's friend Sunil helps him a lot. The author shows the tie of friendship through the novel. They are real friends. They can do anything for the sake of their friend's life.

Ramu went to a detective's house also. But unlike the honest police in the novel, the detective proves himself a tainted person he has links with the precious statue smugglers. So, he did not want to take the case of Gopalan seriously.

The police supported Ramu and his friend Sunil very much. They were given protection and encouragement to nab the





miscreants. They could nab the murderers who are a gang of criminals who steal and smuggle antiques like Buddhist manuscript from Arunachal Pradesh, artefacts from Mohenjodaro and many others. The course of action for the boys is not so easy. They follow the criminals by crossing many hurdles which the readers enjoy while reading the novel.

### SMACK

**Plot and Hero:** Like the other novels of the author here also we find the hero is a teen boy whose name is Gulu. Gulu's full name is Gulshan; he is a serving boy in a hotel. He eventually witnesses a murder of a man named Imdad who was a police informer of drugs peddlers. Before his death he sends secret information to a police superintendent through Gulu. In this way he entered into the secret world as an informer to the police. His friend is also a teen boy about fourteen years old, who helps him with his mission to catch the criminals. His name is Ravi. In the novel, Gulu and Ravi get the information of drug peddlers by risking their lives and finally could be able to get them arrested. We find here how interestingly the author presents the social evil of the drug trafficking business. Author's teen heroes are responsible, conscientious and very intelligent. They see many instances when people after drug use become ill. Gulu thinks, "What kind of evil things drugs must be, to turn a twenty-five-year-old youth into an old man of fifty!" (Dutta, *Smack* 292).

When the readers read the novel, they might be curious to know the meaning of the word, 'Smack'. The author describes the meaning very clearly. It's related to drugs. Drugs are too costly:

"So, our ingenuous drug pedlars have evolved a cheaper variety in their so-called laboratories. It is called smack."(Dutta, *Smack* 284).

**Other Elements:** In *Smack* we find many Hindi words. It is because the characters of the novels are Hindi speaking people. Some Hindi phrases and sentences which are used in the novel are very easy and usually used in the conversation. Yet, the author gives the meaning of some of them may be for the readers who do not know Hindi.

They are:

1. *Kuch Khana to do*- Give me something to eat.
2. *Thana*-Police station.
3. *Arrey Dost*- Hey friend etc.
4. *Bachcha*-Child.

Significantly while the author writes novels on the background of Assam then he uses the name of Assamese people. But when he writes the novels on imaginary Hindi speaking state, he uses the name of Hindi speaking people as they are used in Uttar Pradesh, Bihar or Delhi like state. Some such names are -KaKa, Gulu, Mr.Maival, Mr.Nangia, Ravi, Kumar etc.

### CONCLUSION

In all the three novels the child heroes are round characters. Others are supporting characters or minor characters. The circumstances are important in novels. The river embankment breakers, the drugs peddlers and the statue peddlers are also important characters but they are not heroes they are the villain. Others elements like the language of the states, names of

characters, characteristics of the characters are also have significant roles in the delineation of the stories of the novels.

### BIBLIOGRAPHY

1. Dutta Arup Kumar. *Adventure Stories (Four novels - The Kaziranga Trail, Trouble in Kolongijan, The Blind Witness and and Smack)*, New Delhi: Children's Book Trust, 1995. Print.
2. Forster E.M. *Aspects of the Novel*, London: Penguin Books, 2005. Print.



# IMPORTANCE OF SPORTS PSYCHOLOGY AND IMPORTANCE OF SPORTS IN DAILY ROUTINE

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## ABSTRACT

*In today's sedentary lifestyle, where technology dominates our daily activities, the significance of sports and exercise in our routines cannot be overstated. Engaging in regular physical activity offers numerous benefits for both physical and mental well-being. This article aims to highlight the importance of sports and exercise in daily routines, supported by relevant references.*

**KEY-WORDS:** Psychology, Sports, Sports Psychology, Importance of sports, Daily routine

## INTRODUCTION

Sports psychology is a specialized field that focuses on the psychological factors that influence athletic performance, well-being, and personal growth in sports. It plays a vital role in helping athletes optimize their performance, overcome mental barriers, and enhance their overall well-being.

### 1. Enhancing Performance

Sports psychology provides athletes with valuable mental tools and strategies to improve their performance:

- Goal Setting:** Sports psychologists help athletes set specific, measurable, achievable, relevant, and time-bound (SMART) goals. Goal setting enhances focus, motivation, and commitment, leading to improved performance. Research by Locke and Latham (1990) highlights the effectiveness of goal setting in improving athletic performance.
- Mental Preparation:** Sports psychologists assist athletes in developing mental skills such as visualization, concentration, and positive self-talk. These techniques help athletes stay focused, manage stress, and enhance performance under pressure.
- Performance Anxiety and Stress Management:** Sports psychology addresses performance anxiety and stress, which can hinder optimal performance. Techniques such as relaxation exercises, breathing techniques, and cognitive restructuring assist athletes in managing anxiety and maintaining composure during competition.

### 2. Building Resilience and Mental Well-being

Sports psychology focuses not only on performance but also on the mental well-being of athletes:

- Self-Confidence and Self-Efficacy:** Sports psychologists work with athletes to build self-confidence and belief in their abilities. Increased self-confidence positively impacts performance and resilience. Bandura's self-efficacy theory (1997)

emphasizes the importance of self-belief in achieving success.

- Emotional Regulation:** Athletes often experience intense emotions during competition. Sports psychology helps athletes identify, understand, and manage their emotions effectively. Emotional regulation contributes to improved performance, decision-making, and mental well-being.
- Coping with Setbacks and Failure:** Dealing with setbacks and failure is an inevitable part of sports. Sports psychologists assist athletes in developing coping strategies, maintaining a positive mindset, and bouncing back from disappointments. These skills promote resilience and long-term success.

### 3. Team Dynamics and Communication

Sports psychology extends to team dynamics and effective communication among athletes:

- Team Cohesion:** Sports psychologists help teams foster a positive and cohesive team environment. Strong team cohesion enhances communication, trust, and cooperation, leading to improved performance and overall team success.
- Leadership Development:** Sports psychology supports the development of effective leadership skills among athletes and coaches. Strong leadership promotes teamwork, motivation, and the overall performance of the team.
- Conflict Resolution:** Sports psychologists assist in resolving conflicts and managing interpersonal issues within teams. Effective conflict resolution improves team dynamics and contributes to a supportive and harmonious environment.



## IMPORTANCE OF SPORTS IN DAILY ROUTINE

### 1. Physical Health Benefits

Participating in sports and exercise has numerous positive effects on physical health:

- a. Cardiovascular Health: Regular physical activity improves heart health by strengthening the heart muscle, reducing the risk of cardiovascular diseases such as heart attacks, stroke, and hypertension.
- b. Weight Management: Engaging in sports and exercise aids in weight control by burning calories, reducing body fat, and increasing metabolic rate.
- c. Bone Strength: Weight-bearing activities like running, jumping, or weightlifting promote bone density, reducing the risk of osteoporosis and fractures.
- d. Enhanced Immune System: Regular exercise boosts the immune system, reducing the susceptibility to common illnesses and improving overall health.

### 2. Mental Health Benefits

Sports and exercise have a profound impact on mental well-being:

- a. Stress Reduction: Physical activity stimulates the release of endorphins, the brain's feel-good chemicals, reducing stress, anxiety, and symptoms of depression.
- b. Improved Cognitive Function: Regular exercise enhances cognitive abilities, including memory, attention span, and problem-solving skills. It promotes neuro-plasticity and helps prevent age-related cognitive decline.
- c. Boosted Mood and Self-esteem: Participating in sports and exercise improves mood, self-confidence, and self-esteem, fostering a positive body image.

### 3. Social and Emotional Benefits

Sports and exercise contribute to social and emotional well-being:

- a. Teamwork and Collaboration: Engaging in team sports cultivates teamwork, cooperation, and leadership skills, promoting social interaction and building strong relationships.
- b. Stress Relief and Recreation: Sports and exercise provide an outlet for stress and serve as recreational activities, improving overall quality of life and promoting work-life balance.
- c. Improved Sleep Quality: Regular physical activity is linked to better sleep quality, duration, and overall sleep patterns, leading to improved daytime functioning.

### 4. Long-term Health Benefits

Incorporating sports and exercise into daily routines offers long-term health advantages:

- a. Chronic Disease Prevention: Regular physical activity helps prevent chronic conditions such as diabetes, certain cancers, and age-related degenerative diseases.
- b. Increased Longevity: Active individuals tend to have a longer life expectancy and a lower risk of premature death compared to sedentary individuals.

- c. Healthy Aging: Engaging in physical activity throughout life helps maintain mobility, independence, and cognitive function in older adults, improving overall quality of life.

## CONCLUSION

Sports psychology plays a crucial role in optimizing athletic performance, enhancing mental well-being, and facilitating personal growth in sports. By addressing psychological factors such as goal setting, mental preparation, resilience, and team dynamics, sports psychologists empower athletes to perform at their best and overcome mental barriers. The integration of sports psychology into training programs and team environments can lead to improved performance, enhanced well-being, and a positive sporting experience.

The importance of sports and exercise in daily routines cannot be emphasized enough. Regular physical activity provides a wide range of benefits for physical, mental, and emotional well-being, promoting a healthier and more fulfilling life. By incorporating sports and exercise into our daily routines, we can reap the long-term advantages and improve our overall quality of life.

## REFERENCES

1. American Heart Association. (2019). *Physical Activity Improves Quality of Life*. [Online]. Available: <https://www.heart.org/en/healthy-living/fitness/fitness-basics/physical-activity-improves-quality-of-life>
2. Bandura A. (1997). *Self-efficacy: The exercise of control*. New York: Freeman.
3. Elavsky, S., et al. (2014). *Physical Activity Enhances Long-Term Quality of Life in Older Adults: Efficacy, Esteem, and Affective Influences*. [Online]. Available: <https://pubmed.ncbi.nlm.nih.gov/24716582/>
4. Fletcher D, Sarkar M. (2013). *A grounded theory of psychological resilience in Olympic champions*. *Psychology of Sport and Exercise*, 14(6), 764-772.
5. Harvard Health Publishing. (2021). *Exercise is an All-Natural Treatment to Fight Depression*. [Online]. Available: <https://www.health.harvard.edu/mind-and-mood/exercise-is-an-all-natural-treatment-to-fight-depression>
6. Headey, B., & Wearing, A. (1992). *Understanding Happiness: A Theory of Subjective Well-Being*. [Online]. Available: <https://pubmed.ncbi.nlm.nih.gov/12283443/>
7. Locke EA, Latham GP. (1990). *A Theory of Goal Setting and Task Performance*. Englewood Cliffs, NJ: Prentice Hall.
8. Weinberg RS, Gould D. (2019). *Foundations of Sport and Exercise Psychology*. Champaign, IL: Human Kinetics.



# PROFESSOR O. ALEWOV'S MAIN DIRECTIONS AND IDEAS IN PEDAGOGICAL SCIENCE

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## ABSTRACT

*The article deals with the description of formation of new pedagogical ideas, new directions in their development, conducting pedagogical research, and updating the general pedagogical methodology required in the education of the young generation. In the paper, main directions of the development of pedagogical ideas in Karakalpakstan during the independence years were analyzed. Also, the article describes the works of Oserbay Alewov, a scientist who made a great contribution to the enrichment of the science of the history of pedagogy by analyzing the historical development of the Karakalpak people, the formation and development of views on education and upbringing in these historical conditions. The article gives information on the main trends and ideas of the development of pedagogical ideas in the scientific research works of Professor O. Alewov, views on the study of the history of pedagogy, folk pedagogy, and traditions.*

**KEY WORDS:** *education, spirituality, pedagogy, history, didactics, ethno-pedagogy, culture, society, philosophy, ethnography.*

## INTRODUCTION

The development of ideas on education acquired a new meaning by the beginning of the independence years in Karakalpakstan. This was related to the independence of the Republic of Uzbekistan, and thus the Republic of Karakalpakstan gaining its sovereignty. Our nation, which had been living under the rule of the colonial system for years, had to determine its own development path after gaining independence. In addition to socio-political and economic spheres, the education system was identified as one of the main directions of the development of our independent state. Now, under the guise of communist ideology, abandoning a kind of education and upbringing method that leads to a careless, apathetic thinking of young people, to a relaxed state, a new educational system was necessary for aiming at educating young people who are devoted and capable of work, who can enter the world with their knowledge and intelligence, who live with the feeling of the Motherland in their hearts. In order to achieve this, the task of continuous education based on the State educational standards and programs was envisaged. Education of a smart, free-thinking, spiritually mature, modern person was defined as the main goal in all types of continuous education system. The formation of new pedagogical ideas, new directions in their development, conducting pedagogical research, and updating the general pedagogical methodology were required in the education of the young generation. In this regard, the main directions of the development of pedagogical ideas in Karakalpakstan were studied during the independence years (Figure 3.1.).

In the pre-independence period, the pedagogy of the former association was excluded from the ranks of general didactic principles with a historical orientation in the educational process, the educational system was separated from the historical roots of its people. The renewed discussion of the pedagogy history in the independence years, the opening of new aspects of it, was the repeated revival of the ethno-pedagogy of the Karakalpak people by Professor O. Alewov. It was a special manifestation of the development of pedagogical ideas in Karakalpakstan. As it is known, students' and youths' desire to learn about the history of the motherland, the way of national development, and to study cannot be formed by itself. It is associated with teaching history. In this regard, encouraging students and youths to the pedagogy history and scientific innovations invented by pedagogues-scientists are directly related to the enrichment of factual materials, and secondly, to what extent these materials reach the students' minds.

Honored Scientist of the Republic of Karakalpakstan, Doctor of Pedagogy, Professor, Academician of the International "Antique World" Academy of Sciences, "Famous Scientist of the 21<sup>st</sup> Century" (London, 2001), Oserbay Alewov was a great scientist engaged in the scientific study of the history of socio-philosophical and pedagogical ideas of Central Asian people. First of all, he managed to research the evolutionary development of human education in the period of Sinanthropus, Pithecanthropes, and Neanderthals based on archaeological, ethnographic and historical materials of Central Asia in the world pedagogy history [1, 503]. We can see a very wide and deep analysis in the monograph written by Professor O. Alewov





about the formation and development of educational ideas in Karakalpakstan. The phenomenon that brought people out of the ancient wild life and living like animals and brought them to the high level of the modern developed human society, which caused them to acquire intelligence and knowledge and act consciously with humanity, is education. Education is the greatest power that has preserved the environment of mankind as a society of people and is still holding it today.

In order to properly understand the development laws of human life, first of all, we must carefully study the sources related to his social life and education. The reason is that when a person is in a difficult situation, he first of all remembers his past experiences. He tries to develop forward, taking into account

the knowledge he has gained in the past. It is difficult to progress without historical memory. The ancient era of the Central Asian people has very rich cultural layers. The people involved in the history and archeology of this area say that there were “Shel” and “Ashel” and “Muster” cultures in these places during the paleolithic old stone age, and the man who lived 2.5 million years ago began to become a man due to various events. The formation and development of the educational ideas of each nation takes place with its own differences depending on the social life, historical and geographical conditions, program and traditions of that nation. In this, the people’s production method, livelihood, the level of growth of their spiritual culture, the psychological concentration of the mind, and the content of their manners are of great importance.

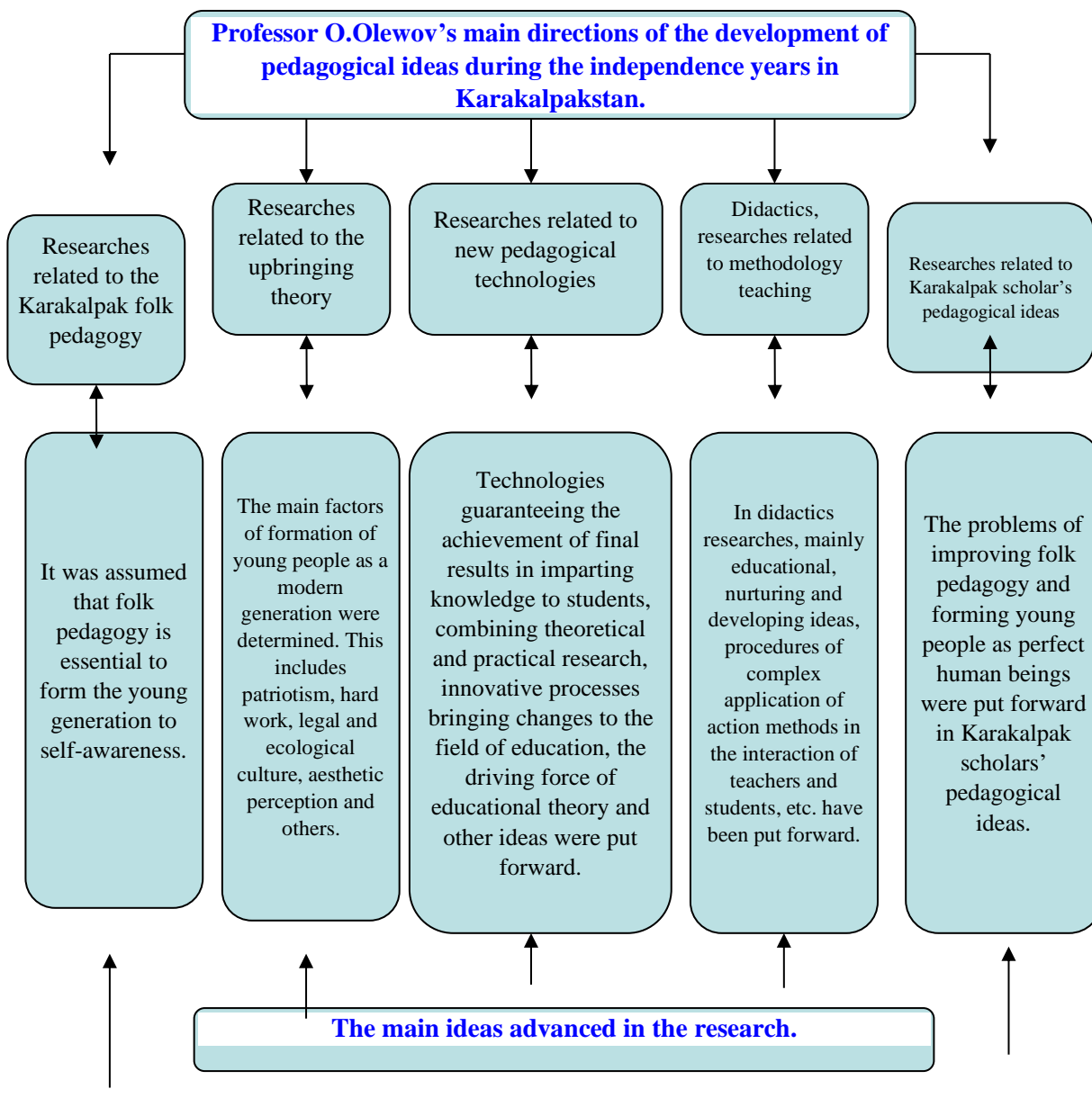


Figure 3.1. The main directions and ideas of the development of pedagogical ideas in independence years.





## LITERATURE REVIEW

The legitimacy of social life led to the co-creation of the cultural development of the so-called “Ancient East”, which occupied human civilization from the beginning: Arab countries, Central Asia, China and India. These East ancient people have been beacons of human culture for many centuries. Greek scholars: Lysurgus, Solon, Pythagoras, Epicurus, Democritus traveled specially to study the cultural achievements of the ancient Eastern countries. The ancient history and spiritual heritage of the Central Asian people, before their division into nations (14<sup>th</sup> century) had many cultural creations. For this reason, the book “Avesta” was considered to be the personal creation of ancient Turkish written memories, cultural literary and pedagogical heritages of the Samanis and Karakhanis period, equal to other people’s, in the formation and development of educational ideas of the Karakalpak people. These creations will form the basis for further development of the social, educational and upbringing ideas of the Karakalpak people. Indeed, the Karakalpak people, like other Central Asian people have their own long history.

The main principles of the emergence of education have been proven by people to a certain extent. Basically, in Avesta, which was considered as Central Asian people’s sacred book, educational concepts were studied for the first time among Avestologists. In this, the implementation of the entire educational process was studied based on the triple doctrine of “Good thought, good word, good work”. The formation of Karakalpaks as a national people. The development of school history and educational ideas in the 14<sup>th</sup>-15<sup>th</sup> centuries. In this, we will discuss “Educational thoughts during the Golden Horde and Nogai period”. In this, we interpreted the school of cultural and historical life of that period, educational conditions, and the thoughts of educating young people to humanity, intelligence, bravery, and especially eloquence in the works of Sopasli Sipira Jiraw, Asan Qaygi and Jiyrenshe Sheshen.

Among the Central Asia people, the human society formation of the nomadic Skif, Sak and Massaget tribes, which were considered as Karakalpak people’s ancient descendants, was inextricably linked with the natural and historical past of Central Asia. Therefore, the history of people’s former generations who lived in these lands, especially the herdsmen of the ancient Paleolithic period, the synanthropes and the herdsmen lived together, and the Neanderthals at the end of the herdsmanship life. The Cro-Magnons living conditions who lived in the late or Upper Paleolithic period, in the early matriarchy period, the Cro-Magnons in the current physical structure of man, the people of the developed “ruw” system in the Mesolithic, Neolithic, Bronze, Iron Age were very mixed with each other. In fact, the deeper we look at history, the more we understand that the differences between nations disappear [6]. The labor theory of anthropogenesis confirmed that labor played the main role in the transformation of apes into humans. This pedagogical issue is being filled with new ideas. In the process of economic development, the ancient people, who are becoming conscious in the process of work, increasingly understood the need for special care and patronage so that the young generations do not perish unwillingly to the cruel forces

of nature. Looking at these “shel” and “ashel” culture tools, they were created by creative pithecanthropes, synanthropic people, who had the ability to think logically to a certain extent, to teach their experiences to younger generations and we can see that they have already understood to a certain extent what the result of their labor operations will lead to.

Pithecanthropes’ thinking process and thinking began to be based on the direct object itself. For this reason, theoretical abstract phenomena in the thinking process had developed little earlier. Over time, on the basis of control during work and accumulated experience, signs of logical thinking appeared. It was difficult to create labor tools that were gradually developing without rational thought and to teach it to young people. As a result, the formation of thinking and comparative thinking in a person was achieved. Thus, at the pithecanthropic stage in Central Asia, two events that were not related to each other in the life of ancient people until that time, ensuring the development of the content of education, took place: performing joint movements with the hand, group-by-group production began to be synthesized. The qualitative content of these two phenomena has undergone changes, and now the hand has become a tool of labor that performs joint actions, and if it is made in groups, it has become the earliest sign of society.

Due to the fact that work is required as an external legal order, it brought dignity to the individual, and this individual began to acquire the appearance of conscience and honor, becoming his internal requirement. It became absorbed into all the way of thinking of the member of the people and gradually became the goal of every subject. Thus, the development of individual morality and self-understanding consciousness in people has led not only to hatred of rudeness in others, but also to understand rudeness in oneself, to hate its negativity. As a result, feelings of conscience, which always preserves morals and regrets when they violate them, began to form. At the beginning of the “Ashel” period, the discovery of the artificial fire production method reduced the dependence on climate and land conditions. This event established certain forces of nature that humans were redundant. As a result, they became the reason for their sudden separation from the animal world. Their desire to live, to improve their lives, led to the further development of the unique differences of things in nature, their legal relations and the content of their dependence on nature. Without them, people’s behavior, social development, and individual differences of some people would not be possible.

People came up with many countermeasures against various natural disasters, cold, rain, floods. For this, many of them took the means from nature itself. They used one phenomenon of nature against another. During this period, they learned to work with stone and bone weapons. During this new technological era, the “muster” culture, the synanthropes became more physically advanced. With the appearance of the word, the volume gradually decreased to a certain extent. As a result, Neanderthal type people who lived a hundred thousand years ago appeared. Neanderthal man, tools made by them with their characteristic features were found in Tesik-Tas cave. In the education of ancient people, keeping their manners and



behavior at an acceptable level, they concentrated very important tasks on the content of “tabu” (“prohibition”), and worked for the purpose of etiquette and pedagogy. After the child became an adult, he was taught many bad habits, programs, behaviors, attitudes, concepts that were “tabu” (prohibited). Self-control ability was formed. In this, the forms and customs of the people of the ancient people took place and freely occupied their minds. Not upbringing children is considered a sin, a “tabu”. As a result, with the help of “tabu”, first of all, the standards of human education were further developed and formed. This form of social generation of development lasted several thousand years.

## METHODOLOGY

In the formation of a person as a social subject the acquisition of three different cultural layers in the ancient folk society. First: the cultural provision of life is the study of experimental methods of production, second: mastering the experience of social relations that ensure production, third: it was necessary to study spiritual life experiences that ensure production. It is known that these layers of culture are interconnected. The production of the cultural aspect of life cannot be realized without social relations, which in turn are phenomena that are inextricably linked with individual and social consciousness. At the end of the Neolithic period, young people were taught how to spin yarn, first, they took fibers from wild jute, then from sheep and goat wool. The invention of spinning wool developed the craft of weaving. This gave rise to the weaving of nets for fishing, and the construction of traps to catch prey. Hunting with traps and traps in human life was a pre-planned projection to catch a living organism. The snare and trap were the products of the human mind. He was forced to study the places and environment that gave him food for the ancient people lifestyle, the state of the environment he lived in. The emergence of animal husbandry and agriculture in the Neolithic period caused the emergence of elementary natural science knowledge. The people were zoologists who knew people, animal psychology, their anatomy and physiology, and the peculiarities of life. Thus, people in the Stone Age learned the nature laws through experience, and based on this accumulated knowledge, young people were taught elementary, elementary knowledge of the phenomena creation. Intelligence, resourcefulness, industriousness, ability to do anything, charity to one's community changed into an incentive among people. As a result of these constant repetitions, they have become a dimension of humanism and morality, and many moral habits have been generalized that correspond to the requirements of life [1]. As a result, these took the signs of social demand and developed in terms of content as life relations developed.

Along with being controlled as an external law, duty brought dignity to the individual, and it became an internal requirement of the individual and took the form of conscience and honor. Thus, people's sense of self-understanding helped them to notice the rudeness in others, not the anger, but also the rudeness in themselves. With the emergence of language and word relations, it became possible to give child-rearing experiences in a social way, through words, and educational programs were created. Also, “tabu”, which has an ethical-

pedagogical purpose, has played a great role in shaping their humanitarian behavior in the approved direction. The emergence of the program for testing the effectiveness of education indicates that education has begun to be separated as a separate type of social work, and the content of education has expanded. The simple-monistic concepts of the people in the savage society created the first geoseological foundations of spontaneous materialism, and their thoughts about the surrounding world were signs of a simple dialectic. Their understanding of the world, giving intelligence and knowledge to young people began to take shape in this regard. The production of labor tools, the ability to use fire, and the achievement of technical creations such as traps, bows, and traps led to automatic movements and their daily use. By establishing a conscious mastery over nature, he created the basis of the modern branches of science, albeit of a simple kind. Physical concepts such as space, time, measurement, speed, hardness, softness were born. The first sources of the sciences of zoology, medicine, botany, geography, geometry, arithmetic, chemistry, architecture and their teaching to young people as a science took place.

Upbringing experiences have also increased along with these. The dimensions of universal behavior became meaningful, and the advice of elders was followed. With the emergence of “Totem”, people realized the unity of their community and the significance of teaching young people to unite. A very important phenomenon in the education work was the fact that a person began to understand himself as a subject, and his self-education took place. Nurturing and domesticating animals has also developed people's educational experiences themselves. By the time of slavery, intellectual work was separated from hard work, which further developed the progress of science and educational experiences. Ethnic-tribal endogamy ceased to be a dimension next to the system of savagery, and ethnic unions - the people - appeared. The emergence of the people brought about the unity of the territory, language, culture, people's educational program, and people's pedagogy formation.

According to the information of ancient Greek historians, the peoples who lived in Central Asia in the third millennium BC and later were called “Skif's”, as we mentioned above. In the writings of Strabo, we read that the Saks and Massagetae were called “common Skifs”. The Karakalpak ancestors lived a semi-nomadic, semi-stable life after the first millennium BC. Scientists have a conclusive opinion about the connection with these «Scythians», who began to create a unique culture, or the second term of these peoples, Saks-Massagetae. The Saks paid much attention to their young people learning to shoot the bow, which is necessary for hunting and defending against the enemy. Dionysius Pariegitus pointed out the ability of the peoples who lived along the Yaksart river to be able to shoot with a bow, and that the Saks were the best archers on earth. This opinion was also confirmed by the Roman writer Kliment Oleksandrisky. In the Saks, not only boys but also girls were taught how to shoot a bow. Saks-Massagets had a deep meaning to enrich the feelings of young people with beauty and to educate them in the spirit of showing respect to women. In this period, it was a custom to put patterns on pottery vessels that



were used a lot in life. Various ornaments were made for girls from precious stones and metals. Saks tribe women wore bracelets made of bronze, iron and silver in the 7<sup>th</sup>-5<sup>th</sup> centuries BC. Aramaic writing was used on the basis of the "Phoenician" alphabet in the thousand years BC, and then Avesta, Khorezm, Sogdian, and Bactrian writings appeared on the basis of these writings. People's educational schools were established, and vocational training schools developed even earlier in big cities. The Samanis state issued a decree that "every craftsman must teach his skill to his child, and the child should not learn any other skills."

At the beginning of the era, the Saks-Massagets, who lived around the Southern Aral, from Uzboy to Janadarya, were called "Alans" and "Asovs". Al-Beruniy stated that the "Alan" and "Asov" languages were close to the ancient Khoresm language. Central Asian people expressed their social, moral, psychological and pedagogical point of view in connection with the Zoroastrian religion, along with the tribal and slavery system. They created a lot of educational and upbringing ideas of vital practical importance. We can see this from the content of the book "Avesta", which describes the improved Central Asian people's viewpoints and knowledge in the ancient tribalism and slavery era. The Zoroastrian religion, covering socio-historical life from the third millennium BC to the VI century AD, was created in the Avesta language. Originally, the Avesta was a large book which included 21 chapters. Its advanced seven chapters were devoted to the history of the creation of the world and the birth of people. The second seven sections were devoted to the laws of humanity, their morals, education and religious programs, and the number seven sections dealt with natural sciences, especially medicine and astronomy [2].

In Central Asia, in Khoresm, in Karakalpakstan territory, the slavery system became popular in the 4<sup>th</sup>-6<sup>th</sup> centuries, and during this period when feudal relations began to emerge, Afrig became the head of the state and founded a new dynasty named after himself. The best practices of various craft schools in Central Asia were skillfully taught to young people. It was only then that economic and cultural developments appeared in the country, and the nobles tried to live independently from the tsar. It is known from history that in the middle of the 5<sup>th</sup> century, the place of leadership in the political life of Central Asia was transferred to "Eftalits". It is known that the fighting Central Asian nomadic people were formed on the basis of Massagets.

In determining ancient Turkic people's worldview, we mainly relied on information from Arxon-Enisey, Talas, Sudji, Barliq, Altin Kol, Elegesh and other written records. Looking at the sources in the written memories of the Turkic peoples of the 7<sup>th</sup> century, it can be seen that their ideas about the world and religious beliefs were formed in connection with various doctrines and points of view. For this reason, in the experience of forming the understanding of the world among young people, we see that many different religious concepts are mixed, not a new type of religious system. In the educational work of the Turkish people in the above-mentioned period, the main goal was to make their children smart and educated. They thought

that a good social life could be achieved with intelligence. It should be noted that the scientist was the first to create the program "Karakalpak children's literature" (1984) for secondary special pedagogical educational institutions. Among other things, the scientist was engaged in the translation of scientific pedagogical books and school textbooks into Karakalpak language, and showed selflessness in the process of providing schoolchildren with textbooks on time. Among them is the Karakalpak translation of "Odobnoma" textbooks for the 5<sup>th</sup> and 9<sup>th</sup> grades of the Uzbek language. Oserbay Alewov paid great attention to the importance of folk pedagogy in improving national education in his scientific research. Noting that folk programs and folk creativity were the oral pedagogy of the people, he revealed in his research the issues of the formation of folk pedagogy in ancient times [2]. In his opinion, education has developed in an integral relationship with the people. Folk pedagogy offers a comprehensive educational system of programmatic pedagogical culture. Educational factors, educational methods and tools, types of education are especially sufficient and diverse. Folk pedagogy aims to educate a person as people's child. Forming the folk pedagogy programs effectively realizes the youth's awareness of their own country, people, self-awareness, learns about national characteristics and learns about life. In folk pedagogy, the educational process is considered an inseparable part of people's life, and the general attitude towards it is the direct involvement of the people in this work. Children's participation in the pedagogical process is assumed in folk pedagogy.

According to the scientist, every heroic epic ("Alpamis", "Qirq qiz", "Sharyar", "Qoblan", "Er Ziywar" and others) of the Karakalpak people is a unique educational experience of shaping the personality in folk pedagogy, from the birth of the hero to the achievement of the goal. In the epics, various pedagogical factors of the character formation that were not similar to each other were used, and the way and style of educating the ideal person of the people's dream is revealed. From this point of view, he wrote that every heroic epic of the Karakalpak people is the method of the nation's experiment and its results in the youths' education [3]. The scientist emphasized the need to study the history of pedagogy in his educational perspectives at the same time, about the importance of spiritual values and pedagogical heritage. He stated that with the help of the people's spiritual values and education history, which have been formed and developed over the centuries, youths are educated with past achievements, difficulties, and aspirations for advanced ideas in this field. In this way, they have an opportunity to think and understand the social purpose in the educational field by accepting the spirit of the time. In addition, he noted that the importance of studying the educational ideas in the past is not only from the point of view of knowledge, but also the importance of forming one's viewpoints on the world.

By studying past pedagogical concepts, the school history and pedagogical ideas, we know that educational ideas are always looking to the future. Focusing on its roots and the main process of its origin gives confidence that the educational process in its development has always sought new laws of discovery and success. In fact, the study of the education history from the





modern point of view created an opportunity for the development of pedagogical ideas in our independent country, the development of mentoring culture, the acquisition of teachers' pedagogical skills, and the educational work improvement. It does not allow a limited relationship with educational theory and practical experience [1, 14]. An idea is formed that educational events change and improve with social development. It is satisfied with all the spiritual values created by the thoughts of mankind in the past and gives an idea to develop them further. It helps the future teachers to become experts who can inculcate the content of national education and training in their service, learn the requirements of the national school, and selflessly implement the education of the modern generation.

## RESULTS AND DISCUSSION

Pedagogical views of the scientist Oserbay Alewov contain many ideas about the social importance of education and its impact on the development of society. "Education is the phenomenon that brought people out of the ancient wild life and brought them to the higher levels of the modern human society, which became the basis for their acquisition of intelligence and knowledge, and for conscious work with humanity. "Education is the greatest power that mankind has preserved as a society of people" [1, 5], he said. According to the pedagogue, imparting knowledge and education to the people is the main tool that gives strength for the socio-economic development of the country. Since ancient times, East people have considered education and upbringing, enlightenment and science as the most reliable factors in the overall development of society. The main thing that weakens the state and avoids its blessing is the lack of focus on education. None of the good qualities and mental activity in a person was created outside of education. All the achievements, advanced science and wisdom of mankind were created not by the power of the sword, but because of their upbringing and improvement. If the country is rich in culture, knowledge, justice, and humane procedures, the economic problems there will find a quick solution. Therefore, for the development of the society, it is necessary to establish a good education.

Oserbay Alewov's educational viewpoints focus on the aesthetic education of young people, in which the importance of art, especially music, is deeply emphasized. According to him, music is a unique phenomenon with the ability to educate abstract thoughts and sense of beauty in a person. Especially the inner spiritual world of a person is wide. There is a lot of knowledge that cannot be embodied in words, but can be understood with some feelings. It is difficult to clearly embody mutual feelings in human relations, including the motivational influence and its causes. In order to understand them well, it is necessary to visualize this thing before our eyes as a result of abstract thinking. These phenomena occur in the spiritual world of a person under the influence of music. Through these, young people determine their attitude to the world.

Some ideas are not born in a person at once, and they wake up and develop gradually. Music helps speed up this process. They help to perceive and accept certain information about the

incomprehensible, hard-to-understand aspects of human life. Music awakens the need for knowledge in a person, along with giving us new knowledge about man and human life. Sensory knowledge provided by music ensures the overall development of a person and sets an ideal for young people to follow [5, 174]. We do not acquire music directly as knowledge, we accept it as an emotional process that gives us joy, pleasure, and satisfies our aesthetic needs. For this reason, music with its lyrical effect awakens and enlivens the concentrated good feelings in a person. Good feelings and beautiful features in a person lead to the emergence of good behavior. This will help young people to become virtuous and beautiful people in the true sense of the word. Oserbay Alewov paid attention to the educational importance of children's games in his pedagogical views. He said that children's games come with children early in the development of humanity and are used as the most necessary tool for children's self-improvement. A toy is the main tool in children's play. The toy was a child who lived in early times (even in the present day). In this process, the child's imagination, will, abstract thinking, comparison, analysis and synthesis are developed. Playing toys helps children's spiritual development and prepares them for future life; deepens the concepts of life knowledge, teaches them to work together with a team. In particular, it forms social consciousness. Girls learn their family life from an early age with the help of "doll" or "home" game, and begin to notice the norms of family relations. By educating their doll, they participate in the process of educating themselves as well [6, 46]. These made it possible to understand the peculiarities of family life from an early age.

The game is a means of educating children. In the course of the game, children's intelligence, ability, and behavior change in a positive direction. It helps to absorb and study life events, enlightens the mind, develops the desire for knowledge. Develops kindness, joy, alertness, and the ability to act freely in children. Through play, the child learns about the world and improves his creative abilities. By satisfying their needs for knowledge, their moral and aesthetic concepts, including self-confidence and social dedication, are formed. Children's play is a natural phenomenon, childhood and play are inseparable, and play strengthens children's understanding of cooperation. Forms the ability to work with a team and educates to skillfully organize their work. It deepens the feelings of intelligence, pain, and friendship. They bring up the ability to offer consciously in their life service. The game, in particular, revives feelings of joy, this phenomenon helps to activate the sense organs and increase sensitivity. The game develops the ability of children to be leaders in their work, to work freely, to understand life, to arouse interest in knowledge, and to acquire information about various spheres of life, cultural and spiritual life, traditions and programs. Especially through action games, children develop control over their behavior. The ability to quickly understand from one form of work to another is developed. He adapts easily to the new environment, learns to work hard to fulfill the tasks assigned to him, to overcome difficulties, not to lose his temper in dangerous situations, and to look at his friends with encouragement. The educational effectiveness of the game is that the child is formed in the process of doing it as a practical work. The child performs



certain roles and tasks during the game. As a result, the skills to find their place in the team appear. The reason is that the game is an exercise for the child's future life.

Scientists' ideas about spiritual values, folk pedagogy, the history of educational ideas, youths' aesthetic education, and the active usage of folk children's games in the educational process are very important in the process of forming the youth of our independent country as a modern generation. Alewov was able to show the place of pedagogy among sciences, confirmed its coherence with other sciences, including history, philosophy, sociology, psychology, in the course of his scientific pedagogical researches and actively worked to raise the reputation of the science of pedagogy among the general public based on very historical analyses. Scientist Alewov also paid attention to the Prophet Muhammed's educational and upbringing comments. Muhammed Ibn Abdullah was a great thinker-sage of the Arab people, capable of political work and a great pedagogue who laid the foundation of the Islamic religion, especially the concept of education that was characteristic of the Islamic religion. He expressed his wise thoughts on human morality and humanity. The main content of religion is to encourage people to behave well, to be content with manners, literacy, and to be religious. In particular, he stated that the main goal is to spread «kindness» in the education of people. If we consider the direction taken by Muhammed alayhissalam, we have to say that he is a great pedagogue of the East who accepted the problem of solving educational tasks.

At the same time, he also paid attention to school and pedagogical ideas in the Samaniys state of the 9<sup>th</sup>-10<sup>th</sup> centuries. Arabs' implementation of the work of educating the people based on the teachings of Islam was a method that had a great impact on the wide spread and strengthening of the Islamic religion in Central Asia. Etiquette in the upbringing of youth, which was well established in Central Asia during the Zoroastrian era: Respect the elderly, care for orphans, act wisely, please God with good and meritorious deeds, educate to work and supporting the morals characteristic of Islam, which he found very necessary in the education of other people, and sought to further expand them. The Samaniy state (875-999) was founded by Ismayil Samaniy, the capital of which was Bukhara. At that time, Bukhara, Samarkand, Nishapur, Merv, Urgench (former), Balq, Qiyat, Gazna and other cities were developed craft centers. It was mentioned that one of the ten ministers appointed to manage the state was engaged in education. School and cultural situation in the state of the Karakhaniys in the XI-XIII centuries. In 999, he destroyed the Samaniy government in Bukhara and Khoresm, and the Karakhaniy state, which came to the head of the government, ruled until 1212. The 11<sup>th</sup>-12<sup>th</sup> centuries of East and Central Asia are notable for the highly developed period of books describing pedagogical ideas. At this time, the works of Ibn al-Mukaffa, Ibn Qutayba, Nizam al-Mulik, Yusuf Has Hajib, Ahmed Yugnakiy, Khoja Ahmed Yassawiy, who were widely spread in the East, were the reason for the appearance of the works. The content of Mahmud Qashqariy's book "Devonu lug'at at-turk" is of particular interest. M. Kashkari's service in

collecting the historical ethnopedagogy of the Movarunnahr people in the 11<sup>th</sup> century through the work of the so-called "Devonu lug'at at Turk" was extremely great.

In the period in question, the greatest of sages, Khoja Ahmed Yassawiy, sought to solve educational problems by connecting them with Sufism, which was a great turning point in the history of pedagogy. In his works, the scientist also paid attention to the pedagogical views of several sages. Ahmed Yugnakiy is a well-known poet-thinker of the Karakhani era, a senior scholar who wrote a book entitled «Khibbat-ul Khaqayiq» (Gift of Truth) about the ways of tsars' management of society and ways of educating and maintaining the people. Ahmed Yugnakiy paid special attention to moral education of young people in his pedagogical reasoning. According to Ahmed Yugnakiy's point of view, one of the main signs of moral upbringing of young people is to restrain the language, to have a beautiful word, and to have appropriate speech. Current scholars consider the Turan lowlands, the surroundings of Aral, the Pecheneg peoples who lived in the Edil and Jayiq banks and migrated again to be the basis of the formation of the Karakalpak people in the Middle Ages.

When the descendants of the Karakalpaks got together and lived in the same union with the Kipchaks, two groups, the Mangit and the Kungrad, came into existence. As a result of the continuous support of the Islamic religion of the local peoples of Central Asia by the Khans of the Mongol-based Golden Horde, the dominant ideology in the society achieved further development of Islamic teachings. Including, Medjlesiy's book «Seifelmelek» (15<sup>th</sup> century), which was created during this period, gave insights into the morals of young people and expressed many educational and educational considerations. Among the peoples of the Golden Horde, knowledge based on experience in understanding the world began to develop even more than before. Especially among the people, poets who were great thinkers increased and improved. One of them is Ketbuga jirov, Parizbek, Asan qaygi, Jiyrenshe sheshen and others. Heroic epics and legends «Edige», «Er Shora», «Alpamis», «Qoblan», «Zamana» that have been preserved among the people of Karakalpak and many other heroic epics were created during this period and are dedicated to the events in the life of the Golden Horde and the Nogay people. Sopbasli Sipira Jiraw is considered to be a great classical poet of the written literature of the Karakalpak people during the Golden Horde Nogay period, the founder of the school of Karakalpak Jiraws. According to what they say, Sopbasli Sipira Jiraw lived for 180 years. Admiring the poet's wisdom and long life, the people considered him to be a person who had « «He has seen his holiness Khizr seven times, his voice is amazing» and added him to the ranks of the gifted people. In the socio-philosophical views of Sipira Jiraw, the tendency to support the representatives of the colonial class and not only the poor and the poor was taken into account.

This explains why universal ideas were the main focus of his world view. Asan is a poet who is a friend of the Karakalpak, Kazakh and Nogai people. Asan is given the nickname «sorrow» because of his deep humanistic concern for the





difficulties in the life of living creatures, especially the miserable life of people in society. Asan expressed his socio-pedagogical views in the ideas of educating young people to be eloquent and well-spoken, along with teaching them geographical knowledge, knowledge of the land, comparison to the land. He realized from experience that the talent, ability, and interest of young people are particularly strong during childhood, and that these phenomena decrease to a certain extent after reaching adulthood. He was a supporter of formation of education and vocational training from childhood. Jiyrenshe sheshen is one of the famous and beautiful sayings of Karakalpak people during Golden Horde, Nogay period. He received the honorable name of a master speaker, who created many words of wisdom and eloquence. He was a great educated thinker of his time, who was an example to the people with his rare talent of composing words, and paid special attention to teaching young people to eloquence through this craft. Jiyrenshe also paid attention to the fact that people have different characteristics depending on their age. He also believed that people's spirituality and behavior depend on their age, that their behavior changes with age, and that the behavior of a young person is related to anatomical and physiological phenomena.

## CONCLUSION

The scholar explained that in order to make young people rich in life intelligence, they should learn by working on themselves, ask and learn what they don't know from many people with experience and understanding, trusting the understanding of foolish and ignorant people leads to error, the need to avoid them. Dospambet Jiraw is considered to be the honored hero and wise Jiraw of the Karakalpak people, who lived in the middle of the 16<sup>th</sup> century during the dissolution of the Golden Horde and the Nogayli union. Jiraw made it his duty to ensure that young people live happily in life, that after coming into the world, a person should live a happy life, and that a liar should play and laugh in this world. The poet continues to explain the characteristics of good people to young people. A good person does good to others, corrects their faults, and gains sustenance. The social life in the 18<sup>th</sup> century has been widely reflected in the creativity of Jiyen Amanliq uli (1730-1784), an honored poet-thinker of the Karakalpak people. Some scholars divide the poet's creativity into two parts: around Janadarya and eastern Aral. His poems «Posqan el» and «Ulli taw» touched on big issues, created many other angry themes, and raised deep thought issues. Among them, Jiyen Jiraw, in his educational and educational perspectives, aims to make young people live in a difficult life without disappointment, to shape them aesthetically, to take into account the special service of beautiful speech and speech in getting inspiration from life, he created «Kobiz jiri» and proved the process of making kobyz. Jiyen introduced beautiful literature and the art of speech into events that complement each other. However, he was a poet and a poet. He explained that the influence of beautiful speech and the art of conversation is strong in the acquisition of positive qualities by young people, that all these should be formed in a mutual relationship, so that young people are formed into positive citizens who serve their country and people. Muhammed Rahim (1806-1825), who ascended the Xiywa

throne in 1806, focused on subduing the Karakalpaks who fled from the lower Sirdarya and Turkestan. As a result, with the treacherous support of some Karakalpak begs, in 1810, Xiywa Khan Muhammed Rahim Khan succeeded in subduing the Karakalpaks and ruling over them.

Thus, Karakalpak poets-enlighteners of the 19th century thought that the formation of a noble, well-behaved, intelligent and educated people would serve to prevent the occurrence of acts of oppression by people in the society. People's uprisings have shown in experience that each nation's independence can be achieved when it works together with the neighboring nations from which it was born in the spirit of friendship. Among the people, there were few experiences of trying to attack the enemy in a unified way, to a certain extent, training in military skills. Therefore, taking into account the people's behavior and emotional actions in 1827, 1855-56, 1858-59, Riza Quli-virza said that Karakalpak people are not warriors, regardless of having good physical strength, they fully mastered the art of fighting. wrote that he did not get it. Famous poets and thinkers of the Karakalpak people, Kunkhoja, Ajiniyaz, Berdakh, Otesh, who lived in this period, became the honorable inspirers of the liberation rebellions of this people.

## REFERENCES

1. Aleuov U. *Cultivation and development of educational ideas in Karakalpakstan. Nukus: Bilim, 1993.*
2. U. Aleuov. *Pedagogical views of ancient Central Asian peoples. Nukus 1987; // Formation and development of pedagogical ideas in Karakalpakstan. Nukus. Knowledge, 1993.*
3. U. Aleuov. *Ethnopedagogy and its evolution. // Ethnopedagogy of Karakalpak people. Defective. Knowledge, 1995. p. 46.*
4. U. Aleuov. *Cultivation and development of educational ideas in Karakalpakstan. Knowledge, 1963. p. 14.*
5. U. Aleuov. *Music and aesthetic education. // Journal of the Karakalpak branch in Uzb. Nukus. No. 1-2. 2005. p. 174.*
6. U. Aleuov. *The importance of children's games in mental education. // Ethnopedagogy of Karakalpak people. Knowledge, 1995.*
7. Utebaev T., Sarsenbaeva Z. *Linguoculturological analysis of proverbs //Berlin Studies Transnational Journal of Science and Humanities. – 2021. – T. 1. – №. 1.5 Pedagogical sciences.*
8. Isломович, Исмоилов Темурбек, and Sarsenbaeva Zoya *Jangabay qizi. 2023. "PERSPECTIVES OF EMPLOYING WORLD EXPERIENCE IN PROVIDING ACADEMIC AND FINANCIAL INDEPENDENCE TO HIGHER EDUCATION". Horizon: Journal of Humanity and Artificial Intelligence 2 (6):232-35. [http://univerpubl.com/index.php/horizon/article/view/2075.](http://univerpubl.com/index.php/horizon/article/view/2075)*
9. Сарсенбаева, З. (2022). Лингвокультурологический анализ культуры каракалпаков в пословицах. *Общество и инновации, 3(8/S), 39-42.*
10. Sarsenbaeva Z.J. *Pedagogical Peculiarities of forming linguocultural competence of higher education students in Karakalpakstan. EPRA International Journal of Multidisciplinary Research (IJMR)-Peer Reviewed Journal Volume: 7| Issue. 2021. pp. 161-166.*
11. [www.ziyonet.com](http://www.ziyonet.com)



# EXPLORING A MAGNIFICENT RELATIONSHIP BETWEEN HOMOEOPATHY AND PSYCHOLOGY

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## ABSTRACT

*This article presents a comprehensive review of the current scientific literature investigating the relationship between homeopathy and psychology. Homeopathy, an alternative medical system based on the principles of "like cures like" and "law of minimum dose," has gained popularity as a complementary approach to conventional medicine. However, its effectiveness, especially in the realm of psychological conditions, remains a topic of debate and scepticism.*

**KEY-WORDS:** *Homeopathy; Psychology; Law of Similia; Alternative Medicine; Behaviourism*

## INTRODUCTION

In cutting-edge phrases, "psychology" is defined because the technological know-how of behaviour with regards to the surroundings. It consists of the take a look at of aware, subconscious and subconscious behaviour. Psychology additionally consists of the behaviour of children, the aged, the mentally sick and animals. Behaviour is simply an expression. The dynamic force from which behaviour arises should or may be the thoughts or psyche. Often it's been determined that there are parallels among the troubles of psychology and homeopathy at their primary stages. As an example, the definition "totality is an outwardly mirrored image of the inner essence of the disorder, i.e. the affection of the vital force" is as nebulous because the definition of the mind.

In each condition, we recognise that the expressions are proof of the inner reality that underlies the expression. For decades, psychology has been considered by way of the clinical profession as a "smooth science"; thrilling however not essential, working within the care profession we spend maximum of our running lives interacting with different people. Promoting fitness and properly-being is a key a part of our paintings. We're acquainted with the definition of fitness (below WHO) — "A nation of complete physical, intellectual and social properly-being and not simply the absence of ailment or illness."

Homeopathy is constantly inquisitive about figuring out the "ill". An 'unwell' who has now not only bodily signs and symptoms but also internal emotions. An 'unwell' who has hallucinations, fears, anxieties, depression, phobias and so forth. And there are such a lot of elements and reasons in the back of these kinds of internal conditions. Extra important is the person himself, who acts and reacts to those factors in a sure manner. E.g. if we communicate approximately worry and the item of fear, we will get distinctive solutions from distinct people. The kind of fear may additionally range and the

diploma of worry can also range for the equal item in specific humans.

This man or woman distinction may be very critical in homeopathic treatment. The difficulty of Psychology will take us to a depth of know-how of those man or woman differences. It acts as a light in the darkish and helps us to realize the reason of the behaviour.

Homeopathic treatment methods were stimulated by means of the so-called law of Similarity: "Similia Similibus Curanter". Homeopathy is a holistic approach to infection, primarily based on Gestalt idea; and asserts that no ailment is nearby without affecting the entire frame.

Homeopathy is based on solid legal guidelines and principles. Through the years, many non-classical perspectives have evolved, in addition to many distinct tactics. Many homeopaths developed their personal non-public approach of treatment and incorporated new ideas consisting of psychoanalysis and dream interpretation. Those are new schools of concept that insist on a mental purpose for each physical contamination. Grasp Hahnemann's classical homeopathy, based on Gestalt, does no longer automatically expect this psychosomatic dynamic, although such an etiology in unique instances wherein it's far glaring [e.g. fainting from fright or ulcers from anxiety]. It also emphasizes intellectual or emotional symptomatology in correlation with the entire range of signs and symptoms gift.

**The above view can be discussed consistent with the following three components –**

- Lack of familiarity and acceptance of homeopathy.
- Classic gestalt approach of homeopathy.
- Modern non-classical approach of homeopathy.

**Loss of familiarity and attractiveness of homeopathy**

Homeopathy is a holistic method to contamination, based on Gestalt principle; and asserts that no sickness is



neighbour-hood without affecting the complete body. It solves the reason of the disorder and strengthens the entire body to remove the disorder itself.

Homeopathy believes that all signs of illness are signs of healing of the body; here stress is important for restoring homeostasis, a health condition in the body. The body can heal itself from light or minor impurities that our body is strong enough to cope with the disease. In severe illness, Core Force is overwhelmed by illness and needs help or support in treatment. Homeopathy achieves this by demonstrating the basic stress by correcting the similarity of signs and symptoms with the basic "fact" or "direction".

Homeopathic medicine prepared by slow dilution and progression from flowers, minerals and animal products.

This problem is reached when the dilution exceeds the Avogadro number as understood in chemistry; and not a single molecule of a given substance is under training. After the emergence of science, the meaning of medicine is deeper, the level of treatment is deeper. In the homeopathic treatment of education, accident, and desire, the best thing is to absorb the energy of the medicine, work with the "healing" and use it to heal the disease. Conducting medical trials is very tough due to the individualization of homeopathic remedy. A specific case can't be duplicated due to the fact the equal continual ailment normally desires a unique drug in a one-of-a-kind man or woman.

Homeopathy continues to be controversial today because the mystery of its mechanism of movement eludes our understanding. But simply as at one factor we believe that the earth is flat, that we cannot fly or communicate at a distance via speaking, through the years all this has been triumph over by way of discoveries. The equal is now proper of what exactly occurs at the subatomic level, what are the mechanisms by way of which energy may be transferred at that stage. We realize about particle and wave transmission, however many unknown events occur at this level.

Dr. James Tyler Kent stated, "while homeopathy itself is a great technological know-how, its fact is handiest partially acknowledged. fact itself pertains to the divine and information relates to man. It's going to take a long time for medical doctors to become authentic masters of this reality."

### **The Modern Non-Classical Approach of homeopathy**

There are new schools of thought that include new ideas like psychoanalysis, delusions, and dream interpretation, and that all physical illness is psychological.

There are homeopathic ideas that treat Gestalt in some ways, eg psychoanalysis, independent of the gestalt's knowledge process and ideas of conflict and symptoms.

Another approach is Jungian psychology, in which the patient is characterized only in the context of archetypes, the physical

body of the mind, the original data that play an important role in the process of thinking, life and behavior of each person. They arise from the collective unconscious and are directly related to people's thoughts, beliefs, mythologies, human feelings and behaviors; but also in nature and in the world in general.

In modern homeopathy, there is a tendency to reduce all symptoms to a single negative emotion, or to an insignificant or important emotion; this should be the most important of all.

"It's a ridiculous way to go, and when someone does it wrong, they're usually wrong," said Dr. David Little, because it is bad for the patient.

Specific mental symptoms and specific emotions are important in homeopathy. Our maters specifically said that the treatment should be chosen only after special attention is paid to the special psychological symptoms and special emotions experienced by the patient. The particular importance of mental symptoms rests on the assumption that the disease occurs mainly in the centre; and psychological symptoms are clear indicators of significant impact.

The word "law" refers to all the differences that occur gradually in molecular processes important to the life of the organism.

The consequences of the law reflect personal behaviour. The body of people has been shown to us with various symptoms representing various structures from the past and hereditary defects.

Thus, we know that diseases are caused by deviations from important molecular processes, some or other molecular errors. Both subjective and objective mental and physical symptoms are the result of these molecular problems.

Mind, consciousness, thoughts, feelings, understanding, thoughts, feelings, mental symptoms, etc. are functions of the physical body of the brain and nervous system. Without the brain, there would be no mental symptoms. The brain is the source of the physical symptoms of the brain. When a molecular error occurs in a biochemical channel in the body, the information is sent to the central nervous system by a combination of neurotransmitters and biomolecules participating in the neurotransmitter class.

This initiates complex biochemical processes in various parts of the central nervous system; manifests itself as symptoms and thoughts. All abnormal thoughts and abnormal psychological symptoms indicate some differences in this or that molecular mechanism in the body.

A genetic difference in biochemical processes has some immediate effect in neuro-endocrine diseases. Echoes are the true basis of many psychological and private emotions. This



process is regulated by hormones, neurotransmitters, and complex molecules called neurotransmitters.

The limbic system, which is part of the central nervous system, plays an important role. All emotions and certain symptoms of the brain and body result from a harmonious, chemical process involving the limbic and central nervous systems. Molecular errors in some biochemical pathways are affected by hearing loss and psychological symptoms before the target's symptoms. Therefore, we mistakenly believe that these diseases begin at the mental level; then enter the fuselage of the plane. All diseases begin with molecular errors at the level of the body's life processes; mental symptoms show their reflection in the chemical process of the central nervous system.

Apparently, healing also happens at the molecular level of th J. T. Kent emphasised on the symptoms of mental illness. He believes that the power of the disease affects the life force first and then the mind. He put the symptoms of mental illness first and evaluated them according to the level of thinking and feeling, and thinking was divided into will, which is thinking; desires and preferences). The second is wisdom and understanding - including curiosity, curiosity, curiosity and misunderstanding. And finally memory - it includes your own memory, speech difficulties, reading and writing errors, and more. All of these are directly related and affect mental health.

Psychology is the science that studies mental life, including its phenomena and conditions. Psychology is the study of the "how" and "why" of actions and thoughts. Just as we understand the laws that govern human physical health, we understand mental health by understanding the laws of the mind and how we respond to the world. The goal of psychology is to understand behavior in science and better adapt it to the environment so that the person can lead a good, healthy life.

Our behavior is a reaction; One response is the activity and the second response is changes in glands which in turn produces the visible tumors.

Human behavior is very complex and is influenced by many different factors. Thus, all aspects of the character can be seen from different angles. All this helps us to understand behavior because with behavior we only consider external behavior and learning process and the direct influence of external one surrounding behavioral stimuli. Another perspective is psychodynamic psychology, which focuses on the hidden, unconscious, motivations and drives, and the role of knowledge in childhood. Social psychology studies the effects of the social and social environment on human behavior.

In homeopathy, we take a holistic approach to health; it is also a concept based on the biopsychosocial model of health in psychology.

## REFERENCES

1. Dattatray Topkhanewale *Notes on Organon Including Psychology for Homeopathic Student*; B jain Publications

2. Kent J. T.; *Lectures on Homoeopathic Philosophy*; B.Jain Publications
3. Misra B. B.; *Textbook of Psychology for Homoeopathic Students*; B jain Publications
4. Morgan C. T.; *Introduction to psychology*; 7<sup>th</sup> edition; McGraw-Hill Publications
5. Sadock Benjamin, Sadock Virginia Kaplan and Sadock's *Synopsis of Psychiatry: Behavioral Sciences/Clinical Psychiatry: eleventh edition*; Wolters Kluwer India Pvt. Ltd. publication
6. Srivastava B.; *Homoeopathy and Psychology*; IBPP Publications





# THE EXTENSION OF THE SENTENCE FORM AND THE APPLICATIVE MODEL

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## ABSTRACT

*A sentence as a speech unit is a very complex concept. Currently, linguists are struggling with the question whether a sentence is a language unit or a speech unit. It is this issue that currently causes many controversial opinions among our linguists. Because we cannot say that the problems regarding the linguistic nature of the speech have been completely resolved. In this article, some comments are made about the solution of such problems, as well as the role of the applicative model in the expansion of the sentence form.*

**KEY WORDS:** *simple sentence, derivation, applicative model, applicatives, root structure, base structure, predicability.*

It is known that the science of linguistics has been influenced by the science of logic for many years. This led to the emergence of classical universal grammar. General perception of the language V. changed after von Humbald's theoretical ideas. Humboldt's view required a different approach to language, that is, to prioritize the insol factor. Currently, almost all practical studies of modern linguistics are based on his work.

Until today, the approach to the study of speech from the point of view of logic, formal discourse has been used not only by Uzbek and Russian, but also by foreign linguists. At the same time, the relationship between language and thinking was studied from the point of view of philosophy and psychology. Such an approach to speech existed in ancient Greece. The main reason for this is that during the time of the ancient Greek philosophers, linguistics was studied within philosophy.

A sentence as a speech unit is a very complex concept. Currently, linguists are struggling with the question whether a sentence is a language unit or a speech unit. It is this issue that currently causes many controversial opinions among our linguists. Because we cannot say that the problems regarding the linguistic nature of the speech have been completely resolved.

It is known that the great linguist Ferdinand de Saussure made a big turn in linguistics by basing his theory on the unity of language and speech and at the same time their opposition. If words are considered a linguistic unit regardless of their word group, then when they interact, they are included in the sentence and form a speech unit. In other words, all words (the phonetic and morphological elements that make up them) and word categories form the internal system of the language, and their interaction with each other

under certain conditions creates the structure of the sentence and creates the external system of the language at a certain level. In fact, the human language consists of a set of unique signs, which serves to express the external environment in which it lives, existence.

Thus, we should understand a speech unit formed by the combination of words or words that represent a complete thought under certain conditions and on the basis of certain syntactic rules. At the same time, the sentence is the most basic central unit of any syntax. All other units are derived from this simple sentence or their combination.

We mentioned above that a sentence can consist of one word. For example: Attention! Speak up! Shut up! even if they are considered single words, they can be called sentences. At the same time, the main sign of the sentence - predicativeness - is noticeable in them. In other words, in each given word (sentence) one of the main conditions of predicativeness is expressed - the attitude of the speaker to existence. Because when we say predicativeness, we understand not only the possessive participle, but also the personal attitude of the speaker to that situation.

In traditional linguistics, a sentence is defined as a unit that expresses a complete meaning and is spoken with a complete tone. But in our opinion, the characteristic of the sentence expressing a complete thought cannot fully express its linguistic nature. The main reason for this is that the completed meaning is also observed in a number of other speech units (complex syntactic device, paragraph, macrotects). Therefore, N. Based on Turniyozov's opinion, it is appropriate to study in the form of the smallest unit of speech.

E. According to Benveniste, "...Speech is the use, practice, life of language. In speech, we move away from our





understanding that language consists of a system of signs and enter another world - the reality that requires language to be a means of communication. This reality finds its expression in discourse (le discours).

It should also be said that despite the fact that any unit is activated at the level of a larger unit, language units intersect only in sentences. For this reason, language units are activated only in sentences. This shows that the object of use of language units is a sentence. At the same time, we can observe expressive and expressive aspects of language units only in sentences.

F. that the sentence is a speech unit. We also observe in the teaching of de Saussure. He said, "The earth turns," "What did he say to you?" says that only stiffened, ready-made sentences can be considered as language units<sup>1</sup>.

A. I. Smirnitsky also interprets the sentence as a speech unit. According to him, concrete sentences cannot be a linguistic unit. They are a unit of speech. Because concrete sentences consist of words formed on the basis of certain rules<sup>2</sup>. A.I. Smirnitsky, as we saw in Saussure, fell into ready-made patterns in How are you? (How are the conditions?), What's the time? He considers sentences like (What time?) as a language unit<sup>3</sup>.

In our opinion, any sentence is a speech unit, and language units are made up of words.

The formation of the sentence, the expansion of its syntactic form is directly related to the degree of application of the applicative model and the derivation process.

The extent to which the applicative model is used varies across languages. However, in agglutinative and inflectional languages, the reliance of this model on morphological means is more clearly expressed than in other language systems. In particular, affixes, conjunctions and auxiliaries are very active in this. Since the substantive weight of the applicative model is related to concepts such as adding, patching (qo`shish, yamash, tirkash) it goes without saying that the position of affixes, connectives, and auxiliaries is great.

In the process of attaching these tools to certain words, the second, third, etc. also affects the words, makes it possible for them to be used in the structure of the sentence, and as a result, the syntactic form of the sentence expands.

The expansion of the syntactic form of the sentence occurs within the derivation process, and therefore we study the application of the applicative model as one of the main methods of the theory of syntactic derivation. The phenomenon of syntactic derivation, as mentioned earlier,

occurs mainly in two ways - transformational and sentence form expansion.

Both of these methods are considered to be the main tools for making the language system functionally valuable. From this point of view, both the applicative method and the transformation are considered components of the derivational theory, but they independently require separate models. The main reason for the use and general introduction of these models is directly related to the principles of language use in speech. It is in this process that the language system shows its functional activity. In other words, the derivational process serves for the language system to fulfill its function in speech. This is very important, since language units always have a specific purpose when they are used in reality, and at the same time, the use of language in speech determines the level of its development (various changes). Of course, the researcher must understand and analyze this process<sup>4</sup>.

At this point, it should also be said that we think that its system, which is ready in the language, is primary. As long as the system does not exist in a certain way, it is difficult to talk about the performance of the language. However, some linguists believe that the communicative function of language is primary. We can see the proof of opinion in the following comments of Eugenio Coseriu: "It is necessary to understand the language from a functional point of view. In other words, language requires function first and system second. After all, because language is a system, it does not perform a function, on the contrary, it has the status of a system to perform a certain function<sup>5</sup>."

In our opinion, this opinion of E. Koseriu seems controversial. Because it is impossible to look for an opportunity for something that does not exist. A function does not appear in a space. There must be some ground for it to come into existence. Therefore, if the system does not exist, the language will not be able to perform the task. E. Koseriu's comments contain self-contradictory thoughts '...it is a system to perform its function'. (...он является системой, чтобы выполнять свою функцию).

It seems that first the system must exist, and then the tasks related to it must be performed. However, the performance of these tasks also takes place within a specific system. For example, the system of communicative relations, etc. On the other hand, the communicative process in which the system is used requires a certain system, and this system lives not for itself, but for the language system. In other words, the functional activity of the system occurs in the communicative process. In this process, language units interact with each other using various (morphological,

<sup>1</sup> See: Saussure F. de. Works on linguistics. - M., 1977. - P. 98-111.

<sup>2</sup> Smirnitsky A.I. Lexicology of the English language. - M., 1956. - P. 228.

<sup>3</sup> Turniyozov N., Turniyozov B., Turniyozova Sh. The same page.

<sup>4</sup> See: Bushui T. Language in the history of the development of human thought. -Tashkent, 2011. - P.144.

<sup>5</sup> Coseriu E. Synchrony, diachrony and history (Problems of language change) // New in linguistics, issue III. - M., 1963. - P.156.



syntactic, semantic, pragmatic) means<sup>6</sup>. Application binding requires one of these methods (tools). It is in this process that the power of the applicative model applies.

It is known that "Rano is singing. Ahmad is working. Kamal is playing" in traditional linguistics, sentences of the type are considered two-part sentences, that is, the simplest compound sentences. However, in any language, even simple sentences can be found, the size of which is larger than the size of a compound sentence. It is known that such sentences are called simple colloquial sentences. Now, it is natural for the reader to ask whether simple compound sentences are formed by expanding the size of a simple compound sentence or in separate ways.

"Rano is singing, Ahmad is working. Kamal is playing" sentences given above are usually considered to be sentences consisting of a single verbal (verb-related) group. Because in this type of sentences, the elements forming the object of the action expressed with the participation of nouns or pronouns do not participate. Accordingly, we conditionally call the N+V group representing the action a verbal group (a group involving a verb). But any action is influenced by extralinguistic and paralinguistic phenomena in the process of finding its grammatical expression. When we say extralinguistic phenomena, we understand non-linguistic factors that are related to the development of language under certain social conditions, but are not related to the structure of language, when we say paralinguistic phenomena, we mean non-linguistic factors that are not related to the stages of language development, and at the same time, they can freely affect language and speech elements at the same time. We understand, for example, the situation is one such factor. For this reason, any verbal communication in which a certain idea is being expressed will be closely related to the situation. In general, any element of language finds its concrete expression only when it interacts with other elements in a certain situation<sup>7</sup>. Even the speaker's feelings are often related to the situation. For example, take the sentence "Rano is reading". As usual, we can use this sentence to refer to a person who is reading a simple letter or newspaper. If Rano is carefully reading some important message, then using the sentence "Rana is reading carefully" is automatically required by the situation. Or let's take another example: "Ahmad is working in the garden" In the given sentence, we can see that verbal communication is taking place in a calm and peaceful environment. However, if the attention of the listener is drawn to the fact that Ahmed is working in the garden, he will answer the following questions: "Why is Ahmed working in the garden?" (Why is Ahmed working at all?)" he would have asked. Because only the listener knows that

Ahmed was forbidden to engage in physical labor by the doctors. Ahmadiig's health may also deteriorate now. That is why he is excited to ask the question. It is known that such a situation undoubtedly creates some kind of change in the speaking person, who is also surrounded by an exciting situation.

It can be seen that the paralinguistic phenomenon plays an important role in their actualization, even if it is not related to the elements of the language structure. Thus, we make sure that the sentence that expresses our thoughts moves not in a vacuum, but in the context of a certain situation. It can meet in a short wide position or a wider spread position.

If it occurs in a common state, it is necessary to add the element X to the formula N + V. The sentence "Rana is studying carefully" now gives the formula N +V + X. Through the X element in the formula, the marginal words of the sentence, that is, the words that are not necessary for the main semantic structure of the sentence, can be included or not included in the sentence according to the wishes of the speaker. If expanded in the style of "reading a book", we are considered to have added eight more marginal elements to it. Accordingly, the sentence formula is changed to N + V + X3, but the center of any sentence should be focused on a single point. No matter how many elements it contains, they serve to clarify this central point, complete the message, and explain it.

In the sentence given above, we can see that the element V (is reading) forms its basis, and such elements are called words that indicate the basic structure of the sentence in the current linguistic literature.

The basic structure of the sentence gives its main semantic weight (reading). The form "Ra'no is reading" serves as the base structure of the (N + V) sentence and forms its syntactic structure<sup>8</sup>.

Now let's take a closer look at the root and base structure of the sentence. Based on the ideas expressed in the linguistic literature, when we say the basic structure of a sentence, we understand the structure that is organized from only a few elements related to its main semantic core. This structure, of course, cannot be related to all the participating elements in the composition of the sentence<sup>9</sup>.

For example: Let's analyze the expanded form of the sentence given above in the form: Rana is reading a book with his friend under a tree in the garden. We see that 9 elements are involved in the composition of the sentence, represented by the following formula:

$N1+d1+ N 2+d2+ N 3 + N 4 + d3 +N 5 + V$  or  $N+X5+ V$  for short.

<sup>6</sup> See: Ponomarenko E.V. On the development of a systematic approach in linguistics//Philological Sciences, 2004, N.5. – P.26.

<sup>7</sup> See: Sviridovsky V.I. Zobov R.A. New philosophical aspects of elementary structural relations. L.: Nauka, 1970, p.12.

<sup>8</sup> Zolotova G.A. Essay on the functional syntax of the Russian language. Moscow: Nauka, 1973; Paducheva E.V. On the semantics of syntax. Moscow: Nauka, 1974.

<sup>9</sup> Paducheva E.V. cited work pp. 53-57.



In this place, according to the word order of the Uzbek language, we place the element V in the last place, and the marginal elements are located between the element controlling the movement (N) and the movement (V) in the case of X<sub>5</sub>.

It can be seen that all the elements (words) except for V are repeated in the formula. So, only V (verb) stands in the center of the sentence structure and follows the rest of the elements for one reason or another.

However, the issue of the actualization of the verb is related to N, which is in the first place, and is managed in the form of N + V (Rana is reading). Accordingly, we can say that the N + V elements, which are in the center of the content of the sentence, constitute its semantic structure, the basic structure.

The remaining elements are related to the general form of the sentence and represent its syntactic or derivational structure. A derived structure cannot change the base structure, no matter how many elements there are. Even if we expand the sentence given above into a text as follows, the basic structure remains in the N + V position.

“After work, Rano was sitting in his chair and reading a book with his friend Salima.”

In the given example, we see that 9 marginal elements represent the derivational structure of the sentence. Let's analyze another example to make our point clearer:

“Куда вы идете в такой дождливый день со своей бабушкой и без зонтика?” (Where are you going on such a rainy day with your grandma and no umbrella?) We took this example from the book “Теоретическая и прикладная лингвистика” (Theoretical and Applied Linguistics) by the Russian linguist V.A. Zvegintsev. In this example, we see that the sentence is expressed in the interrogative form.

In our opinion, all elements except the word “куда” (where) in the sentence structure are marginal, because the person asking the question is told by the situation where the second person is coming from, that it is raining, that he does not have an umbrella, and that he is staying with his grandmother. It is interesting to note that the second person also fully answers this question: (I go to the theater on such a rainy day with my grandmother and without an umbrella.) “Я иду в театр в такой дождливый день со своей бабушкой и без зонтика”.

In the answer, they could use the sentence “Я иду в театр” (I'm going to the theater) or simply the sentence “В театр” (To the theater). However, both individuals do not consider paralinguistic factors at the same time. Therefore, in most linguistic literature, the basis of language theory is related to the activity of exchange of ideas between ideal speakers and listeners surrounded by the same conditions.

V.A. Zvegintsev connects the situation in the given example with the issue of saving language elements. From the syntactic point of view, this type of case is used only to expand the derivative structure of the sentence.

The fact that affixes play a large role in the expansion of the syntactic form of a sentence does not require explanation, because affixes join the root or base of a word and connect it with the second word, and as a result, the syntactic form of a sentence expands each time in exchange for certain words. However, it should also be said that not every affix can have this property. Because the functional activity of the affix in forming a chain of syntagmatic lines is inextricably linked with its specific grammatical meaning as a morpheme. In other words, the expansion of the syntactic form of the sentence inevitably takes place by means of affixes that express a specific meaning (grammatical), in the process of performing the function of an applicator.



# INFLUENCES OF KETTLEBELL TRAINING ON LEG STRENGTH AND MUSCULAR STRENGTH AMONG COLLEGE LEVEL MEN ATHLETES

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## ABSTRACT

*The primary objective of this study was to investigate the effects of kettlebell training on leg strength and muscular strength among college-level men athletes. To achieve this goal, a sample of thirty college-level men athletes from Ramakrishna Mission Vidyalaya Maruthi College of Physical Education, located in Coimbatore, Tamil Nadu, India, was randomly selected to participate as subjects. The age range of the participants was between 21 and 25 years. The subjects were divided into two groups: the kettlebell group and the control group. The kettlebell group underwent a kettlebell training program, consisting of three sessions per week (Monday, Wednesday, and Friday), over a period of eight weeks. The training sessions were conducted in the evening. Leg strength and muscular strength were selected as the dependent variables in this study. After collecting the necessary data, statistical analysis was performed using the paired t-test. The significance level was set at 0.05. The results of the study indicated a significant improvement in both leg strength and muscular strength among college-level men athletes who underwent kettlebell training. These findings highlight the positive impact of kettlebell training on the physical abilities of college-level men athletes in terms of leg strength and overall muscular strength.*

**KEYWORDS:** *Kettlebell Training, Leg Strength, Muscular Strength and Athletes.*

## 1. INTRODUCTION

Kettlebell training has gained popularity as an effective and versatile form of exercise that targets various muscle groups, enhances overall strength, and improves athletic performance. Among college-level men athletes, the demand for training methods that can optimize leg strength and muscular strength is paramount. Therefore, exploring the influences of kettlebell training on these specific areas can provide valuable insights into its potential benefits for this population.

Leg strength is a fundamental aspect of athletic performance, particularly in sports that require explosive movements, such as basketball, soccer, and track and field events. Additionally, muscular strength is crucial for athletes to execute powerful actions, maintain stability, and reduce the risk of injuries. Kettlebell training, characterized by dynamic movements and resistance training, has the potential to enhance both leg strength and overall muscular strength. By engaging in kettlebell exercises that involve the lower body, such as kettlebell swings, goblet squats, and lunges, college-level men athletes can target their leg muscles, including quadriceps, hamstrings, glutes, and calves. These exercises utilize multiple muscle groups simultaneously, encouraging functional movements and coordination.

Furthermore, kettlebell training promotes muscular strength by challenging athletes to stabilize and control the weight while performing exercises. The dynamic nature of kettlebell exercises necessitates the engagement of core muscles, as well as secondary muscle groups, to maintain balance and control

throughout the movements. Consequently, athletes can experience improvements in total body strength and power. While research has been conducted on the benefits of kettlebell training in various populations, limited studies have specifically focused on its effects on leg strength and muscular strength among college-level men athletes. Understanding the potential influences of kettlebell training in this specific demographic can guide trainers, coaches, and athletes in incorporating kettlebell exercises into their training regimens effectively.

This study aims to fill this research gap by investigating the influences of kettlebell training on leg strength and muscular strength among college-level men athletes. By examining the changes in strength levels, muscle activation patterns, and athletic performance following a structured kettlebell training program, this study will provide valuable insights into the efficacy of kettlebell training for this population. Which build the components for the game, as a researcher special planned kettlebell training programme for the college level athletes.

## 2. METHODOLOGY

The primary objective of this study was to investigate the effects of kettlebell training on leg strength and muscular strength among college-level male athletes. To achieve this, a sample of thirty college-level male athletes from Ramakrishna Mission Vidyalaya Maruthi College of Physical Education in Coimbatore, Tamil Nadu, India, was randomly selected as participants. Their ages ranged from 21 to 25 years. The participants were divided into two groups: the kettlebell group and the control group.





The kettlebell group underwent kettlebell training sessions three times a week (on Mondays, Wednesdays, and Fridays) during the evening sessions for a duration of eight weeks. Leg strength and muscular strength were selected as the dependent variables for this study. After collecting the relevant data, a statistical analysis was conducted using the paired t-test, with a significance level set at 0.05.

### 3. TRAINING PROTOCOL

The kettlebell group in this study underwent a structured training program, consisting of three training sessions per week for a duration of eight weeks. The training sessions were specifically scheduled in the evening, allowing the participants to allocate dedicated time for their workouts. Each training session was designed to include warm-up and cool-down routines to prepare the body for exercise and facilitate proper recovery.

The duration of the training sessions lasted approximately 50 to 60 minutes on average. Within this timeframe, the participants engaged in a variety of exercises targeting different muscle groups. The specific exercises included in the training program

were pistol squats, biceps curls, rows, and front raises. These exercises were carefully selected to target various muscle groups, such as the legs, biceps, back, and shoulders, aiming to enhance leg strength and overall muscular strength.

During the training sessions, the kettlebell group followed a structured schedule that was meticulously regulated by the researcher. This ensured consistency in exercise selection, technique, and intensity. The participants received guidance and supervision from the researcher to maintain proper form and maximize the effectiveness of their training. In contrast, the control group did not participate in any additional training or exercise during the experimental period. They maintained their regular daily activities but did not engage in the specific training program provided to the kettlebell group. This allowed for a comparison between the effects of kettlebell training and the absence of additional training on leg strength and muscular strength among the participants.

By implementing a well-structured training program for the kettlebell group and maintaining a control group without additional training, this study aimed to evaluate the specific impacts of kettlebell training on leg strength and muscular strength among the participants.

### 4. RESULTS

**TABLE-I**  
**RELATIONSHIP OF MEAN, SD AND 't'-VALUES OF THE LEG STRENGTH BETWEEN PRE & POST TEST OF THE KETTLEBELL AND CONTROL GROUPS OF ATHLETES**

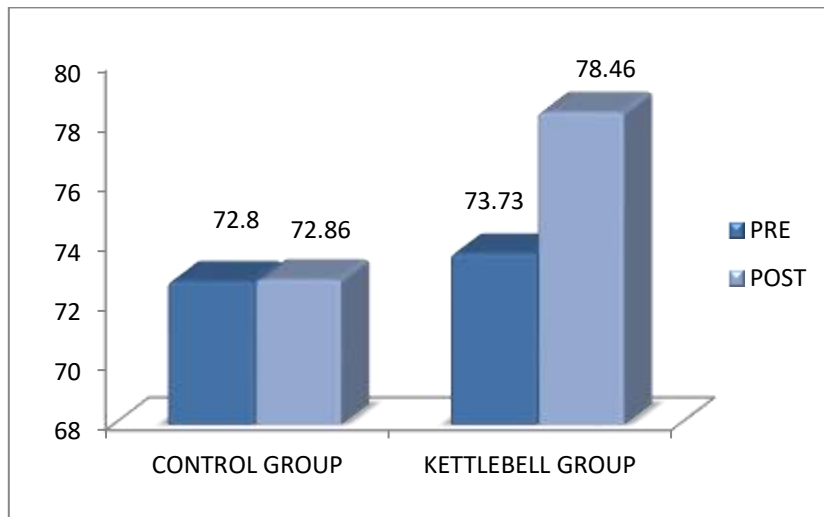
Leg Strength	Groups	Test	Mean	S.D	't' Values
	Control Group	Pre Test		72.80	17.12
Post Test			72.86	17.27	
Kettlebell Group	Pre Test		73.73	11.84	8.38*
	Post Test		78.46	12.18	

\*Significant at 0.05 level of confidence

Table-I reveals that the mean values of pre test and post test of control group for leg strength were 72.80 and 72.86 respectively; the obtained t ratio was 0.26 respectively. The tabulated t value is 2.14 at 0.05 level of confidence for the degree of freedom 14. The calculated t ratio was lesser than the table value. It is found to be insignificant change in leg strength of the athletes. The obtained mean and standard deviation

values of pre test and post test scores of kettlebell group were 73.73 and 78.46 respectively; the obtained t ratio was 8.38. The required table value is 2.14 at 0.05 level of confidence for the degree of freedom 14. The obtained t ratio was greater than the table value. It is found to be significant changes in leg strength of the athletes. The mean values on kettlebell group and control group are graphically represented in figure-1





**Figure-1: Bar Diagram Showing the Pre-Test & Post Test On Leg Strength of Control and Kettlebell Groups**

**TABLE-II**

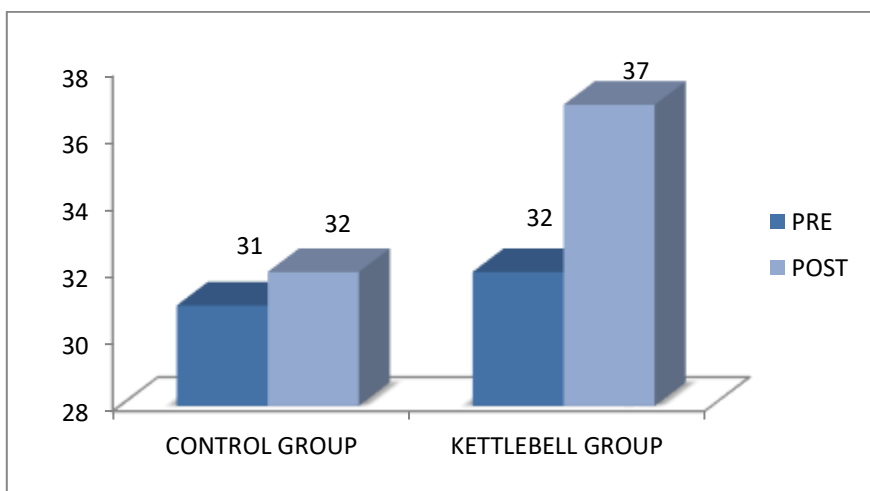
**RELATIONSHIP OF MEAN, SD AND 't'-VALUES OF THE MUSCULAR STRENGTH BETWEEN PRE & POST TEST OF THE KETTLEBELL AND CONTROL GROUPS OF ATHLETES**

Muscular Strength	Groups	Test	Mean	S.D	't' Values
	Control Group		Pre Test	31	6.42
Post Test			32	6.52	
Kettlebell Group		Pre Test	32	5.16	5.19*
		Post Test	37	5.73	

\*Significant at 0.05 level of confidence

Table-II reveals that the mean values of pre test and post test of control group for muscular strength were 31.46 and 31.33 respectively; the obtained t ratio was 0.48 respectively. The tabulated t value is 2.14 at 0.05 level of confidence for the degree of freedom 14. The calculated t ratio was lesser than the table value. It is found to be insignificant change in muscular strength of the athletes. The obtained mean and standard deviation values of pre test and post test scores of kettlebell

group were 32.66 and 37.80 respectively; the obtained t ratio was 5.19. The required table value is 2.14 at 0.05 level of confidence for the degree of freedom 14. The obtained t ratio was greater than the table value. It is found to be significant changes in muscular strength of the athletes. The mean values on kettlebell group and control group are graphically represented in figure-2



**Figure-2: Bar Diagram Showing the Pre-Test & Post Test on Muscular Strength Of Control and Kettlebell Groups**



## 5. DISCUSSION ON FINDINGS

Kettlebell training has emerged as a highly effective and versatile training method for athletes, including college-level athletes. This study aimed to investigate the impacts of kettlebell training specifically on leg strength and muscular strength among these athletes, utilizing a differentiation between a kettlebell group and a control group. The kettlebell training program focused on selected physical fitness components that are essential for athletic performance. The exercises included in the program were pistol squats, biceps curls, rows, and front raises. These exercises target specific muscle groups and have been found to enhance leg strength, muscular strength, muscle size, as well as other physical fitness components like speed, agility, and power.

The results obtained from the study demonstrated a significant improvement in leg strength and muscular strength among the kettlebell group. This finding suggests that kettlebell training has a positive impact on the development of these physical attributes in college-level athletes. These findings align with previous studies conducted by **Vijay and Vallimurugan (2021)**, **Abdul Halik et al. (2021)**, and **Ooraniyan and Senthil Kumaran (2018)**. Which also reported positive effects of kettlebell training on leg strength and muscular strength in various athlete populations. On the other hand, the control group, which did not undergo kettlebell training, did not show significant improvements in leg strength and muscular strength. This further supports the notion that the observed improvements in the kettlebell group can be attributed to the specific effects of kettlebell training

## 6. CONCLUSIONS

Based on the results obtained and considering the limitations of the study, it was observed that the practice of kettlebell training had a positive impact on leg strength and muscular strength among college-level athletes. The selected criterion variables showed progressive improvement in the kettlebell group athletes after participating in an eight-week kettlebell training program. This training program contributed to enhancing leg strength and muscular strength.

1. The findings of the study concluded that the individualized impacts of the kettlebell group demonstrated statistically significant improvements in leg strength and muscular strength among college-level athletes during the treatment period.
2. Conversely, the individualized impacts of the control group showed statistically insignificant changes in leg strength and muscular strength over the course of the study period among college-level athletes.
3. The comparative analysis of the results leads to the conclusion that the kettlebell group exhibited significantly greater improvements in leg strength and muscular strength among college-level athletes compared to the control group.

It is important to acknowledge that the study had certain limitations which may have influenced the results. However, based on the obtained outcomes, it can be inferred that

kettlebell training has a beneficial effect on leg strength and muscular strength in college-level athletes.

## 7. REFERENCES

1. J. Vijay and Dr. V. Vallimurugan (2021) *badminton player's fitness output in response to kettlebell training*. EPRA International Journal of Multidisciplinary Research, Vol. 7, Issue.09, Pgs: 38-41.
2. Abdul Halik, Senthil Kumaran, Arun Kumar, Rajesh, Princy (2021) *Effect of Complex Training on Strength Endurance and Agility among Basketballers*. International Journal of Research Publication and Reviews; 2(8): 157-166.
3. S. Senthil Kumaran, Dr. V. Vallimurugan, N. Kodeeswaran (2022), *Abdominal Strength as a Result of Core Exercise*. International Journal of Research Publication and Reviews, Volume-3, Issue-2, Pages: 109-111.
4. K. Ooraniyan, S. Senthil Kumaran (2018) *Impacts Of Kettlebell Training On Selected Physical Fitness Components Among Handball Players*, International Journal of Current Trends in Science and Technology, Vol. 8, Issue. 05, Page no: MS 20427-20430
5. B Vivekanth, V Vallimurugan (2019). *Effect of Strength Training on Physical Fitness Variables of Intercollegiate Volleyball Players*. International Journal of Applied Research; 5(6): 442-444
6. Vallimurugan, V., & Vincent, J. P. (2012). *Effect of SAQ Training On Selected Physical Fitness Parameters of Men Football Palyers*. International Journal of Advanted and Inovation Research, 1(2), 2278-7844.
7. Senthil kumaran. *Impacts of Plyometric Training on Selected Physical Fitness Variables among Basketball Players*. International Journal of Yoga, Physiotherapy and Physical Education 2018; 3(4): 52-54.
8. Ooraniyan and Senthil Kumaran. *Effect of Game Specific Aerobic Training on Motor Fitness Components among Handball Players*. International Journal of Yoga, Physiotherapy and Physical Education 2018; 3(4): 68-70.
9. Falatic et al., (2015) *Effects of Kettlebell Training on Aerobic Capacity*. The Journal of Strength & Conditioning Research, Volume 29 - Issue 7 - p 1943-1947.
10. Manocchia, P et al., (2015) *Transference of Kettlebell Training to Strength, Power, and Endurance*. Journal of Strength and Conditioning Research, 27, 2, 477-484.
11. Joe girard et al., (2014) *the Effects of Kettlebell training on Strength, Power and Endurance*. Journal of Physical Therapy, Volume 20 - Issue 1.
12. Matthew R. Maulit et al., (2017) *Effects of Kettlebell Swing vs. Explosive Deadlift Training on Strength and Power*. International Journal of Kinesiology & Sports Science, Vol. 5 No.1
13. Jay K et al., (2010) *Kettlebell Training for Musculoskeletal and Cardiovascular Health: A Randomized Controlled Trial*. Scand J Work Environ Health. Epub



# NEW INSIGHTS IN THE MANAGEMENT OF REFRACTORY NEONATAL GERD

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## ABSTRACT

*Gastroesophageal reflux disease (GERD) is one of the most common problems in neonates. The main goals of infantile GERD treatment are maintaining clinical recovery, sufficient growth, and preventing the recurrence rate and related problems. Acid-suppressive therapy including H2RAs and PPIs are the basic pharmacologic therapy for adult and pediatric GERD. PPIs are more effective than H2RAs in GERD treatment. Neonatal GERD remains a difficult entity to define and manage, and additional studies to aid in the clinical diagnosis and management are needed. Neonatal GERD refractory to conservative and monotherapy is a dilemma and performing trials to evaluate the effect of a PPI or a H2RA plus prokinetics in the management of these neonates is necessary to prevent considering invasive diagnostic procedures and early surgical treatment. we performed three different clinical trials to survey the efficacy and safety of combined therapy including an H2RA plus a prokinetic or a PPI plus a prokinetic in neonatal GERD refractory to conservative and monotherapy.*

**KEYWORDS:** Neonates, Gastroesophageal reflux disease, refractory, treatment

## 1-INTRODUCTION

Neonatal Gastro-esophageal reflux (GER) is defined as a normal physiological retrograde passage of gastric contents into the esophagus occurring daily with or without regurgitation and/or vomiting in otherwise healthy neonates [1-3]. GER is most commonly observed in two-thirds of healthy infants during the first 4 months of life that declines gradually to reach one-third between 4 to 9 months of age and almost 4% after 1 year of age [3]. In apposite, gastro-esophageal reflux disease (GERD) refers to troublesome symptoms or conditions (e.g., frequent vomiting, poor weight gain, irritability and respiratory symptoms) which complicate the physiologic GER. The prevalence of GERD differs from 8.5% in Eastern Asia to 10-20% in Western Europe and North America [4,5]. The principal symptoms of neonatal GERD are GI troubles including frequent regurgitation or vomiting, anorexia, refusal or stopping feeding along with irritability, crying, inappropriate weight gain, retrocollis, and sleep disturbance. It may also present as respiratory problems including coughing, choking, wheezing, or upper respiratory tract symptoms [6]. Prematurity, neurological diseases, drugs (e.g., sedatives and muscle relaxants), positive family history of GERD, and gastrointestinal malformations increase the risk of GERD [7].

The main goals of infantile GERD treatment in are maintaining clinical recovery and sufficient growth, and preventing the recurrence rate and related problems [8].

## 2.TREATMENT

### 2.1. Conservative Therapy

In most cases of infantile GER, parental reassurance is the mainstay of treatment because of the benign and self-limiting nature of GER. In frequent and troublesome regurgitation (GERD); conservating therapy including thickening the formula or expressed breast milk with cereal, postural therapy, and lifestyle changes are recommended [4,7].

### 2.2. Pharmacotherapy

It should be considered in the treatment of more severe gastroesophageal reflux disease for patients who do not respond to conservative measures [5,7]. Acid-suppressive therapy including H2RAs and PPIs are the main pharmacologic therapy for adult and pediatric GERD [4,9,10]. Adult data suggest PPIs are more effective than H2RAs in reducing GERD symptoms. [9,11].Although there is a lack of published data for enhanced results and increasing worries about side effects, oral PPIs have been increasingly used in infantile (under one year of age) GERD



[12-14]. A 4-week trial of a PPI or H2RA for infants with symptoms such as unexplained feeding difficulties, distressed behavior and unsuitable weight gain plus overt regurgitation has been suggested in recent guidelines [7]. There is no documentation that support the efficacy of acid-suppressant drugs for the treatment of symptoms in neonatal GERD. [15]. Neonatal GERD remains a difficult entity to define and manage, and additional studies to aid in the clinical diagnosis and management are needed [16]

PPIs induce inactivation of H<sup>+</sup>/K<sup>+</sup>-ATPase in the gastric parietal cells canaliculi and inhibition of gastric acid production. They also decline gastric secretion volume and facilitate gastric emptying [12,13]. The PPIs are superior over H2RAs because they have longer duration of action, fewer complications and higher inhibition of meal-induced acid secretion [5]. Moreover, the probability of tachyphylaxis may occur after repeated administration of H2RAs, leading to a decline in acid suppression [17].

As PPIs have international accreditation due to fewer therapeutic interruptions and switches in the first four weeks of treatment [13,18]. The past viewpoint to the management of infantile GERD was a “step-up” protocol of acid suppression treatment in which ranitidine was the first line of prescription that was changed to PPIs if the symptoms persisted despite receiving high-dose ranitidine [19]. According to the recommendation of an updated review, pharmacotherapy is suggested for the treatment of severe GERD in children who are refractory to conservative therapy. In this regard, PPIs are favored over H<sub>2</sub>-receptor antagonists because of their superior efficacy [20]. Recent studies have shown that the symptoms of neonatal GERD are due to either acid reflux or nonacid reflux [21].

Among prokinetics, although metoclopramide may induce irritability, drowsiness, oculogyric crisis, dystonic reaction, apnea, and emesis in infants, these adverse reactions are only induced with prolonged or high-dose metoclopramide exposure [22]. Domperidone and cisapride are prohibited to be used in the USA because of inducing probable cardiac arrhythmia [23, 24]. Macrolides are among prokinetics and may also induce cardiac arrhythmia in long-term usage [25]. Metoclopramide may be a safe prokinetic if it is prescribed with a low-dose amount for a short duration. It was why we used metoclopramide in our studies.

2.3. Surgical intervention (typically fundoplication) is generally reserved for infants with severe GERD who have failed maximal medical management [15].

### 3. ALGORITHMIC APPROACH IN REFRACTORY NEONATAL GERD

The indication of diagnostic evaluation for further investigation includes: 1-Symptoms that are nonresponsive or only partially responsive to a common dose of PPI administered properly for at

least 4 to 8 weeks 2-Positive alarm symptoms (e.g., failure to thrive, bleeding, dysphagia) in all age groups and 3-Presence of atypical symptoms for GERD (e. g., chest pain or extraesophageal symptoms, contrary to typical heartburn and/or regurgitation) in children and adults [3,26,27]. The diagnostic evaluation may include: upper digestive endoscopy, esophageal manometry, and ambulatory reflux monitoring (esophageal pH monitoring or esophageal impedance-pH monitoring) [3,26,27]. This analytical approach is a general recommendation and should not be regarded as a substitute for clinical experience or as a treaty appropriate for all patients [3].

There are still controversies about the management of neonatal GERD especially the patients with relative or no response to conservative and monotherapy.

### 4. NEW INSIGHTS INTO THE MANAGEMENT OF REFRACTORY NEONATAL GERD

According to our research in literature, PubMed, and Google Scholar; we found no clinical trial that has studied the efficacy and safety of combined therapy including an H2RA plus a prokinetic or a PPI plus a prokinetic in the treatment of neonatal GERD refractory to conservative and monotherapy, so we performed three different clinical trials to survey the efficacy and safety of combined therapy including an H2RA plus a prokinetic or a PPI plus a prokinetic in neonates [28-30].

### 5. CURRENT CLINICAL TRIALS WITH NEW INSIGHTS

As almost all parents of our patients were not satisfied with performing the mentioned invasive diagnostic procedures [upper digestive endoscopy, esophageal manometry, and ambulatory reflux monitoring (esophageal pH monitoring or esophageal impedance-pH monitoring)] for their neonates; instead of performing the mentioned invasive diagnostic procedures in unresponsive cases to conservative and monotherapy, we added metoclopramide to acid suppressant regimen in the treatment of GERD in these patients

The term “refractory to conservative therapy and monotherapy” was defined as a response rate of less than 50% in the first and third studies and 50% to 70% in the second study, so the patients with relative responses that did not satisfy the treatment team and parents before the combined intervention, participated in the study. Other diagnoses were ruled out in regard to the clinical manifestations and examination of the patients; lab tests; sonography, etc. The highly positive response to combination therapy emphasized the diagnosis of GERD in each patient too. The duration of conservative treatment and then monotherapy was about 3-7 days each, according to a careful balance of risk and benefits between the severity of clinical problems and the response rate. Our performed 3 clinical trials included:

1: In the first study, the response rate of GERD symptoms was less than 50% after conservative therapy and monotherapy in





refractory cases of term infants, so we added metoclopramide to each group of receiving conservative therapy plus ranitidine or conservative therapy plus omeprazole.

In this study the response rate increased to  $93.74\% \pm 7.28\%$  in “omeprazole plus metoclopramide” group and  $75.43\% \pm 23.24\%$  in “ranitidine plus metoclopramide” group after one week and one month of intervention. There were no side effects in either group after one week and one month of intervention.

Generally, this study showed that combined therapy led to a response rate was  $> 70\%$  in each group, but it was significantly higher in “omeprazole plus metoclopramide” group ( $> 90\%$ ). A combination of each acid suppressant with metoclopramide led to a higher response rate in comparison with monotherapy used before the intervention.

2: In the second study, the response rate of GERD symptoms was about  $50\% -70\%$  after conservative therapy and monotherapy in refractory cases of preterm infants, so we added metoclopramide to each group of receiving conservative therapy plus ranitidine or conservative therapy plus omeprazole.

The response rate increased to  $91.37 \pm 7.5$  in “omeprazole plus metoclopramide” group and to  $77.06 \pm 3.38$  in “ranitidine plus metoclopramide” group after one week of intervention. There were no drug-related complications of drugs in both groups in our study.

Generally, this study showed that combined therapy led to the response rate of  $> 70\%$  after one week of intervention in each group, but it was significantly higher in the PPI group ( $> 90\%$ ). Both combination therapies led to higher response rate in comparison with conservative therapy and monotherapy used before intervention.

3: In the third study, a diagnosis of GERD was made according to the last version of the I-GERQ-R clinical scoring that consists of 12 items. The total score items in the IGERQ-R range from 0 to 42 with a cut point  $> 15$  scores [20]. In this study, we added metoclopramide to the regimen of ranitidine and lansoprazole group in refractory cases of GERD in term infants. In this study, the clinical response rate in “lansoprazole plus metoclopramide” increased and the score rate decreased to  $7.44 \pm 3.86$  score after one week and  $2.41 \pm 3.06$  score after one month of intervention. The clinical response rate also increased in “ranitidine plus metoclopramide” group as the score rate decreased to  $9.3 \pm 4.57$  after one week and  $4.5 \pm 4.12$  score after one month of intervention. There were no drug adverse effects in either group during interventions.

In these three trials, the response rate was significant in each group after one week and one month of treatment. Adding metoclopramide to each acid suppressant led to a better response rate than monotherapy used before the new intervention. Generally, the results of these three trials suggest that combined

treatment of both nonacid reflux (metoclopramide) and acid reflux (PPI or H2RA) is successful in refractory cases of GERD in neonates before performing complementary exams such as upper digestive endoscopy, esophageal manometry and ambulatory reflux monitoring (esophageal pH monitoring or esophageal impedance-pH monitoring). Combination therapy prevents unnecessary performance of invasive complementary exams, while it is safer and more cost-effective too.

## 6.CONCLUSION

The combination of each acid suppressant with metoclopramide led to a higher response rate in comparison with monotherapy used before intervention. This new regimen prevents considering invasive diagnostic procedures and early surgical treatment.

## Limitations

As far as our knowledge, there are no other trials that has studied and suggested pharmacologic combination therapy in neonates. Further studies with more participants and longer follow up are recommended to compare the effect of these combined therapy in refractory cases of neonatal GERD before surgical intervention.

## Compliance with Ethical Standards

### Acknowledgments

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## Disclosure of Conflict of Interest

The authors declare no conflict of interest.

## Statement of Informed Consent

Informed consent was obtained from all parents or guardians of infants who entered the studies. All three clinical trials were approved by the Research Ethics Committee of Tehran University of Medical Sciences. They were also registered in the Iranian Registry of Clinical Trials.

## Author's Contribution

Peymaneh Alizadeh Taheri created the idea, gathered the data, wrote and revised the manuscript.

## REFERENCES

1. Hegar B, Dewanti NR, Kadim M, Alatas S, Firmansyah A, Vandenplas Y. Natural evolution of regurgitation in healthy infants. *Acta Paediatr.* 2009; 98: 1189-1193.
2. Cicioral SL, and Woodley FW. Optimizing the use of medications and other therapies in infant gastroesophageal reflux. *Paediatr Drugs.* 2018; 20: 523-537.
3. Rosen R, Y. Vandenplas Y, Singendonk M, Cabana M, DiLorenzo C, Gottrand F, et al. Pediatric gastroesophageal reflux clinical practice guidelines. *J Pediatr Gastroenterol Nutr.* 2018; 66(3): 516-554.
4. Vandenplas Y, Rudolph CD, Di Lorenzo C, Hassall E, Liptak G, Mazur L, et al. Pediatric gastroesophageal reflux clinical





- practice guidelines: Joint recommendations of the North American Society for Pediatric Gastroenterology, Hepatology, and Nutrition (NASPGHAN) and the European Society for Pediatric Gastroenterology, Hepatology, and Nutrition (ESPGHAN). *J Pediatr Gastroenterol Nutr.* 2009;49(4):498-547.
5. Lightdale JR, and Gremse DA. Section on Gastroenterology, Hepatology, and Nutrition. Gastroesophageal Reflux. Management guidance for the pediatrician. *J Pediatrics.* 2013;131(5): e1684-1695.
  6. Randel A. Practice guidelines: AAP releases guideline for the management of gastroesophageal reflux in children. *Am Fam Physician.* 2014;89(5):395-7.
  7. National Collaborating Centre for Women's and Children's Health, Gastro-oesophageal reflux disease: Recognition, diagnosis and management in children and young people. National Institute for Health and Care Excellence (NICE). London (UK): Clinical Guidelines. 2015.
  8. Ferreira CT, de Carvalho E, Sdepanian VL, de Morais MB, Vieira MC, Silva LR. Gastroesophageal reflux disease: exaggerations, evidence and clinical practice. *J Pediatr (Rio J).* 2014;90(2):105-18.
  9. Sigterman KE, van Pinxteren B, Bonis PA, Lau J, Numans ME. Short-term treatment with proton pump inhibitors, H2-receptor antagonists and prokinetics for gastro-oesophageal reflux disease-like symptoms and endoscopy negative reflux disease. *Cochrane Database Syst Rev.* 2013;5(5):CD002095. 10.1002/14651858.CD002095.pub5
  10. van der Pol RJ, Smits MJ, van Wijk MP, Omari TI, Tabbers MM, Benninga MA. Efficacy of proton-pump inhibitors in children with gastroesophageal reflux disease: A systematic review. *Pediatrics.* 2011;127(5):925–935. 10.1542/peds.2010-2719
  11. Chiba N, De Gara CJ, Wilkinson JM, and Hunt RH. Speed of healing and symptom relief in grade II to IV gastroesophageal reflux disease: A meta-analysis. *Gastroenterol.* 1997;112(6):1798–1810.
  12. Nelson SP, Kothari S, Wu EQ, Beaulieu N, McHale JM, and Dabbous OH. Pediatric gastroesophageal reflux disease and acid-related conditions: Trends in incidence of diagnosis and acid suppression therapy. *J Med Econ.* 12(4):348–355, 2009.
  13. Barron JJ, Tan H, Spalding J, Bakst AW, and Singer J. Proton pump inhibitor utilization patterns in infants. *J Pediatr Gastroenterol Nutr.* 2007 ;4: 421–427.
  14. Zhou Y, Xu L, Wushouer H, Yu A, Xu Z, Chen C, et al. Acid suppression use among infants in one tertiary children's hospital in China, 2015-2018: A retrospective observational study. *Front Pediatr.* 2021; 21(9):679203.
  15. Murthy P, Dosani A, and Lodha A. Acid suppression in neonates: Friend or Foe? 2019. *Indian Pediatr.* 56(15):541-546.
  16. Chabra S, and Peebles ES. Assessment and management of gastroesophageal reflux in the newborn. *Pediatr Ann.* 2020;49(2): e77–e81.
  17. Salvatore S, Hauser B, Salvatoni A, Vandenplas Y. Oral ranitidine and duration of gastric pH>4.0 in infants with persisting reflux symptoms. *Acta Paediatr.* 2006;95(2):176-178.
  18. Ward RM, Kearns GL. Proton pump inhibitors in pediatrics. Mechanism of action, pharmacokinetics, pharmacogenetics, and pharmacodynamics. *Pediatr Drugs.* 2013;15(2):119-131.
  19. Hassall E. Step-up and step-down approaches to treatment of gastroesophageal reflux disease in children. *Curr Gastroenterol Rep.* 2008; 10(3): 324–331.
  20. Leung AKC, and Hon KL. Gastroesophageal reflux in children: An updated review. *Drugs Context.* 2019; 8: 1–12.
  21. Orenstein SR. Infant GERD. Symptoms, reflux episodes & reflux disease, acid & non-acid reflux- implications for treatment with PPIs. *Curr Gastroenterol. Rep.* 2013;15(11) :353, 2013.
  22. U. S. Food and D. Administration: Metoclopramide-containing drugs. November 2013, <http://www.fda.gov/Safety/MedWatch/SafetyInformation/SafetyAlertsforHumanMedicalProducts/ucm106942.html>.
  23. Djeddi D, Kongolo G, Lefaix C, Mounard J, and A. Léké A: Effect of domperidone on QT interval in neonates. *J Pediatr.* 2008; 153(5): 663–666.
  24. Zamora SA, Belli DC, Ferrazzini G, and Friedli B. Effects of cisapride on ventricular depolarization-repolarization and arrhythmia markers in infants. *Neonatology.* 2001; 80(1) :30–34.
  25. Albert RK, Schuller JL, and COPD Clinical Research Network. Macrolide antibiotics and the risk of cardiac arrhythmias. *Am J Respir Crit Care Med.* 2014;189(10): 1173–1180.
  26. Gyawali CP, Carlson DA, Chen JW, Patel A, Wong RJ, and Yadlapati RH. ACG clinical guidelines: Clinical use of esophageal physiologic testing. *Am J Gastroenterol.* 2020;115(9):1412-1428.
  27. Zerbib F, Bredenoord AJ, Fass R, Kahrilas PJ, Roman S, Savarino E, et al. ESNM/ANMS consensus paper: Diagnosis and management of refractory gastro-esophageal reflux disease. *Neurogastroenterol Motil.* 2021; 33(4): e14075.
  28. Taheri PA, Validad E, and Eftekhari K. The safety and efficacy of lansoprazole plus metoclopramide among neonates with gastroesophageal reflux disease refractory to conservative therapy and monotherapy: A clinical trial. 2021: *Int J Pediatr.* 2021. Article ID 3208495, 9 pages <https://doi.org/10.1155/2021/3208495>
  29. Taheri PA, Mahdianzadeh F, Shariat M, and Sadeghi M. Combined therapy in gastroesophageal reflux disease of term neonates, refractory to conservative therapy and monotherapy: A clinical trial. *JPNIM.* 2018;79(2): e070201.
  30. Sajjadian N, Akhavan Z, Taheri PA, Shariat M. A new therapeutic strategy for gastroesophageal reflux disease refractory to conservative therapy and monotherapy in preterm neonates: A clinical trial. *JPNIM.* 2019;8(1): e080125.



# IMMUNIZATION, VACCINATION AND HOMOEOPATHY

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## ABSTRACT

*Homeoprophylaxis subject from day one remain topics of debates. This article focuses on various important issue of disease prevention and roll of homoeopathy. After emerging noval corona virus the vaccination become talk of the world and at end we came across effect and side effect of Covid- 19 vaccines. At end I have tried to give list offew homoeoprophylactic medicines for certain diseases.*

**KEYWORDS:** Vaccine, Immunization, Diets, Vaccinosis, Homoeopathic prophylactic.

The fatal tendency of mankind to leave off thinking about a thing when it is no longer doubtful, is the cause of half their errors. – **John Stuart Mill (1806–1873)**

## INTRODUCTION: VACCINATION

From vacca, the Latin word for cow: Inoculation of cowpox virus (orthopox vaccinia virus) with the intention of protecting against smallpox virus, also known as cowpoxing. Today the term has been used to describe many other types of inoculations: A preparation of a weakened or killed pathogen, such as a bacterium or a virus, or of a portion of the pathogen's structure that, upon administration, stimulates antibody production or humoral immunity against the pathogen.

**Immunization:** A process that induces an immune response to a specific disease by exposing the individual to a natural or laboratory derived antigen. The goal of the process is to raise antibodies to a specific antigen.

Vaccination is regarded as the most important health advance in the 20th century by most health professionals and laypeople. After pandemic **Covid-19** and its vaccination propaganda this subject becomes more important. It is noticed that young age group are met with sudden Heart attack now a days especially at their workout time. Although the dramatic decreases in morbidity and mortality from diseases that occurred in the course of the 20th century have been credited to the introduction of specific vaccines, scant acknowledgment has been given to improving social conditions. Despite questioning the safety and efficacy of vaccination by reputable medical men since its introduction, debate has been, and is, increasingly discouraged. Information published in scientific journals is used to support this position, other views being regarded as "unscientific." It was regards as vaccination is the single most useful health intervention that had ever been introduced. It was taught that vaccines were the reason children and adults stopped

dying from diseases for which there are vaccines.

Immunization issues are not black and white. Vaccination is matter of personal choice, whether Government allows or not and is there any religious or philosophical objection to vaccination? The immunization decision is a gamble: not immunizing, with the potential consequences of getting the disease, versus immunizing and facing the potential adverse consequences of receiving the vaccine.

Vaccines introduction into the body is a serious proposition. On the other hand, the likelihood of death or serious damage from these vaccine targeted diseases varies with each disease many of them involve tremendous suffering, some are permanently damaging, and some are fatal. There is a serious concern about the shift in the ecology of the population by immunologic eradication of certain diseases, which has been followed by the incidence of new illnesses, heretofore unknown.

Based on a thorough review of the literature, one can see that the decreased incidence of these serious diseases is linked to improved sanitation and hygiene as well as to the introduction of vaccinations. However, one should deeply concern about the **catastrophic rise of chronic diseases like asthma, autism, and behavioral disorders**. Much more research into the possible relationship between vaccinations and these epidemic problems needs to be done. At present, there is little data to support or reject any such association. Many vaccine investigators agree that the increase in asthma, diabetes, autism, and some autoimmune diseases is directly attributed to vaccine use in children. All vaccines are stressful for your child and are capable of producing side effects. The relative health and constitution of the child is the single most predictive factor in the likelihood of a side effect occurring.

My idea is that certain people are prone to have a big reaction with the conventional vaccination and that some will have side



effects. Therefore, my idea is, before you vaccinate, you should find out the sensitivities of the immune system and detect the children who, if vaccinated, could develop dangerous side effects.- **George Vithoukas**.

**Pai P. N.** probably the only Homoeopath to carry out experiments in this field. He also records that children given Variol. before being vaccinated still developed moderate or severe reactions. He concludes: "It is a well-known fact that any sort of prophylactic, potentised or crude, falling within the incubation period of any infection often not only fails, but leads to virulent, even fatal aggravation." **J. N. Kanjilal** is not impressed with these observations and considers our remedies still effective, He gave two alternatives "It goes without saying that, the best homoeopathic prophylactic is constitutional similimum. of the individual. It is proved by experience that person strictly following the homoeopathic line in their medical measures, rarely fall victims to any epidemic disease. The next lies of defense are the similimum of a particular epidemic-the so-called Genus Epidemicus." In cases of epidemics, the best prophylactic will be the remedy (Genus Epidemicus) obtained by examining typical symptoms from the accurate observation of the first few cases For all conditions sought to be prevented, any remedy known to produce an identical condition suffices Paterson was very chary of using a prophylactic if the child had already been exposed to infection. He regarded a prophylactic given after exposure, during the period of incubation as unwise, it suppressed the disease and he would rather it came out and was treated as the disease itself.

As regards the potencies to be used, and the frequency of repetition, very little authoritative information is available. **Gibson** states: "There is no hard and fast method for the use of potencies in prevention and the length of time protection may last is, of course, difficult to estimate. One plan is to give three doses of a 30 C potency spread over a period of 24 hours, Repetition in the event of continuing danger of infection should be under the guidance of a homoeopathic physician." **Wheeler and Kenyon** write that a dose of the 30th potency of the prophylactic remedy will protect at least for a fortnight. Others advise one dose of the 30th once a week or the 200th once a fortnight till the epidemic passes; **Grimmer** considers that one dose of the 10M potency affords protection throughout an epidemic. The higher potencies seems to afford protection for longer periods as evidenced by the experiments of **Dr.**

**Paul Chavann**

One should not recommend the routine use of homeopathic remedies for any purpose. As Homeopathic prescriptions are based upon presenting symptoms. If no symptoms are present, then do not treat. Following are some points that one should recommended in his practice. I always say that I have not given any vaccine to my child but final decision is up to you.

- o Breastfeeding is the best protection you can provide for your infant. Continue for at least twelve to eighteen months if possible. The longer you breastfeed, the more benefit your child will experience. Breastfeeding prevents infections and the complications of childhood

illness. Also, don't forget that if you are breastfeeding, your baby will get a lot of immunity from you and it would be unnecessary to vaccinate quite so early in their life.

- o Vaccines have limited years of effectiveness. When considering vaccination it is important to remember that every family is different and there should no hard and fast rule applies to everyone.
- o Look at your family history and see how others have reacted to vaccinations. If there is a history of severe allergies, bowel problems, or autism, I would think very carefully before vaccinating.
- o Educate yourself about disease incidence, vaccine effectiveness, and vaccine adverse effects before you agree to any vaccinations.
- o When travel in epidemic area or probable incidence of particular disease than vaccination require. The remedies are usually given in low potency (6C or 12C) on a repeated basis during the exposure.

**Following are important points one should keep in mind.**

1. Remedy should give before and /or after each vaccination to protect them from side effects is Thuja occidentalis. Other drugs one can use are Silicea and Arnica.
2. It is noted that when children are of specific constitutional types such as Silicea, Thuja, Medorrhinum, and Stramonium, they are more susceptible to the stress of vaccination and develop symptoms consistent with their constitution. Strong consideration should be given to the prophylactic use of these remedies for these specific children at the time of vaccination. If these children are not treated prophylactically and subsequently develop symptoms, the symptoms will usually disappear after they receive their constitutional remedy.
3. The first is to give the disease in remedy form (i.e., the nosode) immediately before and after you vaccinate to ensure as much as possible that your child will suffer fewer side effects.
4. Remedies for the immediate side-effects of vaccination:
  - Aconite. Symptoms brought on by fear or trauma following the vaccination itself. The symptoms could include feverishness, sleeplessness, earache, or cold symptoms.
  - Belladonna. Fever or convulsions following a vaccination.
  - Ledum. Swelling or localized pain at the site of the injection.
5. The chosen remedy should be given in the 30C potency 3 times a day for 2--3 days depending on the severity of the reaction. As with all homeopathic remedies, the remedy should be stopped once signs of improvement are noticed
6. The best protection for both vaccinated and unvaccinated children revolves around making them as healthy and resilient as possible. Good nutrition, solid family environment, loving care, fresh air, and exercise go a long way to fostering strong children. Fear is an outmoded response to childhood infectious disease. Promote the strength of your child's immune system instead, and avoid things that can



weaken it. Keep your child's diet clean. Avoid foods that promote inflammatory reactions. Do not give your child partially hydrogenated fats, the ones contained in packaged snack foods. Read labels of prepared foods and you will find these fats in crackers, chips, cookies, and desserts. These fats promote inflammation and prevent healthy fatty acids from being incorporated into cells. Stop feeding your child fried foods. The oils are rancid. Stay away from fast food burger palaces. Supplement your child's diet with omega-3 fats in the form of fish oil supplements, cod liver oil, or Neuromins (made from algae). Avoid foods with added sugar. Stop giving your child sugared breakfast cereals, sodas, cookies, and ice cream. Corn syrup is especially difficult for the body to metabolize. Use fruit spreads instead of jam. Offer lots of fresh and dried fruits or fruit rolls. Use whole grains and whole wheat bread rather than products made with "wheat flour," which means white flour. Use organic fruits, vegetables, dairy products, and juices whenever possible, and your child will not be eating pesticides that injure the liver. Also make sure that your child gets enough exercise and fresh air which is so important for their health. Your child will really benefit from seeing a homeopath who can give a constitutional remedy which will strengthen your child's resistance to disease.

7. There is never an absolute guarantee that you will not get a disease, whatever measures you take, because there is always a possibility that you are exceptionally susceptible to a particular disease. In addition, if your immune system is already under strain, then you will be more susceptible to any disease.

8. Arnica as a blood thinner. So if you have a clot of blood, it dissolves this clot. When you have a blow and there is an extravasation of blood and there are bruises with areas that are becoming blue, it means that the blood has created a lot of clot, and then you give Arnica, and like a miracle, these clots are dissolved. Homeopathic Immunizations can be best with Nosodes as follows. Arnica is thinning the blood, it means that Arnica is contraindicated before an operation because, if anything, they will have more bleeding.- **George Vithoulkas.**

9. Homeopathic prophylactics are usually taken in the 200 or 30C potency, and should be taken 2 times a week (e.g., one dose on Monday and one dose on Thursday) for the duration of an outbreak, or 2 times a week for 3 weeks following direct exposure to the disease.

#### List of Few Homoeo Prophylactic

- Diphtheria: Pyrogenium nosode
- Measles: Morbillinum nosode
- Haemophilus influenza B: Haemophilus influenza B nosode
- Mumps: Parotidinum nosode
- Polio: Lathyrus sativa
- Rubella: Rubella nosode
- Tetanus: Ledum palustre
- Whooping Cough (Pertussis): Pertussin nosode

#### CONCLUSION

##### Advantages of Homoeopathic Prophylaxis

1. Easily administered, as it is palatable and hence widely acceptable

2. Easy dispensability and distributability ensuring maximum coverage at a very low cost.
3. No cold chain required for distribution and storage to retain the potency of the drug.
4. No bad effects or side effects to the drug.
5. Can be used across the spectrum of population, irrespective of age, gender or health status.
6. Preventives can be employed even before the actual outbreak of an epidemic.

#### REFERENCE

- (1) *"Organon of Medicine: Philosophy of Homeopathy"* by James Tyler Kent
- (2) *Samuel Hahnemann "Organon of Medicine"*
- (3) *"The Science of Homeopathy"* by George Vithoulkas - Vithoulkas
- (4) *Herbert A. Roberts "The Principles and Art of Cure by Homoeopathy"*
- (5) *Nicole Pommier and Michel Struhar "A Handbook of Homeopathic Pharmacy"*
- (6) *Pierre Schmidt "The Organon of the Medical Art"*
- (7) *B. K. Sarkar "A Study Course in the Organon of Medicine"*





# COMPLETE STUDY OF CHRONIC BRONCHITIS AND HOMOEOPATHIC OVERVIEW

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## ABSTRACT

*Chronic bronchitis is a progressive respiratory condition characterized by inflammation and narrowing of the bronchial tubes, leading to persistent cough, excessive mucus production, and airflow obstruction. It is a form of chronic obstructive pulmonary disease (COPD) and is primarily caused by long-term exposure to irritants such as cigarette smoke, environmental pollutants, and occupational hazards. This paper presents an overview of chronic bronchitis, including its etiology, pathogenesis, clinical manifestations, diagnosis, and management strategies. Understanding the complexities of this condition is crucial for effective management and improved quality of life for individuals affected by chronic bronchitis.*

**KEYWORDS:** chronic bronchitis, similimum, cough, smoking, air pollution.

## INTRODUCTION

Chronic bronchitis is a chronic respiratory disease that affects a significant number of individuals worldwide. It is characterized by the inflammation and narrowing of the bronchial tubes, which are responsible for carrying air to and from the lungs. This chronic inflammation leads to increased mucus production, coughing, and breathing difficulties. The condition is often associated with a history of smoking, exposure to environmental pollutants, and occupational hazards.

The hallmark symptom of chronic bronchitis is a persistent cough that lasts for at least three months in two consecutive years. The cough is accompanied by the production of excessive mucus, which can further obstruct the airways and impair lung function. Over time, the recurrent inflammation and mucus accumulation can cause structural changes in the bronchial tubes, leading to airflow limitation and respiratory distress.

Diagnosis of chronic bronchitis involves a comprehensive evaluation of symptoms, medical history, physical examination, and pulmonary function tests. Imaging studies, such as chest X-rays and computed tomography (CT) scans, may also be used to assess the extent of lung damage and rule out other potential causes.

Management of chronic bronchitis focuses on reducing symptoms, preventing exacerbations, and improving overall lung function. Treatment strategies often include lifestyle modifications, such as smoking cessation and avoidance of respiratory irritants, as well as pharmacological interventions, such as bronchodilators, corticosteroids, and mucolytic agents. Pulmonary rehabilitation programs and oxygen therapy may be recommended for individuals with advanced disease.

By gaining a comprehensive understanding of the etiology, pathogenesis, clinical presentation, and management options for chronic bronchitis, healthcare professionals can provide targeted interventions to alleviate symptoms, slow disease progression, and enhance the quality of life for individuals living with this condition.

Etiology, pathogenesis, clinical presentation, and management options for chronic bronchitis

Chronic bronchitis is a type of chronic obstructive pulmonary disease (COPD) characterized by inflammation and narrowing of the bronchial tubes, leading to persistent cough and excessive mucus production. Here's an overview of its etiology, pathogenesis, clinical presentation, and management options:

### Etiology

Chronic bronchitis is primarily caused by long-term exposure to irritants that damage the airways. The most common risk factor is cigarette smoking, but other factors like exposure to industrial pollutants, air pollution, and recurrent respiratory infections can also contribute to the development of chronic bronchitis.

### Pathogenesis

Repeated exposure to irritants leads to chronic inflammation of the bronchial tubes. This inflammation causes increased production of mucus and damages the cilia, which are hair-like structures that help clear mucus and debris from the airways. The excessive mucus production and impaired clearance result in a persistent cough and difficulty breathing.



### Clinical Presentation

The hallmark symptom of chronic bronchitis is a productive cough that lasts for at least three months in two consecutive years. Other common symptoms include shortness of breath, wheezing, chest tightness, and frequent respiratory infections. Patients may also experience fatigue, cyanosis (bluish discoloration of the lips and nails), and swelling in the ankles due to associated heart problems.

### Management Options

**Smoking Cessation:** The most crucial step in managing chronic bronchitis is quitting smoking. This can slow the progression of the disease and improve symptoms.

### Medications

**Bronchodilators:** These medications help relax the airway muscles, making breathing easier. They can be short-acting (e.g., albuterol) for immediate relief or long-acting (e.g., tiotropium) for maintenance.

**Inhaled Corticosteroids:** These anti-inflammatory medications help reduce airway inflammation and mucus production. They are often used in combination with bronchodilators.

**Mucolytics:** These drugs help thin and loosen mucus, making it easier to cough up.

**Pulmonary Rehabilitation:** This program combines exercise training, breathing techniques, and education to improve lung function, reduce symptoms, and enhance overall quality of life.

**Oxygen Therapy:** In cases of severe chronic bronchitis, supplemental oxygen may be necessary to improve oxygen levels in the blood.

**Vaccinations:** Annual influenza vaccines and pneumococcal vaccines are recommended to prevent respiratory infections, which can exacerbate chronic bronchitis.

**Avoidance of Irritants:** Minimizing exposure to airborne irritants, such as smoke, chemical fumes, and air pollution, can help reduce symptom flare-ups.

**Surgical Options:** In very severe cases where other treatments are ineffective, lung transplantation or lung volume reduction surgery (removal of damaged lung tissue) may be considered.

It's important for individuals with chronic bronchitis to work closely with their healthcare provider to develop a personalized management plan based on their specific needs and disease severity.

### Homeopathic management:

Homeopathic treatment for chronic bronchitis focuses on individualized remedies based on the specific symptoms and characteristics of each patient. Homeopathy is a holistic approach that aims to stimulate the body's inherent healing capacity.

Here are some commonly used homeopathic remedies for chronic bronchitis:

**Antimonium tartaricum:** This remedy is indicated when there is a rattling cough with difficulty in expectoration. The person may feel exhausted and have a sensation of suffocation.

**Bryonia alba:** It is useful when there is a dry, painful cough that worsens with movement. The person may experience stitching pain in the chest and have a dry mouth.

**Arsenicum album:** This remedy is suitable for individuals who have wheezing, difficulty breathing, and anxiety. The cough may be accompanied by burning sensations and a sense of suffocation.

**Pulsatilla:** It is helpful when the cough is loose and productive, with yellow or greenish mucus. The person may experience relief from being in open air and may crave consolation.

**Spongia tosta:** This remedy is indicated when there is a dry, barking cough resembling the sound of a saw. The cough may be worse at night and from cold drinks.

**Hepar sulphuris calcareum:** It is used when the cough is deep, hoarse, and rattling. The person may be sensitive to cold air and may have yellow, offensive-smelling mucus.

It's important to note that homeopathic treatment is highly individualized, and a qualified homeopath will consider the totality of symptoms and the patient's overall health before prescribing a remedy. It's recommended to consult with a professional homeopath for a personalized treatment plan tailored to your specific condition.

### CONCLUSION

Chronic bronchitis is a condition characterized by inflammation and irritation of the bronchial tubes, resulting in a persistent cough and difficulty in breathing. It is typically caused by long-term exposure to irritants such as smoking, air pollution, or occupational hazards.

The treatment of chronic bronchitis often involves a combination of conventional medical approaches and lifestyle modifications. These may include bronchodilators to alleviate symptoms, corticosteroids to reduce inflammation, pulmonary rehabilitation to improve lung function, and lifestyle changes such as smoking cessation and avoidance of environmental triggers.

While homeopathy is a complementary and alternative therapy, some individuals may find relief from their chronic bronchitis symptoms through individualized homeopathic remedies. Homeopathy focuses on treating the person as a whole, considering their unique symptoms and characteristics.

It is important to note that homeopathic treatment should not be used as a substitute for conventional medical care. If you suspect you have chronic bronchitis or any respiratory



condition, it is crucial to consult with a qualified healthcare professional for an accurate diagnosis and appropriate treatment plan. They will be able to provide you with the most effective and evidence-based interventions to manage your condition and improve your overall respiratory health.

## REFERENCE

- (1) Samuel Hahnemann *"Organon of Medicine"*
- (2) *"Robbins and Cotran Pathologic Basis of Disease"* by Vinay Kumar, Abul K. Abbas, Jon C. Aster
- (3) Herbert A. Roberts *"The Principles and Art of Cure by Homoeopathy"*
- (4) Nicole Pommier and Michel Struhar *"A Handbook of Homeopathic Pharmacy"*
- (5) Kumar, Abbas, Fausto, Mitchell *"Basic Pathology"*



# FINANCIAL INNOVATION: AN INFLUENTIAL TOOL FOR GROWTH

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## ABSTRACT

*Financial innovation has replaced the driving forces of promoting economic growth and considered as front runner by various nations for its acceleration. Achieving high quality economic growth with maintaining its sustainability is burning issue and financial innovation is the key for opening the path of this journey. The aspiration for making more profit by searching new ways is the main reason behind the occurrence of financial innovation. Financial innovation has provided many new financial products to the financial institutions and also stands as a strong pillar for financial development as well. The concept which is strategic in nature will prove worthwhile only if it will facilitate sustainability in the financial sector of an economy. This paper has aimed at understanding the concept of financial innovation and discussing the various segments where it is prevalent and exploring.*

**KEYWORDS:** *Financial Innovation, Technological Innovation, Sustainable Development*

## INTRODUCTION

Financial innovation is strategic in nature and an economy will have fruitful results only if its sustainability can be assured in long run. The zeal of earning greater profits is a key driving force behind the emergence of financial innovation and every market participant wants to earn these higher profits but at the cost of bearing minimum risk. Fundamentally, there is an inverse relationship between profits and risk, but financial innovation aims at avoiding and reducing the risk element in various schemes and financial products originated under its flagship. So, financial innovation makes an attempt to provide such financial services and instruments which are more profitable in nature.

Globalization has also played a vital role in raising the demand for this concept as reducing cross border restrictions has increased the volatility factor in the financial markets and which ultimately multiplied the risk factor in monetary transactions in these markets. Globalization has pushed up the deregulation and reduced the restrictions on the flow of foreign capital in economy in various sectors and facilitated the promotion and use of newly innovated financial instruments in financial and insurance sector for increased profitability. On the other hand, competition has also increased because of globalization and financial innovation has widespread as a significant tool for facing and overcoming this. The interdependence between competition and financial innovation has also magnificent effect.

Regulatory monetary authorities also participate in the process of financial innovation directly or indirectly by imposing or relaxing restrictions on the financial institutions and new financial instruments comes as a solution in different situation for benefiting the market participants. It is not always necessary that all financial innovations have a positive beneficial impact for the consumers but it may also have negative impact. The interest of the market participants must be protected and this leads to the importance for the role of monetary authorities to interfere and maintain a financial stability. That's why these financially innovated products are issued in respective markets which are regulated by set of rules and laws by a monetary authority.

The rest of the paper is structured as follows: section II presents the objectives of the study and section III explains the methodology follows for this paper. Further, section IV briefly shows the reviewed literature for this area under study. Afterwards, section V explains the meaning of the concept of financial innovation and section VI discusses the various types of financial innovation. Finally, section VII concludes the paper.

## OBJECTIVES

This research paper aims to achieve the below mentioned objectives:

1. To discuss the concept of financial innovation
2. To explain the types of financial innovation





## RESEARCH DESIGN

This study is exploratory in nature and the concept of financial innovation has been studied for understanding its importance for the financial sector and economy. The study has used secondary data for exploring its depth and intensity.

## LITERATURE REVIEW

This section gives a glimpse of the already available literature in the area of financial innovation and the key studies has been discussed as under:

Zixing Wang et.al (2022) studied the impact on economic growth by taking the variables financial innovation and technological innovation under consideration and applied regression analysis of fixed effects models. The results presented that financial innovation and technological innovation have a considerable impact in boosting economic growth. However, full use of foreign businessmen and maintaining the increase in natural population growth has also been used as an important parameter in economic growth.

Folorunsho M. Ajide (2016) investigated the effect of financial innovation augmented with bank competition on sustainable development in eight West African countries. The results of the study has confirmed that after using panel data an increase in banking efficiency driven by competition and financial innovation would improve economic growth and development. The results revealed differential effect of different financial product adopted in financial system. The study has concluded that policies which would drive competition and efficiency in the banking industry as well as financial innovation should be introduced to ensure effective functioning of the financial system.

Dr. R Ramakrishnan (2017) discussed the relationship between financial innovation and regulation and explained that there should be some modifications in the regulatory system for facilitating the financial innovation in the economy. The concept of financial innovation has also elaborated in relation to its various impacts and functions.

Professor Michael Mainelli & Simon Mills (2016) emphasized that tools of financial system are very helpful for achieving sustainable development goals provided there is an element of sustainability in these tools itself. The study discusses the financial innovation in different areas like blockchain technology for mutual distributed ledgers, digital currencies, mobile money, policy performance bonds etc.

Morarji A. (2015) explained the significance of financial innovation and further discussed that how with the changing technology and deregulation in Indian capital market has made it possible to adapt and facilitate newly innovated financial

instruments for growth and profitability. The paper has suggested various types of financial products for Indian capital market and also suggested that these should be used with cautious also.

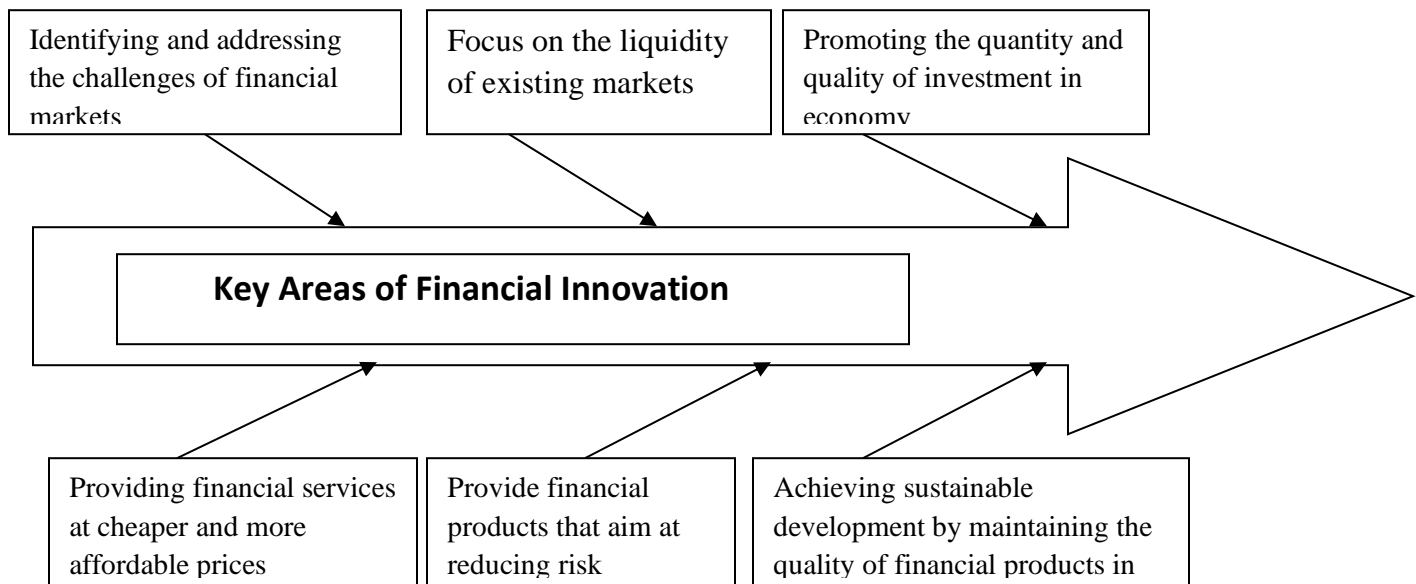
## MEANING OF FINANCIAL INNOVATION

Finance is a significant resource for any organization whether it is private or government and it flow like blood in a human body and just like the survival of a human being is not possible without blood on the same line, the organization will stop functioning sooner or later without the sufficient finance. Organization needs funds for arrangement of infrastructure and running its business and investors demands profitable ventures on which they can invest their savings at minimum risk. In ongoing changing and complex business world there is need of such financial instruments which can fulfill the requirement of both organizations and investors respectively in terms of risk and return.

Innovation is the only measure for meeting the demand of such investor ventures which can benefits the end party by avoiding or mitigating related risk. Further, in a competitive era every business enterprise facing risk at micro and macro level and for overcoming these factors it is essential for every organization to utilize such risk mitigating financial instruments. It is not necessary that there will be some invention in this area so innovation can be used as an effective tool for searching and producing financial products which are meant for modern economy and are able to satisfy the needs of market participants.

Therefore, innovation in financial sector has proved as milestone in bringing creativity in financial products and services while keeping in mind the element of risk factor. These days financial innovation has become an important tool, which enables business enterprises for competing in highly global and competitive environment. Without the application of financial innovation no one can guarantee any success in future, however, there is a possibility of facing sluggishness in business. So, every business firm must use financially innovative products for their survival and healthy growth.

Financial innovation is a course of action which includes developing new financial instruments by using new financial technologies and popularizing and facilitating these instruments in financial institutions and markets. The technological advancement in financial sector leads to easy access of information and modes of trading and financial innovation opens the doors for the emergence of new financial instruments. The new forms of business firms and more developed and technology equipped financial markets all are the part of financial innovation. So, financial innovation focused on the following key areas which are presented in Figure No. 1:



**Figure No. 1: Key Areas of Financial Innovation**

## TYPES OF FINANCIAL INNOVATION

Financial innovation which covers innovation related to financial products, financial services, financial markets and financial institutions can be divided in three categories (Morarji A., 2015)

1. **Process Innovation:** The more efficient method is formulated for providing existing financial products or services.
2. **Product Innovation:** It includes the innovation of all together a new financial product which does not already exist in financial markets.
3. **Institution Innovation:** This is associated with institution and includes changes in the framework or structure of business enterprise and also establishes new type of intermediaries. In this category there will a requirement of changes or formulation of legal frameworks for the related institution.

Further, financial innovation has been discussed under following sections:

### 1. Financial Innovation in Indian Banking Industry

Indian banking industry has created landmarks in its history from establishment of Banking Regulation Act, nationalization of banks, privatization and mergers of banks from time to time. With this remarkable journey, the banking industry has also adopted new technological advancement in its system and also come up with newly innovated products, schemes and system for its clients. The products and services which are innovated under this industry are listed below:

- i) Debit Card
- ii) Credit Card
- iii) Automated Teller Machine (ATM)
- iv) Internet Banking

- v) E-Banking
- vi) Mobile Banking
- vii) Real Time Gross Settlement (RTGS)
- viii) Electronic Clearance Service (ECS)
- ix) National Electronic Fund Transfer (NEFT)
- x) Cheque Truncation System (CTS)
- xi) Corporate Banking
- xii) Digital Wallet
- xiii) Banking Apps/Payment Apps like PAYTM, BHIM, PHONE, PAY etc
- xiv) Banking system like Unified Payment Interface (UPI)
- xv) Central Bank Digital Currency (CBDC)
- xvi) Banking Services on Smart Watch

### 2. Financial Innovation in Indian Capital Market

Indian capital market is a platform where companies and investors irrespective of geographically boundaries come in contact with each other for the purpose of raising and investing funds. With the changing time where each and every day a new technology is hitting the economy and markets, this place is not untouched with this technologically advancement and a number of innovated products, services and modes of operations have been identified and applied which are discussed below:

- i) Indian Depository Receipts
- ii) Non-Voting Shares
- iii) Inflation Linked Bonds
- iv) Junk Bonds
- v) Floating Rate Bonds
- vi) Zero Interest Bonds
- vii) Deep Discount Bonds



- viii) Securitization of Debt
- ix) Specialized Debt Funds For Infrastructure Financing
- x) Mortgage Backed Securities
- xi) DEMAT Account
- xii) Pension Funds
- xiii) Government initiatives in pension funds reforms
- xiv) Green Bond
- xv) Municipal Bond

### 3. Financial Innovation in Derivatives Market

Derivative markets deals with financial instruments which are meant for avoiding or reducing risk which may be arising from the future transactions. These contracts derive their values from the underlying asset and include different types under its flagship. This market has also benefitted from the financial innovation and utilized newly formed financial instrument for its market participants. The innovation that has taken place in this market is listed below:

- i) Swap
- ii) Debt for Equity Swap
- iii) Equity for Debt Swap
- iv) Currency Futures
- v) Currency Options
- vi) Stock Index Futures
- vii) Stock Index Options
- viii) Stock Options
- ix) Stock Futures
- x) Interest Rate Derivatives
- xi) Credit Derivatives
- xii) Weather Derivatives
- xiii) Insurance Derivatives
- xiv) Energy Derivatives

### CONCLUSION

Financial innovation has experienced a long journey in terms of growth and achievements across different sectors and market participants has benefitted in terms of reduced risk and increased profit margin. The financial intermediaries are required to facilitate the financial innovated instruments among target market but this is also obligatory that the concerned regulatory requirements must be considered for mandatory approvals and other procedural amendments if necessary. In the era of ongoing technology advancement and deregulated capital market, innovation is the need of the market but these newly innovated financial instruments are supposed to be applied cautiously.

### REFERENCES

1. *Development (ICFIED 2022), Advances in Economics, Business and Management Research, volume 648, 3053-3057. Retrieved on March 16, 2023 from <https://www.atlantipress.com/article/125971570.pdf>*
2. *Dr. R Ramakrishnan (2017). Financial Innovation and Regulation, Working Paper, Retrieved on May, 21, 2023 from [https://www.researchgate.net/publication/315310719\\_Financial\\_Innovation\\_and\\_Regulation/link/5a2e082f0f7e9b63e53d3ebd/download](https://www.researchgate.net/publication/315310719_Financial_Innovation_and_Regulation/link/5a2e082f0f7e9b63e53d3ebd/download)*
3. *Folorunsho M. Ajide (2016). Financial Innovation and Sustainable Development in Selected Countries in West Africa, Journal of Entrepreneurship, Management and Innovation (JEMI), Volume 12, Issue 3, 85-111. Retrieved on March 16, 2023 from [https://jemi.edu.pl/uploadedFile\\_s/file/all-issues/vol12/issue3/JEMI\\_Vol12\\_Issue3\\_2016\\_Article4.pdf](https://jemi.edu.pl/uploadedFile_s/file/all-issues/vol12/issue3/JEMI_Vol12_Issue3_2016_Article4.pdf)*
4. *Morarji A. (2015). Financial Innovation in Indian Capital Market, Innovation Management: Perspectives and Practices, pp 68-74. Retrieved on May 15, 2023 from [https://www.researchgate.net/publication/339644555\\_Financial\\_Innovation\\_in\\_Indian\\_Capital\\_Market\\_1/link/5e5e323492851cefa1d6dd52/download](https://www.researchgate.net/publication/339644555_Financial_Innovation_in_Indian_Capital_Market_1/link/5e5e323492851cefa1d6dd52/download).*
5. *K. Subramanyam Naidu (2021). New Financial Instruments in Indian Financial System, International Advanced Research Journal in Science, Engineering and Technology, Vol. 8, Issue 6, June 2021, Retrieved on May 25, 2023 from <https://iarjset.com/wp-content/uploads/2021/06/IARJSET.2021.8643.pdf>*
6. *Professor Michael Mainelli & Simon Mills (2016). Financial Innovations and Sustainable Development, Business and Sustainable Development Commission. Retrieved on May, 15, 2023 from <http://s3.amazonaws.com/aws-bsdc/Financial-Innovations-And-Sustainable-Development-ZYen-2017.pdf>*
7. *Ramakrishnan Ramachandran (2013). Financial Innovation and Regulation, SSRN Electronic Journal Retrieved on April 3, 2023 from <https://www.researchgate.net/publication/315310719>*
8. *Zixing Wang, Benhai Guo, Fei Wang & Yuxin Wu (2022). Financial Innovation, Technological Innovation and Economic Growth-Empirical Research from 31 Provinces and Cities in China, Proceedings of the 2022 7th International Conference on Financial Innovation and Economic*



# THERAPEUTIC POTENTIAL OF GINSENOSES IN DIABETES - A BRIEF REVIEW

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## ABSTRACT

*Ginsenoside is a triterpenoid saponin extracted from Panax ginseng forms the active ingredient in ginseng, widely used in clinical practice as the main component of injections, granules, common tablets, dispersible tablets, capsules, and mixtures; thus, it has become a target of extensive research. They have been emerged to support antidiabetic efficacy for ginsenosides ascribe to their antioxidant, anti-inflammatory, and anti-hyperglycemic activities. A meta-analysis showed that ginseng reduced fasting blood glucose in patients. Ginseng also exerted antidiabetic effects as a supplemental treatment. Ginseng extracts significantly improved glucose tolerance, improved in plasma glucose and insulin levels.. Besides, studies on ginsenosides in pharmaceutical preparations have also been limited. Therefore, this review dominantly discusses the roles and mechanisms of ginsenosides in the intervention of blood glucose elevation, as well as the current clinical trials on ginsenosides pharmacology. The elucidation of molecular mechanisms and clinical trials at diabetic status could facilitate ginsenosides application in herbal medicines*

**KEYWORDS:** ginsenosides, hyperglycaemic, antidiabetic

## INTRODUCTION

According to International Diabetes Federation (IDF) report published on 21 December 2018, there were approximately 425 million people lived with diabetes worldwide. By 2045-2048, the number is expected to rise to an estimated 650 million (Cho et al., 2018). Diabetes mellitus (DM) is a multifactorial and chronic endocrine disorder which is characterized by insulin resistance,  $\beta$ -cell impairment, and glucolipid metabolism disorder [1-3]. Conventional available drugs for diabetes and related complications, such as metformin and thiazolidinediones (TZDs), have been associated with a variety of side effects and discomforts, making herbal medicines become potential candidates in diabetes remedy. In ancient China, ginseng was used to treat Xiao Ke disease whose symptoms were described as polydipsia, polyuria, overeating but losing energy that is extremely consistent to diabetic symptoms in modern [4-7].

Although peptidoglycan and glycan (ginsenos) components have been demonstrated to express pharmacological activities, ginsenoside forms main component present in ginseng root [8, 9]. Ginseng root has long been used for health promotion, prevention of certain chronic diseases, and anti-aging intervention. The steroidal structure forms the main reason of its diverse pharmacological activities which enables ginsenoside to interact with cell membranes which controls bioactivity at the transcription level [10-12]. Recent studies have revealed that ginsenosides play roles in the treatment of diabetes and its complications dominantly through improving insulin resistance, regulating glucolipid homeostasis, preventing oxidative stress

and inflammatory responses. In addition, antiangiogenesis, anti-apoptotic, and hepatoprotective properties have also been documented for their antidiabetic indication [13-16]. However, insufficient exploration of those unascertained ginsenoside monomers obstacle our understanding on the medicinal value of the majority ginsenosides [17]

**Brief Introduction of Ginsenoside:** types and components Panax Ginseng (*P. ginseng*), dry roots belong to family *Araliaceae*, have been employed as crude medicine for the treatment of lack of stamina, body fatigue, cardiovascular disease or certain chronic diseases for long period of time. Species of ginseng are classified into four types based on diverse origins: Panax ginseng (China, Korea), Panax quinquefolius (America, Canada), Panax notoginseng (China, Japan), and Panax japonicas (Japan) [18]. The main active ingredients in ginseng consist of ginsenosides, polysaccharides, polypeptides, flavonoids, amino acid, volatile oils, and vitamins, among which ginsenoside is the most important component. Ginseng roots have long been employed to extract active ingredients, just as they are used in traditional Chinese medicine (TCM) and dietary supplements. Recently, flowers, seeds, stem and leaves from *P. ginseng*, *P. quinquefolius* or *P. notoginseng* are investigated to exert potent pharmacological activities as well [19-21]. Comparison of pharmacological effects between various ginseng ingredients from different sources is shown in Table 1. Ginsenoside can be universally separated into three types: protopanaxadiol (PPD, such as Rb1, Rb2, Rb3, Rc, Rg3, Rh2, Rd, and compound K,) type, protopanaxatriol (PPT, such as Re, Rg1, Rg2, Rf, Rh1, etc.)

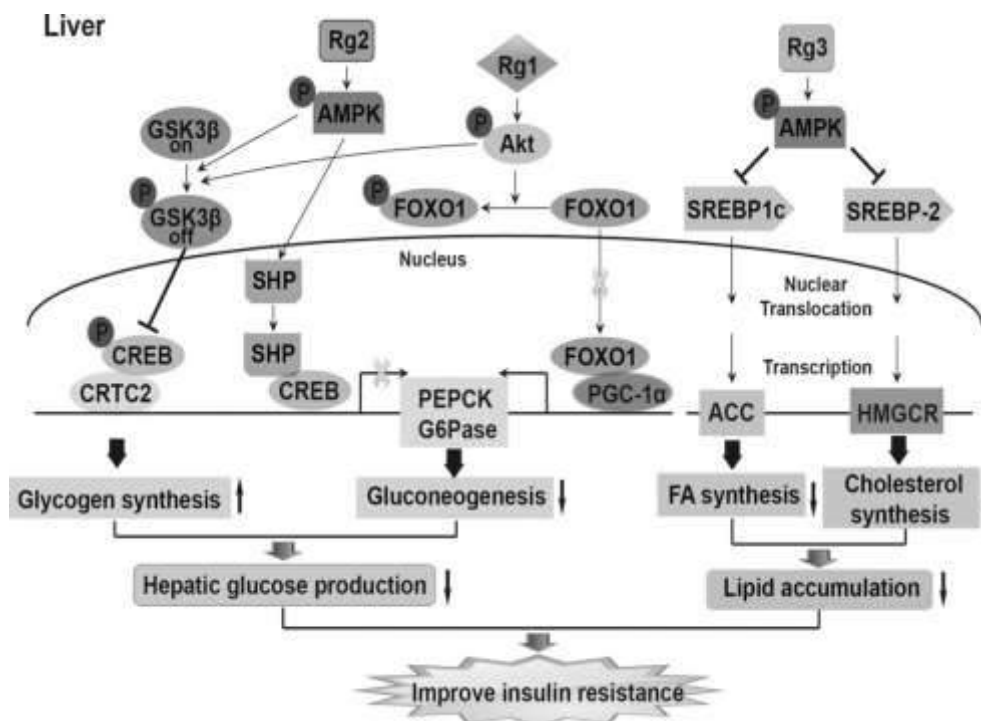




type and oleanolic acid type (such as Ro, Ri, Rh3). Both PPD type and PPT type ginsenosides belong to tetracyclic triterpene saponins due to the similarity of their parent nuclei, while oleanolic acid type ginsenosides belong to pentacyclic triterpenoid saponins for their particular structure. Interestingly, most ginsenosides with antidiabetic effects are PPD or PPT type saponins, which remind us of the significance of tetracyclic triterpene parent nuclei. It is noteworthy that compound K (CK), the main intestinal metabolite of PPD saponin, is of great significance for clinical monitoring [22-25]

Antidiabetic mechanisms of ginsenoside DM can be generally divided into type I (T1DM), type II (T2DM), gestational diabetes mellitus (GDM) and other specific types due to different causes (“(2) Classification and diagnosis of diabetes,” 2015). T1DM is known for a primary insulin deficiency caused by  $\beta$ -cell dysfunction, which is to some extent related to genetic factors and always appears in children and youth. Here, T2DM is being featured by insulin resistance and obesity forms leading external

cause of T2DM. Since diabetes is characterized by insulin resistance,  $\beta$ -cell dysfunction, and glucolipid metabolism disorder, therapeutic approaches should be involved in improving insulin resistance, accelerating glucose and lipid metabolism normalization, and protecting  $\beta$ -cell from oxidative stress and inflammatory responses injury. Nowadays, insulin injection is the most common method for T1DM patient treatment because innate insulin deficiency could not be cured completely, while oral hypoglycemic agents such as metformin, TZDs, and acarbose along with an appropriate diet and weight control are monitored under T2DM therapy. Nevertheless, adverse drug reactions including hypoglycemia, gastrointestinal stimulation, and edema, etc. have been reported [26-30]. Herbal medicines emerge as potential candidates against diabetes are known to bring about fewer adverse effects than chemical or biochemical drugs, and ginseng is a well-known elector. Various antihyperglycemic mechanisms have been detected for ginsenosides from cell and animal models



**Fig. 1.** Proposed model for Ginsenosides to improve insulin resistance through reduction of hepatic glucose production and lipid accumulation via AMPK or Akt signaling pathways. AMPK, 5'-AMP-activated protein kinase; ACC, acetyl-CoA carboxylase; CREB, cAMP response element-binding protein;

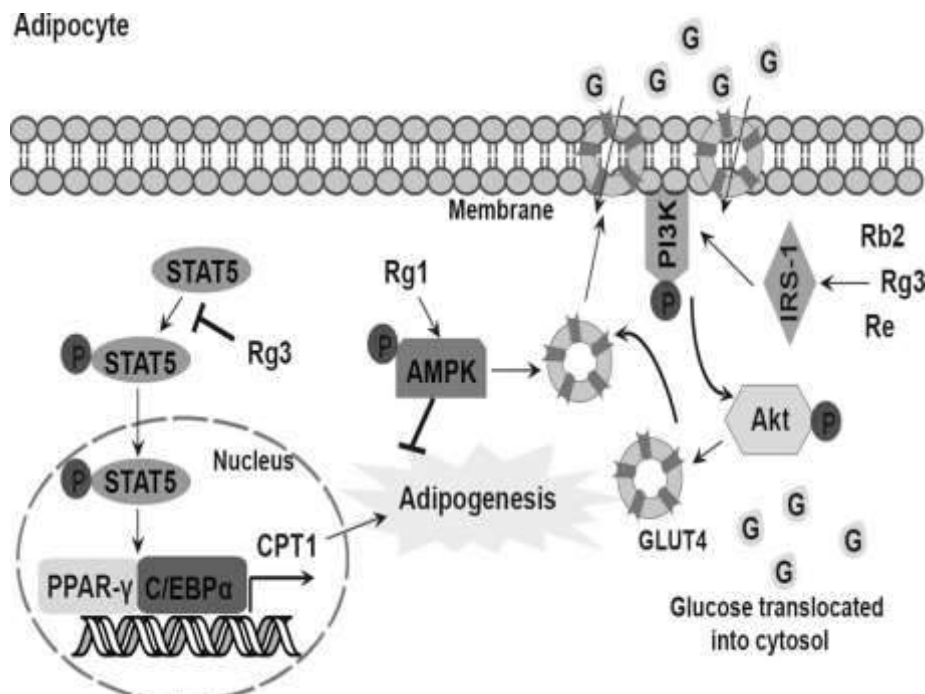
Effect on insulin resistance Insulin resistance is a leading cause of T2DM that makes the body lack of sensitivity to insulin. Mitochondria play a pivotal role in liver, skeletal muscle and adipose tissue since these tissues are targets of insulin in glucose metabolism [31-37]. Insulin is known to decrease blood glucose via binding to insulin receptor, which in turn leads to IRS-1

activation, and subsequently caused phosphorylation of downstream pathway involving PI3K and Akt substrates. Here, the activation of IRS-1 is possibly triggered by phosphorylation of tyrosine residues or dephosphorylation of serine residues of IRS-1 [38-40]. Consequently, “phosphorylation of IRS-1” is an inapposite word to describe IRS-1 activation. Liver



is a key target organ for insulin and is of remarkable significance in the regulation of insulin resistance. Ginsenosides improve insulin resistance in liver mainly through two aspects including modulation of hepatic glucose production and lipid accumulation in transcriptional level. The Ser/Thr kinase Akt, also known as protein kinase B (PKB), acts as a crucial signal in insulin dysfunction<sup>[41-43]</sup>. GSK3 $\beta$ , FOXO1, and PGC-1 $\alpha$  are three main substrates of Akt that involved in liver glucose production. Akt activation dependent on its upstream signal PI3K activation and activated Akt is well-known for participating in insulin metabolism primarily by means of two methods: (i) Translocating GLUTs (notably GLUT4) to the cell membrane, which causes glucose uptake improvement. (ii) Promoting phosphorylation on glycogen synthase kinase 3 (GSK3 $\beta$ ) so as to enhance glycogen synthesis leading to hepatic glucose production attenuated ultimately (Fig. 1). In addition, FOXO, a key family of transcription factors that regulate glucose homeostasis and insulin responsiveness, is negatively regulated by Akt/PKB. Effects of ginsenosides on Akt-induced attenuation of glucose production and their activities in lipid accumulation would be discussed later. It is well-established that insulin resistance of skeletal muscle plays a crucial role in T2DM. The antidiabetic effect of ginsenosides in skeletal muscle is produced by promoting glucose uptake. G-Rg5 prevented insulin resistance in muscle through inhibition of protein kinase C (PKC) which was ascribed to the reduction of diacylglycerols (DAGs) and ceramides<sup>[43-47]</sup>. G-Re reversed insulin resistance of muscle glucose transport in an

insulin-dependent manner and that was mainly associated with GLUT4 translocation. Rather than mediate insulin-dependent signaling (such as IRS-1 or Akt), G-Rc was known for its ability to activate AMPK/p38 MAPK (an insulin-independent signaling pathway), which contributes to glucose uptake promotion in the C2C12 myoblasts<sup>[48]</sup> in recent years, adipocyte has turned out to be a hotspot in investigating the mechanism of insulin resistance. Ginsenosides ameliorate insulin resistance in adipose tissues primary through adjustment of glucose transport and adipogenesis. G-Rg3 and G-Re increased glucose uptake and glucose transport via IRS-1/PI3K pathway in 3T3-L1 adipocytes. G-Rb2 was documented to improve insulin resistance via downregulating phosphorylation of IRS-1 serine residues and upregulating phosphorylation of Akt. Moreover, G-CK and G-Rg1 enhanced glucose uptake and GLUT4 translocated to cell membrane through activation of AMPK and PI3K pathways<sup>[49]</sup>. Ginsenosides have been confirmed to ameliorate insulin resistance in liver, skeletal muscle, and adipocytes via multiple signaling pathways. However, it has been observed that oral GRE therapy could not prominently improve insulin resistance or  $\beta$ -cell function in humans with impaired glucose tolerance (IGT) or newly diagnosed T2DM. Taking together, ginsenosides only express effects on glucose transport or insulin resistance under insulin-stimulated, and low oral bioavailability may be the main reason for its poor efficacy. Therefore, most data from studies conducted in animals elucidated that ginsenosides show antidiabetic effects were given an injection

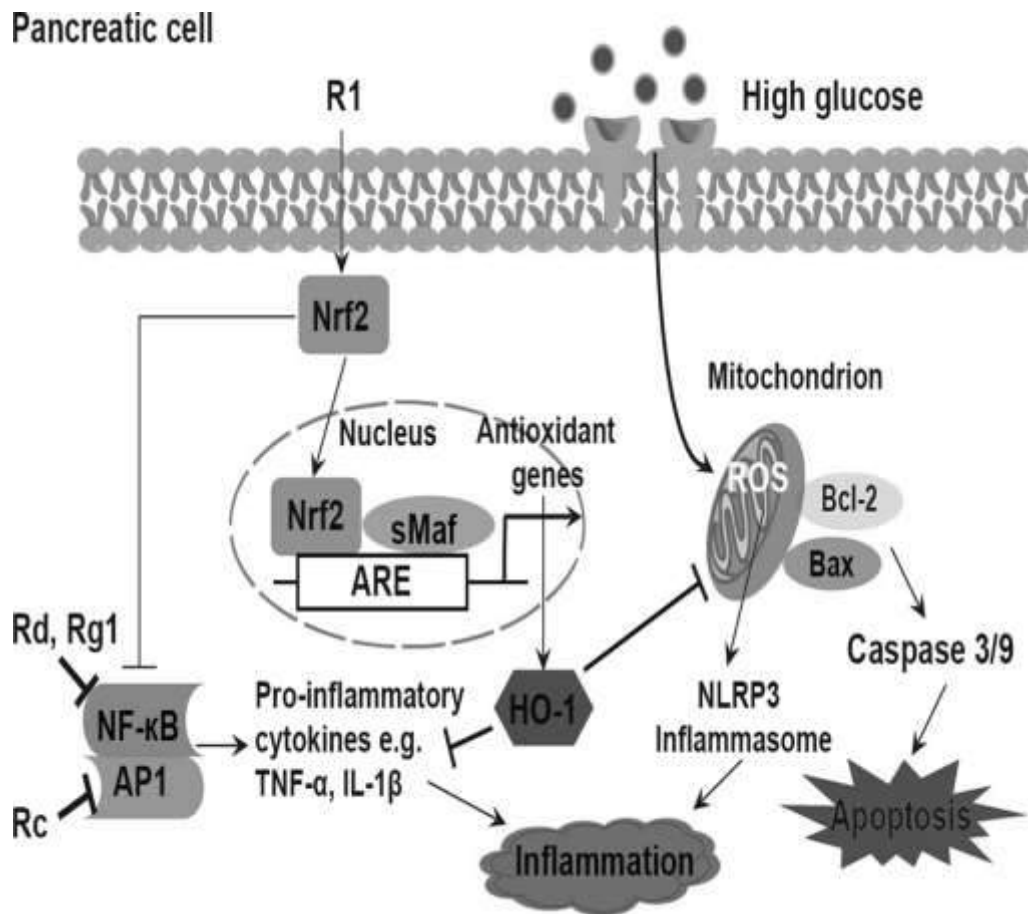


**Fig. 2. The mechanism of ginsenosides involved in adipogenesis and glucose uptake on adipocytes. C/EBP $\alpha$ , CCAAT/enhancer-binding protein  $\alpha$ ; IRS-1, insulin receptor substrate 1; PI3K, phosphatidylinositol 3-kinase; GLUT, glucose transporter; PPAR- $\gamma$ , peroxisome proliferator-activated receptor  $\gamma$ ; STAT, Janus kinase (JAK)-signal transducer and activator of transcription.**

**Improving glucose tolerance and glucose homeostasis**

Glucose tolerance is regarded as another evaluation index of diabetes: it demonstrated the ability of the organism to regulating blood glucose level. IGT and/or impaired fasting glucose (IFG) is commonly referred to as prediabetes. Since IGT is one of the chief risk factors for T2DM, improving glucose tolerance tends to be a key measure for the prevention and treatment of diabetes. Glucose homeostasis depends on the balance between levels of insulin and glucagon, and glucagon elevates glucose output mainly attributes to gluconeogenesis. Ginsenosides improve glucose homeostasis generally through inhibiting hepatic glucose production and accelerating glucose uptake in skeletal muscle and adipose tissues. Both increased glycogen synthesis and decreased gluconeogenesis can reduce hepatic glucose production. Gluconeogenesis is a way of increasing blood glucose which leads to hyperglycemia. In addition to being regulated by insulin, glucagon and glucocorticoid, hepatic gluconeogenesis is also controlled by a series of transcription factors, through which the signal is eventually fed back to two key enzymes of gluconeogenesis: PEPCK and G6Pase. AMPK, a well-known serine/threonine kinase, was confirmed to be a pivotal target during the gluconeogenic program. Current hypoglycemic agents in the clinic such as metformin and TZDs are both AMPK activators. As a key transcription factor of phosphoenolpyruvate carboxykinase (PEPCK) and glucose-6-phosphatase (G6Pase), CREB can hardly activate its target gene expression unless combine with CRTC2 (also known as TORC2) to form CREB·CRTC2 complex. G-Rg2 suppressed hepatic glucose production via promoting AMPK activation, which thereby induced SHP gene expression and GSK3 $\beta$  phosphorylation. The inner mechanism is that SHP directly interacts with CREB, leading to disruption of CREB·CRTC2 complex, which consequently suppresses the activation of PEPCK and G6Pase (Fig. 1). Besides, G-CK has been detected to repress gluconeogenesis by inhibiting the expression of PPAR- $\gamma$  coactivator-1 $\alpha$  (PGC-1 $\alpha$ ). Moreover, G-Rg1 promotes Akt phosphorylation and facilitating Akt binding to FOXO1 to decrease transcription of PEPCK and G6Pase so as to decrease hepatic gluconeogenesis.<sup>[51-53]</sup>

**Modulating lipid metabolism** The sterol regulatory element binding protein (SREBP) is a key regulator of lipid homeostasis. There are three isoforms of SREBPs, SREBP-1c involves in fatty acid (FA) oxidation, whereas SREBP-2 is in charge of cholesterol synthesis<sup>[54]</sup>. G-Rg3 was found to activate AMPK and suppress SREBP-2, subsequently downregulated HMGCR expression to inhibit hepatic lipid accumulation. G-Rb2 regulated lipid accumulation via restoring autophagy through the induction of SIRT1 and activation of AMPK. G-CK also regulates lipid metabolism by AMPK/ PPAR- $\alpha$  pathway. AMPK also controls lipid metabolism through inhibiting adipogenesis, promoting both FA oxidation and lipolysis. Acetyl-CoA carboxylase (ACC) and 3-hydroxy-3-methyl glutaryl coenzyme A reductase (HMGCR) were two earliest discovered AMPK targets that were ratelimiting enzymes in the synthesis of FA and cholesterol, respectively. In summary, AMPK activation is closely associated with lipid metabolism, activated AMPK will not only inhibit SREBPs cleavage and nuclear translocation but also promote the expression of CPT1 (a key enzyme in FA  $\beta$ -oxidation), thereby suppress ACC and HMGCR expression, resulting in FA synthesis restraint and FA oxidation stimulation. Additionally, G-Rg3 ameliorated hepatic steatosis via downregulation of STAT5/PPAR $\gamma$  pathway, while G-Rg1 suppressed lipogenesis through increasing C/EBP homologous protein-10 (CHOP10) and subsequently reducing C/EBP transcription, indicating the significance of PPAR- $\gamma$  and C/EBP in lipid accumulation<sup>[55]</sup> (Fig. 2). In fact, G-Rc was found to directly induced lipolysis in adipocytes and downregulated PPAR- $\gamma$  and C/EBP (Yang & Kim, 2015), and G-Rg2 decreased the expression of PPAR- $\gamma$ , C/EBP $\alpha$ , and SREBP1-c by inducing phosphorylation of AMPK as well. In lipolysis, AMPK performs a controversial role with groups reported either inhibition, activation, or no effect. AMPK was considered to inhibit lipolysis via direct phosphorylating hormone-sensitive lipase (HSL) or blocking HSL activation. In contrast, suggested that red ginseng extracts effectively activated HSL so that induces lipolysis in (white adipose tissue) WAT and FA oxidation in (brown adipose tissue) BAT. Overall, the data above indicate that AMPK plays a fundamental part in the modulation of glucolipid metabolism.<sup>[56, 57]</sup>



**Fig 3. Ginsenosides generate antioxidant and anti-inflammatory activities through reduction of ROS production or activation of Nrf2, resulting in either inhibition of  $\beta$ -cell apoptosis or suppression of NF- $\kappa$ B and AP1 pathways. AP1, activator protein 1; Bax, Bcl-2-associated X protein; Bcl-2, B-cell lymphoma 2; HO-1, heme oxygenase-1; IL-1 $\beta$ , interleukin-1 $\beta$ ; NF- $\kappa$ B, nuclear factor- $\kappa$ B; Nrf2, nuclear factor erythroid 2-related factor 2; ROS, reactive oxygen species; TNF- $\alpha$ , tumor nuclear factor- $\alpha$**

### 3.4. Effect on beta-cell injury

Glucose-stimulated insulin secretion is the main task assigned to pancreatic beta-cell, and overproduction of ROS in mitochondrial refers to the critical cause which leads to beta cells dysfunction. G-Rb1 was documented to protect  $\beta$ -cell against diabetic injury through modulation of oxidative stress, inflammation, autophagy, and apoptosis. Oxidative stress (OS) derives from an imbalance between the generation of ROS and its scavengers, and was deemed to be a driver in the pathogenesis of insulin resistance). OS can activate sorts of transcription factors, among which nuclear factor-kappa B (NF- $\kappa$ B), activator protein 1 (AP1), and nuclear factor erythroid 2-related factor 2 (Nrf2) are probably the most important three pathways in diabetic inflammatory responses (Choudhury, Ghosh, Gupta, Mukherjee, & Chattopadhyay, 2015). Accumulating lines of evidence have unraveled that activation of Keap1-Nrf2 system conduces to the inhibition of DM through protecting pancreatic  $\beta$ -cells against oxidants and inflammation, as well as suppressing the progression of insulin resistance<sup>[58]</sup> Notoginsenoside R1 exerted an inhibitory

effect of oxidative stress via Nrf2–HO-1 signaling in advanced glycation end products (AGEs)-induced db/db mice and HK-2 cells. The up-regulation of Nrf2 system also suppressed NLRP3 inflammasome activation. By the way, aside from OS alone, researchers in recent years believe in OS closely interconnected with ER stress to induce  $\beta$ cell apoptosis as well as inhibit insulin biosynthesis and secretion more likely. Recently it has become clear that inflammation can be initiated by FA, inflammatory cytokines, OS and ER stress, which were associated with two key intracellular inflammatory pathways, JNK-AP1 and IKK $\beta$ NF- $\kappa$ B. Low-grade inflammation emerges as a driver of both insulin resistance and glucose dysfunction. G-Rd inhibits iNOS and COX-2 expression via repressing NF- $\kappa$ B<sup>[59]</sup>. G-Rg1 suppresses pro-inflammatory cytokines IL-1 $\beta$  and TNF- $\alpha$  release, which highlight the anti-inflammatory potential of ginsenosides. G-Rc can not only repress TNF- $\alpha$ , IL-6, and IFN but also attenuate IRF-3 and AP-1 pathways. Additionally, G-Rb1 and G-CK ameliorate insulin resistance by inhibition of NLRP3 inflammasome activation. The relationship between NF- $\kappa$ B and Nrf2 pathways





on stress and inflammation responses has been investigated in previous studies). Nrf2 has been shown to negatively regulate NF $\kappa$ B pathway (Fig. 3). Moreover, activated NF- $\kappa$ B in return stimulated Nrf2 activation as a protective anti-inflammatory mechanism via GTPbinding protein RAC1. Briefly, transcription factors and signaling pathways involved in stress and inflammatory responses coordinately to maintain homeostasis of intracellular free radicals. Autophagy also plays a crucial role in maintaining  $\beta$ -cell physiology, especially in the maintenance of mitochondria and ER. In addition, abnormal  $\beta$ -cell autophagy contributes to the progression of diabetes; hence, induction of autophagy may be a benefit for diabetes inhibition. For instance, G-Rg2 activated autophagy thereby prevented high-fat diet-induced insulin resistance through AMPK/ULK1 or AMPK/mTOR pathway. GRb1 suppressed cell apoptosis via enhancing autophagy<sup>[60-61]</sup>

## CONCLUSION

Apoptosis is a typical form of  $\beta$ -cell death in DM. Under its pathological state, the up regulation of Bax/Bcl-2 and/or caspase 3/9 will lead to  $\beta$ -cell apoptosis. Numerous literatures demonstrated that JNK pathway is of remarkable significance in the process of  $\beta$ -cell apoptosis. This is not unexpected for JNK which is activated by a variety of stimulating factors, including free fatty acid (FFA), cytokines (especially TNF- $\alpha$ ) and extra- or intracellular ROS. G-CK treatment attenuated caspase-3 activity and protected  $\beta$ -cell from apoptosis via suppression of JNK activation, and ROS bridges the linkage between AMPK and JNK pathways. Moreover, in contrast to apoptosis, pyroptosis is another form of cell programmed death that requires the function of caspase-1, associated with anti-inflammatory responses. Ginsenosides have been proved to suppress inflammatory responses by inhibition of NLRP3. It was also confirmed that ginsenosides inhibit caspase-1 leading to decrease secretion of proinflammatory cytokines, such as IL-1 $\beta$  and IL-18. Besides, further studies are needed to verify the effects of ginsenoside on pyroptosis of  $\beta$  cell

## REFERENCES

1. Classification and diagnosis of diabetes. (2015). *Diabetes Care*, 38 Suppl, S8–Ahmadian, M., Abbott, M. J., Tang, T., Hudak, C. S., Kim, Y., Bruss, M., Sul, H. S. (2011). Desnutrin/ATGL is regulated by AMPK and is required for a brown adipose phenotype. *Cell Metabolism*, 13(6), 739–748.
2. Attele, A. S., Wu, J. A., & Yuan, C. S. (1999). Ginseng pharmacology: Multiple constituents and multiple actions. *Biochemical Pharmacology*, 58(11), 1685–1693.
3. Baek, S. H., Shin, B. K., Kim, N. J., Chang, S. Y., & Park, J. H. (2017). Protective effect of ginsenosides Rk3 and Rh4 on cisplatin-induced acute kidney injury in vitro and in vivo. *Journal of Ginseng Research*, 41(3), 233–239.
4. Bai, L., Gao, J., Wei, F., Zhao, J., Wang, D., & Wei, J. (2018). Therapeutic potential of ginsenosides as an adjuvant treatment for diabetes. *Frontiers in Pharmacology*, 9, 423.
5. Bellezza, I., Mierla, A. L., & Minelli, A. (2010). Nrf2 and NF- $\kappa$ B and their concerted modulation in cancer pathogenesis and progression. *Cancers (Basel)*, 2(2), 483–497..
6. Besseiche, A., Riveline, J. P., Gautier, J. F., Breant, B., & Blondeau, B. (2015). Metabolic roles of PGC-1 alpha and its implications for type 2 diabetes. *Diabetes & Metabolism*, 41(5), 347–357..
7. Brownlee, M. (2001). Biochemistry and molecular cell biology of diabetic complications. *Nature*, 414(6865), 813–820.
8. Chakrabarti, P., English, T., Karki, S., Qiang, L., Tao, R., Kim, J., ... Kandror, K. V. (2011). SIRT1 controls lipolysis in adipocytes via FOXO1-mediated expression of ATGL. *Journal of Lipid Research*, 52(9), 1693–1701.
9. Chen, G., Li, H., Zhao, Y., Zhu, H., Cai, E., Gao, Y., Zhang, L. (2017a). Saponins from stems and leaves of Panax ginseng prevent obesity via regulating thermogenesis, lipogenesis and lipolysis in high-fat diet-induced obese C57BL/6 mice. *Food and Chemical Toxicology*, 106(Pt A), 393–403.
10. Chen, W., Wang, J., Luo, Y., Wang, T., Li, X., Li, A., ... Liu, B. (2016). Ginsenoside Rb1 and compound K improve insulin signaling and inhibit ER stress-associated NLRP3 inflammasome activation in adipose tissue. *Journal of Ginseng Research*, 40(4)
11. Chen, Y. B., Wang, Y. F., Hou, W., Wang, Y. P., Xiao, S. Y., Fu, Y. Y., ... Zheng, P. H. (2017b). Effect of B-complex vitamins on the antifatigue activity and bioavailability of ginsenoside Re after oral administration. *Journal of Ginseng Research*, 41(2), 209–214.
12. Cho, H. M., Kang, Y. H., Yoo, H., Yoon, S. Y., Kang, S. W., Chang, E. J., & Song, Y. (2014). Panax red ginseng extract regulates energy expenditures by modulating PKA dependent lipid mobilization in adipose tissue. *Biochemical and Biophysical Research Communications*, 447(4), 644–648.
13. Cho, N. H., Shaw, J. E., Karuranga, S., Huang, Y., Fernandes, J. D. D. R., Ohlrogge, A. W., & Malanda, B. (2018). IDF Diabetes Atlas: Global estimates of diabetes prevalence for 2017 and projections for 2045. *Diabetes Research & Clinical Practice*, 138, 271.
14. Choudhury, S., Ghosh, S., Gupta, P., Mukherjee, S., & Chattopadhyay, S. (2015). Inflammation-induced ROS generation causes pancreatic cell death through modulation of Nrf2/NF- $\kappa$ B and SAPK/JNK pathway. *Free Radic Res*, 49(11), 1371–1383.
15. Chu, J. M., Lee, D. K., Wong, D. P., Wong, R. N., Yung, K. K., Cheng, C. H., & Yue, K. K. (2014). Ginsenosides attenuate methylglyoxal-induced impairment of insulin signaling and subsequent apoptosis in primary astrocytes. *Neuropharmacology*, 85, 215–223.
16. Cross, D. A., Alessi, D. R., Cohen, P., Andjelkovich, M., & Hemmings, B. A. (1995). Inhibition of glycogen synthase kinase-3 by insulin mediated by protein kinase B. *Nature*, 378(6559), 785–789.
17. Cuadrado, A., Martin-Moldes, Z., Ye, J., & Lastres-Becker, I. (2014). Transcription factors NRF2 and NF- $\kappa$ B are coordinated effectors of the Rho family, GTP-binding protein RAC1 during inflammation. *Journal of Biological Chemistry*, 289(22), 15244–15258.
18. Czaja, M. J. (2010). JNK regulation of hepatic manifestations of the metabolic syndrome. *Trends in Endocrinology and Metabolism*, 21(12), 707–713.
19. Dai, S., Hong, Y., Xu, J., Lin, Y., Si, Q., & Gu, X. (2018). Ginsenoside Rb2 promotes glucose metabolism and attenuates



- fat accumulation via AKT-dependent mechanisms. *Biomedicine & Pharmacotherapy*, 100, 93–100.
20. Daval, M., Diot-Dupuy, F., Bazin, R., Hainault, I., Viollet, B., Vaultont, S., ... Foufelle, F. (2005). Anti-lipolytic action of AMP-activated protein kinase in rodent adipocytes. *Journal of Biological Chemistry*, 280(26), 25250–25257.
  21. Dimple, B., & Amabile-Cuevas, C. F. (1991). Redox redux: The control of oxidative stress responses. *Cell*, 67(5), 837–839.
  22. Deng, L. L., Yuan, D., Zhou, Z. Y., Wan, J. Z., Zhang, C. C., Liu, C. Q., ... Wang, T. (2017). Saponins from *Panax japonicus* attenuate age-related neuroinflammation via regulation of the mitogen-activated protein kinase and nuclear factor kappa B signaling pathways. *Neural Regeneration Research*, 12(11), 1877–1884.
  23. Dou, H. C., Chen, J. Y., Ran, T. F., & Jiang, W. M. (2018). *Panax quinquefolius* saponin inhibits endoplasmic reticulum stress-mediated apoptosis and neurite injury and improves functional recovery in a rat spinal cord injury model. *Biomedicine & Pharmacotherapy*, 102, 212–220.
  24. Draznin, B. (2006). Molecular mechanisms of insulin resistance: Serine phosphorylation of insulin receptor substrate-1 and increased expression of p85alpha: The two sides of a coin. *Diabetes*, 55(8), 2392–2397.
  25. Du, Y., Fu, M., Wang, Y. T., & Dong, Z. (2018). Neuroprotective effects of ginsenoside Rf on amyloid-beta-induced neurotoxicity in vitro and in vivo. *Journal of Alzheimer's Disease*, 64(1), 309–322.
  26. Endale, M., Lee, W. M., Kamruzzaman, S. M., Kim, S. D., Park, J. Y., Park, M. H., ... Rhee, M. H. (2012). Ginsenoside-Rp1 inhibits platelet activation and thrombus formation via impaired glycoprotein VI signalling pathway, tyrosine phosphorylation and MAPK activation. *British Journal of Pharmacology*, 167(1), 109–127.
  27. Fan, Y., Wang, N., Rocchi, A., Zhang, W., Vassar, R., Zhou, Y., & He, C. (2017). Identification of natural products with neuronal and metabolic benefits through autophagy induction. *Autophagy*, 13(1), 41–56.
  28. Gerber, P. A., & Rutter, G. A. (2017). The role of oxidative stress and hypoxia in pancreatic beta-cell dysfunction in diabetes mellitus. *Antioxidants & Redox Signaling*, 26(10), 501–518.
  29. Guan, F. Y., Gu, J., Li, W., Zhang, M., Ji, Y., Li, J., ... Hatch, G. M. (2014). Compound K protects pancreatic islet cells against apoptosis through inhibition of the AMPK/JNK pathway in type 2 diabetic mice and in MIN6 beta-cells. *Life Sciences*, 107(1–2), 42–49.
  30. Guo, X., Zhang, X., Guo, Z., Liu, Y., Shen, A., Jin, G., & Liang, X. (2014). Hydrophilic interaction chromatography for selective separation of isomeric saponins. *Journal of Chromatography A*, 1325, 121–128.
  31. Han, D. H., Kim, S. H., Higashida, K., Jung, S. R., Polonsky, K. S., Klein, S., & Holloszy, J. O. (2012). Ginsenoside Re rapidly reverses insulin resistance in muscles of high-fat diet fed rats. *Metabolism-Clinical and Experimental*, 61(11), 1615–1621.
  32. Han, S. Y., Kim, J., Kim, E., Kim, S. H., Seo, D. B., Kim, J. H., ... Cho, J. Y. (2018). AKT-targeted anti-inflammatory activity of *Panax ginseng* calyx ethanolic extract. *Journal of Ginseng Research*, 42(4), 496–503.
  33. Hasnain, S. Z., Prins, J. B., & McGuckin, M. A. (2016). Oxidative and endoplasmic reticulum stress in beta-cell dysfunction in diabetes. *Journal of Molecular Endocrinology*, 56(2), R33–R54.
  34. He, H., Xu, J., Xu, Y., Zhang, C., Wang, H., He, Y., ... Yuan, D. (2012). Cardioprotective effects of saponins from *Panax japonicus* on acute myocardial ischemia against oxidative stress-triggered damage and cardiac cell death in rats. *Journal of Ethnopharmacology*, 140(1), 73–82.
  35. Hosono-Nishiyama, K., Matsumoto, T., Kiyohara, H., Nishizawa, A., Atsumi, T., & Yamada, H. (2006). Suppression of Fas-mediated apoptosis of keratinocyte cells by chikusetsusaponins isolated from the roots of *Panax japonicus*. *Planta Medica*, 72(3), 193–198.
  36. Huang, Q., Wang, T., Yang, L., & Wang, H. Y. (2017). Ginsenoside Rb2 alleviates hepatic lipid accumulation by restoring autophagy via induction of Sirt1 and activation of AMPK. *International Journal of Molecular Sciences*, 18(5), 1–11.
  37. Huang, Y. C., Lin, C. Y., Huang, S. F., Lin, H. C., Chang, W. L., & Chang, T. C. (2010). Effect and mechanism of ginsenosides CK and Rg1 on stimulation of glucose uptake in 3T3-L1 adipocytes. *Journal of Agriculture and Food Chemistry*, 58(10), 6039–6047.
  38. Irfan, M., Jeong, D., Kwon, H. W., Shin, J. H., Park, S. J., Kwak, D., ... Rhee, M. H. (2018). Ginsenoside-Rp3 inhibits platelet activation and thrombus formation by regulating MAPK and cyclic nucleotide signaling. *Vascular Pharmacology*, 109, 45–55.
  39. Jeong, D., Irfan, M., Kim, S. D., Kim, S., Oh, J. H., Park, C. K., Rhee, M. H. (2017). Ginsenoside Rg3-enriched red ginseng extract inhibits platelet activation and in vivo thrombus formation. *Journal of Ginseng Research*, 41(4), 548–555.
  40. Jiao, L., Li, B., Wang, M., Liu, Z., Zhang, X., & Liu, S. (2014). Antioxidant activities of the oligosaccharides from the roots, flowers and leaves of *Panax ginseng* C.A. Meyer. *Carbohydrate Polymers*, 106, 293–298.
  41. Jin, Z. H., Qiu, W., Liu, H., Jiang, X. H., & Wang, L. (2018). Enhancement of oral bioavailability and immune response of Ginsenoside Rh2 by co-administration with piperine. *Chinese Journal of Natural Medicines*, 16(2), 143–149.
  42. Kang, K. S., Ham, J., Kim, Y. J., Park, J. H., Cho, E. J., & Yamabe, N. (2013). Heat-processed *Panax ginseng* and diabetic renal damage: Active components and action mechanism. *Journal of Ginseng Research*, 37(4), 379–388.
  43. Kang, S., Tsai, L. T., & Rosen, E. D. (2016). Nuclear mechanisms of insulin resistance. *Trends in Cell Biology*, 26(5), 341–351.
  44. Kennedy, D. O., & Scholey, A. B. (2003). Ginseng: Potential for the enhancement of cognitive performance and mood. *Pharmacology Biochemistry and Behavior*, 75(3), 687–700.
  45. Khan, V., Najmi, A. K., Akhtar, M., Aqil, M., Mujeeb, M., & Pillai, K. K. (2012). A pharmacological appraisal of medicinal plants with antidiabetic potential. *Journal of Pharmacy and Bioallied Sciences*, 4(1), 27–42.
  46. Kim, B., Kim, E. Y., Lee, E. J., Han, J. H., Kwak, C. H., Jung, Y. S., ... Ha, K. T. (2018). *Panax notoginseng* inhibits tumor growth through activating macrophage to M1 polarization. *American Journal of Chinese Medicine*, 46(6), 1369–1385.
  47. Kim, D. H., Chung, J. H., Yoon, J. S., Ha, Y. M., Bae, S., Lee, E. K., Chung, H. Y. (2013a). Ginsenoside Rd inhibits the expressions of iNOS and COX-2 by suppressing NF-kappaB



- in LPS-stimulated RAW264.7 cells and mouse liver. *Journal of Ginseng Research*, 37(1), 54–63.
48. Kim, H. K. (2013). Pharmacokinetics of ginsenoside Rb1 and its metabolite compound K after oral administration of Korean Red Ginseng extract. *Journal of Ginseng Research*, 37(4), 451–456.
  49. Kim, K. S., Jung Yang, H., Lee, I. S., Kim, K. H., Park, J., Jeong, H. S., Jang, H. J. (2015). The aglycone of ginsenoside Rg3 enables glucagon-like peptide-1 secretion in enteroendocrine cells and alleviates hyperglycemia in type 2 diabetic mice. *Scientific Reports*, 5, 18325.
  50. Kim, M. S., Lee, K. T., Iseli, T. J., Hoy, A. J., George, J., Grewal, T., & Roufogalis, B. D. (2013b). Compound K modulates fatty acid-induced lipid droplet formation and expression of proteins involved in lipid metabolism in hepatocytes. *Liver International*, 33(10), 1583–1593.
  51. Koh, E. J., Kim, K. J., Choi, J., Jeon, H. J., Seo, M. J., & Lee, B. Y. (2017). Ginsenoside Rg1 suppresses early stage of adipocyte development via activation of C/EBP homologous protein-10 in 3T3-L1 and attenuates fat accumulation in high fat diet-induced obese zebrafish. *Journal of Ginseng Research*, 41(1), 23–30.
  52. Krycer, J. R., Sharpe, L. J., Luu, W., & Brown, A. J. (2010). The Akt-SREBP nexus: Cell signaling meets lipid metabolism. *Trends in Endocrinology and Metabolism*, 21(5), 268–276.
  53. Lahiani, M. H., Eassa, S., Parnell, C., Nima, Z., Ghosh, A., Biris, A. S., & Khodakovskaya, M. V. (2017). Carbon nanotubes as carriers of Panax ginseng metabolites and enhancers of ginsenosides Rb1 and Rg1 anti-cancer activity. *Nanotechnology*, 28(1), 015101.
  54. Le Lay, J., Tuteja, G., White, P., Dhir, R., Ahima, R., & Kaestner, K. H. (2009). CRTC2 (TORC2) contributes to the transcriptional response to fasting in the liver but is not required for the maintenance of glucose homeostasis. *Cell Metabolism*, 10(1), 55–62.
  55. Lee, H. L., & Kang, K. S. (2017). Protective effect of ginsenoside Rh3 against anticancer drug-induced apoptosis in LLC-PK1 kidney cells. *Journal of Ginseng Research*, 41(2), 227–231.
  56. Lee, J. B., Yoon, S. J., Lee, S. H., Lee, M. S., Jung, H., Kim, T. D., ... Park, Y. J. (2017). Ginsenoside Rg3 ameliorated HFD-induced hepatic steatosis through downregulation of STAT5-PPARgamma. *Journal of Endocrinology*, 235(3), 223–235.
  57. Lee, K. T., Jung, T. W., Lee, H. J., Kim, S. G., Shin, Y. S., & Whang, W. K. (2011a). The antidiabetic effect of ginsenoside Rb2 via activation of AMPK. *Archives of Pharmacological Research*, 34(7), 1201–1208.
  58. Lee, M. H., Lee, Y. C., Kim, S. S., Hong, H. D., & Kim, K. T. (2015a). Quality and anti-oxidant activity of ginseng seed processed by fermentation strains. *Journal of Ginseng Research*, 39(2), 178–182.
  59. Lee, M. S., Hwang, J. T., Kim, S. H., Yoon, S., Kim, M. S., Yang, H. J., & Kwon, D. Y. (2010). Ginsenoside Rc, an active component of Panax ginseng, stimulates glucose uptake in C2C12 myotubes through an AMPK-dependent mechanism. *Journal of Ethnopharmacology*, 127(3), 771–776.
  60. Lee, O. H., Lee, H. H., Kim, J. H., & Lee, B. Y. (2011b). Effect of ginsenosides Rg3 and Re on glucose transport in mature 3T3-L1 adipocytes. *Phytotherapy Research*, 25(5), 61. Rafieian-Kopaei M, Baradaran A, Rafieian M. Plants antioxidants: From laboratory to clinic. *J Nephrothol*. 2013;2:152–3.
  62. Ghayur MN, Gilani AH, Afridi MB, Houghton PJ. Cardiovascular effects of ginger aqueous extract and its phenolic constituents are mediated through multiple pathways. *Vascul Pharmacol*. 2005;43:234–41.
  63. Bahmani M, Vakili-Saatloo N, Gholami-Ahangaran M, Karamati SA, Khalil-Banihabib E, Hajigholizadeh GH, et al. A comparison study on the anti-leech effects of onion (*Allium cepa* L) and ginger (*Zingiber officinale*) with levamisole and triclabendazole. *J HerbMed Pharmacol*. 2013;2:1–3.
  64. Nasri H, Nematbakhsh M, Ghobadi SH, Ansari R, Shahinfard N, Rafieian-kopaei M. Preventive and curative effects of ginger extract against histopathologic changes of gentamicin-Induced tubular toxicity in rats. *Int J Prev Med*. 2013;4:316–21
  65. Bahmani M, Zargaran A, Rafieian-Kopaei M, Saki M. Ethnobotanical study of medicinal plants used in the management of diabetes mellitus in the Urmia, Northwest Iran. *Asian Pac J Trop Med*. 2014;7:348–54.
  66. Roshan B, Stanton RC. A story of microalbuminuria and diabetic nephropathy. *J Nephrothol*. 2013;2:234–40.
  67. Tavafi M. Diabetic nephropathy and antioxidants. *J Nephrothol*. 2013;2:20–7.
  68. Baradaran A. Lipoprotein (a), type 2 diabetes and nephropathy; the mystery continues. *J Nephrothol*. 2012;1:126–9.
  69. Rahimi-Madiseh M, Heidarian E, Rafieian-kopaei M. Biochemical components of *Berberis lycium* fruit and its effects on lipid profile in diabetic rats. *J HerbMed Pharmacol*. 2014;3:15–9.
  70. Rafieian-Kopaei M, Nasri H. Ginger and diabetic nephropathy. *J Renal Inj Prev*. 2013;2:9–10.
  71. Tolouian R, T Hernandez G. Prediction of diabetic nephropathy: The need for a sweet biomarker. *J Nephrothol*. 2013;2:4–5.
  72. Caterson ID, Gill TP. Obesity: Epidemiology and possible prevention. *Best Pract Res Clin Endocrinol Metab*. 2002; 16:595–610.
  73. Rubin SA, Levin ER. Clinical review 53: The endocrinology of vasoactive peptides: Synthesis to function. *J Clin Endocrinol Metab*. 1994;78:6–10.
  74. Boozer CN, Nasser JA, Heymsfield SB, Wang V, Chen G, Solomon JL. An herbal supplement containing Ma Huang-Guarana for weight loss: A randomized, double-blind trial. *Int J Obes Relat Metab Disord*. 2001;25:316–24.
  75. Kruger CL, Murphy M, DeFreitas Z, Pfannkuch F, Heimbach J. An innovative approach to the determination of safety for a dietary ingredient derived from a new source: Case study using a crystalline lutein product. *Food Chem Toxicol*. 2002;40:1535–49.
  76. Losso JN. Targeting excessive angiogenesis with functional foods and nutraceuticals. *Trends Food Sci Technol*. 2003;14:455–68.
  77. Anwar F, Latif S, Ashraf M, Gilani AH. *Moringa oleifera*: A food plant with multiple medicinal uses. *Phytother Res*. 2007;21:17–25.
  78. Glenville M. Nutritional supplements in pregnancy: Commercial push or evidence based? *Curr Opin Obstet Gynecol*. 2006;18:642–7.





79. Brookmeyer R, Johnson E, Ziegler-Graham K, Arrighi HM. Forecasting the global burden of Alzheimer's disease. *Alzheimers Dement.* 2007;3:186–91.
80. Rabiei Z, Rafieian-Kopaei M, Heidarian E, Saghaei E, Mokhtari S. Effects of *Zizyphus jujube* extract on memory and learning impairment induced by bilateral electric lesions of the nucleus basalis of Meynert in rat. *Neurochem Res.* 2014;39:353–60.
81. Rabiei Z, Rafieian-kopaei M, Heidarian E, Saghaei E, Mokhtari S. Effects of *Zizyphus jujube* extract on memory and learning impairment induced by bilateral electric lesions of the nucleus basalis of meynert in rat. *Neurochem Res.* 2014;39:353–60.4
82. Rabiei Z, Rafieian-Kopaei M, Mokhtari S, Alibabaei Z, Shahrani M. The effect of pretreatment with different doses of *Lavandula officinalis*
83. Nasri H, Sahinfard N, Rafieian M, Rafieian S, Shirzad M, Rafieian-kopaei M. Effects of *Allium sativum* on liver enzymes and atherosclerotic risk factors. *J HerbMed.*
84. Willis MS, Wians FH. The role of nutrition in preventing prostate cancer: A review of the proposed mechanism of action of various dietary substances. *Clin Chim Acta.* 2003;330:57–83.
85. Shirzad H, Kiani M, Shirzad M. Impacts of tomato extract on the mice fibrosarcoma cells. *J HerbMed Pharmacol.* 2013;2:13–6.
86. Stahl W, Sies H. Bioactivity and protective effects of natural carotenoids. *Biochim Biophys Acta.* 2005;1740:101–7.
87. Shirzad H, Taji F, Rafieian-Kopaei M. Correlation between antioxidant activity of garlic extracts and WEHI-164 fibrosarcoma tumor growth in BALB/c mice. *J Med Food.* 2011;14:969–74.
88. Shirzad H, Shahrani M, Rafieian-Kopaei M. Comparison of morphine and tramadol effects on phagocytic activity of mice peritoneal phagocytes in vivo. *Int Immunopharmacol.* 2009;9:968–70.
89. Limer JL, Speirs V. Phyto-oestrogens and breast cancer chemoprevention. *Breast Cancer Res.* 2004;6:119–27.
90. Gupta P, Andrew H and Kirschner BS. Is *Lactobacillus GG* helpful in children in Crohn's disease? Results of a preliminary, open-label study. *J Ped Gastro Nutr.* 2000; 31: 453-457.
91. Rice-Evans C. Flavonoid antioxidants. *Curr Med Chem.* 2001; 8: 797-807.
92. Ardalan MR, Rafieian. Kopaei M. Antioxidant supplementation in hypertension. *J Renal Inj Prev* 2014;3:39-40.
93. Gupta P, Andrew H, Kirschner BS, Guandalini S. Is *lactobacillus GG* helpful in children with Crohn's disease? Results of a preliminary, open-label study. *J Pediatr Gastroenterol Nutr.* 2000;31:453–7.
94. Chauhan B, Kumar G, Kalam N, Ansari SH. Current concepts and prospects of herbal nutraceutical: A review. *J Adv Pharm Technol Res.* 2013;4:4–8.
95. Brouns F. Soya isoflavones: A new and promising ingredient for the health foods sector. *Food Res Int.* 2002;35:187–93.
96. Rafieian-Kopaei M. Identification of medicinal plants affecting on headaches and migraines in Lorestan Province, West of Iran. *Asian Pac J Trop Med.* 2014;7:376–9.
97. Jang M, Cai L, Udeani GO, Slowing KV, Thomas CF, Beecher CW, et al. Cancer chemopreventive activity of resveratrol, a natural product derived from grapes. *Science.* 1997;275:218–20.
98. Rouhi-Broujeni A, Heidarian E, Darvishzadeh-Borojeni P, Rafieian- Kopaei M, Gharipour M. Lipid lowering activity of *moringa pergerina* seeds in rat: A comparison between the extract and atorvastatin. *Res J Biol Sci.* 2013;8:150–4.





# INSTINCTIVE EXPLORATION AND PROTEAN ANALYSIS OF HOMOEOPATHIC AND AYURVEDIC APPROACHES IN THE MANAGEMENT OF POLYCYSTIC OVARIAN SYNDROME

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## ABSTRACT

Polycystic ovary syndrome is a common endocrine disorder affecting women of reproductive age which is characterized by hormonal imbalances, metabolic disturbances and the presence of multiple ovarian cysts. The conventional medical approach focuses on symptom management and hormone regulation through pharmaceutical interventions, but alternative systems of medicine such as homoeopathy and Ayurveda offer different therapeutic paradigms.

This study aims to provide a comparative analysis of the homoeopathic and Ayurvedic approaches towards PCOS management.

In the homoeopathic approach, individualization of treatment is crucial, wherein each patient's symptoms, physical and psychological constitution, and personal history are taken into account. Various homoeopathic remedies have been explored, targeting hormonal imbalances, menstrual irregularities, and associated symptoms like acne, hirsutism, and obesity.

On the other hand, Ayurveda adopts a comprehensive approach, considering the patient's prakriti (constitution) and imbalances of doshas (vital energies) - primarily vata, pitta, and kapha. The treatment involves lifestyle modifications, dietary interventions, herbal formulations, detoxification procedures, and stress management techniques.

Comparing both approaches, homoeopathy offers individualized treatment based on symptom similarity, while Ayurveda emphasizes the restoration of doshic balance and overall harmony. Both systems have reported positive outcomes in managing PCOS symptoms, including regulation of menstrual cycles, reduction in androgen levels, improvement in fertility, and alleviation of associated complications.

This comparative analysis sheds light on the strengths and limitations of homoeopathy and Ayurveda in PCOS management. It provides valuable insights for clinicians, researchers, and patients seeking alternative treatment options.

**KEYWORDS:** Polycystic ovary syndrome, PCOS, homoeopathy, Ayurveda, alternative medicine, individualization, doshas, hormonal imbalances, menstrual irregularities, herbal formulations, lifestyle modifications.

## INTRODUCTION

Polycystic ovary syndrome (PCOS), also known as polycystic ovary disease (PCOD), is a common endocrine disorder that affects women of reproductive age. It is characterized by hormonal imbalances, leading to various symptoms and potential complications. PCOS is a complex condition with multifactorial causes and can have significant impacts on a woman's reproductive health and overall well-being.

**Causation:** The exact cause of PCOS is not fully understood, but several factors contribute to its development. These factors include:

a) **Hormonal Imbalances:** PCOS involves an imbalance in the levels of certain hormones, including insulin, androgens (such as testosterone), and luteinizing hormone (LH). These imbalances disrupt the normal functioning of the ovaries and lead to the formation of small cysts.

b) **Insulin Resistance:** Insulin resistance, a condition in which the body becomes less responsive to insulin, is commonly

associated with PCOS. Insulin resistance can increase insulin levels in the blood, leading to higher androgen production by the ovaries.

c) **Genetics:** There appears to be a genetic component to PCOS, as it often runs in families. Certain genes may contribute to the development of the condition, although specific genes have not been definitively identified.

d) **Lifestyle Factors:** Poor diet, lack of physical activity, and obesity can also play a role in the development and severity of PCOS. These lifestyle factors can exacerbate insulin resistance and hormonal imbalances.

**Signs and Symptoms:** The signs and symptoms of PCOS can vary from woman to woman and may include:

a) **Menstrual Irregularities:** PCOS often causes irregular menstrual cycles, with infrequent or prolonged periods. Some women may also experience heavy bleeding.

b) **Ovarian Cysts:** The ovaries may contain multiple small cysts, which are fluid-filled sacs. These cysts develop due to the



failure of the follicles (the structures that hold the eggs) to mature and release eggs.

c) **Hyperandrogenism:** Elevated levels of androgens can lead to symptoms such as excessive hair growth (hirsutism), particularly on the face, chest, and abdomen. Acne and male-pattern baldness or thinning of hair may also occur.

d) **Weight Gain:** Many women with PCOS struggle with weight gain or have difficulty losing weight. Obesity and insulin resistance can contribute to this.

e) **Skin Issues:** PCOS can cause skin problems, including oily skin, acne, and darkening of the skin, especially in skin folds such as the neck and armpits (acanthosis nigricans).

f) **Fertility Issues:** PCOS is one of the leading causes of female infertility. Hormonal imbalances and irregular ovulation make it challenging for women with PCOS to conceive.

g) **Metabolic Disorders:** PCOS increases the risk of developing metabolic disorders, including type 2 diabetes, high blood pressure, and high cholesterol levels.

It's important to note that not all women with PCOS will experience the same symptoms, and the severity of symptoms can also vary. Diagnosis typically involves evaluating a combination of symptoms, medical history, and laboratory tests to rule out other conditions. Treatment options aim to manage symptoms, regulate menstrual cycles, promote fertility if desired, and address associated health risks such as insulin resistance and metabolic disorders.

#### Homeopathic approach and importance of miasm in pcos

In homeopathy, the concept of miasms is a part of the holistic approach to understanding and treating diseases. Miasms are inherited predispositions to certain chronic conditions or disease tendencies that can affect an individual's health and well-being.

When it comes to the miasmatic approach to PCOS in homeopathy, it is important to understand that PCOS is considered a complex condition influenced by multiple factors. Homeopathy considers the underlying miasmatic predispositions that may contribute to the development and maintenance of PCOS symptoms.

According to the miasmatic theory in homeopathy, there are three primary miasms: Psora, Sycosis, and Syphilis. Each miasm is associated with different disease tendencies and manifestations.

**Psora:** Psora is considered the most fundamental miasm and is associated with chronic functional diseases. It is believed to stem from a suppression or incomplete resolution of skin eruptions or rashes. The psoric miasm is associated with various hormonal imbalances, including those seen in PCOS.

**Sycosis:** The sycotic miasm is associated with excessive growth and overproduction. It is associated with conditions involving excess mucus production, discharges, and growths. In the case of PCOS, the sycotic miasm may be related to the formation of cysts in the ovaries.

**Syphilis:** The syphilitic miasm is associated with destructive processes, degenerative changes, and deep-seated chronic conditions. While it may not be directly linked to the development of PCOS, the syphilitic miasm may contribute to associated complications or more severe symptoms.

#### Homeopathic Similimum

**Sepia:** This remedy is often considered for women with PCOS who experience irregular periods, mood swings, and a low sex drive. It may also be helpful in cases where there is excessive hair growth or hair loss.

**Pulsatilla:** It is commonly prescribed when there is irregular or absent menstruation, accompanied by mood swings, weepiness, and a desire for consolation. This remedy is often recommended for women who have a mild and yielding personality.

**Natrum muriaticum:** This remedy is indicated for women with PCOS who experience irregular periods, especially after grief or emotional stress. They may also have a craving for salty foods.

**Lachesis:** It may be considered for women with PCOS who have intense hot flushes, irritability, and a tendency to be talkative. The symptoms may worsen before menstruation.

**Calcarea carbonica:** This remedy is often used when there is excessive weight gain, especially around the abdomen. It is suited to individuals who are sluggish, easily fatigued, and sensitive to cold.

#### Ayurvedic approach and importance of doshas in pcos

Ayurveda, the traditional Indian system of medicine, offers a holistic approach to the management of Polycystic Ovary Syndrome (PCOS). In Ayurveda, PCOS is considered to be caused by an imbalance in the doshas, primarily Kapha and Vata. The aim of Ayurvedic treatment for PCOS is to restore balance in the body and promote overall well-being.

**Dietary Changes:** Ayurveda emphasizes the importance of a balanced diet to regulate hormones and support healthy metabolism. A diet that is nourishing, low in processed foods, and high in whole grains, fresh fruits, vegetables, lean proteins, and healthy fats is recommended. Avoiding excessive sugar, refined carbohydrates, and unhealthy fats is also important.

**Herbal Remedies:** Shatavari (*Asparagus racemosus*): Known as a rejuvenating herb for women's health, it may help regulate hormones and support reproductive health.

Ashwagandha (*Withania somnifera*): This adaptogenic herb may help reduce stress, balance hormones, and improve fertility.

Guduchi (*Tinospora cordifolia*): It has immune-modulating properties and may support hormonal balance.

Lodhra (*Symplocos racemosa*): Known for its astringent and anti-inflammatory properties, it may help regulate menstrual



cycles.

**Stress Management:** Stress can aggravate hormonal imbalances, so managing stress is an important aspect of Ayurvedic treatment. Practices such as yoga, meditation, deep breathing exercises, and regular exercise can help reduce stress and promote relaxation.

**Detoxification:** Ayurveda places great emphasis on detoxifying the body to eliminate accumulated toxins. Panchakarma, a set of Ayurvedic therapies for detoxification, may be recommended by a qualified practitioner to help remove toxins and restore balance.

**Lifestyle Modifications:** Making positive lifestyle changes can have a significant impact on PCOS management. This includes maintaining a regular sleep schedule, avoiding excessive exposure to environmental toxins, and engaging in regular exercise or physical activity.

**Ayurvedic Treatments:** Ayurvedic treatments such as Abhyanga (oil massage), Swedana (herbal steam therapy), and specific herbal formulations may be recommended based on an individual's constitution and symptoms. These treatments aim to improve circulation, reduce stress, and balance the doshas.

It's important to note that Ayurvedic treatments for PCOS should be personalized and tailored to the individual's specific needs. Consulting with a qualified Ayurvedic practitioner is crucial to receive a proper diagnosis and develop a personalized treatment plan.

## CONCLUSION

In conclusion, both homoeopathic and Ayurvedic approaches offer promising strategies for the management of Polycystic Ovary Syndrome (PCOS). While they differ in their underlying principles and treatment modalities, both systems emphasize holistic and individualized care.

Homoeopathy focuses on treating the individual based on symptom similarity, considering the patient's physical and psychological constitution. It aims to restore hormonal balance, regulate menstrual cycles, and alleviate associated symptoms. Homoeopathy offers a personalized approach, taking into account the unique manifestations of PCOS in each patient.

Ayurveda, on the other hand, takes into consideration the patient's constitution (prakriti) and the imbalance of doshas (vital energies). Through lifestyle modifications, dietary interventions, herbal formulations, and stress management techniques, Ayurveda aims to restore doshic balance and enhance the body's natural healing mechanisms. It offers a comprehensive approach that addresses not only the physical symptoms but also the overall well-being of the individual.

Both homoeopathy and Ayurveda have reported positive outcomes in managing PCOS symptoms, including menstrual regulation, reduction in androgen levels, improvement in fertility, and alleviation of associated complications. However,

further well-designed clinical trials are needed to establish their efficacy, safety, and long-term outcomes.

It is worth noting that an integrative approach, combining the strengths of both systems, may hold promise in the management of PCOS. Collaboration between homoeopathic and Ayurvedic practitioners, along with conventional medical professionals, can lead to comprehensive and individualized care for women with PCOS.

In summary, homoeopathy and Ayurveda offer alternative treatment approaches for PCOS, focusing on individualized care, symptom management, and restoration of overall well-being. Further research and collaboration are necessary to fully understand their potential benefits and integrate them into the mainstream healthcare system.



# ON THE SOCIAL NEED AND HISTORY OF JOURNALIST TRAINING IN KARAKALPAKSTAN

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## ABSTRACT

*This article deals with the socio-historical necessity of training personnel in the field of mass media in Karakalpakstan, as well as some important aspects of the history of special journalistic education. Also, in the paper, it is scientifically and theoretically based that the process of training journalists with professional higher education has become important in the development of this field in Karakalpakstan.*

**KEY WORDS:** *Journalism of Karakalpakstan, press, radio, mass media, journalistic education, training of journalist personnel, senior specialists.*

## INTRODUCTION

Although the history of personnel training in the field of journalism in Karakalpakstan needs to be improved, it has a unique history of development. This process is a phenomenon related to the emergence of the press and radio in Karakalpakstan and the social need for qualified journalists to work in them. In the 20s of the last century, more precisely, in June 1919, the newspaper "Izvestia" (currently "Vesti Karakalpakstana" newspaper), which is considered the body of the Executive Committee of the Amudarya department, was founded [7, p. 61].

In September 1921, based on the decision of the Executive Committee of the Amudarya region, the newspaper "Krasny amudarinets" was established in Tortkul, and in 1922 the name of the newspaper was changed to "Amudarinskaya jizn" [4, p. 294]. After the national statehood of the Karakalpak people acquired the Autonomy of Karakalpakstan in 1924, the need for a newspaper and radio in the Karakalpak language was felt to increase the political and cultural literacy and activity of the people, to convey news to the general public. Therefore, at the meeting of the organization bureau of the party committee of the Karakalpak region held on November 23, 1924, the statement of Q.Adinaev "On the establishment of the newspaper of the autonomous region of Karakalpak" was heard and the relevant decision was taken:

1. It should be considered necessary to publish a weekly newspaper in the Karakalpak language.
2. Let the newspaper be published under the name "Batraklar Haqiyqati" ("Batrakskaya Pravda").
3. An editorial commission should be established in the composition of Q.Auezov, A.Kudaboev and Nasrullaev. They should be advised to publish the first numbered newspaper on December 1, 1924 [3, p.8].

## LITERATURE REVIEW

However, it turned out that this decision was made hastily. Because the regional newspaper "Batraklar Haqiyqati" was not published in the specified period. For these reasons, the opinions of the representatives of the intelligentsia are taken into account, a new meeting will be held and attention will be paid to the issue of publishing the newspaper. However, before that, in November 1924, we have vague information about the publication of the Karakalpak-language newspaper "Birinshi adim" for a short period of time. However, there is no information about how the first issues of "Birinshi adim" newspaper were published and who edited them.

Historical information has greatly contributed to our scientific knowledge of the past. In those days, the issues of every newspaper in the country were sent to the central cities. In the future, the issue of finding the issues of the newspaper with this name mentioned, and the deep study of historical sources, says the young scientist R. Arziev [2, p. 46].

At the meeting of the organizational bureau of the Karakalpak Regional Party Committee on December 18, 1924, the issue of "Press" was once again considered. According to the proposal of Allayar Dosnazarov, the name of the Karakalpak newspaper was approved to be "Erkin Qaraqalpaq". Abu Qudabaev was assigned the role of the responsible editor of the newspaper, and S.Agaydarov was assigned the role of the deputy editor of the newspaper. Thus, the first issue of "Erkin Qaraqalpaq" newspaper was published on December 31, 1924.

"Erkin Qaraqalpaq" newspaper is published in lithographic method, and lack of permanent editors and literate staff, incomplete font, outdated printing equipment, the quality of newspaper issues does not meet the requirements. The first issues of the newspaper were propaganda in nature,





and the government's decisions and messages were printed. In the first issues, articles and pictures that did not meet the demand were published. This situation indicates that the articles and letters received by the editors were not processed and were directly submitted to the publication [1, p. 52]. From this we can understand that the press does not have creative and technical staff with special knowledge, and the working journalists did not have certain journalistic qualifications and skills. Until 1930, the newspaper was published under the names "Erkin Qaraqalpaq", then "Miynetkesh Qaraqalpaq" (1930-1931), "Qizil Qaraqalpaqstan" (1931-1957), "Sovet Qaraqalpaqstani" (1957-1992), after independence it is being published under the name "Erkin Qaraqalpaqstan".

Among the first journalists: Qasim Auev, Nauriz Japakov, Orazali Kosekeev, Izbasar Fazilov, Maksudulla Yakubov, Khojan Abdihalikov, Tamender Safiev, Ismail Sultanov, Gurbanbay Aralbaev and others are the first swallows of the press industry in Karakalpakstan [5, p. 299]. The first radio broadcasting equipment was brought to Karakalpakstan from 1922, according to archival documents. In May of this year, a set of "Telefunken" type receiving radio station equipment will be sent from the Tashkent-Turkestan postal and telegraph district to Tortkul, the capital of Karakalpakstan. Since there were no local radio specialists at that time, military radio operator D. Kuznetsov and his wife Nadezhda came to Karakalpakstan with a trip. They tried to use the radio station, and in the middle of August, the Tortkul reception radio station was launched.

At the end of 1930, broadcasts in the Karakalpak language began to be broadcast through the Tashkent radio station, and in December 1931, a Radio Committee was established in Karakalpakstan and A.G. Lekhin was confirmed as its chairman. After a lot of organizational difficulties, starting from April 16, 1932, broadcasts were started through radio stations. Radio Karakalpakstan started its first broadcasts in 1932 in the city of Tortkul. Q. Aralbaev, K. Orazov, B. Zinaliev, I. Bekbauliev, A. Tantesheva, B. Shteynberg, Fuchkin, Aboltin and others took an active part in the establishment of Karakalpakstan Radio [5, p. 318].

From the 1930s, the current "Qaraqalpaqstan jaslari" (February 1931), "Jetkinshek" newspaper (January 1932), "A'miwdaya" magazine (July 1932) and a number of district newspapers were founded one after another. In the press, mainly news, feuilletons, essays, and letters were published, while on the radio there were short news, ensemble of folk songs and concert programs of talented young people. Therefore, the Karakalpak national press and radio industry began to form. After Karakalpakstan became an autonomous republic on March 20, 1932, and was incorporated into the Republic of Uzbekistan on December 5, 1936, Tashkent's support for the development of Karakalpak national journalism, including radio and later television, increased.

With the emergence of mass media in the republic, there was a social need for qualified journalist personnel in editorial offices. In the early years, this gap was gradually filled by young writers who had just entered the literature, and later, the journalism faculty opened in the central cities and other regions, and local staff who completed the courses. Ismail Sagitov (1908-1993), who graduated from the Institute

of Journalism in Moscow in 1932-1934, and later from the Faculty of Journalism of the Kazakh State University (1949), was one of the first journalists with a specialty. He was a scientist, skilled translator, who had created great works as a folklorist and literary critic, along with working in positions such as department head, editor-in-chief, the director of the Karakalpak State Publishing House in "Qizil Karakalpakstan" newspaper.

Also, Jumat Habibullaev (1922-1943), who studied at the course for editors in Moscow, Tajiakhmet Seytmamutov were editors (1905-1971), who graduated from the editors' course in Tashkent, and Galim Seytnazarov (1927-1994), who graduated from the journalism course in Almaty, had special preliminary education. In addition, we know that Karakalpak intellectuals who studied at language and literature, culture and art, teaching institutes and courses in cities such as Moscow, Tashkent, Samarkand, Alma-Ata were among the first employees and representatives of the journalism, press and publishing industry.

Therefore, the lives and creative activities of most public figures, writers and poets of that period (until the second half of the 20th century) were directly related to the press and editorial office. They worked in the Karakalpakstan Television and Radio Broadcasting Committee, the State Press Committee, the Publishing and Polygraph Combine, the Union of Journalists and Writers, the central newspapers and magazines as leaders, chief editors, and creative workers. In the post-war period, with the introduction of the telegraph (now news agency) agency (1954) and television (1964), journalism as a system was fully formed in Karakalpakstan and we can say that it created the foundation for the emergence of a new specialty - the profession of a journalist.

By this time, the journalism of Karakalpakstan was enriched with a group of specialists with special diplomas. In particular, K. Begjanov (1966), who graduated from the Faculty of Journalism of Moscow State University, K. Erniyazov, K.Mambetov (1963), T. Matmurov (1963), S. Sadikov (1963), who graduated from the Faculty of Journalism of Tashkent State University y.), G. Yaqubov, T. Gurbanbaeva, in the 1970s O'. Abdirakhmanov (1973), Z. Ishmanova (1974), Sh. Usnatdinov, G. Annaqlicheva, G. Rakhimova, in the 1980s, M. Jumamuratova (1978), S. Atabaev (1978), K. Reymov (1980), Sh. Ayapov (1980) and a number of other journalists later became state and public figures became famous poets and writers, scientists. Although journalism needs professional personnel, their organized training began more than half a century after the press appeared in the republic. The need for highly educated journalists in Karakalpakstan became the basis for the emergence of special journalistic education in the early 80s.

According to sources in the field, the training of journalists in the Republic of Karakalpakstan has been started since 1983 at Nukus State University (now Karakalpak State University). In 1983-1984, the faculty of philology accepted students majoring in journalism. However, the admission was temporarily suspended due to the lack of teachers who would conduct classes for students in specialized subjects. In 1989, the process of admission to journalism was restarted and the "Literary Theory and Journalism" department was established



within the faculty of philology, headed by a famous writer, doctor of philology, professor Kamal Mambetov [6, p. 77]. It should be mentioned that S. Akhmetov, G. Esemuratov, A. Najimov, A. Dauletov, Yu. Pakhratdinov, A. Matekeev, K. Allambergenov, I. Uteuliev and others made a great contribution to the training of journalist students in the early years. K.Mambetov, S.Sadikov, M.Jumamuratova, Sh.Ayapov, K.Reymov, who graduated from the Faculty of Journalism of Tashkent State University, armed themselves with the necessary professional knowledge from specialized subjects.

Indeedly, it is no secret that in the early years there were some problems in strengthening the material and technical base of the journalism specialty, providing it with qualified personnel. Nevertheless, using the existing facilities at the university, a photo studio and a laboratory room were provided. In 1992, the establishment of a separate department of "Journalism" at the Karakalpak State University named after Berdak was of great importance in determining the prospective directions of training journalist specialists in our republic. Malika Jumamuratova, who defended her candidate's thesis on Karakalpak literature, was confirmed as the head of the department. It should be noted that in the years 1992-1999, when he headed the department, the research of Karakalpak journalism and the training of scientific and pedagogical personnel were started. Most of the first graduates were directed to mass media in our republic. Among them, we can single out journalists who have served in Uzbekistan, famous TV journalist and poet A.Uteniyazova, B.Esmurzaev, journalist who had served in Karakalpakstan, representative of children's journalism D.Ubbiniyazova, radio journalist N.Begimova, as mentor journalists with unique professional skills and creativity. Also, Z. Qoziqbaeva, A. Abdimuratov, D. Bekbauliev, T. Masharipova were involved in the scientific and pedagogical activities of the university. They worked as the first teaching staff of Karakalpak journalism. Having successfully defended his research work, he is currently teaching students.

## RESULTS AND DISCUSSION

Based on this, we can say that in a short period of time, the preparation of local personnel for Karakalpakstan journalism, the establishment of journalistic education was a solution to the problems of the mass media in our republic related to the need for journalist personnel with special diplomas and editorial staff for creative and technical specialists. During the years of independence, training of student-journalists in accordance with the newly developed qualification requirements and curriculums and science programs in the field of education, including journalism, was started at the university on the basis of the Law "On Education" and the National Personnel Training Program. Advanced pedagogical technologies have been introduced into the educational process and wide opportunities have been created for students to learn. In order to connect journalistic education with practice, practical cooperation plans were developed with the leading mass media in the republic, and systematic cooperation was started.

According to the decision of the Cabinet of Ministers of the Republic of Uzbekistan dated February 26, 1999 "On improving the system of training and re-training of journalist personnel", Karakalpak State University, among the higher educational institutions in the center that trains journalist personnel, paid great attention to the improvement of the problems of training and education of specialists in the field, and the material and technical base. A number of measures were taken to strengthen and improve the quality of education. In accordance with the state education standards, fundamental sciences (political, philosophy, history, cultural studies, law, economy, ethics and aesthetics, history of Uzbek, Karakalpak and foreign literature) and sciences of new special specialties (mass media management, communication theory, mass information) In-depth study courses (technical and technical means, methodology and literary editing, journalistic sociology and psychology, marketing) were introduced.

Based on the decision, "Journalism" was established as a separate department in April 1999 in order to improve the quality of training of journalists at Karakalpak State University. In 1999-2000, professor B.Abdikamalov, in 2000-2002, doctor of philology Sh. Abdinazimov, in 2002-2004, associate professor B.Genjemuratov, in 2004-2005, Associate professor B.Paluanov headed the department. In order to provide the department with qualified specialists, professors and teachers were accepted for positions on the basis of competition. Also, well-known journalists and devoted employees of the field were involved in the educational process of the department. In the first years of the establishment of the department, 7 teachers (3 of them are candidates of science) taught journalism students. In order for students to conduct their education in connection with practice, educational centers and department branches were established in Karakalpakstan radio and television, central press publications. In them, talented students were paired with qualified journalists and learned the creative process of editorial work together. Such activities increased students' interest in their profession and had a great effect on their future activities.

The analyzes showed that since 2005, during the years of operation as part of the faculty of "Karakalapak Philology", we can see that large-scale work on the further development of the educational process was carried out in the "Journalism" department. In particular, the photo laboratory belonging to the department was reconstructed in 2007. As a result of the strengthening of the scientific-pedagogical base of the department, masters were trained in "Journalism: sports journalism", then "Journalism: by sectors", "Advertising in mass media".

## CONCLUSION

In recent years, professors and teachers of the "Journalism" department have been focusing on improving the educational and methodological process of training future journalists. As a result, more than 30 monographs, educational literature, collections of articles and other scientific and journalistic works have been published, serving to improve Karakalpak journalism training and educational and methodological support. In order to further develop the



research activities of the department, together with foreign and national mass media experts, scientists and researchers, to exchange experience on the important problems of the theory and practice of journalism, the latest achievements in the field of education, every year “The role of mass media in the process of globalization” traditional scientific-practical conference on the subject is being held on the international and republican scale. In Karakalpakstan, the process of training journalists was also started at Nukus branch of the State Institute of Art and Culture of Uzbekistan, where art journalists were trained for a period of time (2009-2010).

## REFERENCES

1. Arziev R.A. A glance at the history of the press of Karakalpakstan. // “Press of Uzbekistan” journal, 2016. #5-6. p. 52.
2. Арзиев Р. The problems of development of genres in publisher of Karakalpakstan. The issue of genre development in the press of Karakalpakstan. The Seventh European Conference on Languages, Literature and Linguistics. – Vienna, 2015 – Б. 46.
3. Dosimbetov G., Yusupov O. Karakalpakstan has a long and prosperous history. - Nukus: Karakalpakstan, 1991. p. 8.
4. Досумов Я.М. «Очерки истории Кара-Калпакской АССР» (1917-1927 гг.). Ташкент, изд-во Академ. наук УзССР, 1960. С. 294.
5. Mominov F., Nurmatov A. et al. History of world journalism. Textbook. - T.: “Science and Technology”, 2008. p. 299.
6. Karakalpak State University in the years of independence. Tashkent: Printing house of the Science and Technology Center, 2011. p. 77.
7. Семенов И.А. «О зарождении Каракалпакской советской печати». «Вестник Каракалпакского фил. Академ. наук УзССР» 1971 г. №4, С. 61-62.
8. Қуралбай К. Қорақалпоғистонда журналист кадрларни тайёрлаш тарихи ва тараққиёти //Science and Education. – 2020. – Т. 1. – №. 4. – С. 104-107.
9. Кенесбаев Қ. ДАВЛАТИМИЗДА СПОРТ ТАРФИБОТИ ВА СПОРТ ЖУРНАЛИСТИКАСИ ТАРАҚҚИЁТИ //Журнал «Вестник физической культуры и спорта» Нукусского филиала Узбекского государственного университета физической культуры и спорта. – 2021. – Т. 1. – №. 1. – С. 50-54.
10. Utebaev T., Sarsenbaeva Z. Linguoculturological analysis of proverbs //Berlin Studies Transnational Journal of Science and Humanities. – 2021. – Т. 1. – №. 1.5 Pedagogical sciences.
11. Sarsenbaeva Z. J. Pedagogical Peculiarities of forming linguocultural competence of higher education students in Karakalpakstan //EPRA International Journal of Multidisciplinary Research (IJMR)-Peer Reviewed Journal Volume: 7. – 2021. – №. 2021. – С. 161-166.
12. www.ziyonet.uz
13. https://www.natlib.uz/



## AYURVEDIC MANAGEMENT OF OTOMYCOSIS W.S.R TO KAPHAJA KARNA SHOOLA - A CASE STUDY

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### ABSTRACT

*Otomycosis is a common clinical condition encountered in a general ENT clinic setting and is typically described as a fungal infection of the ear canal in layman's language. The disease is a challenging and frustrating entity for both patients and the treating doctor due to its complications involving the middle ear and typically requires long-term treatment and follow-up. Ayurveda the ancient science of life states that the Prasannata of Indriya<sup>[1]</sup> is one of the aspects to state that the individual is healthy and that shows the importance of sense organs to lead a pleasurable life. One of the motives of Ayurveda is getting rid of the disease in diseased<sup>[2]</sup>, one can find descriptions regarding several diseased conditions and guidelines for managing the same. Kaphaja Karna Shoola is a disease condition described under Karna Rogas in classics which finds similarities with Otomycosis clinical presentation. In this article, an attempt is made to discuss a case of Kaphaja Karna Shoola.*

**KEYWORDS:** *Ayurveda, Otomycosis, Kaphaja Karna Shoola, Surasaadi Thaila, Aparajitha Dhooma Choorma, Karna Pichu, Karna Dhoopana*

### INTRODUCTION

Otomycosis is one of the most common diseases in ENT clinical practice especially in hot humid climates of tropical and subtropical countries. This condition is commonly characterized by intense itching, pain in the ear, watery discharge with a musty odor, and ear blockage<sup>[3]</sup>. In the general population, the prevalence of otomycosis is 9% in India. Clinical management of the condition includes the removal of the fungal mass, Epithelial Debris that facilitates the growth of fungus, mopping of the discharge, and instilling anti-fungal ear drops<sup>[3]</sup>.

According to Ayurveda this clinical condition with *Lakshanas* such as Otagia (*Manda Ruja*), Itching (*Kandu*), thick ear discharge (*Ghana shruti*), ear blockage, reduced hearing, and ringing sound in the ear (*Vaisruthya*) can be understood as *Karna Shoola* as the main presenting complaint of the patient will be a pain in the ear and more precisely as *Kaphaja Karna Shoola*<sup>[4]</sup> due to its dominant and persisting itching sensation and discharge from the ear as associated symptoms. Ayurveda provides better and more effective treatment modalities for this condition without any known adverse effects. In this single case report, effective and proper Ayurvedic management for the above-seen condition is discussed.

### AIM AND OBJECTIVES

To analyze and present the medicaments and treatment protocols adopted to manage a case of Otomycosis in the lines of *Kaphaja Karna Shoola* mentioned in Ayurveda classics.

### MATERIALS AND METHODS

A patient visited the *Shalaky Tantra* OPD of *Mahant Digvijaynath Ayurveda Chikitsalaya* Gorakhpur Hospital of Guru Gorakshnath Institute of medical sciences (faculty of Ayurveda) Gorakhpur.

### A CASE STUDY

**Date of first visit:** 03/03/2023

**Pradhana Vedana Evum Avadhi:** A 45 years old male patient complaints of severe itching and pain associated with heaviness of the right ear since 21 days.

**Vedana Vrittanta:** The patient was said to be apparently healthy 21 days back, he gradually developed itching along with pain in his right ear later on in a few days started experiencing heaviness in the same ear. With these complaints, the patient has visited *Shalaky Tantra* OPD of *Mahant Digvijaynath Ayurveda Chikitsalaya*

**Poorva Vyadhi Vrittanta:** Known case of Chronic Suppurative Otitis Media since 3 years, history of Otomycosis 2 months back.

**Chikista Vrittanta:** Underwent allopathic treatment of several cycles comprising different oral medications along with ear drops. (Details of which are unknown as the patient didn't produce any records during the visits to OPD).

**Vyattika Vrittanta:**

Appetite: Normal / Regular

Bowel Movement: Normal / Regular

Micturition: Normal / Regular





Sleep: Disturbed for the past 7 – 8 days due to pain and itching sensation

**SYSTEMIC EXAMINATION**

**Ear Examination**

S.No	Examination of ear	Right ear	Left ear
1.	<b>External ear examination</b>		
a	Shape and size of the pinna	Normal	Normal
b	Position of the ear	Normal	Normal
c	Colour of the ear and surroundings	Normal	Normal
d	Tenderness	Non tender	Non tender
e	Swelling	Absent	Absent
f	Redness	Absent	Absent
2.	<b>External auditory canal examination</b>		
a	Meatal Skin	Hyperaemic	Normal
b	Fungal Molds	Present – wet newspaper appearance	Absent
c	Wax	Absent	Absent
d	Discharge	Absent	Absent
3.	<b>Tympanic membrane</b>		
a	Position	Subtotal perforation	Normal
b	Colour	Pale	Normal
c	Cone of light	Absent	Present

**Diagnostic Criteria:** Presence of fungal mass identified through otoscopy.

**Therapeutic intervention:** Both *Bahirparimarjana* and *Antarparimarjana* methods were adopted using different medicaments.

**Bahirparimarjana:**

*Karna Pramaarjana* was done using Jobson’s probe followed by *Karna Dhoopana* using *Aparijita Dhooma churnam* for 5 days on an OPD basis along with internal medications. From day 6 to day 10 *Karna Pramaarjana* followed by *Karna Dhoopana* and *Karna Pichu* with *Surasadi Tailam*.

**Antarparimarjana:**

Internal medications were prescribed for 15 days starting from day 1

- Aaragwadaristam 10 ml twice daily after food
- Triphala Guggulu 1 TID after food

**Advice on Dite and Habits**

Advised not to consume food items such as curd, citrus fruits, and items which are cold and asked not to expose to cold wind, not to have frequent head baths, not to immerse in water, and asked the patient to keep the head and the ear canal dry.

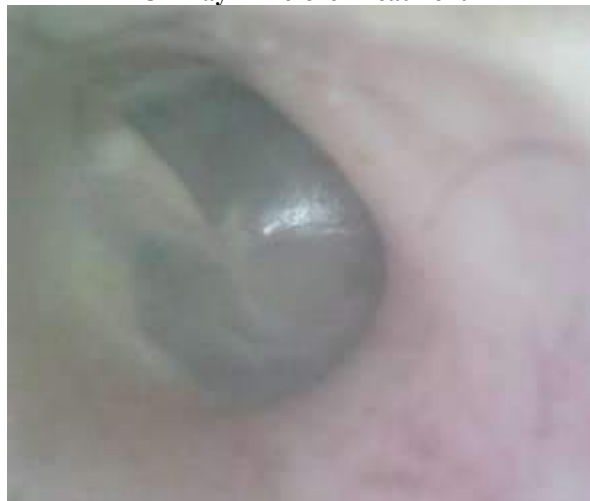
**RESULT**

After the first therapeutic sitting i.e., day 1 patient got relieved from the heaviness of the ear as the entire fungal mass is taken off the ear canal through *Karna Pramaarjana* Procedure. There was a reduction of pain and itching sensation within 3 days of intervention, a significant reduction of suffering was noted by the 6<sup>th</sup> day of sitting, and by the 10<sup>th</sup> day patient got relieved from all the complaints and he was advised to continue internal medication for 5 more days.

## Pictorial Representation



On Day 1- Before Treatment



On Day 15- After Treatment

## DISCUSSIONS

In this study, a combination of both *Bahirparimarjana* and *Antarparimarjana Chikista* was adopted. Chief complaint of the patient being itching, pain, and heaviness it is inferred that the *Pradhana Dosha* involved in the manifestation of the presentation would be *Kapha Dosha*.

### *Bahirparimarjana*

*Karna Pramaarjana* was done to remove the fungal mass. *Dhoopana Karma* is one of the most used therapeutic procedures pertaining to Ear complaints, the nature of the *Dhoopana* itself is *Ushna* and *Ruksha* which are against that of the *Gunas* of *Kapha Dosha*, with this it is understood that the therapy itself is antagonistic to the disease-causing environment as reducing *Kledha Bhava* locally will help in combating the growth of fungus. *Aparijita Dhoopa churnam*<sup>[5]</sup> was used to produce fumes as it has an anti-fungal activity which was proven by an in vitro study<sup>[6]</sup>. *Karna Pichu*<sup>[7]</sup> was done from the 6<sup>th</sup> day till the 10<sup>th</sup> day with *Surasadi Taila*<sup>[8]</sup> as it is having *Sleshma Hara*, *Medho Hara*, *Krimi Hara*, and *Vrana Ropana* property. This being *Taila* preparation that even helps in countering adverse effects of *Dhoopana Karma* such as excessive local dryness.

### *Antarparimarjana*

*Aragwadaristam* was selected for internal usage as it has *Kapha Hara* and *Kandu Hara* properties as *Kapha* is the *Pradhana Dosha* and *Kandu* is the *Pradhana Vedana*. The drug also possesses antimicrobial effects and also influences liver and metabolic function, and has an insecticidal effect.<sup>[9]</sup> *Triphala Guggulu* was also prescribed as *Triphala* being *Tridosha Samaka* and *Shoolahara*.

### Dite and Habits

Food items such as curd and which are cold in nature and habits such as exposure to cold wind and keeping area moist act as disease-promoting factors by vitiating *Kapha Dosha*<sup>[10]</sup> furthermore. According to Ayurveda one has to eliminate disease-causing factors first to get rid of the disease<sup>[11]</sup>.

## CONCLUSION

Through the *Karna Pramaarjana* procedure, fungal mold was removed, and that itself gives quick relief for the patient from the presenting complaints. Regular cleaning of the ear canal carefully will help in arresting new fungal growth. Appropriate administration of *Dhoopana Karma*, *Pichu Dharana* externally and usage of internal medicaments along with proper dietary and behavioral habits showed positive results in the patient



within 15 days. This article is to put forward our *Yukthi* (Approach) in the management of this diseased condition. As every individual is different from another individual there is no such clime that the same protocol will bring about the same positive results in every otomycosis (*Kaphaja Karna Shoola*) patient. To attain success in clinical practice through Ayurveda, an individualistic approach toward each patient is inevitable.

## REFERENCE

1. 8th ed. Varanasi: Chaukhamba Orientalia; 2005. Sushruta, Sushruta Samhita, Sutra Sthana, Dosha-Dhatu-Mala Kshaya Vriddhi Vijnaniya Adhyaya, 15/41, edited by Vaidya Jadavji Trikamji Acharya; p. 75
2. Acharya Agnivesha, Charaka Samhita, Ayurveda Deepika Teeka of Chakrapanidutta, Sutra Sthana, Chapter 30, Verse no 26, edited by Vaidya Yadavji Trikamji Acharya, Chaukhamba Surabharati Prakashana, Varanasi 2019,187.
3. Dingra S diseases of ear, nose, throat, and head & neck surgery. 7th edition. New Delhi: Elsevier Publication, Reprint-2014. pp.55.
4. Vagbhata, Arunadatta, Hemadri. Uttara Sthana, Chapter Karnarogavignyanum, Verse. In: Pandit Hari Sadasiva Sastri & Paradikara Bhishagacharya (Edi.), Ashtanga Hrudaya with SarvangaSundara & Ayurveda Rasayana Commentary. Reprint Edition: Varanasi: Chaukhambha Surabharati Prakashana, 2014; 835: 2-6.
5. Upadhyaya Y, Hrdaya A. Chikitsa Sthane. Chapter 1, Jwara Chikitsa. Fifth Edition. Chaukhambha Sanskrit Sansthan Publishers and Book Sellers, Varanasi. 1975; 163.
6. Prasannakumar, Priya. (2021). NEW INTERVENTIONS IN FUMIGATING WITH APARAJITHA DHOOMA CHOORNAM. 8. 3130-3138. 10.47070/ayushdhara.v8i2.709.
7. Vriddha Vagbhata – Asthanga Sangraha with Shashilekha commentary by Indu ed. by Dr. Shivaprasad Sharma, Chowkambha Sanskrit Series Office, Varanasi, 2006
8. Vagbhata, Arunadatta, Hemadri. Sutra sthana, Chapter 15 Sodhanadigana sangrahaneeyam adhyayam, Verse Verse. In: Pandit Hari Sadasiva Sastri & Paradikara Bhishagacharya (Edi.), Ashtanga Hrudaya with SarvangaSundara & Ayurveda Rasayana Commentary. Reprint Edition: Varanasi: Chaukhambha Surabharati Prakashana, 30-31
9. Mohammad, Hassan & Prabhu, Kailash & Ram Krishna Rao, Mudiganti & Sundaram, R.Lakshmi & Shil, Sampad & Nagarajan, Vijayalakshmi & Dinakar, Sruthi. (2019). The GC MS Study of one Ayurvedic Medicine, Aragwadharishtam. Research Journal of Pharmacy and Technology. 12. 1111. 10.5958/0974-360X.2019.00182.3.
10. Vagbhata, Arunadatta, Hemadri. Nidana Sthana, Chapter Sarvaroganidanaadhyaya, Verse 17-18. In: Pandit Hari Sadasiva Sastri & Paradikara Bhishagacharya (Edi.), Ashtanga Hrudaya with SarvangaSundara & Ayurveda Rasayana Commentary. Reprint Edition: Varanasi: Chaukhambha Surabharati Prakashana, 2014
11. 8th ed. Varanasi: Chaukhamba Orientalia; 2005. Sushruta, Sushruta Samhita, Uttara Tantra, Aupadravikama Adhyaya, 25/1, edited by Vaidya Jadavji Trikamji Acharya



# OVERVIEW OF MAXILLOFACIAL TRAUMA, DEFINITIONS, EPIDEMIOLOGY, MANAGEMENT, AIRWAY, CIRCULATION, BLEEDING CONTROL, SYSTEMIC ANTIBIOTIC PROPHYLAXIS AND MAXILLOFACIAL SURGERY

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## SUMMARY

**Introduction:** Injuries to facial bones, orbits, and adjacent soft tissue structures are common. They are usually caused by motor vehicle accidents. Scientific evidence has shown that maxillofacial trauma is related to severe injuries, so a meticulous evaluation of the injuries should be performed because they can have a devastating sequelae. The treatment of these situations is complex and challenging, since in addition to compromising the esthetic aspect, it also compromises the function of multiple structures and also causes psychological damage.

**Objective:** to detail the current information related to maxillofacial trauma, definitions, epidemiology, management, airway, circulation, hemorrhage control, prophylaxis with systemic antibiotics and maxillofacial surgery.

**Methodology:** a total of 52 articles were analyzed in this review, including review and original articles, as well as clinical cases, of which 39 bibliographies were used because the other articles were not relevant for this study. The sources of information were PubMed, Google Scholar and Cochrane; the terms used to search for information in Spanish, Portuguese and English were: facial trauma, maxillofacial trauma, facial fractures, airway management in trauma, antibiotic prophylaxis, facial surgery.

**Results:** oral-maxillofacial trauma represents approximately 7.4 to 8.7% of medical emergencies. Male-female ratio of 4:1, the most frequent causes being traffic accidents, aggressions, falls, sports accidents and accidents at work. The anatomical sites usually affected by facial fractures are the





mandible with 44.2 %, zygomatic complex with 32.5 %, nasal bones with 16.2 %. There is a 10 to 15% probability of presenting a cervical spine injury in unconscious individuals with severe maxillofacial trauma. The frequency of infection following maxillofacial fractures varies according to various findings, with results ranging from 0 to 62%.

**Conclusions:** Trauma management has improved over time, decreasing mortality in the golden hour, however, there are still challenges in trauma management such as those presented in maxillofacial alterations in a polytraumatized individual. The importance of the totality of maxillofacial injuries is found in that they pose an immediate threat to life as a result of their proximity to both the airway and the brain. The approach to airway management in maxillofacial trauma is of utmost importance, so a patent or definitive airway must be maintained by means of orotracheal intubation, nasotracheal intubation and surgical airway. It is essential to have an adequate protocol for airway management in maxillofacial trauma, as well as to maintain control of circulation and possible bleeding. Currently the use of systemic antibiotic prophylaxis is an accepted procedure to reduce the risk of infection or clinical prevention strategy. Surgery in individuals with maxillofacial trauma, particularly those with full face fractures or severe complex comminuted fractures remains a challenge. Usually, maxillofacial trauma coexists with other injuries, which could imply not being able to perform early surgical correction, increasing the risk of leading to situations of infection, nonunion and malocclusion.

**KEY WORDS:** trauma, maxillofacial, airway, fractures, management, surgery.

## INTRODUCTION

Maxillofacial trauma (MFT) is considered one of the major health problems worldwide because of the sensitivity, the severity of the region involved, the psychological consequences and the impairment of quality of life in affected individuals(1).

Injuries to facial bones, orbits and adjacent soft tissue structures are common. Despite safety measures in modern automobiles, the main cause of facial injuries is usually motor vehicle accidents. In severe trauma to the face it is essential to perform a radiological study in order to evaluate the existence of a fracture or lesion in the structures of the region(2).

Scientific evidence has shown that facial trauma is related to other serious injuries and therefore a meticulous evaluation of the injuries should be performed since they can have a devastating sequelae. According to some bibliographies, cervical spine injury (CSI) is frequently associated with maxillofacial trauma, being mainly the result of direct or indirect transmission forces(1).

The treatment of these situations is complex and challenging, since in addition to compromising the aesthetic aspect, it also compromises the function of multiple structures and also causes psychological damage(3-8).

Stabilization of the affected individual with the ACLS protocol should be the first action in trauma management; a complete head and neck examination should always be performed followed by a neurological assessment to rule out associated injuries and prevent future complications(9).

## METHODOLOGY

A total of 52 articles were analyzed in this review, including review and original articles, as well as cases and clinical trials, of which 39 bibliographies were used because the information collected was not important enough to be included in this study. The sources of information were Cochrane, PubMed and Google Scholar; the terms used to search for information in Spanish, Portuguese and English were: facial trauma, maxillofacial trauma, facial fractures, airway management in trauma, antibiotic prophylaxis, facial surgery.

The choice of bibliography exposes elements related to maxillofacial trauma such as definitions, epidemiology, management, airway, circulation, hemorrhage control, systemic antibiotic prophylaxis and maxillofacial surgery.

## DEVELOPMENT

The concept of trauma is defined as an unexpected event beyond the control of the affected individual, which follows a traumatic injury. There are different variants of trauma, the most common being those originated by physical injuries, forming one of the greatest health problems worldwide. Oral maxillofacial injuries are any injury affecting the oral cavity, tongue, mucous membranes, teeth, jaw, maxilla, zygomatic bones, temporomandibular joint, vessels, nerves and the soft tissues that make up the face. In the dental area, lesions can be classified as follows:

### Injured Tooth Itself

- Uncomplicated coronary fracture.
- Complicated coronary fracture.
- Incomplete enamel fracture.
- Radicular fracture.
- Coronary-radicular fracture.

### Bone Fracture

- Fracture of the alveolar process.

### Injured Periodontal Tissue

- Intrusion.
- Avulsion.
- Concussion.
- Subluxation.
- Extrusion.
- Dislocation.
- Lateral.

This classification is according to the system designed by Andreasen(3,10,11).

### Epidemiology

Within the epidemiology of oral-maxillofacial trauma, it represents approximately 7.4 to 8.7% of medical emergencies. Its



different origins vary from region to region being different due to culture, socioeconomic level and environmental factors. They are generally caused by traffic accidents, falls and violence(3,12).

Some bibliographies report a male to female ratio of 4:1, with the causes in order frequency being traffic accidents, assaults, falls, sports accidents and accidents at work. The anatomical sites usually affected by facial fractures are:

- Mandible with 44.2 %.
- Zygomatic complex with 32.5 %.
- Nasal bones with 16.2 % (13).

### **Management**

Trauma management has improved over time, decreasing mortality in the golden hour, however, there are still challenges in the management of trauma such as those presented in maxillofacial alterations in a polytraumatized individual. A major alteration in the maxillofacial surface complicates early treatment of a traumatized individual because of its contiguity to the airway, brain and cervical spine. Procedures frequently used in the management of breathing and airway circulation are continually changed, modified or supplemented by other protocols at the site of maxillofacial injuries(14).

The maxillofacial area is richly vascularized, traumas in this region are complicated by the existence of the upper airway, the proximity of the cranial and cervical structures, which can be compromised, having in some cases fatal effects. The series of steps for the management of the airway, breathing and circulation is well established, in case of not presenting maxillofacial injuries, on the contrary in case of injuries in this region, the steps to follow have been a subject of discussion(14).

In the same way as in the rest of traumatism, the basic fundamentals of advanced life support have to be used, regarding the initial assessment of the affected individual, which means to perform the primary and secondary survey. After the secondary examination, the definitive care begins.

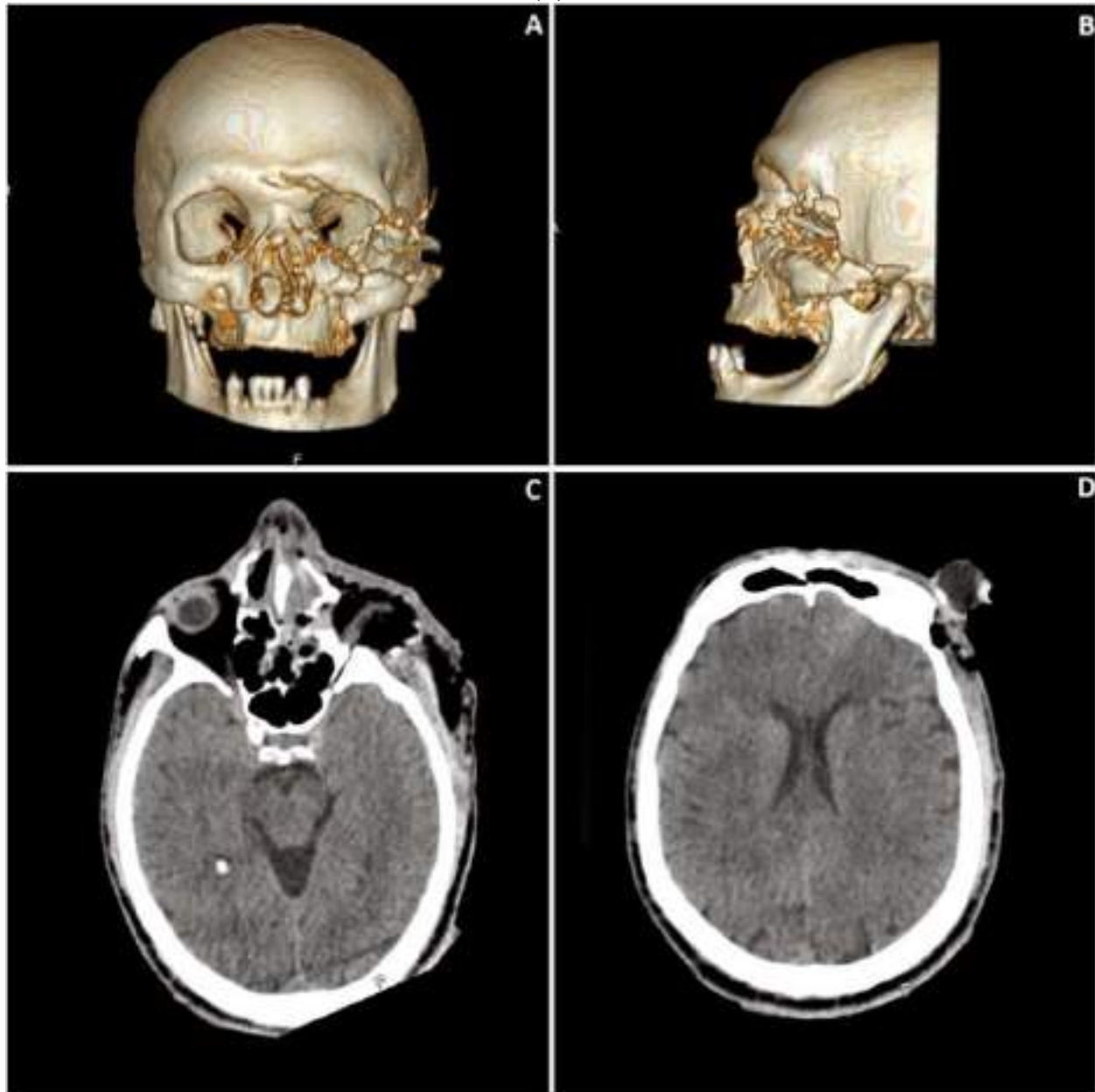
Some bibliographies present that approximately half of the maxillofacial injuries are secondary to an assault and that half of these present high levels of alcohol. However, alcohol should not be assumed to be the direct cause of drowsiness, it should be well identified, because confusion may be caused by head injury and/or hypoxia. There is a 10-15% chance of cervical spine injury in unconscious individuals with severe maxillofacial trauma, so appropriate measures should be taken(15).

The management of the individual with maxillofacial trauma has complex challenges due to the compromise of the airway; therefore, the airway must be provided with sufficient and effective respiration and/or ventilation, taking into account some important aspects such as:

- The probable trauma to the cervical spine and spine.
- The nature of the trauma.
- The impact on the airway.
- The likely complications of mask ventilation or endotracheal intubation.
- Possible regurgitation and aspiration of gastric contents.
- Significant bleeding that does not allow proper observation of the airway anatomy.
- Circulatory impairment.
- The type of maxillofacial operation to be performed; with empty oral cavity to perform the procedure and closed with maxillomandibular fixation (MMF) at the end of the surgery(16).



**Figure 1. Pre-operative CT scan. Frontal (A) and lateral view (B) of a 3D CT reconstruction showing a panfacial fracture with comminution of the left orbito-zygomatic complex. Axial cuts showing a sectioned optic nerve (C) and the displaced left globe (D).**



**Source:** de Moraes ATL, Quaresma MCA, Silva TF, Sousa NWA, Menezes SAF, Ribeiro ALR, et al. Traumatic enucleation of the left globe after a road traffic accident – A case report of an uncommon occurrence in maxillofacial trauma (17).

#### **Airway**

Usually, the first and most notable maxillofacial injuries are complicated by airway disruption. Due to their location in the "deformable zone" of the face, small injuries can sometimes cause significant damage to the airway. This circumstance may worsen with altered state of consciousness, alcohol and/or drug intoxication, in addition to altered laryngeal and pharyngeal reflexes, which increases the risk of aspiration for the affected individual. In addition to this, other problems such as foreign

bodies, avulsed tissues, broken teeth, dentures, multiple mandibular fractures and massive edema of the glottis can generate imminent risk of death due to airway compromise. Head injuries, in addition to alcohol, drugs, ingested and accumulated blood can cause nausea and vomiting. Vomiting is induced by increased intracranial pressure which increases bleeding, salivation and may obstruct the airway. Evidence indicates that the relationship between vomiting and the risk of aspiration is elevated primarily in supine individuals. In individuals with



multiple facial fractures, posterior displacement of the maxilla or mandible may reduce airway patency(14,18).

The look, listen and feel tactic helps to recognize airway obstruction and anticipated airway complications. The approach to airway management, especially in individuals who have sustained trauma with loss of consciousness, should be to perform proper spinal protection. In high impact trauma that may involve the jaw, swallowing is modified due to pain and unproductive modulation of the protective reflex, causing problems in keeping the airway clear; therefore it is crucial to protect the airway from blood and vomit in order not to present a situation of fluid aspiration, in addition to other complications in the lungs. Palpation of the trachea shows any apparent collapse or deviation, auscultation should be performed on the larynx trying to distinguish stridor; when observing a tracheal pull or hearing a laryngeal stridor we have to think of an imminent airway alteration. The "difficult intubation tray" should always be accessible, including tracheal tube introducer, supraglottic airway devices, tracheostomy equipment, combitubes, endotracheal tubes and craniotomy kit(14,19).

Individuals with maxillofacial trauma should receive optimal oxygenation with uninterrupted saturation monitoring. In addition, spinal collars should be placed very carefully so as not to cause involuntary posterior jaw movement. In maxillofacial trauma, be alert for delayed airway compromise due to tissue displacement, bleeding and swelling. The oropharyngeal Guedel can be used effectively, once the airway is clear, be aware that it can cause gagging, laryngospasm and displacement of the tongue posteriorly. When there is no protector, emergency endotracheal intubation should be performed.

Bag-mask ventilation is of choice in individuals with patent airway and absence of spontaneous breathing, in obese and bearded individuals the effectiveness of ventilation decreases. Complementary airway maneuvers, such as chin lift and mandibular traction, should be done with care(14,15,20).

The concept of the definitive airway is that maxillofacial trauma probably has greater relevance relative to trauma at other anatomic sites. The main indications are given in Figure 2.

Figure 2. Indications for Definitive Airway

Indications of definitive airway in maxillofacial injury
Absent spontaneous breathing
Comatose patient (glasgow coma scale <9)
Airway injury or obstruction
Persistent oxygen saturation <90%
High-risk for aspiration
Systemic shock (systolic blood pressure <80)
"Cannot ventilate cannot intubate" situations

Source: Jose A, Nagori SA, Agarwal B, Bhutia O, Roychoudhury A. Management of maxillofacial trauma in emergency: An update of challenges and controversies(14).

The usual direct definitive airway choices are orotracheal intubation, nasotracheal intubation and surgical airway. Orotracheal intubation with the support of a laryngoscope is the most feasible and safe procedure of choice, however, if the spine is not clear, it is cautious to perform manual in-line axial stabilization at orotracheal intubation. Orotracheal intubation is comparatively safe in an unclear cervical spine, is simpler to perform, quicker and results in less cervical spine mobilization in skilled hands. When there are important avulsive facial lesions, in case of laryngeal or tracheal collapse, placing the orotracheal tube is complex, so surgical airway is the most effective alternative.

Nasotracheal intubation is another good alternative in individuals without communicating lesions at the base of the skull or the medial part of the face. It is generally used in case of management of airway obstruction due to injury to the lower portion of the face and also in individuals with inadequate mouth opening. It can be performed either blind or fiber optically guided. The blind

technique in good hands is fast and effective; the fiber optic technique has limitations such as secretions or blood in the airway and requires more time.

Non-definitive techniques such as laryngeal mask airway (MLA) and combitube are options for failed or complex intubation(14,21-23).

When non-invasive procedures do not help to maintain a good airway, a surgical airway should be considered as the only option, it can be performed in 2 ways:

- Cricothyroidotomy: more convenient in case of emergency and can be done with needle or surgical scalpel. The use of needle cricothyroidotomy is debatable due to failure rates and insufficient oxygenation, so surgical cricothyroidotomy is of choice in emergencies.
- Tracheostomy: frequently used as an elective procedure, once the affected individual is stabilized by cricothyrotomy. Routine use is not indicated in the ED(14,24,25).





### **Protocol For Airway Management in Maxillofacial Trauma**

1. Anticipate and recognize airway obstruction.
2. Clear the airway, position the affected individual.
3. Perform chin lift and jaw thrust maneuver.
4. Confirm that the nasal and oral openings are clear, then use an artificial airway.
5. Perform bag-valve-mask ventilation. Preferably "two-person technique".
6. Oro-endotracheal intubation.
7. If orotracheal intubation cannot be achieved or if the patient is in a "no ventilation, no intubation situation", perform a surgical airway(14).

### **Circulation and hemorrhage control**

In the absence of evidence of injury to the major vessels of the neck or the middle third of facial fractures, blood suppression is usually insufficient to cause problems such as hypovolemic shock, but may cause problems in establishing and maintaining an airway.

Soft tissue hemorrhage in the head and neck can be controlled by direct pressure at the site of bleeding. After the bleeding stops, it is not advisable to probe the wound. Scalp lacerations may bleed profusely, but rarely cause hypovolemic shock, although in children major lacerations can be life-threatening. In arterial sources of bleeding in the scalp, hemostasis can be achieved by performing tissue synthesis. Intraoral bleeding can be controlled by having the affected individual bite down on a swab. Bleeding from a tongue laceration becomes profuse so that sometimes direct pressure may not be able to keep the bleeding under control so deep sutures are indicated. Bleeding from the ends of the fractured jaw can be slowed by manual reduction of the fracture; often a bridle wire is needed to maintain this reduction(15).

Massive hemorrhage is likely to occur in maxillofacial trauma; life-threatening hemorrhage may occur in 1.4 to 11%. One tenth of complicated facial fractures bleed profusely, with the major blood vessels involved being the following:

- Maxillary artery.
- Ethmoidal artery.
- Ophthalmic.
- The vidian branch of the internal carotid artery.

Generally, the hemorrhage is easily controlled, however there are cases of severe epistaxis between 2 to 4%. Bleeding from skull base fracture should be identified and distinguished from oral bleeding by close inspection of the pharynx(14,26-29).

Hemorrhage control can be achieved by pressure tamponade, manual reduction of fractures, balloon tamponade and in some more complex situations by angiography followed by transarterial embolization(27,30-32).

### **Prophylaxis with Systemic Antibiotics in Maxillofacial Trauma**

Infection following maxillofacial trauma remains a notable complication, leading to significant morbidity, as well as increased health values. The frequency of infection following

maxillofacial fractures varies according to various results, with results ranging from 0 to 62%. Currently the use of systemic antibiotic prophylaxis is an accepted procedure to reduce the risk of infection or clinical prevention strategy, however the type of antibiotic used and its duration is still controversial. Some clinical trials indicate that there is no benefit in maintaining antibiotic prophylaxis for more than 24 hours in the case of surgically treated fractures. Other studies indicate that at present there is no evidence for the use of antibiotic therapy in conservatively treated fractures. These results should be interpreted carefully due to their limitations. Antimicrobial resistance (AMR) is on the rise, so the importance of limiting antibiotic use should be carefully considered(33-37).

### **Maxillofacial Surgery**

Maxillofacial surgery is usually performed after stabilization of the affected individual, obtaining radiographic studies and evaluating the totality of alterations. Sometimes surgery is performed in conjunction with the intervention of other injured organs. Surgery in individuals with maxillofacial trauma, particularly those with full face fractures or severe complex comminuted fractures remains a challenge. The focus of the fracture must be reduced, damage controlled or if possible soft tissue repaired and occlusion restored. In order to improve conditions and maintain proper pre-traumatic function and function, occlusion must be maintained and controlled at every stage of surgery. In the final stage of surgery, the mouth will be kept closed by MMF, thus not allowing the use of an oral endotracheal tube. In trauma where MMF is not necessary, the use of an oral tube can be considered. The choice of an airway device to be used in the surgical procedure should be planned by the surgeon and take into account the possible alteration of the surgical plan and the probable post-surgical complications.

The individual with a difficult airway presents a high risk of postoperative complications. After surgery, the mucous membranes are edematous, the soft tissues are swollen and the airway may become compressed. The adequacy of neck expansion is relatively minor, sometimes so much so that a small amount of hemorrhage may lead to airway compromise. Extubation should be deferred until edema is no longer apparent. At the time of extubation, the individual should be monitored by trained personnel and the extubating health care provider should be prepared for eventualities leading to reintubation. Nausea and vomiting should be prevented because of the possible risk of gastric aspiration. According to the planned surgery, a different decision has to be taken, i.e., the most appropriate for each case, as in the case of conscious, spontaneously breathing patients with non-extensive maxillofacial trauma. In some individuals, naso-endotracheal intubation can be used in the middle of surgery for airway control; however, it should be kept in mind that naso-endotracheal intubation is relatively contraindicated in those who present fractures of the middle third of the face or fractures at the base of the skull(16,38).



Maxillofacial trauma coexists with some other related injuries that may eventually preclude immediate surgical restoration, due to the increased risk of infection, nonunion and malocclusion. Frequently affected individuals return for improvement of their secondary problems, such as malocclusion; among the most frequent problems are asymmetrical teeth and occlusal dysfunction. Secondary malocclusion can occur in the anterior or posterior part of the upper or lower jaw. Prosthodontic treatment, orthodontic treatment, surgical fracture reduction, surgical soft tissue repair and orthognathic surgery are some of the various approaches currently usable to improve malocclusion resulting from the traumatic event. Radiological imaging studies, photographic studies and dental models have to be taken into account prior to the intervention. Typically, three-dimensional stereolithographic models are used to manage some of these injuries by designing an optimal treatment strategy and appropriate surgery. Prosthetic treatment and implant rehabilitation have the potential to restore secondary malocclusion following maxillofacial injury(39).

## CONCLUSIONS

Trauma management has improved over time, decreasing mortality in the golden hour, however, there are still challenges in trauma management such as those presented in maxillofacial alterations in a polytraumatized individual. The importance of the totality of maxillofacial injuries is found in that they pose an immediate threat to life as a result of their proximity to both the airway and the brain. The approach to airway management in maxillofacial trauma is of utmost importance, so a patent or definitive airway must be maintained by means of orotracheal intubation, nasotracheal intubation and surgical airway. It is essential to have an adequate protocol for airway management in maxillofacial trauma, as well as to maintain control of circulation and possible bleeding. Currently the use of systemic antibiotic prophylaxis is an accepted procedure to reduce the risk of infection or clinical prevention strategy. Surgery in individuals with maxillofacial trauma, particularly those with full face fractures or severe complex comminuted fractures remains a challenge. Usually, maxillofacial trauma coexists with other injuries, which could mean that early surgical correction may not be possible, increasing the risk of leading to infection, nonunion and malocclusion.

## BIBLIOGRAPHY

1. AlMofreh Dds F, AlOtaibi S, Jaber M, Bishawi Dds K, AlShanably Dds A, AlMutairi F. Cervical Spine Injuries and Maxillofacial Trauma: A Systematic Review. *Saudi Dent J*. 2021 Dec;33(8):805–12.
2. Ghysen D, Ozsarlak O, van den Hauwe L, Van Goethem J, De Schepper AM, Parizel PM. Maxillo-facial trauma. *JBR-BTR Organe Soc R Belge Radiol SRBR Orgaan Van K Belg Ver Voor Radiol KBVR*. 2000 Aug;83(4):181–92.
3. Palmela Pereira C, Santos R, Santos A, Gonçalves C, Augusto D, Rodrigues A, et al. A systematic review and meta-analysis of oral and maxillofacial trauma. *J Forensic Odontostomatol*. 2022 Dec 30;40(3):2–21.
4. Xiao-Dong L, Qiu-Xu W, Wei-Xian L. Epidemiological pattern of maxillofacial fractures in northern China: A retrospective study of 829 cases. *Medicine (Baltimore)*. 2020 Feb;99(9):e19299.
5. Mosaddad SA, Gheisari R, Erfani M. Oral and maxillofacial trauma in motorcyclists in an Iranian subpopulation. *Dent Traumatol*. 2018 Oct;34(5):347–52.
6. Sameirad S, Tohidi E, Shahidi-Payam A, Hashemipour Ma, Abedini A. Retrospective study maxillofacial fractures epidemiology and treatment plans in Southeast of Iran. *Med Oral Patol Oral Cirurgia Bucal*. 2015;e729–36.
8. Patil SG. Associated injuries in maxillofacial trauma — a study in a tertiary hospital. *Int J Oral Maxillofac Surg*. 2017 Mar;46:88.
9. Abosadegh MM, Saddki N, Al-Tayar B, Rahman SAB. Epidemiology of Maxillofacial Fractures at a Teaching Hospital in Malaysia: A Retrospective Study. *BioMed Res Int*. 2019 Feb 13;2019:1–10.
10. Lenkeit CP, Lofgren DH, Shermetaro C. Maxillary Sinus Fracture. In: *StatPearls [Internet]*. Treasure Island (FL): StatPearls Publishing; 2023 [cited 2023 Jul 10]. Available from: <http://www.ncbi.nlm.nih.gov/books/NBK557455/>
11. Ramos JC, Almeida MLD de, Alencar YCG de, de Sousa Filho LF, Figueiredo CHM da C, Almeida MSC. Estudo epidemiológico do trauma bucomaxilofacial em um hospital de referência da Paraíba. *Rev Colégio Bras Cir [Internet]*. 2018 Nov 29 [cited 2023 Jul 9];45(6). Available from: [http://www.scielo.br/scielo.php?script=sci\\_arttext&pid=S0100-69912018000600151&lng=pt&tlng=pt](http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0100-69912018000600151&lng=pt&tlng=pt)
12. Anees W, Franco A, Manica S. Non-accidental head and neck injuries in children and adolescents. *J Forensic Odontostomatol*. 2022 Apr 30;40(1):42–52.
13. Ferreira MC, Batista AM, Ferreira F de O, Ramos-Jorge ML, Marques LS. Pattern of oral-maxillofacial trauma stemming from interpersonal physical violence and determinant factors. *Dent Traumatol*. 2014 Feb;30(1):15–21.
14. Brasileiro BF, Passeri LA. Epidemiological analysis of maxillofacial fractures in Brazil: A 5-year prospective study. *Oral Surg Oral Med Oral Pathol Oral Radiol Endodontology*. 2006 Jul;102(1):28–34.
15. Jose A, Nagori SA, Agarwal B, Bhutia O, Roychoudhury A. Management of maxillofacial trauma in emergency: An update of challenges and controversies. *J Emerg Trauma Shock*. 2016;9(2):73–80.
16. Ceallaigh PO, Ekanayake K, Beirne CJ, Patton DW. Diagnosis and management of common maxillofacial injuries in the emergency department. Part 1: Advanced trauma life support. *Emerg Med J EMJ*. 2006 Oct;23(10):796–7.
17. Barak M, Bahouth H, Leiser Y, Abu El-Naaj I. Airway Management of the Patient with Maxillofacial Trauma: Review of the Literature and Suggested Clinical Approach. *BioMed Res Int*. 2015;2015:724032.
18. de Moraes ATL, Quaresma MCA, Silva TF, Sousa NWA, Menezes SAF, Ribeiro ALR, et al. Traumatic enucleation of the left globe after a road traffic accident – A case report of an uncommon occurrence in maxillofacial trauma. *Int J Surg Case Rep*. 2021 Jan;78:133–9.
19. Hutchison I, Lawlor M, Skinner D. ABC of major trauma. Major maxillofacial injuries. *BMJ*. 1990 Sep 22;301(6752):595–9.
20. Gerrelts BD, Petersen EU, Mabry J, Petersen SR. Delayed Diagnosis of Cervical Spine Injuries: *J Trauma Inj Infect Crit Care*. 1991 Dec;31(12):1622–6.
21. Martin LD, Mhyre JM, Shanks AM, Tremper KK, Kheterpal S. 3,423 emergency tracheal intubations at a university hospital: airway outcomes and complications. *Anesthesiology*. 2011



- Jan;114(1):42–8.
22. Lennarson PJ, Smith D, Todd MM, Carras D, Sawin PD, Brayton J, et al. Segmental cervical spine motion during orotracheal intubation of the intact and injured spine with and without external stabilization. *J Neurosurg.* 2000 Apr;92(2 Suppl):201–6.
  23. Rhee KJ, Green W, Holcroft JW, Mangili JA. Oral intubation in the multiply injured patient: the risk of exacerbating spinal cord damage. *Ann Emerg Med.* 1990 May;19(5):511–4.
  24. Brimacombe J, Keller C, Künzel KH, Gaber O, Boehler M, Pühringer F. Cervical spine motion during airway management: a cinefluoroscopic study of the posteriorly destabilized third cervical vertebrae in human cadavers. *Anesth Analg.* 2000 Nov;91(5):1274–8.
  25. Crewdson K, Lockey DJ. Needle, knife, or device--which choice in an airway crisis? *Scand J Trauma Resusc Emerg Med.* 2013 Jun 27;21:49.
  26. Dillon JK, Christensen B, Fairbanks T, Jurkovich G, Moe KS. The emergent surgical airway: cricothyrotomy vs. tracheotomy. *Int J Oral Maxillofac Surg.* 2013 Feb;42(2):204–8.
  27. Gwyn PP, Carraway JH, Horton CE, Adamson JE, Mladick RA. Facial fractures--associated injuries and complications. *Plast Reconstr Surg.* 1971 Mar;47(3):225–30.
  28. Ardekian L, Samet N, Shoshani Y, Taicher S. Life-threatening bleeding following maxillofacial trauma. *J Cranio-Maxillo-fac Surg Off Publ Eur Assoc Cranio-Maxillo-fac Surg.* 1993 Dec;21(8):336–8.
  29. Luce EA, Tubb TD, Moore AM. Review of 1,000 major facial fractures and associated injuries. *Plast Reconstr Surg.* 1979 Jan;63(1):26–30.
  30. Duggan CA, Brylski JR. Angiographic demonstration of bleeding in intractable traumatic epistaxis. *Radiology.* 1970 Dec;97(3):605–6.
  31. Perry M, Dancey A, Mireskandari K, Oakley P, Davies S, Cameron M. Emergency care in facial trauma--a maxillofacial and ophthalmic perspective. *Injury.* 2005 Aug;36(8):875–96.
  32. Imai T, Michizawa M, Yamamoto N, Oba J, Sawano H. Life-threatening oronasal hemorrhage managed by transcatheter embolization of bilateral maxillary arteries in an elderly patient with comminuted LeFort I fracture. *Oral Surg Oral Med Oral Pathol Oral Radiol.* 2014 Jul;118(1):e6–11.
  33. Sakamoto T, Yagi K, Hiraide A, Takasu A, Kinoshita Y, Iwai A, et al. Transcatheter embolization in the treatment of massive bleeding due to maxillofacial injury. *J Trauma.* 1988 Jun;28(6):840–3.
  34. Goormans F, Coropciuc R, Verduyck M, Spriet I, Willaert R, Politis C. Systemic Antibiotic Prophylaxis in Maxillofacial Trauma: A Scoping Review and Critical Appraisal. *Antibiot Basel Switz.* 2022 Apr 5;11(4):483.
  35. Kyzas PA. Use of Antibiotics in the Treatment of Mandible Fractures: A Systematic Review. *J Oral Maxillofac Surg.* 2011 Apr;69(4):1129–45.
  36. Andreasen JO, Jensen SS, Schwartz O, Hillerup Y. A Systematic Review of Prophylactic Antibiotics in the Surgical Treatment of Maxillofacial Fractures. *J Oral Maxillofac Surg.* 2006 Nov;64(11):1664–8.
  37. Jang N, Shin HW. Are postoperative prophylactic antibiotics in closed reduction of nasal bone fracture valuable?: prospective study of 30 cases. *Arch Craniofac Surg.* 2019 Apr 20;20(2):89–93.
  38. Delaplain PT, Phillips JL, Lundeberg M, Nahmias J, Kuza CM, Sheehan BM, et al. No Reduction in Surgical Site Infection Obtained with Post-Operative Antibiotics in Facial Fractures, Regardless of Duration or Anatomic Location: A Systematic Review and Meta-Analysis. *Surg Infect.* 2020 Mar 1;21(2):112–21.
  39. Jahromi HE, Gholami M, Rezaei F. A Randomized Double-Blinded Placebo Controlled Study of Four Interventions for the Prevention of Postoperative Nausea and Vomiting in Maxillofacial Trauma Surgery. *J Craniofac Surg.* 2013 Nov;24(6):e623–7.
  40. Khalaf K, Kheder W, El-Kishawi M, AlQahtani HA, Ghiasi FS, Alabdulkareem MN, et al. The role of prosthetic, orthodontic and implant-supported rehabilitation in the management of secondary malocclusion to maxillofacial trauma- A systematic review. *Saudi Dent J.* 2021 May;33(4):177–83.

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# EMOTIONAL STABILITY IN ATHLETES AS THE BASIS OF A SPECIAL PSYCHOLOGICAL PREPARATION PROCESS

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## ABSTRACT

*In this article, psychological problems in sports activities, psychological functions of a person, general purpose of psychological training, search for ways to cultivate sports talents, psychological characteristics of a person, general psychological training, special psychological training, psychological exercises, psychological influence, self-awareness, self-education are analyzed. Also, the paper describes self-improvement, especially the characteristics of the will in the preparation of athletes for competition, analysis of the opinions of scientists.*

**KEYWORDS:** *sport, competition, psychological characteristics, motive, motivation, competitive activity, psychological preparation.*

## INTRODUCTION

Special psychological preparation of athletes requires understanding of the specific sports tasks of the upcoming competition. In this process, attention is focused on understanding the strengths and weaknesses of the opposing team, striving for the goal, developing tactical thinking, overcoming negative emotions, and being in a combative emotional state. Gymnast girls who do not consider achieving great achievements in sports competitions as their first task, on the contrary, do not have their own clear goals; therefore, they have common motivations for practicing many sports, that is, love for gymnastics, which is a specific type of sport. Aesthetic enjoyment of it during training and so on. In highly skilled athletes, the motivation to succeed is stronger and stronger than in average athletes.

Along with the motivation to achieve success, the motivation to avoid defeat is also highlighted separately. In some athletes the motivation to succeed prevails, in others - the motivation to avoid failure prevails. If the athlete has a series of failures, the athlete will have motivations such as avoiding failures, taking risks for victory, and doubting victory. If such situations are repeated often, the motivation to avoid defeat is formed in the athlete, which is manifested in the following: lack of self-confidence, exaggerated defensive features in their behavior, decreased activity in mastering offensive tools, etc.

In highly skilled athletes, the need to succeed is twice as strong as the desire to avoid failure. The fact that motives are in such a relationship, on the one hand encourages athletes to show a high level of activity in order to achieve success, and on the other hand, forces them to take measures to prevent

possible failures. In athletes who successfully participated in high-responsibility competitions of the season, the motivation to avoid failure is less pronounced than in athletes who showed results below the level of their potential. From this, it can be concluded that the activation of this motive prevents athletes from fully realizing their potential.

## LITERATURE REVIEW

According to the researches of many psychologists (P.A.Rudik, A.S.Puni, Yu.Yu.Palayma, etc.), motives are not stable by their nature, that is, they can change under the influence of various factors. For example, these factors can include: personal factors, household factors, social factors, communication processes. For this reason, the constant control of motivation in athletes is one of the most important parts of sports coaches' psychological training of their students.

*Coping with negative emotions and a combative emotional state.* At the start of the competition, the following three types of emotional states of athletes are distinguished:

*A state of combat readiness* (elevated spirit) is characterized by an optimal level of nervous and emotional arousal and a high level of performance in competition. The athlete feels an increase in strength, energy and activity, a special inspiration appears in him. He believes in success, looks forward to the start, aims to do his best and fight to the end to achieve the result. In it, perception, especially special perception (*"feeling the opponent"*, *"feeling the field"*) is sharpened, and attention is concentrated on the upcoming competition, thinking process is quick, critical and productive. The athlete is highly resistant to negative factors (criticism of the coach, mistakes of the referee, negative reaction of the





audience, influence of opponents). He prepares diligently and orderly for the start, he remembers well what should be taken into account and used during the competition. This condition is very positive for the athlete to succeed in the competition.

*Pre-start fever manifests* itself in a high degree of desire for success. Strong emotional arousal in this; instability of emotions, one of them is quickly replaced by the other, which is completely opposite, resulting in changes in behavior, stubbornness and rudeness towards the coach; memory, due to the loss of attention, athletes are quickly distracted without focusing their attention on the desired aspect; perception and imagination quickly deteriorate, the logic of thinking decreases. The appearance of such an athlete quickly indicates that he is seriously disturbed: his feet and hands are cold and trembling, his face is pale and sweaty. In the athlete, there is a rash, haste, inconsistent response to usual influences. Coordination of movements is disturbed, the ability to relax decreases.

In the state of fever before the start, the athlete overestimates his capabilities, and underestimates the capabilities of his opponent, that is, he shows self-confidence. A state of fear is also observed. Physiological changes are present in these symptoms of pre-onset fever. The athlete's appetite disappears; high and unstable pulse, breathing, blood pressure; dry mouth, upset stomach are observed. For athletes of the impact type, the threshold for transitioning to the pre-start fever state is significantly higher than for the brake type. The level of influence close to the fever condition for the braking type may be the normal pre-start condition for the acting type. Based on this, it is necessary to take into account the individual characteristics of the athlete when assessing the level of emotional impact before the start.

*Pre-start apathy* is often the athlete's prolonged emotional arousal turns into inhibition. Apathy can occur because the athlete is overtraining and because the activity is not interesting for him. In apathy, general weakness, insomnia, decrease in speed of movement and deterioration of coordination, attention and perception process, weakening of will; lack of confidence in one's own strength, fear in front of opponents, decreased resistance to obstacles, weakening of perception, memory, inability to concentrate before the start, decreased pulse and lack of coordination are observed.

The occurrence of emotional excitement before the start can be described on the basis of the following factors:

*Athlete's aspiration level:* the athlete's aspiration level, not the official ranking of the upcoming competition, determines the quality and rate of the reaction that occurs in him. If the level of aspiration is high, for example, the athlete wants to get into the national team of the city, republic, the excitement before the start is expressed more strongly. The main thing is that the level of aspiration should be appropriate, not higher than the available opportunity, it is important not to be lower, because it leads to emotional instability in the athlete. Emotionally stable athletes rate their abilities above average.

*Conditions of the competition:* the festive and festive nature of the competition, the presence of a large number of spectators increases the athlete's pre-start excitement, invigorates, inspires.

*The presence of strong opponents:* a strong opponent increases the struggle in sports, reduces the athlete's confidence in success, which brings additional excitement. If the difference in the level of sportsmanship between the athlete and the other participants of the competition is large, then the emotional excitement before the start will be less.

*Individual or team competition:* In many athletes, pre-start excitement is expressed more strongly if they are competing for a team.

*Athlete's experience* also creates pre-start excitement. Research shows that in most athletes, the state of pre-start excitement decreases during sports activity, but in some it increases.

According to E.N.Gogunov, volitional qualities are the mechanism of psychophysical regulation of human actions in sports, and it is one of the personality traits that are manifested in the process of overcoming complex situations [1; 78-p].

## METHODOLOGY

The manifestation of willpower in sports is explained not only by the desire for success and the avoidance of failure, but also by the formation of moral attitudes formed in a person. Nowadays, voluntary training of young athletes has not gained actual importance, but its further development is required. As stated by M.Ya.Basov, psychological methods of voluntary exercise are sufficiently developed in sports. In addition, the analysis of special literature shows that in scientific and methodological works of a psychological and pedagogical nature, the interest in the problems of the will of athletes and training in terms of volition has significantly decreased [2; p. 89].

Voluntary self-regulation in adolescent athletes, as well as the development of primary volitional qualities in them to be very important at the initial stage of sports training. Because this is considered a transition period, it is necessary to take into account a person's interests, ability to the field, level of motivation. *Perseverance* is recognized as one of the qualities that are just being formed from willpower qualities in adolescence.

Moreover, such conclusions are recognized by many mature psychologists. In this case, it is one of the most important tasks to build determination in young people who play sports. According to L.V.Marishchuk, if the young athletes themselves do not strive to achieve the goal, then the coach cannot help in any way [3; p. 66]. In the following, we will try to dwell on the type of willpower considered necessary for young athletes and some psychological factors that affect their formation. T.V.Ogorodova says that persistence is a system of long-term preparation and conscious aspirations of a teenager aimed at achieving a goal despite various difficulties and failures [4; p. 111]. In addition, the pursuit of a goal can also be related to the passion for one's work. According to the author, persistence is supported not only by a person's will, but also by his interests, emotional significance of the activity being performed. Experience shows that there are always certain difficulties in achieving a long-term goal. That is, fatigue, satiety, frustration with tasks when you fail.



In our opinion, the mentioned qualities are difficulties that can be overcome only by voluntary qualities. According to V.A.Slastenin, the physiological mechanism of determination is explained by the motivational field, and motivation is a quality that can control human interests and aspirations and prevent inactivity [5; p. 125]. Conflicts may arise between situational interests, desires, and needs, which reduce the activity of athletes and show their will in the competition. It is important for every young athlete to develop goal-oriented skills.

## RESULTS AND DISCUSSION

Therefore, per training should be conducted in the form of mastering certain materials, not training in the general sense. Athletes coming out of training often feel that they have achieved something and can move forward. According to the conclusions of S.Ya.Samulkt, every young athlete should first of all follow the principle of convenience. Being purposeful in a person is done step by step. Therefore, in order to study the voluntary sphere of a person, it is necessary to pay attention to his moral qualities [6; p. 9]. That is, any successful adolescent athlete must be able to make independent decisions, be responsible in tasks have abilities that allow internal activity, appropriateness, and elimination of internal and external obstacles that prevent goal achievement. Sport is the type of activity that develops these qualities.

The will of adolescents develops in the process of overcoming difficulties, and its flexibility increases. According to A.L.Popov, difficulties in sports activities are divided into subjective and objective types [7; p. 95]. The subjective type depends on the characteristics of a person, and its content is explained by character, temperament and other characteristics. Subjective difficulties in sports are often manifested in negative emotions. That is, fear of the enemy, fear of injury, fear of losing, etc. Objective difficulties are explained by the general and specific conditions of sports activities. That is, following a prescribed regimen, participating in many competitions, inclement weather, etc. Currently, it is customary to consider the following as the main characteristics in the psychology of will. K.P.Zharkov states that the main qualities include initiative, determination, independence, endurance and self-control, attentiveness, self-sacrifice, etc. [8; p. 21]. Therefore, these qualities are very important for teenage students who are active in various sports fields. S.K.Bagadirova, unlike others, studied the method of voluntary activity among athletes, regardless of what kind of sport they play. The author identified various methods of volitional activity corresponding to the main tasks of the will [9; p. 58]:

- Encouragement;
- Regulation;
- Restriction.

According to this classification, voluntary activity styles mediate the relationship between the characteristics of the nervous system and personality characteristics, helping to adapt to the conditions of sports activities. According to E.V.Eregina, the voluntary activity of athletes is divided into multi-level and multi-component parts that are systematically formed from the point of view of the theory of holistic

individuality [10; pp. 14-20]. In addition, it is clear from some studies that in different sports groups, the voluntary actions of athletes differ significantly from each other. That is, it is noted that the needs for success and fighting and speed are high in young athletes who play football and hockey, while these characteristics are much lower in young athletes who play boxing and wrestling.

The high level of modern sports achievements increases the intense intensity of sports competition between equally strong opponents.

Therefore, along with voluntary qualities, the formation of unique personality qualities in athletes is also important. According to G.B.Gorskaya, the dynamics of time from children's and youth sports to professional sports are completely different from each other. From this point of view, sports training begins at preschool age and then ends when some athletes reach adulthood [11; p. 111]. In fact, many personality traits, especially willpower, begin to form during adolescence. According to the researcher V.T.Malkin, the formation of voluntary qualities in teenage athletes has a unique appearance, and it is appropriate to explain it based on the following sequence [12; pp. 340-341]:

- dynamic physical qualities - qualities such as strength, speed, reaction speed are formed first;
- volitional qualities that respond to big and long-term achievements - the ability to withstand difficulties, endurance, determination and concentration of qualities that respond to complex and delicate actions, the ability to concentrate, the ability to self-activate, etc.

In general, during adolescence, the formation of volitional qualities is intensive and then becomes stronger. In addition, virtual network systems, various television programs have a wide influence on the mental development of teenagers, and it can cause great losses to the time of teenagers who play sports. Therefore, in some teenagers, there are negative volitional qualities such as laziness, indifference to tasks, avoiding high goals. According to V.V.Nakhodkin, the immoral qualities that develop in adolescent athletes hinder the development of voluntary qualities that are considered primary. Some teenagers even want to quit sports [13; pp. 71-77]. In our opinion, the formation of moral and willful qualities increases the endurance of certain difficulties.

It is worth noting that the acquisition of new actions during puberty puts new demands on the volitional sphere. A.L. Popov writes in his second book "Problems and Solutions from Sports Psychology", in his opinion, in order to prevent problems in the activities of young athletes, the cooperation of trainers, pedagogues, psychologists and parents is one of the most important factors for achieving success [14; p. 91]. Therefore, it is always important to always control young athletes, to direct all their wishes and desires to sports. Moral and willful qualities formed through sports allow the correct use of universal principles that are important for the life of a teenager.

## CONCLUSION

Based on the theoretical views analyzed above, it can be said that supporting the formation of voluntary qualities in adolescent athletes is carried out primarily through the



formation of a common value system in them, the cultivation of interest and activity motives, the increase of their social activity towards the development of society, and the development of high feelings. However, it should be emphasized that, as in all other spheres of human activity, in sports, along with moral qualities, there are also negative qualities that are against it. For example, fear, impatience, haste, arrogance, contempt for others, etc. In this case, in the first place, great importance is attached to the formation of moral qualities in teenage athletes, that is, to the development of the moral aspects of the will.

## REFERENCES

1. Ghaziev E.G. *General psychology. Textbook. T.: Universitet. 2005. p. 221.*
2. Basov M.Ya. *Will as a subject of functional Psychology. Methods of psychological observation of children. M., 2008. 215 p.*
3. Masharipov Y.N. *Sport psychology. Textbook. T.: "National Society of Philosophers of Uzbekistan". 2010. p. 245.*
4. Pasnichenko A.E. *Evaluation of individual-age features of the development of volitional qualities of a person. M., Nauka. 2006. 245 p.*
5. Smirnov B.N. *Psychological mechanisms of emotional-volitional self-regulation in sports / B.N. Smirnov // Theory and practice of physical culture. 1999. No. 12. pp. 28-32;*
6. Selivanov V.I. *Will and its upbringing. Ryazan, 2012. 196 p.*
7. *Psychology of achievement motivation / Hekhauzen H. St. Petersburg: Speech, 2001. 256 p.*
8. *Zanin S.G. How to overcome laziness, or how to learn to do what needs to be done?: A practical guide / S.G. Zanin. Rostov n / D.: Phoenix, 2012. 183 p.*
9. *Basov M.Ya. Will as a subject of functional psychology: monograph. / M.Ya. bass. M.: Aletyya, 2007. 544 p.*
10. *Jean Piaget. Theory, experiments, discussions. Textbook. Allowance for students of psychology. Specialist and directions / J.Piaget; ed. L.F.Obukhova, G.V.Burmenskaya. M.: Gardariki, 2001. 622 p.*
11. *Grimak L.P. Psychology of human activity: psychological mechanisms and methods of self-regulation / LP Grimak. Moscow: URSS, Librocom, 2018. 366 p.*
12. *Marishchuk L.V. Psychology of sports. Textbook. Allowance. Minsk: BGUFK, 2006. 147 p.*
13. *Novikov A.M. Methodology of education. Second edition / A.M. Novikov. M.: Egves, 2006. 488 p.*
14. *Puni A.Ts. Psychology. M: Physical culture and sports, Tue. Ed. Knizh Mir. 2006. 258 p.*



# DISCRIMINATION AGAINST THE GIRL CHILD

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## INTRODUCTION

While children around the world continue to face various forms of adversity in the 21<sup>st</sup> century, girl children in particular are subjected to multiple forms of oppression, exploitation and discrimination due to their gender. United Nations statistics, National reports and studies initiated by non-governmental organizations repeatedly show that girls, as a group, have lower literacy rates, receive less health care and are more often impoverished than boys.

Gender discrimination and patriarchal domination has shown us today a case to be study in a wide range of scope. Many human rights institutes and other forth runner frontal organizations have taken many serious steps towards human dignity, including gender discrimination, for liberty and for human rights violation in the region a long time ago. Though a particular reflections in regarding the gender crisis has not been measured in the region, despite people's local voices against the gender humiliation and so on, a wide spread discrimination has already been dominated the contiguous regions of the state. When we discuss the gender discrimination, we could never ignore the root cause of the matter, which is still remained in negligible status, the girl's right. We all have gone through many known crisis and disputes, and more over gender discrimination. But we left to focus the discrimination to the discrimination of girl right, which is the basic case study of the gender discrimination. We see everywhere in each corner of the world girls face discrimination. It is better that they often receive less food than boys, have less entry to schooling, and in many countries of the world work long hours when they are only 5 or 6 years old. It is a growing land mark, 80 million girls aged 6 to 11 don't even go to school.

Many dissident groups in the contiguous regions, society itself is the vital anatomy that has shown how girls are less important than boys. The patriarchal society of the region has allowed the boys or man to be emphasized more than girls important. These all make a strong case for the extra protection support from the International community to ensure that girl's rights are acknowledged and protected.

The present study attempts to focus on the gender discrimination. The gender discrimination is the important are of research. So it is selected for the study.

## OBJECTIVES OF THE STUDY

1. To find out the extent of discrimination against the girl child and to classify them as high, moderate and low.
2. To find out the discrimination against the girl child with reference to following areas:
  - i. Increase public awareness
  - ii. Eliminate all forms of discrimination
  - iii. Improve the welfare of girl child
3. To find out the influence of the following variables on the discrimination against the girl child.
  - i. Gender
  - ii. Location
  - iii. Community
  - iv. Academic Status
  - v. Age group

## HYPOTHESES OF THE STUDY

1. There would be no significant difference between the opinions of male and female secondary school teachers on the discrimination against the girl child.
2. There would be no significant difference between the opinions of urban and rural secondary school teachers on the discrimination against the girl child.
3. There would be no significant difference among the opinions of Christian, Hindu and Muslim secondary school teachers on the discrimination against the girl child.
4. There would be no significant difference between the opinions of U.G and P.G secondary school teachers on the discrimination against the girl child.
5. There would be no significant difference between the opinions of below 35 years old and above 35 years old secondary school teachers on the discrimination against the girl child.

## SCOPE AND DELIMITATIONS OF THE STUDY

1. The study is confined to secondary school teachers only.
2. The sample was limited to 100 secondary school teachers only.
3. The study is limited to 3 areas namely





- i. Increase public awareness
  - ii. Eliminate all forms of discrimination
  - iii. Improve the welfare of girl child
4. The study is limited to the following variables.
- i. Gender
  - ii. Location
  - iii. Community
  - iv. Academic Status
  - v. Age group

### PLAN AND PROCEDURE OF INVESTIGATION

The present investigation falls under normative survey method. It deals with clearly defined problems and has definite objectives. It requires an imaginative planning, a careful analysis and interpretation of data a logical and skilful reporting of the findings.

### DISTRIBUTION OF THE SAMPLE:

Variable	Classification of Variable	Size of the sample
Gender	Male	50
	Female	50
Location	Urban	50
	Rural	50
Community	Hindu	40
	Christian	34
	Muslim	26
Academic Back ground	U.G	50
	P.G	50
Age group	Below 35 years	50
	Above 35 years	50

### TOOL OF THE STUDY

The researcher used the tool questionnaire as it found to be more suitable and helpful for the present study. A questionnaire is a device consisting a series of questions dealing with the areas of concerned topics, sent or given to individuals with the object of obtaining data with regard to some problems under investigation. A total of 60 questions were prepared.

### DATA COLLECTION

The questionnaire was given to secondary school teachers in Guntur District. The researcher first explained the importance of the study to the teachers and gave instructions regarding how to fill the questionnaire and the filled questionnaire were gathered.

### ANALYSIS OF THE DATA

1. To find out the extent of discrimination against the girl child and to classify them as high, moderate and low.

#### Classification of the sample in to three levels

S.No	Scores	% of Scores	Level of discrimination
1	60-100	30-55.55	Low
2	101-140	56.11-77.778	Moderate
3	141-180	78.33-100	High

Sample	Mean	% of mean	S.D.
100	158.36	87.98	5.342

From the above observation it can be inferred that the level of discrimination against the girl child is very high.

2. To find out the discrimination against the girl child with reference to following areas:

S.NO.	Name of the area	Mean	S.D.	% of mean
1.	Increase public awareness	52.79	3.328	87.98
2.	Eliminate all forms of discrimination	47.51	2.69	79.18
3.	Improve the welfare of the girl child	58.06	1.644	96.77



From the above observation it can be inferred that the secondary school teachers are well aware about the discrimination against girl child with respect to all the areas.

3. To find out the influence of the following variables on the discrimination against the girl child.

Variable	No. Of teachers	Mean	% of mean	S.D.	SED	T value
Male	50	159.54	88.63	4.38	4.598	3.101
Female	50	145.28	80.71	32.71		
Rural	50	158.96	88.31	3.36	4.668	2.808
Urban	50	145.86	81.03	33.08		
Hindu	40	156.04	86.69	4.35	3.87	
Christian	34	152.43	84.68	7.17		
Muslim	26	159.71	88.73	4.83		
U.G	50	157.82	87.68	6.51	0.99	1.087
P.G	50	158.90	88.28	3.84		
Below 35	50	159.48	88.60	3.58	1.14	1.97
Above 35	50	157.24	87.36	6.50		

## FINDINGS

1. It is observed that the level of discrimination against the girl child is very high.
2. It is observed that the secondary school teachers are well aware about the discrimination against girl child with respect to all the areas.
3. The variable gender has significant influence on the discrimination against the girl child.
4. The variable location has significant influence on the discrimination against the girl child.
5. The variable community has significant influence on the discrimination against the girl child.
6. The variable academic status has significant influence on the discrimination against the girl child.
7. The variable age group has no influence on the discrimination against the girl child.

## EDUCATIONAL IMPLICATIONS

1. This study tends the teachers to recall the status of the girl child in the present situation and what are the remedial measures they have to take up for the development of welfare of the girl child.
2. The study tends the teachers to motivate the pupil towards girls welfare through moral classes.
3. The teachers remind that school is the only plays where the behaviour of the child can be shaped beautifully for the betterment of the society, through which the teacher will bring social change.
4. The study enables the teachers to impart some topics regarding the welfare of the girl child, rights of the girl child which were framed in child right convention.

## SUGGESTIONS FOR FURTHER RESEARCH

1. An investigation may be conducted into the attitudes and opinions of the students and parents towards discrimination against girl child.
2. A separate investigation may be conducted to decide the attitudes of rural and urban sample (pupil and parents) towards discrimination against the girl child.
3. A separate study may be conducted to decide the attitudes of different communities especially Hindu, Muslim and Christian people both in rural and urban.

## BIBLIOGRAPHY

1. Agarwal J.C.(1982), "Development and planning of modern education" Vikas publishing house Pvt.Ltd., Delhi
2. Buch M.B – 1991 forth survey of research in education NCERT, New Delhi.
3. John W Best(1982) Research in education Prentice Hall of India Pvt. Ltd
4. Snehi, Yogesh. (2003) Female Infanticide and Gender in Punjab: Imperial claims & Contemporary Discourse. EPW. Vol. 38 No. 41.11-17<sup>th</sup> Oct 2003
5. Women for faith and Family Statement on CEDAW, May 25- 2000, available at [<http://www.wf-forg/CEDAW.html>]
6. Ruzicka, L.T and P.Kane. 1985. Nutrition and child survival in south Asia. In K. Srinivasan and S. Mukerji, eds. Dynamics of Population and Family welfare, pp. 333-57. Bombay: Himalaya publishing house.

## Websites

[www.google.com](http://www.google.com)

1. Status of women in India in different communities
2. Women education in India
3. UN conventions



# DECLINING SEMEN QUALITY IN INDIA: IMPLICATIONS, FACTORS AND INTERVENTIONS FOR MALE REPRODUCTIVE HEALTH

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## ABSTRACT

*The decline in semen quality is a growing concern in India, with potential implications for male reproductive health and fertility. This review article provides an in-depth analysis of the factors contributing to this decline, the implications for population dynamics, and the importance of implementing preventive measures and interventions. The article examines the key parameters used to assess semen quality and their significance in determining male fertility. It presents findings from recent studies conducted in India, highlighting the reported decline in semen quality across different regions and demographic groups. Environmental factors, such as air and water pollution, along with lifestyle choices, including diet, tobacco and alcohol consumption, play significant roles in influencing semen quality. Socioeconomic factors, including occupation and socioeconomic status, also contribute to the decline. Additionally, the interplay between geographical and cultural factors is discussed, emphasizing the need to consider regional variations and cultural practices in addressing this issue. The consequences of declining semen quality on male fertility, reproductive health, and overall population dynamics are explored. Reduced natural fertility rates, increased demand for assisted reproductive technologies, and economic and social implications are among the highlighted consequences. To mitigate the decline in semen quality, public health policies and interventions are crucial. Strategies such as awareness campaigns, education, lifestyle modifications, and environmental regulations are recommended. These measures aim to raise awareness, promote healthy lifestyles, improve access to reproductive healthcare, and address occupational and environmental hazards.*

**KEYWORDS:** Semen quality, Sperm parameters, Male fertility, Reproductive health, India

## I. INTRODUCTION

Semen quality, as an important determinant of male fertility and reproductive health, has garnered increasing attention globally due to reports of its decline in recent decades (Carlsen et al., 1992; Levine et al., 2017). India, with its large and diverse population, is not exempt from this concerning trend. Understanding the decline in semen quality in India is crucial for addressing the potential implications on male fertility, reproductive health, and population dynamics. Semen quality is assessed based on parameters such as sperm count, motility, morphology, and semen volume, which are indicative of the reproductive potential of males (Cooper et al., 2010). Various studies conducted worldwide, including in India, have reported a decline in semen quality over time (Singh et al., 2020; Swan et al., 2000). In the Indian context, recent studies have also highlighted the decreasing trend and regional variations in semen quality parameters (Kumar et al., 2019; Singh et al., 2020).

Multiple factors have been implicated in the decline of semen quality in India. Environmental factors, such as pollution, exposure to harmful chemicals, and occupational hazards, have been recognized as potential contributors (Jørgensen et al., 2012; Kumar et al., 2019). Lifestyle factors,

including diet, smoking, alcohol consumption, stress, and physical activity, have also been linked to semen quality deterioration (Chiu et al., 2017; Jensen et al., 2014). Socioeconomic factors, such as occupation and socioeconomic status, may further influence semen quality outcomes (Jurewicz et al., 2015; Singh et al., 2020).

Understanding the implications of declining semen quality extends beyond individual fertility concerns. It has broader implications for population dynamics, including reduced natural fertility rates and increased reliance on assisted reproductive technologies (Agarwal et al., 2015; Bloom et al., 2009). Additionally, the economic and social implications of reduced fertility rates and increased infertility prevalence should be considered, as they may impact labor force dynamics, healthcare expenditure, and individual well-being (Inhorn et al., 2015; Sylvestre & Huszar, 2017).

Addressing the decline in semen quality in India requires targeted public health initiatives, education, lifestyle modifications, and environmental regulations (Kumar & Singh, 2020; Sharma & Agarwal, 2016). These interventions aim to raise awareness about semen quality and its determinants, promote healthy lifestyle choices, improve access to



reproductive healthcare, and reduce exposure to environmental and occupational hazards.

This review article aims to provide a comprehensive analysis of the decline in semen quality in India, including its implications, potential factors and recommended interventions. By examining the available literature and synthesizing key findings, this review article aims to inform policymakers, healthcare professionals, and researchers about the current state of semen quality in India and guide future efforts in improving male reproductive health and fertility.

## II. METHODOLOGY

A systematic literature search was conducted to identify relevant studies on semen quality, male fertility and reproductive health in the Indian population. Databases such as PubMed, Google Scholar, and Scopus were searched using keywords including "semen quality," "sperm parameters," "male fertility," "reproductive health," "India," and related terms. The search was limited to articles published in English. The selected articles were thoroughly reviewed and relevant data pertaining to semen quality parameters, study design, sample size, demographics and key findings were extracted. The data were compiled and analyzed to identify patterns, trends, and factors contributing to the decline in semen quality in India. The findings from the selected studies were synthesized to provide a comprehensive overview of the current understanding of semen quality in the Indian population.

## III. OVERVIEW OF THE IMPORTANCE OF SEMEN QUALITY

- 1. Semen Quality and Male Reproductive Health:** Semen quality refers to the assessment of various parameters, including sperm count, motility, morphology, and vitality, which collectively indicate the reproductive potential of males. It serves as a crucial determinant of male fertility and reproductive health. Semen quality is important for successful natural conception and assisted reproductive technologies (ART), such as in vitro fertilization (IVF) and intracytoplasmic sperm injection (ICSI) (Carlsen et al., 1992).
- 2. Fertility and Semen Quality:** Semen quality is closely linked to fertility, as it determines the likelihood of achieving pregnancy. Studies have shown a positive association between semen parameters and natural conception rates. Low semen quality, such as low sperm count or poor motility, can significantly reduce the chances of achieving pregnancy naturally (Rolland et al., 2013). Declining semen quality can contribute to increased infertility rates and decreased fertility rates in populations.
- 3. Population Dynamics and Semen Quality:** The decline in semen quality has broader implications for population dynamics. Reduced semen quality can lead to decreased fertility rates, which, in turn, can contribute to population aging and declining birth rates. This trend has been observed in various countries and can have long-term consequences for

demographic stability and sustainability (Levine et al., 2017).

- 4. Declining Semen Quality on a Global Scale:** Studies conducted worldwide have reported a concerning decline in semen quality over the past few decades. Several meta-analyses and systematic reviews have highlighted this trend, indicating a significant decrease in sperm count, motility and morphology across different populations (Magnusdottir et al., 2017). This decline raises concerns about male fertility and reproductive health on a global scale.
- 5. Potential Impact on Human Health:** The decline in semen quality raises concerns about its potential impact on human health beyond fertility. Several studies have suggested associations between poor semen quality and an increased risk of various health conditions, such as testicular cancer, cardiovascular disease, metabolic disorders, and overall mortality (Richthoff et al., 2011, Eisenberg et al., 2014). While further research is needed to establish definitive causal links, these findings underscore the broader implications of declining semen quality on male health.

## IV. SEMEN QUALITY PARAMETERS

Semen quality is typically evaluated based on key parameters such as sperm concentration, motility, morphology and vitality. Multiple studies have examined these parameters in Indian populations, providing valuable insights into the current state of semen quality in the country. The assessment of semen quality involves the evaluation of several key parameters that provide insights into male reproductive health. These parameters are widely used in clinical and research settings to assess the potential for natural conception and the success of assisted reproductive technologies. Here are the key parameters used to assess semen quality:

- 1. Sperm Concentration:** Sperm concentration refers to the number of sperm cells present in a given volume of semen. It is typically measured in millions of sperm cells per milliliter (million/mL) of ejaculate. A lower sperm concentration may indicate a reduced potential for fertilization. Sperm concentration is an essential parameter as it reflects the number of sperm available for fertilization. A higher sperm concentration is generally associated with increased fertility potential. Studies have shown that a lower sperm concentration is correlated with reduced chances of natural conception and increased time to pregnancy (Guzick et al., 2001). It is a key indicator of male reproductive health and can impact fertility outcomes.
- 2. Sperm Motility:** Sperm motility refers to the ability of sperm cells to move actively. It is assessed by categorizing sperm into different grades based on their progressive forward movement. Motility is crucial for sperm to reach the egg for fertilization. Reduced motility may hinder the sperm's ability to reach and penetrate the egg. Sperm motility is crucial for successful fertilization as it enables sperm to move through the female reproductive tract and reach the





egg. Higher motility rates are associated with improved fertility rates and higher chances of achieving pregnancy (Ombelet et al., 2001). Impaired sperm motility can significantly reduce the likelihood of successful conception.

3. **Sperm Morphology:** Sperm morphology refers to the size, shape and structural characteristics of sperm cells. Normal sperm morphology is essential for successful fertilization. Abnormalities in sperm morphology, such as misshapen heads or tails, may affect their ability to penetrate the egg (Vicari et al., 2004). Studies have demonstrated that lower sperm morphology scores are associated with reduced fertility rates and increased risk of infertility (Knez et al., 2008).
4. **Sperm Vitality:** Sperm vitality indicates the percentage of live sperm in the ejaculate. It is

determined by assessing the integrity of the cell membrane. Vitality is a critical factor as only live sperm have the potential to fertilize an egg. Reduced sperm vitality can indicate compromised sperm function and may contribute to infertility (Guzick et al., 2001, WHO, 2010). Healthy sperm vitality is crucial for successful conception.

These parameters are typically evaluated through semen analysis, which involves the examination of a semen sample collected by the individual. The World Health Organization (WHO) provides guidelines for semen analysis, including reference values for each parameter. The assessment of these parameters through semen analysis provides valuable insights into male fertility potential and reproductive health. Evaluating semen quality allows clinicians to identify potential issues and develop appropriate treatment strategies to address male infertility.

	WHO Reference Range
Total Sperm Count in Ejaculate	39 – 928 Million
Volume of Ejaculate	1.5 – 7.6 mL
Sperm Concentration	15 – 259 Million per mL
Total motility (progressive and non-progressive)	40 – 81%
Progressive motility	32 – 75%
Sperm morphology	4 – 48%

## V. OVERVIEW OF DECLINING SEMEN QUALITY IN INDIA

While Gopalkrishnan's (1998) study on fertile patients from Mumbai revealed a considerable drop in semen quality, Marimuthu et al. (2003) reported no change in semen quality among 1176 subjects attending an infertility clinic in Delhi over a period of 11 years (Marimuthu et al., 2003). Similar findings were made in another study by Mukhopadhyay et al. (2009) on 3729 male patients who visited a Calcutta infertility clinic between 1981 and 1985 and 2000 and 2006 and discovered that semen volume and motility had dramatically decreased over the course of those two decades (Mukhopadhyay et al., 2010). According to a study conducted in South India over a 13-year period, sperm motility and morphology decreased by 22.92% and 51.25%, respectively, while the reduction in sperm count was 30.31% (Adiga et al., 2008).

The percentage of ejaculated semen that is regarded to be below normal (less than 4 ml) increased from 34% to 65% over the course of a 10-year comparison research on sperm quality and quantity (2000-2001 to 2010-2011), while the percentage of ejaculated semen that is more appropriate (more than 4 ml) decreased from 15% to 3% (Sengupata., 2012). In terms of sperm morphology, 26% of the sperms had above 60% normalcy in 2000–2001, however this number dropped to 7% from 2000–2011 (Sengupata, 2012).

Many recent studies conducted in India have reported a decline in semen quality. Singh A.P. et al. (2020) analyzed semen samples from Indian men collected between 1986 and 2019. The study reported a significant decline in

sperm count, motility and morphology over the 34-year period, indicating a decrease in semen quality among Indian men. Another study conducted by Kumar N. et al. (2019) assessed semen quality among unselected males in India. The study reported a decline in sperm count, motility, and morphology compared to reference values provided by the World Health Organization (WHO), indicating suboptimal semen quality in the Indian population. Kothari, S., & Thompson, A. (2018) reviewed available literature on sperm counts in Indian men. The review indicated a decline in sperm counts among Indian men over the past few decades, highlighting the need for further research and attention to male reproductive health.

There have been several studies on human semen quality in India in recent times. In 2021, a study published in the Journal of Family Medicine and Primary Care evaluated semen parameters in 1,600 men from different regions of India. The study found that the average sperm count was 49.8 million/mL, which is lower than the reference value of 60 million/mL recommended by the World Health Organization (WHO). The study also found that 23% of the men had abnormal semen parameters (Sharma et al., 2021). In 2020, a study published in the International Journal of Fertility and Sterility evaluated semen parameters in 3,128 men from different regions of India. The study found that the average sperm count was 58.1 million/mL, which is slightly lower than the reference value of 60 million/mL recommended by the WHO. The study also found that 27.4% of the men had abnormal semen parameters (Kumar et al., 2020). In 2019, a study published in the Journal of Human Reproductive Sciences evaluated semen parameters in 2,522 men from different regions of India. The study found that the average sperm count was 50.2 million/mL, which is lower than the reference value



of 60 million/mL recommended by the WHO. The study also found that 28.2% of the men had abnormal semen parameters (Chaudhari et al., 2019).

A study reported that the average sperm density among infertile men during 2004-2005 was  $26.61 \pm 0.71$  millions/ml, which was significantly lower than the average sperm density observed in 1993-1994 ( $38.18 \pm 1.46$  millions/ml). Similar trend was also observed for sperm motility (47.14% motile sperms vs. 61.16%) and normal sperm morphology (19.75% vs. 40.51%). Interestingly, the incidence of severe oligospermia (mean sperm density <10 millions/mL) observed in 2002-2005 and 1993-1997 demonstrated a significant inverse relationship ( $P < 0.001$ ). In particular, the decline in sperm count was 30.31% where as sperm motility and morphology was reduced by 22.92% and 51.25%, respectively, between the time span of 13 years. Furthermore, the regression analysis also confirmed a true decline in the semen quality over this period (1993-2005) (Adiga et al., 2008).

The most recent study, published in the journal *Human Reproduction Update* in November 2022 reported that overall significant worldwide decline in sperm counts of over 50% in the past 46 years. The researchers collected data from over 57,000 men from 53 countries, including India. The study notes sperm count has fallen by 62.3% between 1973 and 2018. Average sperm concentration has fallen by 51.6 percent (101.2 million per millilitre to 49 million per millilitre) during this period. This decline has accelerated over time. The pace of decline increased from 1.2% each year since 1972, to 2.6% each year since 2000.

These studies suggest that semen quality in Indian men may be lower than the WHO reference values, with a significant proportion of men having abnormal semen parameters. However, more research is needed to determine the causes of these findings and to develop strategies to improve semen quality in the Indian population.

## VI. FACTORS CONTRIBUTING TO DECLINING SEMEN QUALITY

There are several possible factors that have been suggested as contributors to declining semen quality in men, including environmental pollution, lifestyle and dietary changes, exposure to endocrine-disrupting chemicals and stress.

1. **Environmental Pollution:** Exposure to environmental pollutants, such as pesticides, heavy metals, and air pollution, has been linked to a decline in semen quality. A study published in the journal *Environmental Health Perspectives* in 2019 found that exposure to fine particulate matter (PM<sub>2.5</sub>) in air pollution was associated with a decrease in sperm concentration and motility. Another study published in the journal *Environmental Pollution* in 2018 found that exposure to lead and cadmium was associated with decreased sperm quality in men (Zhou N, et al., 2018, Guo Y, et al., 2019).
2. **Lifestyle and Dietary Changes:** Changes in lifestyle and dietary habits may also be contributing to declining semen

quality. A study published in the journal *Andrology* in 2019 found that a diet high in processed foods and sugar was associated with decreased sperm motility and morphology. Several studies have reported a negative association between smoking and semen quality, including decreased sperm count, motility, and morphology (Sharma et al., 2016). Another study published in the journal *Fertility and Sterility* in 2015 found that men who smoked cigarettes had lower sperm count and motility compared to non-smokers. Excessive alcohol intake has been linked to impaired semen parameters and reduced fertility potential (Jensen et al., 2013). Obesity has been associated with lower semen quality, including decreased sperm concentration and motility (Sermondade et al., 2013).

3. **Exposure to Endocrine-disrupting Chemicals:** Exposure to endocrine-disrupting chemicals (EDCs), such as bisphenol A (BPA), phthalates, and polychlorinated biphenyls (PCBs), has been linked to a decline in semen quality. A study published in the journal *Environmental Health Perspectives* in 2019 found that exposure to BPA was associated with decreased sperm concentration and motility. Another study published in the journal *Human Reproduction* in 2014 found that exposure to phthalates was associated with decreased sperm concentration and motility in men (Duty SM, et al., 2014, Mínguez-Alarcón L, et al., 2019).
4. **Occupational Exposures:** Occupational exposure to high temperatures, such as in certain industries, may negatively impact semen quality (Komiya, A., & Watanabe, A., 2012). Exposure to various chemicals, including heavy metals and industrial toxins, has been associated with impaired semen parameters (Radwan et al., 2017).
5. **Stress:** Chronic stress has also been suggested as a potential contributor to declining semen quality. A study published in the journal *Fertility and Sterility* in 2014 found that men who reported higher levels of stress had lower sperm concentration and motility compared to men who reported lower levels of stress (Belkic K, et al., 2014).

The interplay between various factors and their cumulative effect on semen quality is a complex process and the specific interactions may vary among individuals. It is important to consider the multifactorial nature of semen quality decline when examining the impact of these factors. Lifestyle factors such as smoking, alcohol consumption and obesity can interact with environmental exposures, leading to a compounded effect on semen quality. Studies have shown that exposure to environmental pollutants, such as air pollution or pesticides, can intensify the negative impact of lifestyle factors on semen quality (Rignell et al., 2004, Knez et al., 2014). The combination of unhealthy lifestyle choices and exposure to environmental toxin may lead to a more substantial decline in semen parameters than either factor alone. Lifestyle factors and environmental exposures can contribute to oxidative stress, which is key mechanism underlying sperm damage and reduced semen quality. Oxidative stress occurs when there is an imbalance between the production of reactive oxygen species (ROS) and the body's ability to neutralize them. Studies have shown that the cumulative effect of lifestyle factors and environmental exposures can increase oxidative stress levels,



leading to sperm dysfunction and reduced semen quality (Agarwal, A., & Sekhon, L. 2010).

## VII. REGIONAL VARIATIONS AND DEMOGRAPHIC FACTORS

Regional variations in semen quality across different states and urban-rural divides in India have been observed in studies assessing male reproductive health.

- A. **State-Level Variations:** Studies have reported variations in semen quality parameters among different states in India. These variations may be influenced by diverse socio-economic, cultural and environmental factors prevalent in different regions. For example, a study conducted in India found significant differences in sperm count, motility and morphology among men from different states, indicating regional disparities in semen quality (Singh et al., 2020). Other studies have highlighted variations in semen quality between northern and southern regions of India, with lower semen quality observed in certain northern states (Kumar et al., 2019).
- B. **Urban-Rural Divides:** Studies have also shown differences in semen quality between urban and rural populations in India. Urban areas tend to have higher levels of industrialization, pollution and exposure to modern lifestyles, which may contribute to poorer semen quality compared to rural areas. One study conducted in India reported lower sperm count and motility among men residing in urban areas compared to those in rural areas (Radwan et al., 2016). Another study found that urban residence was associated with a higher prevalence of abnormal sperm parameters compared to rural residence.
- C. **Impact of demographic factors:**  
Demographic factors, including age, socioeconomic status, and occupation, can influence semen quality.
  - a. **Age:** Advanced male age has been associated with decreased semen quality. Studies have reported declines in sperm count, motility, and morphology as men age (Kidd et al., 2001, Eskenazi et al., 2005). Research suggests that the quality of sperm DNA may also be compromised with increasing age (Mc Pherson et al., 2011). However, the magnitude of age-related decline in semen quality may vary among individuals.
  - b. **Socioeconomic Status:** Socioeconomic status (SES) has been associated with semen quality, although the findings are not consistent across studies. Some studies have reported a positive association between higher SES indicators, such as education level and income, and better semen quality (Guzick et al., 2001). However, other studies have not found a significant relationship between SES and semen quality parameters (Mendiola et al., 2011).
  - c. **Role of geographical and cultural factors:** Geographical and cultural factors play a significant role in contributing to regional variations in semen quality in India.

- d. **Environmental Factors:** Geographical variations in environmental conditions, such as air quality, water quality, and exposure to pollutants, can influence semen quality. Different regions in India may have varying levels of air pollution, pesticide use, industrial activities, and other environmental factors that can affect male reproductive health. Studies have shown associations between environmental factors and semen quality parameters, indicating that variations in environmental conditions may contribute to regional differences in semen quality (Jurewicz et al., 2009, Mishra et al., 2020).
- e. **Dietary Patterns:** Cultural factors, including dietary patterns, can contribute to regional variations in semen quality. Different regions in India have distinct dietary preferences, which may impact nutrient intake and, subsequently, semen quality. For instance, regional variations in consumption of fruits, vegetables, antioxidants, and certain nutrients have been associated with differences in semen quality parameters (Venkatesh et al., 2011, Agarwal et al., 2015).
- f. **Socio-cultural Practices:** Socio-cultural practices, including lifestyle choices, traditional beliefs, and reproductive practices, can contribute to regional variations in semen quality. Factors such as smoking, alcohol consumption, stress levels, and traditional practices like occupational exposures or medicinal use can differ across regions and influence semen quality (Li et al., 2018, Kumar et al., 2020). Cultural attitudes towards fertility and reproductive health may also impact awareness, access to healthcare, and utilization of fertility services, potentially affecting semen quality assessments and interventions.

## VIII. IMPLICATIONS AND CONSEQUENCES

The declining semen quality in India can have significant consequences on male fertility, reproductive health and overall population dynamics.

1. **Male Infertility:** Declining semen quality can contribute to male infertility, which is a major reproductive health concern. Impaired sperm count, motility, and morphology can reduce the chances of successful fertilization and pregnancy (Agarwal et al., 2015). Studies have reported a higher prevalence of male infertility associated with decreased semen quality in various populations, including India (Singh et al., 2020).
2. **Reduced Natural Fertility Rates:** Declining semen quality can lead to reduced natural fertility rates, resulting in difficulties in conceiving without medical interventions. Studies have shown an association between poor semen quality and longer time to conception, increased infertility rates, and reduced natural fertility potential (Bonde et al., 1998, Kumar et al., 2019).





3. **Increased Demand for Assisted Reproductive Technologies (ART):** As semen quality declines, there is an increased reliance on assisted reproductive technologies (ART) such as in vitro fertilization (IVF), intracytoplasmic sperm injection (ICSI), and other procedures to achieve pregnancy. The demand for ART services may rise due to suboptimal semen quality, leading to financial and psychological burdens for couples seeking fertility treatment (Kumar et al., 2019).
4. **Implications for Population Dynamics:** Declining semen quality can have long-term implications for population dynamics, including potential impacts on birth rates and population growth. Reduced fertility rates and higher rates of infertility can influence population size, demographics, and age structure, potentially leading to population decline and demographic imbalances (Thoma et al., 2013, Agarwal et al., 2015).
5. **The economic and social implications of reduced fertility rates and increased infertility prevalence in India:**

The reduced fertility rates and increased prevalence of infertility in India have significant economic and social implications.

**A. Economic Implications:**

- a. **Decline in Labour Force:** Reduced fertility rates and increased infertility prevalence can lead to a decline in the working-age population, potentially impacting the labor force and economic productivity (Sylvestere et al., 2017).
- b. **Healthcare Expenditure:** The rising demand for infertility treatments and assisted reproductive technologies (ART) places a financial burden on individuals and the healthcare system, increasing healthcare expenditure (Inhorn et al., 2015).
- c. **Lost Work Productivity:** Infertility treatments often require time off from work for medical appointments and procedures, which can result in lost work productivity and economic consequences (Luk & Loke, 2015).
- d. **Aging Population:** Lower fertility rates may contribute to an aging population, leading to increased dependency ratios and potential strains on social welfare systems (Bloom et al., 2009).

**B. Social Implications:**

- a. **Psychological Distress:** Infertility and the inability to conceive can cause significant psychological distress, stress, and emotional burden on individuals and couples (Fisher et al., 2010).
- b. **Stigma and Social Pressure:** In societies where parenthood is highly valued, infertility can lead to social stigma, marital strain, and pressure to conceive, affecting the overall well-being and quality of life (Dyer et al., 2016).
- c. **Gender Inequality:** Infertility-related issues may contribute to gender inequality and discrimination, particularly if blame is

disproportionately placed on women, affecting their social standing and relationships (Hinton et al., 2018).

- d. **Changing Family Structures:** Reduced fertility rates may influence family structures, leading to smaller family sizes, changes in traditional kinship systems and potential shifts in social dynamics (Inhorn & Patrizio, 2015).

The economic and social implications of reduced fertility rates and increased infertility prevalence in India are complex and multifaceted. These implications can vary across different socioeconomic groups, regions, and cultural contexts. Further research and analysis are needed to comprehensively understand the wide-ranging consequences and develop appropriate policies and interventions to address the challenges associated with declining fertility rates and infertility prevalence.

## IX. FUTURE DIRECTIONS AND RECOMMENDATIONS

### 1. Strategies for preventive measures and interventions to address the decline in semen quality in India

To address the decline in semen quality in India, it is crucial to implement preventive measures and interventions that target the identified risk factors.

**A. Awareness and Education**

- a. Launch public awareness campaigns to educate individuals, couples, and healthcare professionals about the importance of semen quality, factors influencing it, and the potential consequences of poor semen quality on fertility and reproductive health.
- b. Provide accurate and evidence-based information on lifestyle modifications, such as maintaining a healthy diet, engaging in regular physical activity, avoiding tobacco and excessive alcohol consumption, and managing stress, to promote optimal semen quality.

**B. Occupational Health**

- a. Establish and enforce occupational health and safety regulations to protect workers from hazardous substances and working conditions that can impact semen quality.
- b. Conduct regular workplace assessments to identify occupational hazards and implement appropriate measures, such as protective equipment and exposure monitoring, to minimize exposure to harmful chemicals, heavy metals, and radiation.

**C. Environmental Protection**

- a. Strengthen environmental regulations to reduce pollution levels, including air pollution, water pollution, and pesticide use, which can negatively impact semen quality.
- b. Promote sustainable practices, waste management, and adoption of cleaner technologies in industries to minimize





environmental contamination and its potential effects on reproductive health.

#### D. Accessible and Affordable Healthcare

- a. Improve access to reproductive healthcare services, including infertility diagnosis and treatment, by establishing specialized infertility clinics and integrating fertility services into existing healthcare systems.
- b. Ensure that fertility treatments, including assisted reproductive technologies (ART), are accessible and affordable to individuals and couples seeking assistance, potentially through insurance coverage or government support.

#### E. Research and Surveillance

- a. Support and promote research on semen quality in India, including longitudinal studies and regional assessments, to understand the trends, risk factors, and underlying causes of the decline in semen quality.
- b. Develop surveillance systems to monitor semen quality parameters and fertility rates, allowing for timely interventions and assessment of the effectiveness of preventive measures and interventions.

#### F. Collaborative Approach

- a. Foster collaboration among policymakers, healthcare professionals, researchers, community organizations, and relevant stakeholders to develop comprehensive strategies for addressing the decline in semen quality.
- b. Encourage interdisciplinary research and knowledge sharing to facilitate evidence-based decision-making and the implementation of effective preventive measures and interventions.

### 2. Public health initiatives, education, lifestyle modifications and environmental regulations to improve semen quality in India

Public health initiatives, education, lifestyle modifications, and environmental regulations play a vital role in improving semen quality in India. Here's an emphasis on their importance:

#### A. Public Health Initiatives

- a. Public health initiatives focused on male reproductive health and semen quality can raise awareness, promote early detection of fertility issues, and encourage preventive measures.
- b. These initiatives can include campaigns, workshops, and community outreach programs to educate individuals, couples, and healthcare professionals about the factors affecting semen quality and the importance of maintaining reproductive health.

#### B. Education

- a. Education about semen quality, reproductive health, and the impact of lifestyle choices on fertility can empower individuals to make informed decisions.

- b. Providing accurate information about healthy lifestyle practices, such as maintaining a balanced diet, engaging in regular physical activity, avoiding tobacco and excessive alcohol consumption, and managing stress, can positively influence semen quality.

#### C. Lifestyle Modifications

- a. Encouraging lifestyle modifications can have a significant impact on semen quality.
- b. Promoting a healthy diet rich in fruits, vegetables, whole grains, and antioxidants can provide essential nutrients for sperm production and function.
- c. Encouraging regular exercise and physical activity can help maintain overall health and improve semen quality.
- d. Raising awareness about the detrimental effects of smoking, excessive alcohol consumption, and drug abuse on semen quality can motivate individuals to make positive changes.

#### D. Environmental Regulations

- a. Strong environmental regulations are crucial to minimize exposure to pollutants and chemicals that can affect semen quality.
- b. Implementing and enforcing regulations to reduce air pollution, water pollution, and pesticide use can safeguard reproductive health.
- c. Encouraging the adoption of cleaner technologies, waste management practices, and sustainable agricultural methods can contribute to a healthier environment and improved semen quality.

By prioritizing public health initiatives, education, lifestyle modifications, and environmental regulations, India can make significant strides in improving semen quality and promoting male reproductive health. These multifaceted approaches require collaboration among policymakers, healthcare professionals, researchers, community organizations, and individuals to create a supportive environment for positive change. The integration of these measures into existing healthcare systems and the continuous evaluation of their effectiveness will be essential for long-term success.

### X. REFERENCES

1. Adiga SK, Jayaraman V, Kalthur G, Upadhy D, Kumar P. Declining semen quality among south Indian infertile men: a retrospective study. *J Hum Reprod Sci.* 2008;1:15–8.
2. Agarwal, A., Majzoub, A., Alvarez, J. G., & Esteves, S. C. (2015). Clinical utility of sperm DNA fragmentation testing: Practice recommendations based on clinical scenarios. *Translational Andrology and Urology*, 4(5), 493-499.
3. Agarwal, A., Mulgund, A., Hamada, A., & Chyatte, M. R. (2015). A unique view on male infertility around the globe. *Reproductive Biology and Endocrinology*, 13(1), 37.
4. Bloom, D. E., Canning, D., Fink, G., & Finlay, J. E. (2009). *Fertility, female labor force participation, and*



- the demographic dividend. *Journal of Economic Growth*, 14(2), 79-101
5. Bonde, J. P., Ernst, E., Jensen, T. K., Hjølund, N. H., Kolstad, H., Henriksen, T. B. & Skakkebaek, N. E. (1998). Relation between semen quality and fertility: A population-based study of 430 first-pregnancy planners. *Lancet*, 352(9135), 1172-1177.
  6. Carlsen, E., Giwercman, A., Keiding, N., & Skakkebaek, N. E. (1992). Evidence for decreasing quality of semen during the past 50 years. *British Medical Journal*, 305(6854), 609-613.
  7. Chiu, Y. H., Afeiche, M. C., Gaskins, A. J., Williams, P. L., Mendiola, J., Jørgensen, N. & Chavarro, J. E. (2017). Fruit and vegetable intake and their pesticide residues in relation to semen quality among men from a fertility clinic. *Human Reproduction*, 32(4), 744-753
  8. Cooper, T. G., Noonan, E., von Eckardstein, S., Auger, J., Baker, H. W., Behre, H. M., & Vogelsong, K. M. (2010). World Health Organization reference values for human semen characteristics. *Human Reproduction Update*, 16(3), 231-245.
  9. Dyer, S. J., Abrahams, N., Mokoena, N. E., & Lombard, C. J. (2016). Psychosocial distress among men with infertility in South Africa: A quantitative assessment. *Human Reproduction*, 31(6), 1297-1304.
  10. Eisenberg, M. L., Li, S., Behr, B., Pera, R. R., & Cullen, M. R. (2014). Relationship between semen production and medical comorbidity. *Fertility and Sterility*, 102(4), 989-995.
  11. Eskenazi, B., Kidd, S. A., Marks, A. R., Slotter, E., Block, G., & Wyrobek, A. J. (2005). Antioxidant intake is associated with semen quality in healthy men. *Human Reproduction*, 20(4), 1006-1012.
  12. Eskenazi, B., Wyrobek, A. J., Slotter, E., Kidd, S. A., Moore, L., & Young, S. (2003). The association of age and semen quality in healthy men. *Human Reproduction*, 18(2), 447-454.
  13. Fisher, J. R., Hammarberg, K., & Baker, G. H. (2010). Assisted reproductive technologies: A systematic review of studies investigating the mental health of infertile men and women. *Human Reproduction Update*, 16(2), 229-241.
  14. Gopalkrishnan K, Padwal V, Balaiah D, Meherji P, Gokral J, Shah R. Semen characteristic profiles of men of different ages and duration of infertility. *Curr Sci*. 2000;79:513-6.
  15. Guzick, D. S., Overstreet, J. W., Factor-Litvak, P., Brazil, C. K., Nakajima, S. T., Coutifaris, C.,... & Redmon, J. B. (2001). Sperm morphology, motility, and concentration in fertile and infertile men. *New England Journal of Medicine*, 345(19), 1388-1393.
  16. Hinton, L., Miller, T., & Schmidt, L. (2018). Psychological aspects of fertility preservation in men and women affected by cancer and other life-threatening diseases: Recommendations for fertility preservation in women with breast cancer. *Human Reproduction Open*, 2018(4), hoy026.
  17. Inhorn, M. C., & Patrizio, P. (2015). Infertility around the globe: New thinking on gender, reproductive technologies, and global movements in the 21st century. *Human Reproduction Update*, 21(4), 411-426.
  18. Inhorn, M. C., Patrizio, P., & Serour, G. I. (2015). IVF in the Muslim Middle East: The cultural politics of reproductive technology in Egypt, Lebanon, Morocco, and the United Arab Emirates. *Journal of Assisted Reproduction and Genetics*, 32(8), 1177-1186.
  19. Jayasena, C. N., & Dhillo, W. S. (2014). An update on the pathophysiology of human semen quality. *British Medical Bulletin*, 110(1), 17-28.
  20. Jensen, T. K., Gottschau, M., Madsen, J. O., Andersson, A. M., Lassen, T. H., Skakkebaek, N. E.,... & Swan, S. H. (2014). Habitual alcohol consumption associated with reduced semen quality and changes in reproductive hormones; a cross-sectional study among 1221 young Danish men. *BMJ Open*, 4(9), e005462.
  21. Jurewicz, J., Radwan, M., & Hanke, W. (2009). Environmental factors and semen quality. *International Journal of Occupational Medicine and Environmental Health*, 22(4), 305-314.
  22. Jurewicz, J., Radwan, M., Sobala, W., & Radwan, P. (2016). Air pollution and sperm quality: A systematic review and meta-analysis. *Environmental Research*, 156, 720-728.
  23. Kidd, S. A., Eskenazi, B., & Wyrobek, A. J. (2001). Effects of male age on semen quality and fertility: A review of the literature. *Fertility and Sterility*, 75(2), 237-248.
  24. Knez, J., Štruc, E., & Kovačič, B. (2014). Impact of air pollution on fertility: A systematic review. *International Journal of Environmental Research and Public Health*, 11(7), 7642-7664.
  25. Knez, K., Tomazevic, T., & Zorn, B. (2008). Morphological assessment of human sperm: Light microscopy vs. computer-assisted sperm analysis and significance of sperm morphology in male fertility and assisted reproduction. *Systems Biology in Reproductive Medicine*, 54(2), 59-70.
  26. Komiya, A., & Watanabe, A. (2012). Management of male infertility in industrialized countries: Is it evidence-based? *Inflammation and Regeneration*, 32(3), 133-138.
  27. Kothari, S., & Thompson, A. (2018). Declining sperm counts: Is there an Indian dimension? *Indian Journal of Urology*, 34(4), 272-278.
  28. Kumar, D., Salian, S. R., Kalthur, G., Uppangala, S., Kumari, S., Challapalli, S., & Adiga, S. K. (2019). Semen abnormalities, sperm DNA damage and global hypermethylation in health workers occupationally exposed to ionizing radiation. *Environmental Research*, 168, 33-40.
  29. Kumar, N., & Singh, A. K. (2020). Semen quality: An important biological marker of overall male health. *Indian Journal of Community Medicine*, 45(1), 3-4.
  30. Kumar, N., Singh, A. K., & Patel, A. K. (2019). Assessment of semen quality among unselected Indian males. *Journal of Human Reproductive Sciences*, 12(2), 107-112.
  31. Levine, H., Jørgensen, N., Martino-Andrade, A., Mendiola, J., Weksler-Derri, D., Mindlis, I., & Swan, S. H. (2017). Temporal trends in sperm count: A systematic review and meta-regression analysis. *Human Reproduction Update*, 23(6), 646-659.
  32. Li, G., Xia, Y., Wang, J., Xu, Y., Zhang, Y., Xu, T., & Xia, Y. (2018). Influence of socio-cultural and environmental factors on semen quality: A systematic review and meta-analysis. *Environmental Science and Pollution Research*, 25(28), 27871-27885.
  33. Li, Y., Lin, H., Ma, M., Li, L., Cai, M., Zhou, N.,... & Xu, W. (2017). Semen quality of 1346 healthy men, results from the Chongqing area of southwest China. *Environmental Pollution*, 231(Pt 1), 1141-1149.



34. Luk, B. H., & Loke, A. Y. (2015). *The impact of infertility on the psychological well-being, marital relationships, sexual relationships, and quality of life of couples: A systematic review. Journal of Sex and Marital Therapy, 41(6), 610-625.*
35. Magnusdottir, E. V., Thorsteinsdottir, T., Thorsteinsdottir, M., & Heimisdottir, M. (2017). *Persistent decline in semen quality among Icelandic men. Icelandic Medical Journal, 103(8).*
36. Marimuthu P, Kapilashrami MC, Misro MM, Singh G. *Evaluation of trend in semen analysis for 11 years in subjects attending a fertility clinic in India. Asian J Androl. 2003;5:221-5.*
37. McPherson, N. O., Zander-Fox, D. L., & Lane, M. (2011). *The sperm oxidative stress assay: An important clinical measurement of oxidative stress in male infertility. The Open Reproductive Science Journal, 3(1), 43-51.*
38. Mendiola, J., Stahlhut, R. W., Jørgensen, N., Liu, F., Swan, S. H., & Study for Future Families Research Group. (2011). *Associations between urinary metabolites of di(2-ethylhexyl) phthalate and reproductive hormones in fertile men. International Journal of Andrology, 34(4 Pt 2), e369-e378.*
39. Mishra, S., Panneer Selvam, N., Rajamani, P., & Jayaraman, A. (2020). *Semen quality of male partners of infertile couples from different geographical regions of India: An analysis of a large multi-centric cross-sectional study. Andrologia, 52(7), e13595.*
40. Mukhopadhyay D, Varghese AC, Pal M, Banerjee SK, Bhattacharyya AK, Sharma RK, Agarwal A. *Semen quality and age-specific changes: a study between two decades on 3,729 male partners of couples with normal sperm count and attending an andrology laboratory for infertility-related problems in an Indian city. Fertil Steril. 2010;93:2247-54.*
41. Ombelet, W., Bosmans, E., Janssen, M., Cox, A., Vlasselaer, J., & Gyselaers, W. (2001). *Semen quality and intrauterine insemination. Reproductive BioMedicine Online, 2(2), 115-122.*
42. Radwan, M., Jurewicz, J., & Wielgomas, B. (2017). *Occupational pesticide exposure and semen quality—A systematic review and meta-analysis. International Journal of Occupational Medicine and Environmental Health, 30(3), 401-429.*
43. Radwan, M., Jurewicz, J., Wielgomas, B., Sobala, W., Radwan, P., Bochenek, M., & Hanke, W. (2016). *Environmental factors as modulators of male fertility. Environmental Science and Pollution Research, 23(7), 7032-7052.*
44. Ramón, R., Ríos, R., & García, A. M. (2016). *Association between exposure to persistent organic pollutants and sperm DNA damage: A systematic review and meta-analysis. Environment International, 94, 576-585.*
45. Richthoff, J., Rylander, L., Hagmar, L., & Malm, J. (2011). *Higher sperm counts in Southern Sweden compared with Denmark. Human Reproduction, 26(4), 901-906.*
46. Rignell-Hydbom, A., Rylander, L., Giwercman, A., & Jönsson, B. A. (2004). *Exposure to CB-153 and p,p'-DDE and male reproductive function. Human Reproduction, 19(10), 2066-2075.*
47. Rolland, M., Le Moal, J., Wagner, V., Royère, D., & De Mouzon, J. (2013). *Decline in semen concentration and morphology in a sample of 26,609 men close to general population between 1989 and 2005 in France. Human Reproduction, 28(2), 462-470.*
48. Rupa, D. S., Reddy, P. P., Reddi, O. S., & Joshi, S. J. (1991). *Reproductive performance in population exposed to pesticides in cotton fields in India. Environmental Research, 54(1), 123-138.*
49. Sengupta P. *Challenge of infertility: How protective the yoga therapy is? Anc Sci Life. 2012;32:61-2.*
50. Sermondade, N., Faure, C., Fezeu, L., Shayeb, A. G., Bonde, J. P., Jensen, T. K.,... & Czernichow, S. (2013). *BMI in relation to sperm count: An updated systematic review and collaborative meta-analysis. Human Reproduction Update, 19(3), 221-231.*
51. Sharma, R., & Agarwal, A. (2016). *Future prospects for sperm selection methods in assisted reproductive technology: A systematic review. Asian Journal of Andrology, 18(6), 820-827.*
52. Sharma, R., Harlev, A., Agarwal, A., Esteves, S. C., & Majzoub, A. (2016). *Lifestyle factors and reproductive health: Taking control of your fertility. Reproductive Biology and Endocrinology, 14(1), 6.*
53. Sharma, R., Harlev, A., Agarwal, A., Esteves, S. C., & Majzoub, A. (2016). *Lifestyle factors and reproductive health: Taking control of your fertility. Reproductive Biology and Endocrinology, 14(1), 6.*
54. Singh, A. P., Khanna, A., Chauhan, S. R., Shukla, K. K., Patel, D. K., Trivedi, S., & Singh, S. K. (2020). *Decline in semen quality among Indian men during the past 34 years. Journal of Human Reproductive Sciences, 13(4), 284-290.*
55. Swan, S. H., Elkin, E. P., & Fenster, L. (1997). *The question of declining sperm density revisited: An analysis of 101 studies published 1934-1996. Environmental Health Perspectives, 105(11), 1228-1232.*
56. Sylvestre, M. P., & Huszar, G. (2017). *Economic consequences of infertility and assisted reproduction: A review of the literature. Reproductive BioMedicine Online, 34(2), 141-152.*
57. Thijssen, A., Meuleman, E., Van Kley, D., & Braat, D. (1998). *Semen quality in subfertile men. Human Reproduction, 13(2), 309-313.*
58. Thoma, M. E., McLain, A. C., Louis, J. F., King, R. B., Trumble, A. C., Sundaram, R., & Buck Louis, G. M. (2013). *Prevalence of infertility in the United States as estimated by the current duration approach and a traditional constructed approach. Fertility and Sterility, 99(5), 1324-1331.*
59. Venkatesh, S., Riyaz, A. M., Shamsi, M. B., Kumar, R., & Dada, R. (2011). *Role of reactive oxygen species in the pathogenesis of mitochondrial DNA (mtDNA) mutations in male infertility. Indian Journal of Medical Research, 134(4), 529-536.*
60. Vicari, E., Calogero, A. E., Condorelli, R. A., Russo, A., & La Vignera, S. (2004). *Morphological normality of spermatozoa bound to chlortetracycline evaluated by fluorescence (CASA) in 500 subjects with normal sperm concentration and strict criteria for normal morphology. Human Reproduction, 19(7), 1545-1549.*
61. Vine, M. F. (1996). *Smoking and male reproduction: A review. International Journal of Andrology, 19(6), 323-337.*
62. World Health Organization. (2010). *WHO laboratory manual for the examination and processing of human semen (5th ed.). Geneva, Switzerland: WHO Press.*





## GOD AS LOVER: A STUDY OF SELECTED VACHANAS OF AKKAMAHADEVI

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Love is a trait that is common to both the genders. It may happen anytime, anywhere and with anyone. Love is merely a puppet in the hands of time, place, and situation. Perhaps it is the only emotion which does not take any other thing into consideration. The commonest form of love is the one which one develops for the opposite sex. For a man or woman his/her lover is anything and everything.

Though gender has nothing to do with love, it is commonly agreed that the woman is more committed in love than the man. It is generally believed that women are emotionally stronger than men. There have been women who have sacrificed their lives for their lovers. For a woman her lover becomes a God. She literally worships her lover. When it comes to Indian women it matters all the more. Traditional women kept their lover on the pedestal and worshipped him. Their love was true to the core. There was no room for any other man in their life. Their mind was full of the one whom they loved. To a great extent, this is true with many modern women also.

However, in the medieval times some women developed a very strange kind of love in which the whole idea of love was subverted in a way. These women, like Mirabai, treated all men as their brothers. They never got infatuated by men. On the other hand they took God to be their lover. While other women treated their lover to be God, these women treated God as their lover. One such woman lived in the 12<sup>th</sup> century in South India namely Akkamahadevi.

Akkamahadevi is basically the child of a social movement called the "Veerashaiva Movement", led by Basaveshwara. Aiming at social reformation, the Sharanas intention was to eradicate the age-old caste system from the Indian society. They dreamt of a society in which women were treated on par with men. The concept of emancipation transcended sex in the Sharana Movement. They were opposed to untouchability and they stood for the upliftment of the downtrodden. They opposed pomp and show in the name of religion and taught the purity of thought and all endeavours. They saw God in the ever fresh knowledge and spirituality but not in the static place of worship. Being a Sharane Akka also had the same dreams.

Akka's original name was Mahadevi. She was born in the 12<sup>th</sup> century in a village called Udutadi in the present Shivamogga district of Karnataka. Her parents, Nirmala Shetty

and Sumati were ardent devotees of Shiva. Child Mahadevi never accepted anything blindly and she used to ask several questions to elders. At the age of ten, while getting Linga Diksha, she asked her Guru, Gurulinga Deva as to what was it all about. Then the Guru told her that she was being married to God. Taking it seriously, later Mahadevi refused to marry anyone as she had already been married to God.

However, a king named Koushika forcibly married Mahadevi. But soon she left the palace accusing the king of lustfulness. It is told that she abandoned all her clothes and walked naked in search of her true husband Chennamallikarjuna with an inward spiritual approach. On the way she went to Kalyana where she met Basavanna and others. There she spent time in the extraordinary divine company of the Sharanas. But finally she chose her way and left Kalyana. To quote J.P. Schoten,

"Akkamahadevi was too much of a solitary seeker to find satisfaction in such a large and turbulent community. She went on foot to the holy mountain of Srishaila, an old Shaiva centre of pilgrimage with a famous monastery. There, she expected to find her divine lover and to realize the consubstantial union with him. The heavenly plantain-grove of Srishaila is said to have been the end-point of her quest. According to the legends, she died there in her early twenties in complete surrender to her Lord." (JPS, 169)

In this paper, a humble attempt is made to trace the quest of Akka for spiritual attainment by trying to be free of worldly entanglements.

As a true lover, Akka is worried whether her lover returns her love or not. She, in fact discusses in one of her Vachanas that she is going to sing of Him, see Him, embrace Him and worship Him even if He does not care her. The joy which she gets by worshipping Him is more than anything for her.

A lover always does anything and everything for his or her beloved. In the same line, Akka also does everything for her Lord. Losing contact with this world, she is ready to do anything to impress God. Day and night she thinks about Him and all that she does in her life is for Him.

"I dress myself for Linga's sake.

I deck myself for Linga's sake.





I work for Linga's sake.  
 I see for Linga's sake.  
 Because my inner self and outer self are for Linga."  
 (CRY 115)

As Mahadevi was very beautiful, many men came forward to marry her. But she refused to marry. Her answer to them was,

" You came, O brothers,  
 Seeing the beauty of my bare breasts  
 And blooming youth.  
 But I am not a woman,  
 Nor a whore, O brothers!  
 Seeing me, who did you take  
 Me for, O brothers?  
 The face of no other person  
 Than that of Cennamallikarjuna,  
 Pleases me,  
 Look, brothers!" (CRY 173)

As it is common with lovers, Akka also never feels hungry. The only aim of her life is to find her lover. She says,

" I spend four quarters of the day  
 In anxiety for you.  
 I spend four watches of the night  
 In dissolute state, pining for Linga.  
 I lie day and night forgetful of myself,  
 Longing for you.  
 With your love piercing me,  
 I lost hunger, thirst and sleep,  
 O Cennamallikarjuna!" (CRY 208)

Having God for her husband Akka feels that she is the most fortunate of all. Her sole aim of life is to unite with God. Nothing else matters her. She is the one who is out-of-this world, unconnected to the world. The men and women of this world are all brothers and sisters to her. She cannot expect anyone of this world to be her lover or husband other than God. When Mahadevi is forced to marry the king, she says that she cannot marry any man of this earth. She refuses to touch or even go near any man as they have thorns in their chests. She cannot embrace them. It is only her Lord who is free from any kind of thorns. She wants to embrace Him and wants Him to have her merged in Him.

Akka's love is not mere physical attraction. Her mind is always filled with the thoughts of God. He has possessed her whole being. She feels happy because God has conquered her mind. When King Koushika makes lustful advances, Akka gets angry and tells him that she never cares for physical gratification. She asks him to move away from her as she is worried whether her Lord loves her or not. Her views are expressed in a beautiful Vachana :

" A she-buffalo's worry is for one thing,  
 A cobbler's worry is for another.  
 A pious man's worry is for one thing,  
 An impious man's worry is for another.  
 I worry for myself,  
 He worries for lust.  
 I don't want you, go away!

Let go my hood, fool!  
 My worry is –  
 Whether Lord Cennamallikarjuna  
 Loves me or not." (CRY 120)

However, with a lot of spiritual attainment Akka later becomes confident that Chennamallikarjuna is one with her. In one of her Vachanas, Akka subtly attacks the meaninglessness and hypocrisies of the day in the outer world. Hardheartedness, dry devotion, bereft of compassion, pomp and show neither enables people to realise the Almighty, nor does God accept the offerings of such people in the form of worship. Akka in a way is attacking the institutionalised religion which had become stale without real knowledge and spirituality. Her greatness lies in her humility when she confesses before God Chennamallikarjuna in the same Vachana as to what made Him come near her; when she didn't know the nature of her own devotion.

Akka clearly mentions in her Vachanas that her mind never thinks about any man. As the cuckoo sings when the mango tree blooms and as the bee longs to visit a flower when it has fragrance, her mind also yearns to meet her Lord. The reason she gives for not thinking about other men is that she has already married God. And in Indian tradition, a married woman cannot even think about other men because this is the purity of mind. This is what she tells about her marriage,

" Guru became the kinsman,  
 Linga the bridegroom  
 And I am the bride.  
 As all the world knows,  
 My father and mother  
 Were the innumerable Saranas.  
 They gave me in marriage  
 To a suitable groom.  
 Therefore, Cennamallikarjuna is my husband.  
 Other worldly men  
 Are nothing to me, O Lord!" (CRY 146)

Again, Akka is so happy with her decision of marrying God because He is stronger than Manmatha, Yama, Brahma, Vishnu and Tripura Fort. She says in a Vachana,

" .....  
 Therefore, Cennamallikarjuna  
 Who is beyond birth and death is my husband.  
 How can I describe his strength?" (CRY 134)

Akka's mind is filled with the thoughts of her lover. She not only thinks of Him when she is awake but also when she is asleep. Like a true lover, she thinks of Him even in her dreams. There are many instances in her Vachanas where she tells that God came in her dreams. Akka is happy because she knows that her God also loves her. That is why Akka is not worried about the problems she had to face in the forest. In fact, she is happy with whatever she gets there:

" When hungry, alms are available in town.  
 When thirsty, ponds, streams and wells are there.  
 When the body catches cold,  
 There are cast off clothes to cover it with  
 And for bed to sleep in, deserted temples.



For my soul's companion  
 You are there, O Cennamallikarjuna!" (CRY 209)

Generally, people want to be respected by others. They want to be recognised and honoured. But Akka is least bothered about worldly honour. Being loved by God itself is a great honour for her. She puts the same idea in the following Vachana,

“ Do those who are united by love look for caste?  
 Do those who are mad with love know shame?  
 Do those who are loved by Cennamallikarjuna,  
 Care for worldly honour?” (CRY 126)

Having loved the God Himself, Akka had to face the comments of the cruel world. In spite of people talking harsh words about her and children throwing stones at her, she never heeded to their words and continued to walk in her own path. Her advice in this regard is worth following,

“ Having built your house on a mountain top,  
 Why fear wild beasts, Sir?  
 Having built your house on a sea shore,  
 Why fear froth and foam, Sir?  
 Having built your house in the bazaar,  
 Why blush at words of abuse?  
 Being born in this world,  
 Should scorn come to you,  
 We should be cool and collected,  
 Allowing no thought of anger  
 Darken our mind,  
 Listen, O Cennamallikarjuna Lord!” (CRY 178)

Akka is least bothered about her body. According to her the body has nothing to do with love. Bhakti is more important for her than physical appearance. This is clear when she says,

“ What if my body is burnt pitch black, O Sir?  
 What if my body radiates light, O Sir?  
 When once the heart is purified,  
 And the body is loved by you,  
 What matters how the body is,  
 O Cennamallikarjuna?” (CRY 135)

Akka searches her lover even when she is walking through the dense forests. She desperately asks the parrots, cuckoos, bees, swans and peacocks on her way whether they had seen Him. However, later she finds that He is very much with her :

“ .....  
 How can I live without seeing  
 My Lord Cennamallikarjuna,  
 Who dwells in me  
 Being a part of my heart and soul?” (CRY 154)

While leaving Kalyana, Akka writes a Vachana in which she tells that she will go and stay at her husband's place. She wants to test her love for her God. She says,

“ I'll go and stay at my husband's place.  
 Once gone I won't return.  
 .....  
 If Srisaila Cennamallikarjuna loves me,

I'll never return, O mother!” (CRY 216)

Thus, one can see Akka as a prominent figure of the Veerashaiva Movement of the 12<sup>th</sup> century. Her didactic poems are a great contribution to the Bhakti literature. Though simple, her Vachanas are of the highest order. Rejecting the family life she actively participated in the debates at Anubhava Mantapa. That is why, though being the youngest member of Anubhava Mantapa, she was called Akka, meaning elder sister. Dr. C. R. Yarovintelimath rightly comments, “Akkamahadevi, ‘the miracle of miracles’, ‘the Divine Cuckoo’, was the first among women Vachana writers both in mystic height and poetic excellence.” (CRY 41)

The love that we see in Akka's Vachanas is of very unusual kind which we rarely see in this world. Her affection or devotion towards God may seem to be extreme. Truly she is an extremist in love who has the guts to reject even the king. She is totally unaffected by the physical charm, strength, beauty or the position of the men of this world. What makes her unique even in Bhakti literature is the firmness of her mind. Time and again women have crush on God, but ordinary women succumb to worldly attractions later. They can't stick on to their earlier philosophy when they come across handsome men. Some of them are made to accept the norms of the society in which one lives. Such women are given a very bad treatment by the society and are even laughed at.

Some modern critics consider Akka as the first feminist of the world. Perhaps it cannot be viewed that way in the modern sense because presently women are fighting for their emancipation through gender equality, equal opportunities, common rights, etc., which are all concerned with the worldly life. Akka, in spite of being married to a king who had everything, did not find anything interesting in the worldly life and she wanted to get rid of it for her spiritual attainment to have God Cennamallikarjuna as her consort. Rejecting worldly things for spiritual quest has a philosophical dimension as it can be seen in her Vachanas and she can be compared only with a few a great women like Mirabai. Nevertheless, Akka's life is a source of motivation and inspiration for women who want to express themselves and choose the life of their choice.

## WORKS CITED

1. *Yarovintelimath C R., (Tr) Vachanas of Women Saints, Bangalore, Basava Samiti, 2006. (Identified as CRY)*
2. *Schouten J P. Revolution of the Mystics , Delhi, Motilal Banarsidass Publishers, 1995. (Identified as JPS)*



# ATTITUDES AND PRACTICES ON CONTEXTUALIZATION AND LOCALIZATION OF ELEMENTARY TEACHERS IN EASTERN SAMAR DIVISION

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## ABSTRACT

*With the full swing implementation of the K to 12 curriculum, contextualization and localization has become integral in support of the principle that learners learn best when lessons are presented with meaning and are relevant to their lives. Using the correlation research method and an adapted data gathering instrument, this study tried to examine the relationship between the attitudes and practices of 289 elementary school teachers in Oras Districts, Oras, Eastern Samar towards the implementation of contextualization and localization. It also examined set of profile characteristics which may have relationship with attitudes and practices. From the findings it was found that respondents are less anxious towards the implementation of contextualization and localization, making them receptive to change, and with high sense of community. Implementation practices have manifested a dissonance among the teachers in the districts indicating a need to create a synergy among schools. Further, it was revealed that age and length of service have positive weak relationship with respondents' anxiety. Work position on the other hand indicated a negative weak relationship with sense of community and networking and linkages. Meanwhile, educational attainment and work position have shown negative correlation with practices while only anxiety among four attitudes evaluated was not significantly related with practices. It is recommended that implementation practices be improved by strengthening networks and linkages, formulating policies responsive to local situations, and providing relevant trainings to teachers.*

**KEYWORDS:** *K to 12 curriculum, attitudes, practices, contextualization, localization*

## INTRODUCTION

By virtue of Republic Act 10533 or the Enhanced Basic Education Act of 2013, monumental change happened to the Philippine educational system--the implementation of the K to 12 Program of the Enhanced Basic Education Curriculum. Not only that this newly implemented curriculum changed the conventional ways of teaching but has imposed upon the education sector changes in many aspects of the curriculum under the basic education programs (Ocampo, 2014).

Recently, much attention has been poured upon the contextualization and localization of the curriculum marked by series of national and local workshop trainings on the creation of contextualized and localized learning resources. This move to create contextualized and localized curriculum is primarily anchored on the principles that learners learn best when lessons in class are presented with meaning and are relevant to the lives of the learners (Pecson, 2014).

The current concern on the importance of the inclusion of contextualization and localization as an overall purpose of the curriculum is rooted on the need to uplift educational performance in the country. Recently, the National Achievement Test (NAT) revealed alarming educational gaps. Through an improved NAT mean percentage score (MPS) in Math, Science, Filipino, English, and Social Studies is recorded at 54.66% to 66.9% from 2005 to school year 2012 – 2013, the results for Grade 6 level NAT is still far below the national acceptable standards of 75%. This is also true to records set by the high schools in the country. Participation rate for 12-15 years improved from 61.16% from 2005 to 64.8% by 2013, yet it is still below the planning standard of 100%.

Serious implications these problems are seen by Perin (2011) especially for the trajectory in academics of learners who have not been well equipped with all foundation skills as they enter secondary and post-secondary education. Literature suggests that teaching the basics across fields of discipline may provide answer to these problems (Heller & Greenleaf, 2007; Lee & Spratley, 2010). One way to address this relationship is through contextualization.

In Eastern Samar, there have been no studies concerning implementation of contextualization and localization of the K to 12 Curriculum though the newly implemented curriculum covers these two important features. More so, attitudes and practices of



the teachers have not been investigated. It is believed that, along the advent of the K to 12 curriculum, delivery of instruction goes with the changes in the curriculum facets. The introduction of contextualization and localization needs further strengthening; thus much foci and attention must be given to its implementation. This study therefore focused on evaluating the attitudes and practices of teachers towards contextualization and localization in the primary level in order to provide salient feedbacks on efficacy of the implementation. This study, therefore, aimed at identifying first-hand information that would support the increasing call for a contextualized and localized curriculum implementation.

## METHODOLOGY

This investigation utilized the quantitative research design specifically the correlational method. Total enumeration of respondents was employed in this study. Teachers in the elementary schools in Oras Districts served as the research respondents. These teachers are working as regular permanent employees of the Department of Education (DepEd) and have been teaching in the elementary level for at least one year during the implementation of contextualization and localization.

Two sets of adapted questionnaires were administered in order to gather essential data that addressed the objectives set for the study. The first instrument is based on some indicators/statements adapted from Schrubba (2008) that were modified to describe attitudes towards contextualization and localization. The second set of instrument is based on some indicators taken from Kenea (2014). Indicators were modified to fit into the research objectives.

Data on the profile characteristics of the respondents was measured using nominal and ratio measurement. Age, length of service, number of relevant trainings attended was measured using absolute number.

Sex was measured utilizing a nominal scale:

- 1- Male
- 2- Female

Highest Educational Attainment was measured using the following ordinal scale:

- 1- BS Degree
- 2- BS Degree with MA units
- 3- Master's Degree
- 4- MA with PhD/EdD/DA(other related doctoral degree) units
- 5- Doctoral Degree

Responses on indicators of the attitude towards the contextualization and localization of the K-12 curriculum were measured through a five-point Likert scale, as follows:

- 1- Strongly Disagree
- 2- Disagree
- 3- Neutral
- 4- Agree
- 5- Strongly Agree

Data on teachers' practices towards contextualization and localization of the K to 12 curriculum was measured through a five-point Likert scale, as follows:

- 1- Rarely/never
- 2- Sometimes
- 3- Half of the Time
- 4- Often
- 5- Always

## RESULTS AND DISCUSSION

The data contained in the following sections serve as benchmark information in understanding contextualization and localization implementation as this is an initial evaluation on focusing on attitudes and practices regarding the aforementioned curriculum implementation.

### Profile Characteristics of the Respondents

Table 1 presents the frequency distribution of respondents' profile characteristics. As to educational attainment, Data reveals that on average respondents' are holders of BS Degree and are holding Teacher I positions. It can be gleaned that on average, respondents are at their late 30's, have been working for more than a decade, and at an average have attended relevant professional development activities more than two times only.





**Table 1. Frequency distribution of respondents' profile characteristics**

<b>Educational Attainment</b>	<b>Frequency</b>	<b>Percent</b>
BS Degree	197	68.2
BS with MA	90	31.1
MA Degree	2	.7
Total	289	100.0
<b>Rank/Position</b>	<b>Frequency</b>	<b>Percent</b>
Teacher I	206	71.3
Teacher II	60	20.8
Teacher III	23	8.0
Total	289	100.0
<b>Age</b>	<b>Frequency</b>	<b>Percent</b>
25-36	162	56.1
37-49	74	25.6
50-61	53	18.3
Total	289	100.0
<b>Years of Teaching</b>	<b>Frequency</b>	<b>Percent</b>
1-12	202	69.9
13-24	47	16.3
25-34	40	13.8
Total	289	100.0
<b>Number of Trainings</b>	<b>Frequency</b>	<b>Percent</b>
1 to 3	252	87.2
4 to 6	16	5.5
7 to 10	21	7.3
<b>Total</b>	<b>289</b>	<b>100.0</b>

### Networking and Linkages

Table 2 provides statistical information on respondents' attitudes on contextualization and localization in terms of networking and linkages. Respondents were made to rate themselves according to their agreement regarding eight (8) indicators on the aforementioned parameter. As can be seen in table 4, on average respondents have a "neutral" agreement with respect to networking and linkages. This is supported by a median of three (3) except for indicator 36 which obtained a median of 4.



**Table 2. Summary statistics of respondents’ attitude towards networking and linkages**

Attitudes Indicators	Median	Range
5. I show little interest in asking support my from my school head in view of contextualization and localization of curriculum.	3	4
17. I always seek technical assistance administrators and authorities to make contextualization and localization easier for me.	3	4
21. Whenever I have difficulty in contextualizing and localizing lessons, I always seek motivation from my administrators and coworkers.	3	4
26. I always let my school head know whenever I am having trouble with contextualization and localization.	3	4
27. I enjoy talking to other educators about contextualization and localization of curriculum.	3	4
28. In view of the pursuit for curriculum contextualization and localization, I let my school head know that I am have great interest.	3	4
32. I am willing to extend help to other teachers who like me, have difficulty in delivering contextualized and localized lessons.	3	4
36. I share my knowledge about contextualization and localization to my school head and coworkers.	4	4

**Receptiveness**

Relative to respondents’ receptiveness on contextualization and localization, 13 indicators were presented and rated using a 5-point Likert scale.

**Table 4. Summary statistics on respondents’ receptiveness to contextualization and localization**

Attitudes Indicators	Median	Range
2. Contextualizing and Localizing learning contents and resources is something that I enjoy very much.	4	3
3. I like the concept of contextualization and localization in the teaching and learning process.	4	3
6. Looking for local resources and transforming them into learning materials is a thing that I enjoy the most.	4	3
7. I feel at ease delivering contextualized lessons and creating localized materials	4	3
8. I would like to do some extra readings on contextualization and localization	4	4



10. Contextualization and localization is an easy work for me.	3	4
14. Sometimes, I find time to understand deeper the strategies of curriculum contextualization and localization.	4	3
16. I understand the rudiments or basic principles of contextualization and localization.	3	4
25. It does not disturb or upset me to do contextualization and localization.	4	4
29. I like the challenge associated with contextualization and localization of some learning contents.	4	4
34. It is important for me to understand the work I do in the class.	4	4
35. I have a good feeling toward contextualization and localization.	4	4
38. I have a real desire to learn everything about contextualization and localization of subject matter.	4	4

### Anxiety

On the measure of respondents' anxiety on contextualization and localization, Table 4 reveals, that on average, respondents have disagreement to more than 50% of the indicators. As such, it is implied that majority of the teacher-respondents do not feel anxious about the implementation of contextualization and localization of the k to 12 curriculum. As presented in the previous section, respondents have a strong agreement that they are receptive to the contextualization and localization features of the new curriculum, thus supporting their low anxiety.

**Table 4. Summary statistics on respondents' anxiety towards contextualization and localization**

Attitudes Indicators	Median	Range
4. I do not do very well in contextualization and localization of learning contents in the subjects that I teach.	3	4
9. Contextualization and localization do not clearly impact to the society where learners live.	3	4
11. When I hear the word "contextualization and localization I have a feeling of dislike.	2	4
13. I would like to spend less time contextualizing and localizing curriculum content, instead, I would like to deliver the lessons the way they are presented in the curriculum.	3	4
18. I do not like anything about the process of contextualization and localization.	2	3
19. No matter how hard I try, I cannot understand the concept of contextualization and localization.	2	4



20. I feel tense or upset when someone talks or asks about contextualization and localization.	2	4
22. I often think, I cannot do contextualization and localization of curriculum.	2	4
30. It makes me nervous to even think about doing contextualization.	3	4
31. The idea of contextualization is not really helpful to the learners and to the overall learning process.	2	4
33. The only reason I am doing contextualization is because I am obliged to.	3	4
37. I do not like to ask questions to curriculum experts concerning contextualization and localization.	2	4
39. If I do not see how to contextualize/localize a lesson right away, I never get to finish it.	3	4

### Sense of Community

On respondents' attitude towards building a sense of community with respect to practicing contextualization and localization of the k to 12 curriculum, a consensus on 4 out of 5 indicators was evident among majority of the respondents. This result indicated that on top of respondents' receptiveness to the curricular change as supported by their low anxiety, teachers have high sense of community in the implementation of contextualization and localization. This reveals that elementary teachers in Oras districts embrace curricular changes by way of creating a collaborative network. These findings are supported by the median and range values of 4.

**Table 5. Summary statistics of respondents' sense of community towards contextualization and localization**

Attitudes Indicators	Median	Range
1. I believe that Contextualization and Localization provide significant contribution to preserving local culture and tradition of the community.	5	4
12. Most teachers should learn to embrace contextualization and localization in the context of preserving community's identity.	4	4
15. Contextualization and localization is helpful in understanding the community and society at present.	4	3
23. The concept of contextualization and localization is of great importance to the country's development.	4	4
24. It is important to contextualize and localize instructions for learners to become more globally competent.	4	4

The preceding discussion suggests that majority of the respondents exhibited healthy disposition on contextualization and localization as new features of the k to 12 curriculum. This is supported by a high degree of receptiveness to the change in curriculum and their low level of anxiety. This finding corroborates Uche (2014) as she found that teachers in Nigeria have positive attitude and views towards inclusive education which is reflective of a contextualized and localized classroom. This also supports the study of Areekkuzhiyil (2014) which revealed that the teachers have a positive attitude towards the restructured curriculum at under graduate level in Kerala.





**Practices**

A total of 10 indicators describing different practices revolving around the subject matter were presented to and rated by the teacher-respondents according to the degree of implementation. A dissonance is observed from among the responses provided by the teachers. Only 40% of the indicators are “often” practiced by the respondents,” another 40% are “half of the time” implemented, while about 20% are sometimes practiced.

Results implicate that despite strong attitude towards receptiveness and sense of community, there is still a gap between respondents’ attitudes and their actual contextualization and localization practices. From the dissonance of the results, it can further be implied that there is much variability in terms of what teachers actually implement in their classroom than what they think and feel about contextualization and localization. This may be explained by their neutrality in terms of building networks and linkages, because however positive their attitudes are if they solitary work on the implementation, synergistic practices may be neglected.

**Table 6. Summary statistics of respondents’ contextualization and localization practices.**

Practices Indicators	Median	Range
1. I utilize actual site visitations where applicable in order to make my lesson more vivid.	3	4
2. I invite local community elders/leaders to my classroom so that they talk to the class on some local issues related to my subject matter	2	4
3. I invite experts in the locality to my classroom so that they train my students on practical matters.	2	4
4. There are some differences between what I teach and what is in the textbooks	3	4
5. Community studies (in the form of projects and assignments on community structures, health, relationships, governance, etc.) form important part of the subject I teach.	4	3
6. I indulge myself in professional development activities (i.e. trainings/workshops/online readings) on curriculum contextualization and localization	4	3
7. I ask technical assistance from experts on how to contextualize the curriculum (for e.g., discussions after classroom observations included contextualization as an issue)	3	4
8. I see to it that mechanisms are in place to follow up curriculum contextualization through students’ feedbacks and comments.	3	4
9. I include Curriculum adaptation as an agenda for discussion on quarterly review of performance	4	4
10. I create materials (other than those suggested in the textbook) to be used in my instruction.	4	4

The aforementioned results somewhat support the study of Kenea (2014). It was revealed that effort at contextualizing the curriculum is terribly lacking. Further, she elaborated that though there is institutional concern over curriculum relevance, in practice, the attempt made to model the process through inclusion of elements of curriculum contextualization into teachers’ performance assessment criteria and textbook evaluation guides is extremely lacking.



**Relationship between Respondents’ Profile Characteristics and Attitudes towards Contextualization and Localization**

In order to understand respondents’ profile characteristics in relation to their contextualization and localization attitudes and practices, test on correlation was performed.

Among the profile variables, three (3) characteristics (age, work position, and length of service) manifested significant relationship with three (3) of the four (4) attitudes assessed. At 0.01 and 0.05 levels of significance, respondents’ work position revealed a negatively weak relationship with their sense of community and networking and linkages ( $r = -0.127, 0.030; r = -0.156, 0.028$ ).

Though relatively weak, results imply that work position co-varies negatively with respondents’ sense of community and networking and linkages. With p-values lower than the level of significance, there is suffice evidence to say that as teacher’s position go higher an inverse variation is exhibited by respondents’ attitudes on sense of community and networking . Implications may suggest that as teachers get promoted and occupy higher ranks, they acquire more knowledge and understanding regarding contextualization and localization thereby inhibiting them to collaborate and get dependent with other faculty. They gain autonomy thus diminishing collaborative culture evident in their attitudes towards creating a sense of community and networking.

**Table 7. Test on correlation between respondents’ profile characteristics and attitudes**

Variable 1	Variable 2	Corr. Coefficient	p-value	Decision	Interpretation
Age	Networking	.063	.289	Fail to Reject	Not Significant
Educational Attainment		-.034	.570	Reject	Significant
Work Position		-.156**	.008	Reject	Significant
Length of Service		-.038	.522	Fail to Reject	Not Significant
Number of Trainings		.006	.922	Fail to Reject	Not Significant
Age		Receptive- ness	.045	.446	Fail to Reject
Educational Attainment	.053		.373	Reject	Significant
Work Position	-.074		.211	Reject	Significant
Length of Service	-.041		.486	Fail to Reject	Not Significant
Number of Trainings	-.033		.579	Fail to Reject	Not Significant
Age	Anxiety		.215**	.000	Reject
Educational Attainment		.046	.437	Fail to Reject	Not Significant
Work Position		.129*	.028	Reject	Significant
Length of Service		.214**	.000	Reject	Significant
Number of Trainings		-.077	.191	Fail to Reject	Not Significant



<b>Age</b>		-0.058	.324	Fail to Reject	Not Significant
<b>Educational Attainment</b>		.027	.652	Fail to Reject	Not Significant
<b>Work Position</b>	<b>Sense of Community</b>	-.098	.097	Reject	Not Significant
<b>Length of Service</b>		-.127*	.030	Reject	Significant
<b>Number of Trainings</b>		.004	.945	Fail to Reject	Not Significant

\*significant at 0.01 confidence level  
 \*\*significant at 0.05 confidence level

Further, age and length of service have indicated weak but positive significant relation with respondents’ anxiety. This implies that the older the teachers become, the higher the positions they hold, and longer service they render the lesser anxiety they feel about contextualization and localization implementation. This may be explained by the sense of autonomy and confidence teachers develop as they become tenured in their work.

Meanwhile, Table 9 presents the test on hypothesis to validate the relationship between respondents profile characteristics and their contextualization and localization practices. As shown in table 9, respondents’ educational attainment and work position both manifest weak and negative correlation with their practices ( $r = -0.144^*$ ,  $r = -0.187^{**}$ ). As supported by p-values lower than the level of significance, there is enough statistical information to say that these two variables have negative significant relationship with contextualization and localization practices.

**Table 8. Test on correlation between respondents’ profile characteristics and practices towards contextualization and localization**

Variable 1	Variable 2	Corr. Coefficient	p-value	Decision	Interpretation
<b>Age</b>		-.015	.793	Fail to Reject	Not significant
<b>Educational Attainment</b>		-.144*	.014	Reject	Significant
<b>Work Position</b>	<b>Practices</b>	-.187**	.001	Reject	Significant
<b>Length of Service</b>		-.069	.239	Fail to Reject	Not significant
<b>Number of Trainings</b>		.112	.056	Fail to Reject	Not significant

\*significant at 0.01 confidence level  
 \*\*significant at 0.05 confidence level

Findings reveal that as teachers advance and become progressive with their education and get promoted to higher ranks, a significant and negative variation is observed in their performance of strategies and activities in line with contextualization and localization. This result may further lead to a presumption that position tenure may render teachers’ complacent thus resulting to a negative variation in the performance of activities in line with contextualization and localization.



### Correlation between Attitudes and Practices

The last set of information shows the test on correlation between respondents' attitudes and practices towards k to 12 curriculum contextualization and localization. It can be gleaned from Table 10 that both respondents' receptiveness and sense of community have shown moderate positive correlation with their practices ( $r = .491$ ,  $r = .447$ ) while networking and linkages have manifested a strong positive correlation ( $r = .647^{**}$ ). From these findings, it is implied that respondents' practices on curriculum contextualization and localization moderately depend on their receptiveness and sense of community. In addition, it is implicated that variance in the performance of various classroom activities to contextualize and localize the curriculum they are implementing may be determined by their attitudes towards building strong network and linkages. This means that as collaboration becomes evident the healthier the practices become and the greater the networks established the more define practices become.

**Table 9. Test on correlation between respondents' attitudes and practices towards contextualization and localization**

Variable 1	Variable 2	Corr.	p-	Interpretation	
		Coefficient	value		
Networking and Linkages	Practices	.647**	.000	Reject	Significant
		.491**	.000	Reject	Significant
.008		.893	Fail to Reject	Not Significant	
.447**		.000	Reject	Significant	

\*significant at 0.01 confidence level

\*\*significant at 0.05 confidence level

From the foregoing findings, this initial assessment provides information that in Oras, Eastern Samar, positive attitudes are exhibited among teachers with respect to implementation of contextualization and localization. However, despite this healthy disposition, variability in employed strategies that would give a defining identity to teachers' actual practices on contextualization and localization is still highly evident. This observation is suggestive of the need to create a collaborative environment among teachers in which knowledge on contextualization and localization is shared by and among teachers in the same locality perhaps through the formulation of local and contextualized policies. Kenea (2014) mentioned that among the important roles educational leaderships at various levels play in curriculum contextualization is providing policy back-up and professional support for teachers. In fact, it can be argued that teachers' role ineffectively contextualizing the curriculum is largely a function of effective leadership support.

Further, with the data indicating positive and negative relationships among variables, this study claims that attitudes and practices may be affected by one's personal characteristics. Teachers, as links between the learners, the curriculum resources and the instructional environment play central role in contextualizing the curriculum. It is the teacher who has to recognize if there is any gap between the espoused curriculum element/material and the situation of the child. For this, teachers' knowledge of the learner and their situation is very important Kenea (2014); hence, attitudes and practices matter a lot with respect to successful implementation of contextualization and localization.

### CONCLUSIONS

From the careful analyses of the salient findings of the study, the following conclusions are formulated:

1. On average, respondents have been working for more than 10 years already but have been occupying the lowest work position/rank. They have not been progressive in their advanced education, evident by majority of them holding BS degrees only. This might have hindered them from advancing in their promotions that require advanced education unit among other qualification standards. Since implementation of the K to 12 curriculum, on average, they have been to relevant trainings twice only which indicate the need to intensify capability building on these areas.
2. At an average, it is suffice to conclude that majority of the respondents exhibited healthy disposition towards k to 12 curriculum contextualization and localization; they are more receptive and less anxious towards its implementation. In addition, they have high sense of community but have shown neutrality in terms of networking and linkages.
3. In terms of their practices, a divide is evidently shown in the level of practices on contextualization and localization, thus it is safe to say that there is no single best and defining practices among elementary schools in Oras districts. This conclusion





may indicate that practices are not well-defined among schools, hence variability in the strategies implemented by teachers are highly evident.

4. Work position shows a positive correlation with anxiety and a negative correlation with sense of community and networking. Age and length of service have manifested positive correlation with anxiety.
5. Only educational attainment and work position have revealed a significant but negative correlation with respondents' practices while all others have not shown any significant relationship at all; and
6. Among the four attitudes evaluated, only anxiety does not have significant relationship with respondents' practices. This implies that the degree to which variance in the performance of contextualization and localization is achieved does not depend upon teachers feeling of anxiety towards the change in the curriculum implementation features.

## REFERENCES

1. Areekuzhiyil, S., (2014). *Attitude of teachers towards the Restructured Curriculum at undergraduate level in Kerala. Journal of Research, Extension and Development. Vol: 2(5); January 2014*
2. Heller, R., & Greenleaf, C. L. (2007). *Literacy instruction in the content areas: Getting to the core of middle and high school improvement. Washington, DC: Alliance for Excellent Education.*
3. Kenea, A. (2014). *The Practice of Curriculum Contextualization in Selected Primary Schools in Rural Ethiopia. Journal of Education and Practice ISSN 22221735 (Paper) ISSN 2222-288X (Online) Vol.5, No.10, 2014. Retrieved from www.iiste.org.*
4. Ocampo, D. S., (2014). *Presentation on The K-12 Curriculum.*
5. Pecson, R., (2014). *Localization and Contextualization in Teaching Social Studies. Online Article retrived at ryanramoletepecson. Blogspot.com*
6. Perin, D. (2011). *Facilitating student learning through contextualization. Community College Research Center.*
7. Perin, D., Hare, R. J., Pevely, S. T., & Mason, L. H. (2010). *Contextualized written summarization by academically-underprepared community college students. Unpublished manuscript.*
8. *Philippine National Education Testing and Research Center. (2013). NAT Overview and 2012 Test Results. Retrieved January 7, 2016, from*
9. Uche, I., (2014). *Teachers Attitude to Curriculum Change: Implications for Inclusive Education in Nigeria. Research on Humanities and Social Sciences. Vol.4, No.11, 2014. Retrieved at [www.iiste.org](http://www.iiste.org)*



# INTEGRATION OF TECHNOLOGY WITH EDUCATION IN THE NEW NORMAL AGE: A COMPREHENSIVE STUDY

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## ABSTRACT

*Worldwide disruption caused by the COVID-19 pandemic has forced educators to look for novel solutions to maintain uninterrupted learning. In this new normal age, the integration of technology with education has emerged as a crucial avenue for transforming teaching and learning experiences. This research article aims to explore the various dimensions of technology integration in education, its benefits, challenges, and potential future implications. This article provides a comprehensive analysis of the impact of technology on education in the context of the new normal age.*

**KEYWORDS:** COVID-19, Education, New Normal and Technology

## INTRODUCTION

With traditional classroom settings disrupted by the COVID-19 epidemic, a swift transition to remote and hybrid learning is now necessary. This marks the beginning of a new normal age in education. Globally, educational institutions and stakeholders have struggled to provide students with uninterrupted learning opportunities in the face of lockdowns, social isolation tactics, and different levels of access to actual classrooms. In response, the use of technology in the classroom has become a crucial strategy for transforming teaching and learning in this dynamic environment. This research article aims to explore the integration of technology with education in the new normal age. It delves into the various dimensions of technology integration, highlighting its benefits, challenges, and potential future implications for the field of education. By examining relevant literature and studies, this article seeks to provide a comprehensive analysis of the impact of technology on education, considering the unique context of the new normal age.

## OBJECTIVES

- ✚ To examine the various dimensions of technology integration in education in the new normal age.
- ✚ To identify and analyse the benefits of technology integration in education and its futuristic implications.
- ✚ To investigate the challenges associated with technology integration in education.

## RESEARCH METHODOLOGY

This Research Article is conceptual based study and purely descriptive in nature as the information have been collected from secondary sources of data such as E- Journals, Websites, and such other related online study/reference materials etc.

### Benefits from Technology Integration in Education

**Enhanced Access and Flexibility:** Regardless of their location or time constraints, students now have more access to instructional resources because to technology integration.

Students can learn at their own pace and on their own time because to the flexible learning possibilities it provides.

**Personalized Learning:** Learning experiences that are tailored to the requirements, interests, and skills of each individual student are made possible by technology. Students can receive tailored feedback and follow their own unique learning paths thanks to adaptive learning platforms and sophisticated tutoring technologies.

**Collaborative Learning:** Technology enables students to interact and collaborate with peers and professionals around the world, which promotes collaborative learning. Online platforms and tools promote collaboration and interactive learning by fostering communication, teamwork, and information exchange.

**Interactive and Engaging Learning Experiences:** Technology delivers motivating and engaging learning opportunities that are multimedia-rich. Students can take an active role in their education using simulations, virtual labs, instructional games, and immersive technology like virtual reality. This makes learning more interesting and effective.

**Data-Driven Decision Making:** Technology integration allows educators to collect and analyse data on student performance and progress. This data can inform instructional decisions, identify areas of improvement, and facilitate evidence-based teaching practices, leading to more targeted interventions and improved student outcomes.

It is crucial to understand that these difficulties and advantages could differ based on particular settings, available resources, and implementation approaches. The proper integration of technology in education can revolutionise the educational experiences for students in the new normal age by successfully addressing the issues and taking use of the advantages.



### Challenges of Technology Integration in Education

**Infrastructure and Access Disparities:** Students and teachers have different levels of access to technology and stable internet connections, which is a serious problem. The successful incorporation of technology in education can be hampered by inadequate infrastructure, particularly in remote or underdeveloped places.

**Digital Literacy and Teacher Training:** To effectively integrate technology, educators need to have the necessary skills and expertise in this area. However, not all educators have access to the guidance and assistance they need to effectively use technological tools and resources in their classrooms.

**Privacy and Security Concerns:** The use of technology in education necessitates the gathering and preservation of private student information. In order to preserve confidence and secure student information, it is essential to provide data privacy and protection from security lapses or unauthorised access.

**Overreliance on Technology:** Although technology has many advantages, using it excessively might have unfavourable effects. Concerns about an over-reliance on technology in education include excessive screen time, a decline in in-person engagement, and the potential loss of critical social and interpersonal skills.

### Implications for the New Normal Age in Education

**Blended Learning and Hybrid Models:** Blended learning and hybrid models are necessary in the new normal age of education since they combine face-to-face and online learning strategies. Both hybrid learning models, which alternate between in-person and online learning, and blended learning models, which combine both, can offer flexibility and continuity in education. It follows that in order to maximise learning results, educators must develop and put into practise efficient techniques for integrating conventional and technology-mediated education.

**Virtual Reality and Augmented Reality in Education:** Learning experiences that are immersive and engaging are made possible by virtual reality (VR) and augmented reality (AR) technologies. In the age of the new normal, using VR and AR in the classroom can give students access to simulated surroundings, virtual field trips, and hands-on learning experiences. These technological advancements could increase student engagement, promote hands-on learning,

**Artificial Intelligence and Adaptive Learning:** Artificial Intelligence and Adaptive Learning: Technologies based on artificial intelligence (AI) and adaptive learning offer the ability to customise training and meet the needs of specific students. Algorithms driven by artificial intelligence (AI) may analyse student data, evaluate learners' progress, and offer individualised suggestions and criticism. This consequence emphasises the necessity for teachers to adopt AI and adaptive learning tools in order to develop flexible and individualised learning experiences for pupils.

Online Assessment and Evaluation: Innovative methods for online assessment and evaluation are required given the shift towards remote and hybrid learning. Technology facilitates the creation of online assessment tools such as multimedia projects, interactive quizzes, and automatic grading schemes. As a result, educators must modify their assessment methods to reflect the new average age while ensuring the validity, reliability, and These implications highlight the evolving landscape of education in the new normal age, where technology plays a crucial role in shaping teaching and learning practices. By embracing these implications, educational institutions can harness the potential of technology to create engaging, personalized, and effective learning experiences for students in the ever-changing educational landscape.

### SUGGESTIONS

- To ensure equitable access to technology, educational institutions and policymakers should prioritize investment in infrastructure and connectivity.
- Encourage collaboration and networking among educators to share best practices and experiences in technology integration.

### CONCLUSION

This research article aims to contribute to the growing body of literature on the integration of technology with education in the new normal age. Insights into efficient methods for utilising technology to improve teaching and learning experiences can be gained by educators, policymakers, and academics by examining the advantages, difficulties, and long-term ramifications. To ensure fair access, promote digital literacy, and utilise technology in education to its fullest potential, it is crucial to modify educational practises and policies as technology continues to advance.

### REFERENCES

1. [https://en.wikipedia.org/wiki/Technology\\_integration](https://en.wikipedia.org/wiki/Technology_integration)
2. <https://exceedcollege.com/blog/integrating-technology-in-education/>
3. <https://www.edutopia.org/technology-integration-guide-description>
4. Charania, A. (2011). *An integrated approach to technology in K-12 classrooms. National seminar on information communication technology in education, department of education, NEHU, Shillong.*
5. Alper, M. "Developmentally Appropriate New Media Literacies: Supporting Cultural Competencies and Social Skills in Early Childhood Education." *Journal of Early Childhood Literacy* (forthcoming).
6. Barbour, M. K., & Reeves, T. C. (2009). *The reality of virtual schools: A review of the literature. Computers and Education, 52*(2), 402-416.
7. Collins, A., & Halverson, R. (2009). *Rethinking education in the age of technology: The digital revolution and schooling in America.* New York: Teachers College Press.
8. Cuban, L. (2001). *Oversold and Underused: Computers in the Classroom.* Cambridge, MA: Harvard University Press.



# DEMOCRATIC DECENTRALISATION IN INDIA - CHALLENGES AND OPPORTUNITIES IN THE LIGHT OF GLOBALISATION

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## ABSTRACT

*Decentralization is considered a potentially effective strategy for participatory development and delivery of assistance, particularly in the context of rural development. It contributes to the reduction of inequality and poverty and, thus, promotes local democracy. India has considerable social and economic inequality and poverty. Success stories of several Indian states indicate that India is better able to make democratic decentralization works well than most other countries. This is true because India can offer several helpful preconditions like the long prior experience of democracy, a well-developed capacity to conduct free and fair elections, extensive experience of bureaucrats yielding some influence to elected representatives etc. Although the democratic decentralization has yet number of challenges in India, There are two main strands to the Indian story: remarkable achievements in a few states, and missed opportunities in most. Most state governments have denied elected councils both (urban and rural) sufficient powers and resources to enable them to work well. This paper examines the role of democratic decentralization in promoting inclusive governance like responsive, efficient, equitable and social security in the context of globalization.*

## INTRODUCTION

India is one of the developing countries that have been experimenting with democratic decentralization to promote development since independence. Local self-government is one form of a decentralized system that is affected by the transfer of authority or responsibility for decision making management or resources allocation from the higher level of government to its subordinate units. A major initiative was launched with the introduction of the three-tier structure of local self-government known as the panchayath raj institutions (PRI) at the district, taluk and village levels in the late 1950s. The three tiers of government along with the central and state government for rural and urban areas with independent powers and resources were constituted in the 2000s with the 73<sup>rd</sup> and 74<sup>th</sup> amendment of the constitution.

Globalization is a popular term in both the 20<sup>th</sup> and 21<sup>st</sup> centuries just as modernization, development and change. Decentralization is a widely used concept, and it is closely linked with democracy, development and good governance. Democratic decentralization is more related to the political system within a country whereas globalization is a multidimensional phenomenon steered by economic relations. Globalization has both positive and negative aspects on developing countries like India. On the positive aspect there is an increased scope for international trade, free movement of capital, increase in GDP, employment and income generation to the people, education quality of the product, affordable prices of the products, various modes of transportation, shrinking distances between continents and countries causing developing

and developed countries to find ways to solve problems on a global rather than regional scale.

On the other side, several effects of these transformations have brought negative impact on developing and underdeveloped countries as it creates uneven development, also results in the exploitation of countries to benefit core countries which results in a poor path dependency. Hindrance in the establishment of small and cottage industries that have to be coordinated with large industries limited the work of domestic institutions and restricts their importance in the international field. A disastrous monopoly of large institutions widens the gap between developed and developing countries. The mechanization of industries increases the chance of unemployment; it also increases inequalities and regionalism, and adversely affects national sovereignty. Thus, globalization has both positive and negative aspects. A country with efficient political and economic management will have fewer negative aspects and more positive aspects.

### Evolution of Democratic Decentralization in India.

- 1948 Constitutional debates between Gandhi and Ambedkar on Gram Swaraj, 'self-rule'.
- 1882 The Resolution on Local Self Government.
- 1907 The Royal Commission on Decentralisation.
- 1957 Balwantrai Mehta Commission – an early attempt to implement the Panchayat structure at district and block (Samithi) levels.
- 1963 K. Santhanam Committee – recommended limited revenue-raising powers for





- 1978 Panchayats and the establishment of State Panchayati Raj Finance Corporations. Asoka Mehta Committee – appointed to address the weaknesses of PRIs, concluded that a resistant Bureaucracy, lack of political will, ambiguity about the role of PRIs, and élite capture had undermined previous attempts at decentralisation, recommending that the District serves as the administrative unit in the PRI structure. Based on these recommendations, Karnataka, Andhra Pradesh and West Bengal passed new legislation to strengthen prices.
- 1985 G.V.K. Rao Committee – appointed to address weaknesses of PRIs, recommended that the block development office (BDO) should assume broad powers for planning, implementing and monitoring rural development programmes.
- 1986 L.M. Singhvi Committee – recommended that local self-government should be constitutionally enshrined and that the Gram Sabha (the village assembly) should be the base of decentralised democracy in India.
- 1992 The 73rd Amendment to the Indian Constitution – PRIs at district, block and village levels are granted Constitutional status. The Gram Sabha is recognised as a formal democratic body at the village level. The 74th Amendment, granting Constitutional status to municipal bodies, is passed soon after.
- 1996 The Adivasi Act – Powers of self-government are extended to tribal communities living in Fifth Schedule areas.

## DEMOCRATIC DECENTRALISATION IN INDIA- CHALLENGES AND OPPORTUNITIES

Decentralization has emerged as a dominant trend in world politics; India of course is not alone in this process. Many analyses of democratic decentralization are considered a revolutionary concept to build democracy at the grass-root level in the country which makes the decentralization process in India successful to a large extent. Decentralized governance is a process that allows people's involvement in administration and development programs. It remains significant for the realization of people-centered development and therefore, decentralized governance is a strategy for all people to enjoy equal rights, and is an instrument for building the capacity for economic development. International comparisons of rural decentralization suggest Indian states are amongst the most politically decentralized, are at the level of other countries/states on fiscal decentralization, and are lagging on administrative decentralization (World Bank overview). A Taskforce on decentralization of the government of India (GOI) defines devolution thus "Devolution in the context of the panchayaths, means that when the authority in respect of a

specific activity is transferred from the state to the local governments, the latter should have the prerogative of taking decisions in respect of planning and implementation of such activity. Functions, funds and functionaries are complementary to one another in the process of devolution of responsibilities and powers upon the panchayaths". Here local governance is seen as an integral element of the federal system and involves the devolution of funds, and functionaries to panchayaths.

Democratic decentralization at the grassroots level is envisaged as the most important strategy to make democracy meaningful and achieve greater goals of a responsive, corruption-free, effective and transparent administration and delivery of services to the rural and urban population. Decentralization and development of local administration are widely recognised as effective political instruments and means of realisation of balanced and equitable development in Indian states. Decentralization of power aims at better and faster communication, involvement and commitment of the people in development, mobilisation of support and utilization of resources in a greater manner for national development, reduction in delay in decision-making, greater equity in the allocation of resources and investments as well as the reduction in the apathy of administration to client.

In this context, 30 years after the 73rd Constitutional Amendment, it is universally and acutely realised that the process of democratic decentralization cannot be complete without the devolution of adequate and rightful financial and administrative powers to the grassroots institutions. It cannot encourage unified efforts by all sections of local communities to peruse development projects in a spirit of solidarity, because it causes competition to quicken between groups within the locality. The story of the democratic decentralisation in India in recent years is extremely complex. There are two main strands to the Indian story: remarkable achievements in a few states, and missed opportunities in most. In the Indian context, the concept and practice of local government taxation have not progressed much since the early days of British rule. Most of the revenue accrual comes from taxation of property and profession with minor supplement coming from non-tax receipts like rent from property and fees for services. Democratic decentralization in India thus has several challenges/ limitations like insufficient funding, inflexibility in spending, little investment in enabling and strengthening local governments to raise their taxes and user charges, lack of staff, untimely and delayed elections, merely acting as implementation machinery rather than the policy-making body, corruption etc. It is high time that a national consensus emerges on broadening and deepening the revenue base of local governments. A comprehensive exercise needs to be taken up in this sector on a priority basis.

## CONCLUSION

Democratic Decentralization is a double edge sword for both urban and rural development. An honest effort to alleviate poverty and promote sustainable development in India requires considerable decentralisation of government authority, well beyond the state level. In the context of globalisation, the role of the Panchayati Raj Institutions (PRIs) acquires importance, for they provide an opportunity to undertake the



implementation of coordinated action at the grass-root level for the benefit of the disadvantaged sections of society. It is imperative to strengthen the Decentralisation form below so that the voice of the poor could carry weight in village assemblies. Apart from social mobilisation, this can be accomplished by strengthening community networks and institutions. These would build the capabilities of the poor, providing security of livelihood and a safeguard against destitution, hunger, disease and alienation. Initiatives that empower the poor, especially women, to manage both village resources and village institutions, are steps in this direction. The success of democratic decentralisation depends upon the success of these initiatives. Today Democratic Decentralisation is the most significant theme in the development in this course. In the present context of rapid social change and development activity democratic decentralisation has been much more appropriate to deal with contemporary trends of globalisation.

#### REFERENCE

1. *Local Governance in India, ideas challenges and strategies*, T M Joseph, Concept Publishing Company, New Delhi, 2007.
2. Sarkar, A E, and *The Illusion of Decentralization: Evidence from Bangladesh*, *The International Journal of Public Sector Management*, 16(7), 2003, pp520-540.
3. Suitor (2011), *Decentralisation: Potentiality and Challenge for Rural Development*.
4. Meenakshisundram S S 1994, *Decentralisation in Developing Countries* New Delhi Concept Publishers and co.
5. Aziz, A and D Arnold (Eds) 1996. *Decentralized Governance in Asian Countries in New Delhi*, Sage Publications.



# SURVEILLANCE TECHNOLOGY: BALANCING SECURITY AND PRIVACY IN THE DIGITAL AGE

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## ABSTRACT

*This paper explores the benefits, challenges, and future implications of surveillance technology. It highlights how surveillance technology enhances security measures, improves public safety, optimizes resource allocation, and aids in emergency response and disaster management. However, concerns related to privacy invasion, potential abuse, discrimination, and lack of transparency and accountability need to be addressed. The essay emphasizes the importance of legislative measures, public awareness, technological safeguards, and collaborative efforts to strike a balance between the advantages of surveillance technology and the protection of individual rights. It also considers the global variations in surveillance practices, cultural and societal implications, and the challenges of cross-border data sharing. The conclusion emphasizes the need to navigate the future of surveillance technology responsibly by considering ethical guidelines and implications for individual privacy and social structures.*

**KEYWORDS:** Surveillance; Digital Age; Data Privacy; Technological Safeguards;

## 1. BACKGROUND

Surveillance traces its roots back to ancient civilizations such as Egypt, where guards were stationed atop tall structures to watch for potential invaders. Similarly, the Roman Empire employed a network of sentries to ensure the security of its territories. These early surveillance methods relied on human observation and physical presence. During the Middle Ages, the need for surveillance increased with the rise of city-states and trade networks. City walls, moats, and guard towers served as physical barriers and observation points to protect against external threats. Additionally, the use of heraldic symbols and badges helped identify individuals within communities.

The Industrial Revolution brought about significant technological advancements, including the telegraph. The telegraph enabled rapid communication over long distances, enhancing the ability to gather and disseminate information. This development laid the foundation for modern surveillance techniques by facilitating the exchange of intelligence and coordination. The invention of closed-circuit television (CCTV) in the mid-20th century marked a pivotal moment in surveillance technology. Initially used for military purposes, CCTV systems became more widespread in public spaces, transportation hubs, and commercial establishments. These systems allowed for remote monitoring and recording, enhancing security and crime prevention efforts.

The digital revolution of the late 20th century brought about a paradigm shift in surveillance technology. Analog systems gave way to digital surveillance, enabling more advanced functionalities such as real-time monitoring, data storage, and

integration with other technologies. Networked surveillance systems emerged, connecting multiple cameras and sensors to centralized control centers, further expanding surveillance capabilities. Another significant development in surveillance technology has been the integration of biometrics. Biometric surveillance utilizes unique physical or behavioral characteristics, such as fingerprints, facial recognition, and iris scans, to identify and track individuals. This technology has found applications in law enforcement, border control, and access control systems.

Analog surveillance systems were the predominant form of surveillance technology before the digital revolution. Analog cameras captured images and transmitted them via analog signals to monitors or recording devices. These systems had limitations in terms of image quality, storage capacity, and flexibility.

## 2. DIGITALIZATION OF SURVEILLANCE TECHNOLOGY

The digital revolution brought about a paradigm shift in surveillance technology by introducing digital systems that replaced analog components with digital counterparts. This transformation enabled significant improvements in several key areas. Digital surveillance systems provide superior image quality compared to analog systems. Analog signals are prone to degradation, resulting in lower resolution and clarity. In contrast, digital cameras capture images as a series of discrete digital data points, resulting in higher resolution and improved image details. Its leverage digital storage media, such as hard drives, solid-state drives, or network-attached storage (NAS) devices. These media offer significantly larger storage



capacities than traditional analog tape-based systems. Digital storage allows for longer retention of surveillance footage, facilitating the analysis and retrieval of recorded data.

Digital surveillance systems introduced the capability for remote access and monitoring. By connecting surveillance cameras to networks or the internet, authorized users can access live video feeds and recorded footage from anywhere, using computers, smartphones, or other connected devices. This feature enhances real-time monitoring, rapid response, and the ability to review footage remotely. It offers greater integration capabilities and scalability. They can be seamlessly integrated with other digital systems, such as access control, alarms, and video analytics. Additionally, digital systems are easily expandable, allowing for the integration of additional cameras or sensors to cover larger areas or accommodate evolving surveillance needs.

Digital surveillance systems enable the implementation of advanced video analytics technologies. Video analytics algorithms can automatically analyze surveillance footage to detect specific events or behaviors, such as object recognition, facial recognition, and motion detection. These analytics tools enhance surveillance efficiency by reducing the need for manual monitoring and providing intelligent insights.

### 3. IMPACT OF THE DIGITAL REVOLUTION ON SURVEILLANCE

The digital revolution has had a transformative impact on surveillance technology and its applications.

#### Enhanced Security and Crime Prevention

Digital surveillance systems offer improved image quality, making it easier to identify individuals, objects, or incidents. This capability enhances security and crime prevention efforts in various settings, including public spaces, transportation hubs, and critical infrastructure.

#### Intelligent Surveillance

Digital surveillance systems, combined with video analytics, enable intelligent surveillance. Advanced algorithms can detect anomalies, identify suspicious activities, and trigger automated alerts. This proactive approach enhances situational awareness and response capabilities.

#### Data Management and Analysis

Digital surveillance systems facilitate efficient data management and analysis. Surveillance footage can be stored, indexed, and searched more effectively, enabling faster retrieval of specific events or incidents. Moreover, data analytics can be applied to identify patterns, trends, or anomalies, supporting investigations and preventive measures.

#### Integration with Other Technologies

Digital surveillance systems can seamlessly integrate with other technologies, such as access control systems, alarms, and building management systems. This integration enhances overall security and enables more comprehensive monitoring and control of premises.

#### Benefits of Surveillance Technology

Surveillance technology plays a vital role in deterring criminal activities and preventing crimes. The presence of surveillance cameras acts as a deterrent, dissuading potential offenders from engaging in illegal behavior. Studies have shown that areas with visible surveillance cameras experience reduced instances of theft, vandalism, and other criminal acts. Knowing they are being monitored increases the perceived risk of getting caught, leading to a decrease in criminal behavior.

One of the significant benefits of surveillance technology is its ability to provide real-time monitoring and swift incident response. Surveillance systems equipped with video analytics and advanced algorithms can automatically detect suspicious activities, such as unauthorized access, trespassing, or unusual behavior patterns. This enables security personnel or law enforcement agencies to respond promptly to potential threats, preventing crimes from escalating and minimizing damage.

Surveillance technology serves as a valuable tool in forensic investigations and evidence gathering. Recorded footage from surveillance cameras can provide crucial visual evidence that helps law enforcement agencies identify suspects, reconstruct events, and support legal proceedings. High-resolution images and clear video footage captured by surveillance systems significantly enhance the accuracy and reliability of evidence presented in courts, increasing the chances of successful prosecutions.

Surveillance technology plays a vital role in safeguarding critical infrastructure, including airports, seaports, power plants, and government facilities. These locations are potential targets for terrorist attacks or sabotage. Surveillance systems with intelligent monitoring capabilities and perimeter intrusion detection help detect and respond to security breaches promptly. Additionally, surveillance technology can integrate with access control systems, ensuring that only authorized personnel can enter secure areas, further enhancing the protection of critical infrastructure.

By enhancing security measures, surveillance technology creates safer environments for individuals, businesses, and communities. The presence of surveillance cameras acts as a deterrent, while real-time monitoring and incident response enable quick intervention in potential threats. Furthermore, the role of surveillance technology in forensic investigations aids in the identification and prosecution of criminals, ensuring justice is served. Ultimately, these benefits contribute to the overall well-being and peace of mind of society.

Surveillance technology significantly enhances security measures in various settings, ranging from public spaces to private establishments. By employing surveillance systems, organizations and authorities can proactively identify potential security breaches and take appropriate actions. Some specific benefits include:

**Access Control:** Surveillance technology integrates with access control systems, allowing for the monitoring and





management of entry and exit points. This helps prevent unauthorized access and ensures that only authorized individuals can enter restricted areas, enhancing overall security.

**Alarm Systems Integration:** Surveillance systems can be integrated with alarm systems, enabling immediate alerts and notifications in the event of a security breach or suspicious activity. This integration facilitates rapid response and enables security personnel to intervene promptly.

**Remote Monitoring:** With surveillance technology, real-time monitoring of multiple locations becomes possible from a centralized control room. This allows security personnel to remotely monitor different areas, detect security threats, and respond accordingly, thereby maximizing the effectiveness of security measures.

#### 4. KEY BENEFITS OF SURVEILLANCE TECHNOLOGY

Surveillance technology aids in the efficient allocation of resources by providing valuable insights into the utilization of assets and infrastructure. This optimization contributes to cost savings, improved operational efficiency, and effective decision-making. Key benefits include:

**Crowd Management:** Surveillance systems help manage crowd movements and identify congestion points in public spaces, transportation hubs, and event venues. By analyzing video feeds, authorities can deploy resources strategically, ensuring smooth flow, preventing overcrowding, and maintaining public safety.

**Traffic Monitoring and Control:** Surveillance technology plays a crucial role in traffic management by monitoring traffic flow, detecting accidents or congestion, and adjusting traffic signals or rerouting traffic as needed. This real-time monitoring and control lead to reduced traffic congestion, shorter commute times, and improved overall transportation efficiency.

**Workforce Management:** Surveillance systems in workplaces assist in tracking employee attendance, monitoring productivity, and ensuring compliance with safety protocols. By identifying areas for improvement and optimizing workforce allocation, organizations can increase productivity and streamline operations.

**Disaster Management and Emergency Response:** Surveillance technology is instrumental in disaster management and emergency response scenarios. It aids in the early detection of potential threats, facilitates rapid response coordination, and enhances overall emergency preparedness. Key benefits include:

**Situational Awareness:** Surveillance systems provide real-time situational awareness during emergencies or natural disasters. By monitoring affected areas and assessing the extent of the situation, emergency response teams can plan and

allocate resources effectively, potentially saving lives and minimizing damage.

**Evacuation Assistance:** Surveillance technology aids in identifying and monitoring evacuation routes, ensuring the safe and orderly movement of people during emergencies. Video analytics can detect overcrowding or bottlenecks, enabling authorities to take necessary actions for smooth evacuations.

**Post-Event Analysis:** Surveillance footage plays a critical role in post-event analysis and learning. It helps investigators reconstruct events, identify causes, and determine ways to enhance emergency response protocols. This knowledge is invaluable for future disaster management and preparedness.

By enhancing security, optimizing resource allocation, and improving disaster management and emergency response, surveillance technology brings significant benefits to individuals, organizations, and communities. These advantages contribute to safer environments, cost savings, and the overall well-being of society.

#### 5. ETHICAL CONSIDERATIONS AND CONCERNS

One of the major concerns associated with surveillance technology is the potential invasion of privacy and infringement upon individual rights. The widespread use of surveillance systems can lead to a loss of personal privacy and a feeling of constant surveillance. Key considerations include:

**Surveillance in Public Spaces:** The deployment of surveillance cameras in public areas raises questions about the boundaries of privacy. Individuals may feel uneasy knowing they are constantly being monitored, leading to self-censorship and a chilling effect on freedom of expression.

**Data Collection and Retention:** Surveillance technology often involves the collection and storage of vast amounts of personal data. This raises concerns about how this data is used, who has access to it, and how long it is retained. Improper handling of personal data can result in privacy breaches and potential misuse.

**Facial Recognition Technology:** The use of facial recognition technology amplifies privacy concerns. The ability to identify and track individuals in real-time raises questions about consent, surveillance without justification, and the potential for misuse or abuse of this technology.

#### 6. POTENTIAL FOR ABUSE AND MASS SURVEILLANCE

Surveillance technology carries the risk of abuse and the potential for mass surveillance, leading to a loss of civil liberties and fundamental rights. Key considerations include:

**Government Surveillance:** Governments have the power to deploy surveillance technology for various purposes, such as national security or law enforcement. However, without proper



oversight and checks and balances, this can result in overreach and infringe upon individual privacy rights.

**Corporate Surveillance:** Private entities, including corporations and businesses, also employ surveillance technology for various purposes, such as customer profiling or targeted advertising. The accumulation of vast amounts of personal data raises concerns about the potential for misuse, unauthorized access, or data breaches.

**Mass Surveillance and Social Control:** The extensive deployment of surveillance technology can result in mass surveillance, where the entire population is subject to constant monitoring. This has the potential to erode civil liberties, create a culture of fear and conformity, and impede democratic values.

## 7. DISCRIMINATION AND BIAS IN SURVEILLANCE

Surveillance technology can perpetuate discrimination and bias, leading to unequal treatment and social injustices. Key considerations include:

**Racial and Ethnic Profiling:** Biased surveillance practices can disproportionately target certain racial or ethnic groups, leading to unfair treatment and perpetuating stereotypes. This can contribute to social inequalities and further marginalize already vulnerable communities.

**Algorithmic Bias:** Surveillance systems that utilize automated decision-making algorithms may be susceptible to biases, reflecting the biases present in the data used for training. This can result in discriminatory outcomes, reinforcing existing social disparities.

**Lack of Transparency and Accountability:** The lack of transparency and accountability surrounding surveillance technology is a significant concern. Key considerations include:

**Lack of Public Awareness:** Many individuals are unaware of the extent and capabilities of surveillance technology, which can hinder informed public discourse and decision-making regarding its deployment and regulations.

**Lack of Oversight and Regulation:** In some cases, there may be inadequate regulations or oversight governing the use of surveillance technology. This can lead to unchecked practices and potential misuse of the technology.

**Transparency and Accountability:** It is essential to establish mechanisms for transparency and accountability in the use of surveillance technology. Clear policies, independent oversight, and public reporting can help ensure that surveillance practices are justified, proportionate, and adhere to legal and ethical standards.

Addressing these concerns requires striking a balance between the benefits of surveillance technology and the protection of individual privacy and rights. Robust legal frameworks, transparency, public participation, and ethical guidelines are

necessary to ensure that surveillance technology is used responsibly and respects individual privacy and civil liberties.

## 8. BALANCING SECURITY AND PRIVACY Legislative Measures and Legal Frameworks

To address the privacy concerns associated with surveillance technology, robust legislative measures and legal frameworks are essential. Governments should establish clear laws and regulations that govern the use, deployment, and oversight of surveillance systems. Key considerations include:

**Privacy Laws:** Legislation should outline individuals' rights to privacy and establish limits on the collection, storage, and use of personal data obtained through surveillance technology. These laws should also define the lawful purposes for surveillance, establish requirements for obtaining consent, and specify the conditions under which surveillance can be conducted.

**Transparency and Accountability:** Legal frameworks should require transparency and accountability in the use of surveillance technology. This includes mandating clear guidelines for data retention, specifying who has access to surveillance data, and implementing mechanisms for independent oversight and audits to ensure compliance with legal and ethical standards.

**Judicial Oversight:** Legal frameworks should incorporate mechanisms for judicial oversight to ensure that surveillance activities are subject to appropriate checks and balances. This includes requiring warrants or court orders for intrusive surveillance measures and establishing mechanisms for individuals to challenge surveillance practices in court.

### Public Awareness and Education

Public awareness and education are crucial in fostering an informed and engaged citizenry. Efforts should be made to raise awareness about the capabilities and potential risks of surveillance technology. Key considerations include:

**Education Initiatives:** Governments, educational institutions, and civil society organizations should develop educational programs that inform individuals about their rights, privacy concerns, and best practices for protecting their personal information in the context of surveillance technology.

**Public Dialogue:** Facilitating open and inclusive public dialogue about surveillance technology can help ensure that the concerns and perspectives of different stakeholders are considered. Public consultations, community forums, and multi-stakeholder discussions can provide opportunities for informed discussions and policy recommendations.

**Privacy Impact Assessments:** Organizations deploying surveillance technology should conduct privacy impact assessments to evaluate the potential risks and implications for individuals' privacy. These assessments should be transparent and involve public input to ensure that privacy concerns are adequately addressed.



### Technological Safeguards and Encryption

Technological safeguards and encryption play a crucial role in protecting individual privacy and data security. Key considerations include:

**Secure Data Storage:** Organizations should implement secure data storage practices to safeguard surveillance data from unauthorized access or breaches. This includes using encryption techniques, access controls, and robust cybersecurity measures to protect data integrity and confidentiality.

**Privacy-Enhancing Technologies:** Technological innovations, such as differential privacy and secure multiparty computation, can enhance privacy in surveillance systems. These technologies can enable data analysis while preserving individual privacy by anonymizing or aggregating data, minimizing the risk of re-identification.

**Encryption:** End-to-end encryption should be employed to protect the communication channels used in surveillance systems. This ensures that the transmission of data between devices or networks is secure and inaccessible to unauthorized entities.

### Collaborative Efforts and Stakeholder Involvement

Addressing the complex challenges of surveillance technology requires collaborative efforts and stakeholder involvement. Key considerations include:

**Multi-Stakeholder Engagement:** Governments, civil society organizations, technology providers, and the private sector should collaborate to develop policies, standards, and guidelines that balance the benefits of surveillance technology with privacy protection. Inclusive and transparent processes that involve all stakeholders can help ensure that diverse perspectives are considered.

**Industry Self-Regulation:** Technology providers should adopt self-regulatory measures to ensure responsible and ethical use of surveillance technology. This includes implementing privacy-by-design principles, conducting privacy impact assessments, and adhering to industry best practices.

**International Cooperation:** Given the global nature of surveillance technology, international cooperation is crucial. Collaboration among governments, organizations, and international bodies can establish common standards, facilitate information sharing, and address cross-border privacy concerns.

By enacting legislative measures, promoting public awareness, implementing technological safeguards, and fostering collaborative efforts, a balanced approach can be achieved, respecting privacy rights while harnessing the benefits of surveillance technology. It is through these comprehensive strategies that the potential risks and concerns associated with surveillance technology can be effectively addressed.

### Surveillance in Public Spaces

#### Case Study 1: London's Ring of Steel

London's Ring of Steel is a comprehensive surveillance system that encompasses a network of cameras, license plate recognition technology, and other sensors. Implemented in the 1990s, it was initially designed to combat terrorism and protect key areas of the city. The system has been expanded over the years and now covers various public spaces, including transportation hubs, financial districts, and major landmarks. The surveillance network has proven effective in deterring and investigating crime, aiding emergency response efforts, and enhancing public safety. However, concerns have been raised regarding privacy and the potential for mass surveillance, leading to ongoing debates about the balance between security and civil liberties.

#### Case Study 2: Smart City Surveillance in Singapore

Singapore has implemented an extensive smart city surveillance system to enhance urban safety and efficiency. The system includes a network of surveillance cameras, sensors, and analytics tools integrated with other urban infrastructure. The surveillance technology is used for various purposes, such as traffic management, crowd control, and public safety. The system has shown positive outcomes, including reduced traffic congestion, improved emergency response times, and enhanced public safety. However, concerns have been raised about potential privacy infringements, leading to the implementation of strict regulations and safeguards to protect individual rights.

### Surveillance in Law Enforcement

#### Case Study 1: Predictive Policing in Los Angeles

The Los Angeles Police Department (LAPD) has adopted predictive policing techniques that utilize surveillance technology and data analysis to identify areas at higher risk of crime. The system analyzes historical crime data, weather conditions, and other relevant factors to forecast crime patterns and allocate resources accordingly. By deploying officers strategically in areas with higher predicted crime rates, the LAPD aims to prevent crimes and improve response times. While the system has shown promising results in reducing crime rates in some areas, concerns have been raised about potential bias in data analysis, the targeting of specific communities, and the impact on individual privacy and civil liberties.

#### Case Study 2: Body-Worn Cameras in Police Departments

Many police departments have deployed body-worn cameras (BWCs) as a form of surveillance technology to improve transparency, accountability, and community trust. BWCs are worn by law enforcement officers during their interactions with the public, capturing video and audio recordings. The use of BWCs has been shown to reduce instances of police misconduct, provide valuable evidence in legal proceedings, and improve police-citizen interactions. However, challenges remain in ensuring proper usage, protecting the privacy of individuals recorded in the footage, and addressing concerns about selective activation and data retention policies.



## 9. SURVEILLANCE IN WORKPLACE AND EMPLOYEE MONITORING

### Case Study 1: Electronic Surveillance in Call Centers

In call centers, electronic surveillance is often employed to monitor employee performance, ensure adherence to company policies, and protect sensitive customer information. Surveillance technologies include call recording, screen monitoring, and keystroke tracking. These systems help improve customer service quality, detect fraudulent activities, and provide evidence for dispute resolution. However, concerns arise regarding employee privacy, work-life balance, and the potential for surveillance to create a stressful work environment. Striking a balance between monitoring for legitimate business purposes and respecting employee rights is crucial in this context.

### Case Study 2: Remote Employee Monitoring during the COVID-19 Pandemic

With the shift to remote work during the COVID-19 pandemic, many organizations implemented surveillance technologies to monitor remote employees. These technologies include time-tracking software, activity monitoring tools, and virtual meeting surveillance. While remote monitoring can help ensure productivity and maintain security, it raises privacy concerns and the potential for an intrusive work environment. Ensuring transparent communication, clear policies, and a focus on trust-building can help organizations strike a balance between monitoring needs and employee privacy.

These case studies demonstrate the diverse applications of surveillance technology in different contexts. While they highlight the benefits and positive outcomes, they also underline the importance of addressing privacy concerns, ensuring transparency, and striking a balance between surveillance and individual rights. It is crucial to adopt safeguards, regulations, and ethical guidelines to mitigate potential risks and protect the interests of individuals and communities.

## 10. GLOBAL VARIATIONS IN SURVEILLANCE PRACTICES

Surveillance practices vary significantly across different countries and regions, reflecting variations in legal frameworks, cultural norms, and national security priorities. Some notable variations include:

**China:** China has implemented extensive surveillance measures, including facial recognition systems, social credit scoring, and mass data collection. These systems are used for purposes such as public safety, social control, and monitoring dissent. The Chinese government's approach to surveillance is characterized by a high level of state control and centralized monitoring.

**United States:** The United States has a complex surveillance landscape, with a mix of public and private surveillance initiatives. Law enforcement agencies use various surveillance technologies, such as CCTV, license plate recognition, and predictive policing systems. The use of surveillance is subject

to constitutional protections, including the Fourth Amendment, which places limitations on government intrusion and requires warrants for certain surveillance activities.

**European Union:** The European Union (EU) has implemented stringent data protection regulations, such as the General Data Protection Regulation (GDPR). EU member states have varying approaches to surveillance, but there are legal safeguards in place to protect individual privacy rights. Surveillance measures are subject to strict oversight, and data sharing with other countries is regulated to ensure compliance with privacy standards.

### Cultural and Societal Implications

Cultural and societal factors influence the acceptance, perception, and implementation of surveillance technology. Some key implications include:

**Cultural Attitudes:** Cultural attitudes towards privacy, surveillance, and security vary across societies. Some cultures may prioritize collective security over individual privacy, leading to a greater acceptance of surveillance measures. In contrast, cultures that value individual liberties may have a more critical stance on surveillance and emphasize the need for privacy protection.

**Trust in Authorities:** Societal trust in authorities and institutions impacts the perception of surveillance. In societies with high levels of trust, surveillance measures may be more readily accepted as necessary for public safety. Conversely, in societies with lower trust, there may be more skepticism and concerns about potential abuse of surveillance powers.

**Social Norms and Expectations:** Social norms and expectations shape the boundaries of acceptable surveillance practices. Societies with a higher tolerance for surveillance may have fewer reservations about extensive monitoring, while societies with a stronger emphasis on privacy may be more cautious about intrusive surveillance.

### Cross-Border Data Sharing and Privacy Concerns

In an interconnected world, cross-border data sharing presents challenges and privacy concerns related to surveillance technology. Key considerations include:

**Jurisdictional Issues:** Different countries have distinct legal frameworks and standards regarding privacy and surveillance. When data is shared across borders, conflicts may arise in terms of jurisdiction and compliance with applicable laws. Harmonizing legal standards and establishing international agreements can help address these challenges.

**Surveillance Technology Export:** Surveillance technology is often exported from one country to another. Concerns arise when surveillance technology is supplied to countries with weak human rights records or where there are risks of misuse, leading to calls for stricter export controls and ethical guidelines.





Surveillance in Transnational Investigations: Surveillance technology plays a significant role in transnational investigations. Cooperation between law enforcement agencies from different countries often involves sharing surveillance data. However, balancing the need for effective law enforcement with privacy protection and ensuring appropriate safeguards is crucial in these situations.

Addressing international perspectives on surveillance technology requires dialogue, cooperation, and an understanding of cultural and legal differences. Balancing the benefits of surveillance with privacy considerations and ensuring cross-border data sharing respects privacy rights and national regulations is essential for maintaining trust and safeguarding individual liberties on a global scale.

### Advancements in Artificial Intelligence and Machine Learning

Artificial intelligence (AI) and machine learning (ML) are driving significant advancements in surveillance technology, shaping its future trajectory. Some key developments include:

**Automated Video Analytics:** AI-powered video analytics can automatically analyze surveillance footage, detecting and recognizing objects, events, and behaviors. This technology enables real-time monitoring, efficient data processing, and the identification of patterns or anomalies that may require further investigation.

**Facial Recognition and Biometrics:** AI-driven facial recognition technology is becoming more sophisticated, enabling the identification and tracking of individuals in real-time. Combined with other biometric data, such as iris scans or fingerprints, these technologies offer powerful tools for identification and authentication purposes.

**Predictive Analytics:** AI and ML algorithms can analyze vast amounts of data from various sources to predict and prevent potential threats or incidents. By analyzing patterns and correlations, surveillance systems can provide early warnings and actionable insights, enhancing proactive security measures.

## 11. BALANCING TECHNOLOGICAL INNOVATION AND ETHICAL GUIDELINES

As surveillance technology evolves, it is crucial to balance technological innovation with ethical guidelines to address potential risks and challenges. Key considerations include:

**Ethical Standards and Regulations:** Governments, international bodies, and industry stakeholders need to establish clear ethical guidelines and regulations to govern the development, deployment, and use of surveillance technology. These guidelines should address concerns such as privacy, bias, discrimination, and accountability.

**Transparency and Explainability:** AI-driven surveillance systems should be transparent, with clear documentation of how algorithms operate and make decisions. Explainability is essential to ensure that individuals understand how their data is

collected, used, and analyzed, promoting trust and accountability.

**Bias and Discrimination Mitigation:** Efforts should be made to address biases and discrimination inherent in surveillance technology. This includes diverse representation in data collection and algorithm training, ongoing monitoring for biases, and mechanisms to rectify any identified issues.

**Public Engagement and Participation:** The development and deployment of surveillance technology should involve public engagement and participation to ensure that diverse perspectives and concerns are considered. Transparency and open dialogue can help build public trust and enable collective decision-making on surveillance practices.

### Implications for Individual Privacy and Social Structures

The future of surveillance technology raises important implications for individual privacy and social structures. Key considerations include:

**Privacy Protection:** The increasing capabilities and reach of surveillance technology call for robust privacy protection measures. Striking a balance between security and privacy is crucial to ensure that surveillance practices do not infringe upon individual rights and freedoms.

**Social Impact and Power Dynamics:** The widespread use of surveillance technology can reshape power dynamics within society. It is important to consider the potential impacts on social structures, including concerns related to social control, discrimination, and the erosion of trust and autonomy.

**Cybersecurity and Data Protection:** The growing reliance on interconnected surveillance systems also poses cybersecurity risks. Safeguarding surveillance data from unauthorized access, hacking, or misuse is vital to protect individuals' privacy and prevent potential harm.

**Legal and Ethical Frameworks:** Adapting legal and ethical frameworks to address emerging challenges is imperative. Continual evaluation and updating of regulations and guidelines should be undertaken to keep pace with technological advancements and societal changes.

To shape the future of surveillance technology responsibly, collaboration among governments, industry leaders, civil society organizations, and individuals is essential. This collaboration should prioritize human rights, privacy protection, and the ethical use of technology to ensure that the benefits of surveillance technology are harnessed while minimizing potential risks and negative impacts on individuals and society as a whole.

## 12. CONCLUSION

In conclusion, surveillance technology has undergone significant advancements and has become an integral part of modern society. While it offers numerous benefits, there are also important considerations and potential challenges to



address. The evolution of surveillance technology has enhanced security measures, improved public safety, optimized resource allocation, and facilitated emergency response and disaster management. However, concerns about privacy invasion, potential abuse, discrimination, and the lack of transparency and accountability must be taken into account.

Legislative measures and legal frameworks play a crucial role in balancing the benefits of surveillance technology with the protection of individual rights. Public awareness and education initiatives can help foster informed discussions and ensure that the deployment and regulations of surveillance technology align with societal values. Technological safeguards, encryption, and privacy-enhancing technologies contribute to protecting individual privacy and data security.

Addressing international perspectives on surveillance technology requires recognizing global variations in surveillance practices, cultural and societal implications, and the challenges of cross-border data sharing and privacy concerns. Striking a balance between technological innovation and ethical guidelines is essential to ensure responsible development, deployment, and use of surveillance technology. Additionally, considering the implications for individual privacy and social structures helps navigate the evolving landscape of surveillance technology.

By adopting a comprehensive approach that combines legislative measures, public awareness, technological safeguards, and collaborative efforts, the potential risks and concerns associated with surveillance technology can be effectively addressed. This will help ensure that surveillance technology is deployed and utilized responsibly, respecting individual privacy rights, and contributing to the overall well-being and security of individuals and communities.

## REFERENCES

1. Acquisti, A., Brandimarte, L., & Loewenstein, G. (2020). *Secrets and likes: The drive for privacy and the difficulty of achieving it in the digital age*. *Journal of Consumer Psychology*, 30(4), 736-758.
2. Akrivopoulou, C., & Psygkas, A. (Eds.). (2010). *Personal Data Privacy and Protection in a Surveillance Era: Technologies and Practices: Technologies and Practices*. IGI Global.
3. Bennett, C. J., Grant, R. A., & Bennett, C. J. (Eds.). (1999). *Visions of privacy: Policy choices for the digital age* (Vol. 6). University of Toronto Press.
4. Cole, D. (2014). *Preserving privacy in a digital age: lessons of comparative constitutionalism*. In *Surveillance, counter-terrorism and comparative constitutionalism* (pp. 94-116). Routledge.
5. Cunningham, A. C. (Ed.). (2016). *Privacy and Security in the Digital Age*. Greenhaven Publishing LLC.
6. De Hert, P. (2005). *Balancing security and liberty within the European human rights framework. A critical reading of the Court's case law in the light of surveillance and criminal law enforcement strategies after 9/11*. *Utrecht L. Rev.*, 1, 68.
7. Dempsey, J. X. (1997). *Communications Privacy in the Digital Age: Revitalizing the Federal Wiretap Laws to Enhance Privacy*. *Alb. LJ Sci. & Tech.*, 8, 65.
8. Ehrari, H., Ulrich, F., & Andersen, H. B. (2020). *Concerns and trade-offs in information technology acceptance: the balance between the requirement for privacy and the desire for safety*. *Communications of the Association for Information Systems*, 47(1), 46.
9. Hallinan, D., Friedewald, M., & McCarthy, P. (2012). *Citizens' perceptions of data protection and privacy in Europe*. *Computer law & security review*, 28(3), 263-272.
10. Humble, K. P. (2021). *International law, surveillance and the protection of privacy*. *The International Journal of Human Rights*, 25(1), 1-25.
11. Levi, M., & Wall, D. S. (2004). *Technologies, security, and privacy in the post-9/11 European information society*. *Journal of law and society*, 31(2), 194-220.
12. Milanovic, M. (2015). *Human rights treaties and foreign surveillance: Privacy in the digital age*. *Harv. Int'l LJ*, 56, 81.
13. Miller, C., & Stuart Wells, F. (2007). *Balancing security and privacy in the digital workplace*. *Journal of Change Management*, 7(3-4), 315-328.
14. Moore, A. D. (2011). *Privacy, security, and government surveillance: Wikileaks and the new accountability*. *Public Affairs Quarterly*, 25(2), 141-156.
15. National Research Council. (2007). *Engaging privacy and information technology in a digital age*. National Academies Press.
16. Newell, B. C. (Ed.). (2020). *Police on camera: surveillance, privacy, and accountability*. Routledge.
17. Rustambekov, I., Safoeva, S., Rodionov, A., & Uktam, R. (2023). *Balance Between Data Collection and*
18. *Privacy in the Context of Smart Cities*. *International Journal of Cyber Law*, 1(4).
19. Shackelford, S. J. (2016). *Protecting intellectual property and privacy in the digital age: the use of national cybersecurity strategies to mitigate cyber risk*. *Chap. L. Rev.*, 19, 445.
20. Silva, J. F. (2020). *Reasonable Expectations of Privacy in the Digital Age*. *Seton Hall Legis. J.*, 44, 607.
21. Tanczer, L. M., McConville, R., & Maynard, P. (2016). *Censorship and surveillance in the digital age: The technological challenges for academics*. *Journal of Global Security Studies*, 1(4), 346-355.
22. Urban, H. B. (2008). *Secrecy and new religious movements: Concealment, surveillance, and privacy in a new age of information*. *Religion Compass*, 2(1), 66-83.
23. Walters, G. J. (2001). *Privacy and security: An ethical analysis*. *ACM SIGCAS computers and society*, 31(2), 8-23.



# ROLE OF NON-GOVERNMENTAL ORGANIZATION FOR WOMEN EMPOWERMENT THROUGH DECISION MAKING IN INDIA

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## ABSTRACT

*The place and importance of women in India is a topic of great significance, as it encompasses their multifaceted roles, contributions, and challenges faced in various aspects of society. From the past, women have been celebrated for their wisdom, strength, and resilience. The journey of women in India has not been without its challenges. The deeply ingrained patriarchal mindset has often relegated women to subordinate roles, limiting their opportunities for growth and development. Practices such as dowry, child marriage, and female infanticide have long persisted in various parts of the country, causing immense suffering and injustice to countless women. Many Non-Governmental Organisation has working for them by conducting different empowerment related activities. This paper tries to understand the Role of the NGOs for women empowerment by decision making. In order to fully understand the paper, qualitative research methodology has been utilised in conjunction with rich secondary sources, including carefully chosen academic papers, to assess the role of NGOs in empowering women by decision making.*

## 1. INTRODUCTION

*'Women are the largest untapped reservoir of talent in the world.'*

-----Hillary Clinton

India, a diverse and vibrant nation with a rich cultural heritage and a history that spans thousands of years, has been home to some of the world's most influential women leaders, thinkers, and trailblazers. The place and importance of women in India is a topic of great significance, as it encompasses their multifaceted roles, contributions, and challenges faced in various aspects of society. From ancient times, when women were revered as goddesses and held positions of power, to the present day, when they continue to break barriers and redefine societal norms, women have played an integral role in shaping the country's social, economic, and political landscape.

Throughout Indian history, women have been celebrated for their wisdom, strength, and resilience. Ancient scriptures and texts like the Rig Veda, Mahabharata, and Ramayana contain numerous references to powerful female figures such as Sita, Draupadi, and Savitri. These women demonstrated courage, intelligence, and determination in the face of adversity, serving as inspiring role models for generations to come. Moreover, the concept of 'Shakti,' the divine feminine energy, further underscores the importance of women in India's spiritual and philosophical traditions.

In addition to their historical and spiritual significance, women in India have made invaluable contributions to the fields of art,

literature, science, and education. Renowned female poets like Mirabai and Andal, classical dancers like Rukmini Devi Arundale, and pioneering scientists like Anandi Gopal Joshi and Kalpana Chawla have left indelible marks on India's cultural and intellectual fabric. These women have defied stereotypes and shattered glass ceilings, proving that gender should never be a barrier to success and accomplishment.

However, the journey of women in India has not been without its challenges. The deeply ingrained patriarchal mindset has often relegated women to subordinate roles, limiting their opportunities for growth and development. Practices such as dowry, child marriage, and female infanticide have long persisted in various parts of the country, causing immense suffering and injustice to countless women. Furthermore, disparities in access to education, healthcare, and employment opportunities have further exacerbated gender inequality in India. Gender stereotyping further exacerbates the issue by reinforcing traditional roles and expectations that limit women's opportunities for growth and development. Women are frequently expected to prioritize their domestic responsibilities over their personal ambitions and career aspirations, leading to economic dependency and restricted access to resources. This perpetuation of gender stereotypes not only hinders women's progress but also undermines the potential for achieving an equitable and inclusive society.

That's why, the pressing need for women empowerment in India stems from the recognition that addressing these challenges is crucial for ensuring the well-being and dignity of



every woman. Kofi Annan rightly said that, 'There is no tool for development more effective than empowerment of women'.

## 2. OBJECTIVES OF THE STUDY

To recognise the increasing the violence against the women and gender inequality, this paper try to understand the role of Non-Government Organisations for women empowerment through decision making.

## 3. METHODOLOGY OF THE STUDY

The paper reveals the functioning role of the NGOs working in India. In order to fully understand the paper, qualitative research methodology has been utilised in conjunction with rich secondary sources, including carefully chosen academic papers, to assess the role of NGOs in empowering women by decision making.

## 4. WOMEN EMPOWERMENT

Women empowerment refers to the process of enabling women to have control over their lives, make their own decisions, and access equal opportunities in various spheres, including education, employment, healthcare, and participation in social and political activities. It involves dismantling gender-based discrimination, challenging patriarchal norms, and ensuring gender equality. The concept of women empowerment recognizes the historical and ongoing marginalization, discrimination, and oppression faced by women in societies worldwide. It emphasizes the importance of addressing these issues to create a more equitable and just society. Its genuine attempt to transform women "from victim to survivor... to active citizen" is successful. According to **Kabeer (1999)**. Women empowerment is a method through which people attain the ability to acquire strategic life which they have been denied earlier. In order to successfully better their lives and secure their livelihood, women engage in a process that challenges cultural conventions that promotes the women empowerment (**Swain, 2006**).

## 5. DIFFERENT ASPECTS OF WOMEN EMPOWERMENT

Woman empowerment is a multidimensional process that aims to uplift the status of women by addressing various aspects of their lives. The key aspects of women empowerment include:

### 1) Quality Education

One of the most critical aspects of women empowerment is access to quality education for girls. Recognizing the importance of education as a catalyst for change, the Indian government has introduced several policies and schemes to enhance educational opportunities for girls. Initiatives like the **Beti Bachao Beti Padhao** campaign emphasize the importance of educating daughters while simultaneously working to curb female infanticide and gender discrimination. Scholarships and financial incentives are also provided to encourage girls from economically disadvantaged backgrounds to pursue higher education, thus breaking the cycle of poverty and marginalization.

### 2) Economic Independence

Economic empowerment is another vital component of women empowerment in India. By providing women with the skills, resources, and opportunities to achieve financial independence, they can break free from the shackles of dependency and gain greater control over their lives. Programs like the **Mahila E-Haat, Mudra Yojana, and Stand Up India scheme** offer financial assistance, skill development training, and entrepreneurship opportunities to help women establish their businesses and contribute to the nation's economic growth. Moreover, the promotion of self-help groups and microfinance institutions has enabled countless women in rural areas to access credit and support networks, empowering them to overcome poverty and improve their living conditions.

### 3) Political Representation

Political representation is an essential aspect of women empowerment, as it ensures that women's voices are heard, and their concerns are addressed in the decision-making process. In India, quotas and reservations have been implemented at various levels of governance, including the **Panchayati Raj Institutions**, to increase women's participation in politics. While progress has been made in this regard, efforts to further enhance women's representation at the state and national levels must continue in order to achieve a more balanced and inclusive political landscape.

### 4) Social Awareness

Social awareness campaigns play a crucial role in challenging traditional gender norms and promoting a more egalitarian mindset. Initiatives like **HeForShe and Men Engage**, which involve men as allies in the fight for gender equality, have gained momentum in recent years. These campaigns aim to foster a sense of shared responsibility and encourage men to actively support women's empowerment by challenging patriarchal attitudes and behaviours

### 5) Health and Well-being

Access to quality healthcare, including reproductive health services, is an essential aspect of women empowerment. Healthy and well-informed women can make better choices regarding their bodies and lives, contributing to the overall well-being of their families and communities.

### 6) Legal Rights and Protection

Ensuring that women are aware of their legal rights and have access to justice is vital for empowerment. This includes protection against domestic violence, sexual harassment, and gender-based discrimination, as well as equal inheritance and property rights.

### 7) Safety and Security

Ensuring a safe environment for women, both in public and private spaces, is an important aspect of empowerment. This involves addressing issues such as gender-based violence, trafficking, and harassment, and creating support systems for survivors.

### 8) Access to Resources

Empowering women requires that they have equal access to resources such as land, water, technology, and information. These resources are crucial for their socio-economic development and enable them to contribute effectively to their families and communities.





### 9) Networking and Community Building

Encouraging women to form networks and engage in collective action can amplify their voices and strengthen their bargaining power. Self-help groups, cooperatives, and women's organizations play a significant role in fostering solidarity and collaboration among women.

### 10) Leadership and Confidence Building

Developing women's leadership skills and self-confidence is essential for their empowerment. This can be achieved through capacity-building programs, mentorship, and exposure to inspiring role models.

## 6. GOVERNMENT INITIATIVES FOR WOMEN EMPOWERMENT

The Indian government has been proactive in implementing several initiatives and schemes aimed at promoting women empowerment and addressing the challenges faced by women across various aspects of their lives. Key initiatives such as *Beti Bachao Beti Padhao* campaign focus on improving the child sex ratio, promoting girls' education, and challenging gender discrimination. The *Mahila Shakti Kendra* initiative seeks to empower rural women through community participation and awareness generation, while the *Sukanya Samridhi Yojana* encourages parents to save for their daughters' education and marriage expenses through a government-backed savings scheme. To support women entrepreneurs, the government launched the *Mahila E-Haat*, an online marketing platform, and the *Pradhan Mantri Mudra Yojana*, which offers financial assistance to small businesses, including those led by women. The *Ujjwala Scheme* addresses the health and well-being of women from Below Poverty Line (BPL) households by providing free LPG connections, reducing indoor air pollution caused by traditional cooking methods.

Additionally, the government has set up One Stop Centre Scheme or *Sakhi Centres* to offer integrated support services to women affected by violence, and the Swadhar Greh initiative provides shelter and rehabilitation services to women in distress. To support working mothers, the National Creche Scheme offers daycare facilities for young children, and the Mahila Police Volunteer initiative involves recruiting women volunteers to act as a bridge between the police and the community, helping create awareness about women's rights and reporting incidents of violence. These government initiatives, along with numerous others, demonstrate India's commitment to addressing the challenges faced by women and fostering their empowerment across various spheres of life.

## 7. LIMITATION AND CHALLENGES OF GOVERNMENT INITIATIVES

The Indian government's efforts to promote women empowerment have faced several challenges, hindering their complete success. Deep-rooted cultural and social norms, such as patriarchal beliefs and gender stereotypes, continue to perpetuate discrimination against women and undermine their opportunities. Lack of awareness about rights and government schemes among women, particularly in rural areas, prevents them from accessing available benefits. Implementation challenges, including bureaucratic inefficiencies, corruption,

and inadequate resources, hinder the effective execution of government initiatives at the grassroots level. Insufficient funding and a fragmented approach to implementing various programs dilute their overall effectiveness. Additionally, limited monitoring and evaluation mechanisms impede the assessment of the initiatives' impact, while resistance from conservative communities and inadequate access to justice for women facing discrimination or violence further complicate the situation. Kofi Annan (2018) said "*Gender equality is more than a goal in itself. It is a precondition for meeting the challenge of reducing poverty, promoting sustainable development and building good governance.*" To address these challenges, a comprehensive and long-term approach involving the government, civil society, non-governmental organizations, and the private sector is required.

## 8. NGO AS AN ALTERNATIVE FOR WOMEN EMPOWERMENT

A Non-Governmental Organization (NGO) is a non-profit, voluntary group or institution that operates independently of the government and addresses various social, environmental, or humanitarian issues. NGOs play a crucial role in promoting development, advocating for human rights (Dutta, 2020), providing relief during emergencies, and raising awareness about various global and local problems.

NGOs serve as an alternative for women empowerment by supplementing government efforts and addressing specific needs that may not be met by public programs alone (Gupta, 2021). Their flexibility, grassroots connections, and expertise in specialized areas can make a significant impact on empowering women. These organizations offer innovative and grassroots approaches to address the gender inequalities and challenges that women face. NGOs play a crucial role in providing educational opportunities, economic empowerment, healthcare access, and advocacy for women's rights. They design and implement programs tailored to the specific needs and contexts of women, engaging directly with communities to create lasting change. By focusing on capacity-building, mentorship, and creating safe spaces, NGOs empower women to challenge social norms, develop leadership skills, and become agents of change within their communities. NGOs also serve as a platform for raising awareness, advocating for policy changes, and collaborating with various stakeholders to amplify their impact. Through their dedication and commitment, NGOs offer a viable alternative for women's empowerment, fostering gender equality and creating opportunities for women to thrive and reach their full potential.

## 9. NGO'S ROLE FOR WOMEN EMPOWERMENT THROUGH DECISION MAKING

NGOs in India have played a pivotal role in advancing women's empowerment through their various initiatives. For instance, organizations like SEWA have been instrumental in enabling women in the informal sector to gain decision-making power over their economic activities. By organizing women into self-help groups and cooperatives, SEWA provides them with a platform to collectively make decisions regarding their finances, access to credit, and overall livelihoods. This empowers women by giving them a voice in shaping their



economic destinies and enables them to challenge traditional gender roles.

In a similar vein, the *Centre for Social Research (CSR)* has taken proactive steps to enhance women's decision-making abilities through leadership training workshops and political empowerment initiatives. By equipping women with the necessary skills and knowledge, CSR enables them to actively participate in local governance and decision-making bodies. This not only fosters a sense of agency and self-confidence among women but also contributes to the overall democratization of decision-making processes at the grassroots level.

NGOs such as Breakthrough focus on addressing gender-based violence and promoting women's decision-making power. Through their innovative media campaigns, community engagement activities, and leadership development workshops, they challenge gender norms and empower women to become decision-makers in their communities. By actively involving women in decision-making, Breakthrough enables them to advocate for their rights, influence policy changes, and contribute to creating safer and more equitable societies.

Furthermore, organizations like *Women on Wings* collaborate with social enterprises in rural areas to create employment opportunities for women. By actively involving women in decision-making processes related to business activities, Women on Wings empowers them economically and socially. Through business mentoring, training, and support, women entrepreneurs gain the skills and knowledge required to make strategic decisions that contribute to the growth and sustainability of their enterprises. This not only enhances their economic independence but also empowers them to challenge gender stereotypes and break through traditional barriers.

NGOs like The *Hunger Project and Pradan* focus on rural development and poverty alleviation. Through their programs, they empower marginalized women by enhancing their decision-making abilities and leadership skills. By facilitating the formation of women's self-help groups and providing them with access to credit and livelihood opportunities, these organizations enable women to participate in decision-making processes related to community development and resource allocation. This active involvement empowers women to influence decisions that impact their lives and communities positively.

NGOs such as *Jagori* work towards creating safe and empowering spaces for women to participate in decision-making. Through training programs, workshops, and awareness campaigns, Jagori promotes women's leadership and decision-making in various domains, including politics, education, and community development. By breaking down societal barriers and challenging gender biases, Jagori enables women to exercise their agency, voice their opinions, and actively shape policies and decisions that affect them.

## 10. IMPORTANCE OF WOMEN EMPOWERMENT THROUGH DECISION MAKING

Women empowerment through decision making is crucial for the progress and development of any society. When women are given the opportunity to make decisions, they can contribute to the growth of their families, communities, and nations.

Firstly, when women are empowered to make decisions, they can contribute to the economic growth of their families and communities. Women who have control over their finances can invest in their children's education and health, which can lead to better outcomes for their families. Additionally, when women are involved in decision-making processes at work, they can bring new perspectives and ideas that can lead to innovation and growth.

Secondly, women's participation in decision-making processes can lead to better policies that address the needs of all members of society. Women have unique experiences and perspectives that can inform policies related to education, healthcare, and social welfare. When women are included in decision-making processes, policies are more likely to be inclusive and effective.

Thirdly, empowering women through decision making can lead to greater gender equality. When women have a voice in decision-making processes, they are more likely to advocate for policies that promote gender equality. This can lead to greater opportunities for women in education, employment, and leadership positions.

Finally, empowering women through decision making is a fundamental human right. Women have the right to participate in all aspects of society on an equal basis with men. When women are excluded from decision-making processes, their rights are violated. In conclusion, empowering women through decision making is essential for the progress and development of any society. Women's participation in decision-making processes can lead to economic growth, better policies, greater gender equality, and the protection of human rights. It is essential that we work towards creating a world where all women have equal opportunities to participate in decision-making processes.

## 11. CONCLUSION

The journey towards women empowerment in India has yielded numerous positive outcomes, including increased access to education, healthcare, and employment opportunities for women, as well as a greater awareness of their rights and entitlements. Feminist ideology is held by empowered women, and they want to see other oppressed women gain power. These strong women will be able to realise their convictions by joining forces with an NGO whose goals are similar to their own, which provides them a sense of fulfilment and accomplishment (*Narumugai & Kumar, 2017*). The movement for women empowerment in India has come a long way, but there is still much work to be done. Continued commitment and collaboration among all stakeholders are essential to sustain the gains made thus far and pave the way for a more equitable and inclusive society where every woman has the opportunity to thrive. By empowering women, India not only fulfils its moral



obligation towards half of its population but also unlocks the immense potential that lies within its women, thereby fostering sustainable development and social progress for all. NGO's work has significantly advanced the cause of ending gender inequality and empowering women. To achieve sustained and all-encompassing women's empowerment projects, issues including financial limitations and cultural hurdles need constant attention and collaboration. NGOs may continue to influence good change and build a more inclusive and equitable society for women through continuous dedication and effective partnerships.

## REFERENCES

1. **Dutta, D. (2020).** *The Role of Non-Governmental Organizations in Protection and Promotion of Child Rights in the North Lakhimpur Sub-Division of Lakhimpur District of Assam, International Journal of Recent Technology and Engineering (IJRTE) ISSN: 2277-3878, Volume-8 Issue-6, March 2020.*
2. **Gupta, M. (2021).** *Role of NGOs in women empowerment: case studies from Uttarakhand, India. Journal of Enterprising Communities: People and Places in the Global Economy, ISSN: 1750-6204.*
3. **Narumugai, P. & Kumar, L. (2017).** *Role Of NGOs Towards Women Empowerment. Vol-3 Issue-4 2017 IJARIIE-ISSN (O)-2395-4396. Page- 758-761.*
4. **Swain, B. R. (2006).** *"Microfinance and women's empowerment: evidence from the self-help groupbank linkage programme in India.*
5. **Kabeer, N. (1999).** *The Conditions and Consequences of Choice: reflections on the Measurement of Women's Empowerment, UNRISD, Geneva, pp. 1-58, Vol. 108*



# IMPACT OF COMMUNICATION ON EMPLOYEES' JOB SATISFACTION: A REVIEW

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## ABSTRACT

*Effective communication plays a pivotal role in shaping employees' job satisfaction, as it serves as a critical mechanism for conveying information, fostering collaboration, and establishing relationships within organizations. This review paper explores the impact of communication on employees' job satisfaction by synthesizing and analyzing existing literature across various disciplines. The paper begins by defining job satisfaction and highlighting its significance in the workplace. By examining different theoretical frameworks, the review identifies key factors that influence the relationship between communication and job satisfaction. Moreover, the review synthesizes empirical evidence from studies that have explored the relationship between communication and job satisfaction. It examines the impact of effective communication practices on various job-related outcomes, such as job performance, organizational commitment, and employee well-being. The review also addresses the potential barriers to effective communication that can hinder job satisfaction, such as communication overload, misinterpretation, hierarchical barriers, and lack of feedback mechanisms. It discusses strategies and interventions that organizations can employ to enhance communication practices and improve employees' job satisfaction.*

**KEYWORDS:** *Effective communication, Job Satisfaction, Employee Motivation, Employee Performance.*

## 1. INTRODUCTION

Organizations prioritize employee satisfaction, with communication crucial for building positive relationships and trust [1,2]. Communication and job satisfaction are increasingly crucial for organizational success and competitiveness. Effective communication links employees, managers, and the organization, shaping perceptions and experiences. Organizations recognize the importance of creating positive work environments to enhance productivity and retain talented employees.

Trust and supportive communication are essential for job satisfaction, fostering organizational values, vision, and alignment [1,3]. Also, trust-building through communication improves employees' perceptions of fairness, support, and psychological safety [4].

Furthermore, effective communication positively impacts other job-related outcomes that contribute to job satisfaction. Engaging communication practices, such as active listening, open dialogue, and transparent information-sharing, foster employee engagement by creating a sense of empowerment, recognition, and ownership [5,6]. Additionally, communication that provides timely feedback, guidance, and support enhances

employees' knowledge, skills, and motivation, ultimately leading to higher job performance and job satisfaction [7,8].

Madrid's [9] research on communication and work satisfaction in a Guatemalan company found no established internal communication process, but adequate channels facilitate task execution and goal achievement. De León's [10] study analyzed factors affecting job satisfaction among in-store managers and salespeople at four Corporación MEST chains, focusing on personal and social behavior and recommending departmental integration programs. Osorio [11] identified internal and external communication issues in customer service at Madero y Maldonado Corredores de Seguros, emphasizing the importance of standardization for improved culture and development. Espinoza [12] studied job satisfaction perceptions of operational employees aged 20-45 using non-monetary incentives. Qualitative research using an ethnographic approach found that non-monetary incentives increased employee involvement and company benefits. Navarro's [13] research found high job satisfaction among 20 workers in Quetzaltenango, attributed to recognition, good interpersonal relationships, favorable work conditions, and favorable company policies, without affecting labor or production satisfaction.





This review explores the impact of communication on employee job satisfaction, addressing barriers like overload, misinterpretation, hierarchical barriers, and lack of feedback mechanisms. It suggests strategies and interventions to enhance communication practices and improve job satisfaction, ultimately contributing to employee engagement, well-being, and organizational success.

## 2. METHODOLOGY

Utilizing the Web of Science (WoS) database showed published manuscripts (see Figure 1) on the impact of communication on employee job satisfaction. 689 published documents on the said topic have been published since the year

2000. Over the past ten years, 568 of these have been published. Nearly all of the manuscripts (82.4 %) have been released over the previous ten years. Since 2000, there have been a total of 1246 articles indexed in the following databases: WoS, Chinese Science Citation Database<sup>SM</sup> (CSCD), Derwent Innovations Index (DII), KCI-Korean Journal Database (KCI-KJD), and SciELO Citation Index. 980 studies have been published in the last ten years, accounting for 78.65 % of the total. This data shows a spike in research on the said topic. These demonstrate a grave interest in the effect communication has on employee job satisfaction and have facilitated advancements in recent years.

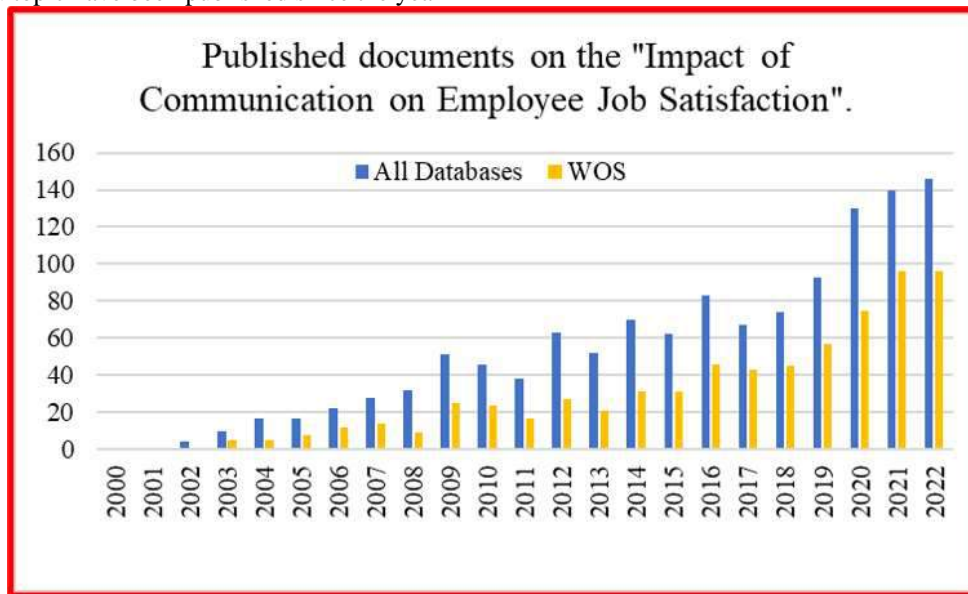


Figure 1. Published documents on the Impact of Communication on Employee Job Satisfaction. (All databases Retrieved on June 28, 2023; <https://www.webofscience.com/wos/allldb/summary/bc7d2bd8-f42d-4bbe-8e81-ca6458eb8ab2-947488ed/relevance/1>), and Web of Science Database (Retrieved on June 28, 2023; <https://www.webofscience.com/wos/woscc/summary/a13cc4b8-f52d-41bf-b859-24e2a9005737-947502f7/relevance/1>).

### 2.1 Communication and Job Satisfaction

#### 2.1.1 Communication

Communication is a daily process for mutual relationships, involving various disciplines and approaches. Pasquali [14] emphasized communication as the foundation of social structure, focusing on human interaction and harmonious relationships between senders and receivers. Human-to-human communicative acts are crucial for social life, involving information exchange, meaning transmission, and expressing individual needs and emotions in various aspects of life [15]. Koontz and Weihrich [16] define communication as transforming and engaging organizations.

Castro [17] and Shermerholm [18] highlight the importance of communication type, focusing on directional and bidirectional models, indicating awareness, response, and exchange of information. Another study found that effective communication significantly impacts employees' job attitudes and perceptions of the organization, enhancing self-esteem and performance. Effective communication is essential for managers and facilitating organizational objectives in contemporary organizations [19].

#### 2.1.2 Job Satisfaction

Job satisfaction refers to the level of contentment and fulfillment an individual experiences in their job or occupation. It represents how satisfied an employee feels with various aspects of their work, such as the work environment, job tasks, relationships with colleagues, opportunities for growth, compensation, and overall job conditions [20].

Job satisfaction impacts well-being, motivation, productivity, engagement, commitment, and overall performance. Robbins [21] defines employee attitudes as a person's overall work satisfaction, with positive attitudes correlated with job involvement, motivation, commitment, and mental health. This relationship ultimately leads to enhanced job performance and overall job satisfaction [22].

Several scholars have expressed differing viewpoints regarding the correlation between job satisfaction and the aforementioned variables [23,24]. Kostea's [24] findings showed an age-related association between job satisfaction and enthusiasm, with increased satisfaction after promotion. Hickson and Oshagbami [25] study found age negatively impacts job satisfaction among teaching and research staff, with male employees experiencing



higher contentment, while females show higher satisfaction. Hooi's [23] research demonstrated female employees prioritize social factors, while males focus on extrinsic aspects.

Despite the presence of various moderating factors, organizational communication is a crucial determinant of job satisfaction levels within organizations.

Table 1 presents a summary of communication dimensions and their corresponding influence on job satisfaction.

**TABLE 1 DIMENSIONS RELATED TO COMMUNICATION AND CORRESPONDING INFLUENCE ON JOB SATISFACTION**

<b>Factors of Communication</b>	<b>Impact on Job Satisfaction</b>	<b>References</b>
Trust and Psychological Safety	Positive Impact	[4]
Clear and Transparent Communication	Positive Impact	[26]
Informative and Relevant Communication	Positive Impact	[27]
Open and Supportive Communication	Positive Impact	[28]
Alignment with Organizational Values and Goals	Positive Impact	[29]
Timely Feedback and Supportive Guidance	Positive Impact	[8]
Communication Clarity	Positive Impact	[30]
Interpersonal Communication Skills	Positive Impact	[31]
Recognition and Appreciation	Positive Impact	[32]
Communication Training and Development	Positive Impact	[33]
Empowering Communication	Positive Impact	[34]
Communication Frequency	Positive Impact	[35]
Employee Engagement through Communication	Positive Impact	[5]
Managerial Communication Support	Positive Impact	[36]
Conflict Resolution Communication	Positive Impact	[37]
Listening and Empathy	Positive Impact	[38]
Work-Life Balance Communication	Positive Impact	[39]
Participative Decision-Making	Positive Impact	[40]
Communication Channel Variety	Positive Impact	[41]

### 3. THEORETICAL FRAMEWORKS INFLUENCING COMMUNICATION AND JOB SATISFACTION

Several theoretical frameworks have been used to explore the factors influencing the relationship between communication and job satisfaction. These frameworks provide valuable insights into the mechanisms and processes underlying this relationship.

#### 1. Social Exchange Theory

Social exchange theory posits that individuals engage in relationships and interactions based on a cost-benefit analysis, seeking to maximize rewards and minimize costs. Several researchers have used the Social Exchange Theory (SET) to construct frameworks and investigate the impact of communication and job satisfaction in organizational behavior and communication studies [42–47].

The theory emphasizes three key factors influencing job satisfaction in communication: trust, reciprocity, and equity. Trust is crucial for social exchange relationships, and employees' job satisfaction increases when communication is transparent, consistent, and reliable [4]. Reciprocity, where

employees feel valued and their feedback is acted upon, also contributes to job satisfaction [48]. Equity promotes fairness and balance in communication, enhancing employee job satisfaction through equal opportunities and feedback [49].

#### 2. Communication Satisfaction Theory

Communication satisfaction theory focuses specifically on the relationship between communication and job satisfaction. The Communication Satisfaction Theory (CST) has been employed by several scholars to develop frameworks and investigate the influence of communication on job satisfaction in recent years [50–53].

The theory emphasizes three key factors for job satisfaction: clear communication, frequent communication, and supportive communication practices. Clear, concise messages minimize ambiguity, increase employee understanding, and provide consistent updates, feedback, and information [54]. Frequent communication enhances job satisfaction by providing consistent updates, feedback, and information to employees [55]. Supportive communication fosters a positive climate, enhancing job satisfaction and psychological well-being [56].

#### 3. Job Characteristics Model



The Job Characteristics Model examines how various job characteristics influence job satisfaction. Communication is considered a significant component of job characteristics [57–61].

The model emphasizes task significance, skill variety, and feedback as key factors influencing job satisfaction. According to Hackman et al. [62], understanding the importance of communication tasks and their contribution to organizational goals enhances job satisfaction [62]. In addition, developing diverse communication skills contributes to engagement and job satisfaction. Furthermore, feedback is crucial for job design, enhancing employee satisfaction and achievement.

### 3.1 Relationship Between Communication and Job Satisfaction

The relationship between communication and job satisfaction has been extensively studied in various disciplines, including organizational behavior, human resource management, and communication studies. The literature reveals that effective communication significantly impacts employees' job satisfaction levels and has wide-ranging implications for organizational outcomes.

Communication effectiveness is a critical factor influencing job satisfaction [63]. When communication is clear, timely, and relevant, employees are more likely to feel informed and engaged, leading to higher job satisfaction levels [64]. Conversely, poor communication, characterized by ambiguity, misinterpretation, and information withholding, can lead to frustration and dissatisfaction [8].

The flow of information within organizations also plays a crucial role in employees' job satisfaction. Research suggests that when information flows freely and employees have access to relevant and meaningful information, they experience higher levels of job satisfaction [1]. This access to information empowers employees, enhances their sense of belonging, and enables them to make informed decisions [65].

Organizational culture and leadership styles significantly influence the communication-job satisfaction relationship. In a culture that values open and transparent communication, employees tend to experience higher job satisfaction due to increased trust, cooperation, and shared understanding [66]. Similarly, leadership styles that emphasize participatory and supportive communication, such as transformational leadership, have a positive impact on employees' job satisfaction [67].

Employee engagement, which is closely linked to communication, has been found to mediate the relationship between communication and job satisfaction. Engaged employees, who actively participate and contribute to organizational goals, experience higher job satisfaction [68]. Effective communication channels and practices, such as regular feedback, recognition, and opportunities for collaboration, foster employee engagement and, consequently, job satisfaction [69].

Verbal and nonverbal communication, as well as technological communication mediums, also influence employees' perceptions of job satisfaction. Verbal communication that is clear, respectful, and supportive enhances employees' sense of being valued and understood [70]. Nonverbal cues, such as facial expressions and body language, can impact employees' interpretation of messages and influence their satisfaction levels [71]. Moreover, the use of technological communication tools, such as email, instant messaging, and collaboration platforms, can either facilitate or hinder job satisfaction depending on factors like clarity, responsiveness, and overload [72].

Overall, the literature demonstrates a strong link between communication and job satisfaction. Effective communication practices, characterized by clarity, openness, information sharing, and employee involvement, positively influence job satisfaction levels. Conversely, barriers to communication, such as misinterpretation, hierarchical structures, and lack of feedback mechanisms, can hinder job satisfaction. Prioritizing communication improves employee satisfaction and organizational outcomes.

## 4. IMPACT OF COMMUNICATION ON EMPLOYEES' JOB SATISFACTION AND EMPLOYEE COMMITMENT

This section explores communication's impact on employee job satisfaction and commitment, synthesizing literature across disciplines.

Effective communication significantly impacts employee job satisfaction, morale, engagement, productivity, and overall satisfaction within an organization [73]. Job satisfaction is influenced by company, department, team, and communication; prioritizing communication boosts employee morale. [74,75].

Kamasak and Bulutlar [76] found a significant link between workplace communication and job satisfaction, with effective communication positively impacting external status perception and employee satisfaction. Research in the field of communication has also demonstrated the beneficial effects that effective communication has on employee work satisfaction when it is adopted by an organization [77–79].

Numerous empirical studies highlighted the significance of effective organizational communication in fostering employee commitment and performance. Feedback positively impacts motivation, trust, shared identity, engagement, and emotional expression [80–85]. According to Hrud [75], Job satisfaction increases employee commitment and reduces voluntarily terminated employment. Positive communication culture fosters employee identification, engagement, acceptance of objectives, effort, and retention, resulting in increased commitment and loyalty [85–87].

### 4.1 Organizational Behavior

The works of literature on organizational behavior consistently highlight the significance of effective communication in shaping employees' job satisfaction levels. Research indicates



that clear and transparent communication positively influences job satisfaction by fostering a sense of understanding and involvement [1]. When employees perceive communication as open, honest, and consistent, it enhances their trust in the organization, leading to higher levels of job satisfaction [1].

Moreover, organizational communication quality impacts job satisfaction through supportive practices [40]. Conversely, negative communication patterns negatively impact job satisfaction and engagement. Additionally, research has examined the role of communication channels in influencing job satisfaction. Effective communication channels that provide timely and relevant information to employees can enhance their sense of connection, satisfaction, and organizational commitment [88]. The use of modern communication technologies, such as email and virtual platforms, has also been explored concerning job satisfaction, with findings indicating that effective and efficient use of these technologies can positively impact job satisfaction [72].

#### 4.2 Human Resource Management

Research in human resource management consistently emphasizes the importance of effective communication in fostering employees' job satisfaction. Studies have shown that open and transparent communication positively influences job satisfaction by enhancing employees' sense of inclusion, involvement, and trust in the organization [36]. Moreover, when employees perceive communication as honest, consistent, and responsive, it strengthens their psychological contract with the organization, leading to higher levels of job satisfaction [89].

The quality of communication in organizations also plays a significant role in job satisfaction. Supportive communication practices, such as active listening, feedback, and recognition, contribute to positive relationships, employee engagement, and job satisfaction [2]. Conversely, negative communication patterns, such as withholding information, poor listening, and lack of feedback, can lead to dissatisfaction and disengagement [90].

Furthermore, research has examined the role of communication channels in influencing job satisfaction in the context of human resource management. Effective communication channels that provide timely and relevant information to employees contribute to their sense of belonging, satisfaction, and organizational commitment [91]. The use of various communication tools, such as intranets, social media, and face-to-face interactions, has also been investigated, highlighting their impact on job satisfaction and employee well-being [92].

#### 4.3 Communication Studies

Communication studies research underscores the significance of effective communication in shaping employees' job satisfaction. Studies have shown that clear and transparent communication positively influences job satisfaction by enhancing employees' sense of understanding, engagement, and involvement [93]. When communication is perceived as informative, inclusive, and responsive, it enhances job

satisfaction levels and contributes to positive organizational outcomes [94].

The quality of communication within organizations plays a vital role in job satisfaction. Supportive communication practices, such as active listening, empathy, and open dialogue, foster positive relationships, trust, and job satisfaction among employees [95]. Conversely, negative communication patterns, such as conflict, information withholding, and unclear messages, can contribute to dissatisfaction and negative job attitudes [30].

Furthermore, research has examined the role of communication channels in influencing job satisfaction within the realm of communication studies. Effective communication channels that facilitate timely and relevant information flow contribute to employees' sense of connectedness, satisfaction, and engagement [96]. The use of various communication platforms, such as face-to-face interactions, electronic communication, and social media, has been investigated, highlighting their impact on job satisfaction and employee well-being [97].

#### 4.4 The influence of excellent communication methods job-related outcomes.

Effective communication practices improve job satisfaction, commitment, engagement, and performance [1]. When employees perceive communication as informative, timely, and relevant, it contributes to their satisfaction with their work and the organization [2].

Furthermore, Effective communication fosters organizational commitment through supportive, respectful, and inclusive communication [98]. Communication that conveys organizational values, vision, and goals helps employees develop a sense of belonging and alignment with the organization, leading to increased commitment [1].

Effective communication boosts employee engagement, motivation, commitment, and productivity [99]. Engaging communication practices, such as active listening, open dialogue, and transparency, enable employees to feel valued and connected to their work and the organization [98].

Moreover, effective communication positively impacts job performance. Clear and concise communication reduces misunderstandings and promotes efficient work processes, leading to improved task performance [8]. Communication that provides timely feedback, guidance, and support enhances employees' knowledge, skills, and motivation, contributing to higher performance levels [7].

Effective communication improves job satisfaction, commitment, employee engagement, and performance.

### 5. BARRIERS AND STRATEGIES TO EFFECTIVE COMMUNICATION TO ENHANCE JOB SATISFACTION

Effective communication is crucial for employee satisfaction and overall organizational performance. Common barriers include excessive information flow, lack of clarity, rigid





organizational structures, and lack of regular feedback. To overcome these barriers, organizations should encourage open dialogue, clear instructions, and active listening. Additionally, fostering a more inclusive and participative approach, establishing structured feedback mechanisms, and investing in communication skills training can help employees express ideas, actively listen, and engage in communication. Creating opportunities for collaboration and teamwork can also foster open communication and strengthen relationships.

Effective leadership communication, including open-door policies, town hall meetings, and team meetings, is vital for fostering trust and alignment. Recognizing and appreciating employees' contributions through communication channels can create a supportive and motivating work environment.

## 6. CONCLUSIONS

This review paper examines the impact of communication on employees' job satisfaction across various disciplines. It highlights the importance of effective communication in fostering positive attitudes, engagement, and employee well-being. Employees perceive communication as honest, consistent, and responsive, which strengthens their psychological contract with the organization. Communication channels and tools significantly impact job satisfaction, with clear and concise communication reducing misunderstandings, promoting efficient work processes, and enhancing task performance. Organizations should prioritize communication strategies that promote transparency, inclusivity, and supportive interactions to foster job satisfaction and thriving workplace culture.

### Declaration of competing interest

The authors declare that there are no competing financial interests.

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### Compliance with ethical standards

Research involving human participants and/or animals  
 No human participants or animals were involved in this research

### Author Contributions

**Michael Enyan:** Conceptualization, Formal analysis, Writing-Original Draft; Writing-Review and Editing; **Joseph Noah Bangura:** Resources, Methodology, Data Curation, Writing-Review, and Editing; **Mercedes Priscila Ada Asumu Mangue:** Resources, Methodology, Validation, Writing-Review, and Editing. **Olivier Joseph Abban:** Resources, Methodology, Data Curation, Writing-Review and Editing.

## REFERENCES

1. Eisenberger R, Stinglhamber F, Vandenberghe C, Sucharski I L and Rhoades L 2002 *Perceived supervisor support: Contributions to perceived organizational support and*

- employee retention. Journal of Applied Psychology* 87 565–73
2. Holmberg I, Bergman B and Ståhl C 2009 *Internal Communication, Job Satisfaction, and Sense of Coherence. Corporate Communications An International Journal* 14 268–84
3. Dirks K T, Lewicki R J and Zaheer A 2009 *Repairing Relationships Within and Between Organizations: Building A Conceptual Foundation Academy of Management Review* 34 68–84
4. Mayer R C, Davis J H and Schoorman F D 1995 *An Integrative Model Of Organizational Trust Academy of Management Review* 20 709–34
5. Bakker A B, Albrecht S L and Leiter M P 2011 *Key questions regarding work engagement European Journal of Work and Organizational Psychology* 20 4–28
6. Macey W H and Schneider B 2008 *The Meaning of Employee Engagement Ind Organ Psychol* 1 3–30
7. Chen C.-C., Chen X-P and Meindl J. R. 2017 *How Can Leaders Motivate Employees to Work toward Goals? Unpacking the Role of Employee-Perceived Supportive Communication. Journal of Applied Psychology* 102 1668–703
8. de Vries R E, Bakker-Pieper A and Oostenveld W 2010 *Leadership = Communication? The Relations of Leaders' Communication Styles with Leadership Styles, Knowledge Sharing and Leadership Outcomes J Bus Psychol* 25 367–80
9. Madrid S 2008 *Diagnosis of the internal communication process for administrative and operational positions at a plastic product manufacturer in Guatemala ((Unpublished bachelor's Thesis)) (Guatemala: Raphael Randival University)*
10. De Leon G 2008 *Factors affecting job satisfaction of managers and salesmen in four chain stores of Mest S.A. (unpublished bachelor's Thesis). (National University of Colombia.)*
11. Osorio S 2009 *The role of internal and external communication as a strategic tool to improve the customer service of Mader and Maldonado insurance brokers (unpublished bachelor's Thesis). (University of Bogota, Colombia.)*
12. Espinoza L 2010 *Opinions on job satisfaction of bakery operators with monetary and non monetary incentives. (Unpublished bachelor's Thesis) (University of San Carlos, Guatemala.)*
13. Navarro S. 2012 *Job satisfaction and its impact on productivity: a study conducted by the judicial human resources delegation in Quetzaltenango City (unpublished bachelor's Thesis). (Raphael Randival University, Quezartennago, Guatemala.)*
14. Pasquali. A. 1978 *Understand communication. (Caracas: Mount Ávila)*
15. Fernandez c. 2002 *Communication between organizations (Mexico: McGraw-hill.)*
16. Koontz H. and Wehrich H. 2004 *Management from a global perspective (Mexico: MC Grawhill.)*
17. Castro G. 2007 *Oral and described research program ( University of Guadalajara. Mexico)*
18. Shermerholm. R. 2010 *Administration. (Mexico: mcgraw hill.)*
19. Ali D H S and Mohammad A P 2014 *Impact of the effectiveness of organizational communication on job satisfaction through job motivation of employees of Shiraz Telecommunication Company. WALIA journal* 30 43–51



20. Judge T A, Thoresen C J, Bono J E and Patton G K 2001 The job satisfaction–job performance relationship: A qualitative and quantitative review. *Psychol Bull* **127** 376–407
21. Robbins S 2005 *Organizational behavior* Prentice Hall Spanish Americans, S.A., Mexico
22. Sek E K 2009 Case Study of Factors Influencing Jobs Satisfaction in Two Malaysian Universities. *International business research* **2** (2)
23. Hooi L W 2012 Enhancing employee satisfaction: an analysis of current promotion practices *International Journal of Management Practice* **5** 245
24. Kosteas V D 2009 Job level changes and wage growth *Int J Manpow* **30** 269–84
25. Hickson C and Oshagbami T. 2009 The Effect of Age on Satisfaction of Academicians with Teaching and Research. *International Journal of Social Academicians* **26**
26. Smith S. G., MacDougall A E, Varanka-Martin M. E. and Sinard M. K. 2019 An examination of workplace communication satisfaction
27. Brow J. and Adams S. 2016 Communicative transparency in organizations: Conceptualization, antecedents, and outcomes *Academy of Management Annals*, **10** 293–335
28. Johnson K. M., Bishop J. W., Scott K D , and Brown L. D. 2018 Supportive Communication. In R. L. Heath & W. P. Davidson (Eds.), *The Handbook of Communication Science*
29. Gagné M, Forest J, Gilbert M-H, Aubé C, Morin E and Malorni A 2010 The Motivation at Work Scale: Validation Evidence in Two Languages *Educ Psychol Meas* **70** 628–46
30. Detert J R, Treviño L K and Sweitzer V L 2008 Moral disengagement in ethical decision making: A study of antecedents and outcomes. *Journal of Applied Psychology* **93** 374–91
31. Sias P. M., Gallagher E. B. and Kopaneva I. M 2014 Workplace relationships in the virtual context In A. S. Greenberg (Ed.), *Organizational behavior: A collection of readings*
32. Gentry W. A., Weber T. J. and Sadri G. 2017 Employee recognition: A review, critique, and research agenda *Human Resource Management Review* **27** 71–89
33. Sullivan R. S. and Decker P. J. 2004 Communication research and the measurement of training outcomes. *Communication Research Reports* **21** 38–47
34. Spreitzer G. M. 1995 Psychological empowerment in the workplace: Dimensions, measurement, and validation *Academy of Management Journal* **38** 1442–65
35. Zheng X., Zhu W. and Zhao H. 2019 Daily Proactive Personality and Voice Behavior at Work: The Mediating Role of Emotional Exhaustion and Moderating Role of Work Unit Communication. *Journal of Business and Psychology* **34** 343–59
36. Holtzhausen D. R., Fourie E and Puth G. 2013 Employee Job Satisfaction in a South African Financial Services Provider: The Role of Communicative Leadership *Journal of Communication Management* **17** 116–35
37. De Dreu C K W , and Gelfand M J 2010 Conflict in the workplace: Sources, functions, and dynamics across multiple levels of analysis. In C. K. W. De Dreu & M. J. Gelfand (Eds.), *The psychology of conflict and conflict management in organizations* (pp. 3–54). Taylor & Francis Group/Lawrence Erlbaum Associates.
38. Watson W E, Kumar K and Michaelsen L K 1993 Cultural Diversity's Impact On Interaction Process and Performance: Comparing Homogeneous and Diverse Task Groups *Academy of Management Journal* **36** 590–602
39. Kossek E. E. and Perrigino M. B. 2016 Resilience through a gendered lens: Lessons learned and future directions *Academy of Management Journal* **59** 741–55
40. Eisenbeiss S A, van Knippenberg D and Boerner S 2008 Transformational leadership and team innovation: Integrating team climate principles. *Journal of Applied Psychology* **93** 1438–46
41. Ruggieri S., Abbate S., Boca S. and Trombetta F. 2017 Face-to-Face and Computer-Mediated Communication: A Study of the Effects of Group Size and Communication Modality on Perceived Communicative Functions. *Communication Research Reports* **34** 13–21
42. Lee K and Allen N J 2002 Organizational citizenship behavior and workplace deviance: The role of affect and cognitions. *Journal of Applied Psychology* **87** 131–42
43. Grant A M and Parker S K 2009 7 Redesigning Work Design Theories: The Rise of Relational and Proactive Perspectives *Acad Manag Ann* **3** 317–75
44. Allen D G, Shore L M and Griffeth R W 2003 The Role of Perceived Organizational Support and Supportive Human Resource Practices in the Turnover Process *J Manage* **29** 99–118
45. Kim W G and Brymer R A 2011 The effects of ethical leadership on manager job satisfaction, commitment, behavioral outcomes, and firm performance *Int J Hosp Manag* **30** 1020–6
46. Lin S. H, Scott B. A. and Matta F. K. 2013 Understanding the link between ethical leadership and employee misconduct: The mediating role of ethical climate *Journal of Business Ethics* **115** 451–64
47. Liden R C, Wayne S J and Sparrowe R T 2000 An examination of the mediating role of psychological empowerment on the relations between the job, interpersonal relationships, and work outcomes. *Journal of Applied Psychology* **85** 407–16
48. Blau P. M. 1964 *Exchange and Power in Social Life*. Wiley
49. Adams J S 1965 *Inequity In Social Exchange* pp 267–99
50. Meng J. and Meurs J. A. 2014 Perceptions of workplace communication satisfaction and job satisfaction: An exploration of two measures. *Journal of Business Communication* **51** 266–81
51. Spitzberg B.H. and Cupach W.R. 2014 *The dark side of relationship pursuit: From attraction to obsession and stalking* (Routledge)
52. Kang S. M and Sung M. 2016 Workplace communication satisfaction and job satisfaction: A moderated mediation model *Journal of Applied Communication Research* **44** 207–28
53. Chen Y. and Zhao S. 2021 Effects of workplace communication and social support on employee job satisfaction and turnover intention: A cross-cultural study. *Int J Environ Res Public Health* **18** 3043
54. Wiener Y., Hackman J. R. and Mehrabian A. 1978 A Field Study of the Relationship Between Perceived Fairness and Voluntary Turnover *Journal of Applied Psychology* **63** 699–705
55. Katz N., Kahn R. L. and Pugh D. S. 1979 The Impact of Organizational Structure on Job Satisfaction, Organizational Climate, and Work Motivation. In B. M. Staw (Ed.), *Research in Organizational Behavior* (Vol. 1, pp. 259–318). JAI Press.
56. Ko J-W, Price J L and Mueller C W 1997 Assessment of Meyer and Allen's three-component model of organizational commitment in South Korea. *Journal of Applied Psychology* **82** 961–73



57. Bakker A B and Demerouti E 2007 The Job Demands-Resources model: state of the art *Journal of Managerial Psychology* **22** 309–28
58. Demerouti E, Bakker A B, Nachreiner F and Schaufeli W B 2001 The job demands-resources model of burnout. *Journal of Applied Psychology* **86** 499–512
59. Crawford E R, LePine J A and Rich B L 2010 Linking job demands and resources to employee engagement and burnout: A theoretical extension and meta-analytic test. *Journal of Applied Psychology* **95** 834–48
60. Lee J. 2014 . The impact of job characteristics on communication satisfaction and organizational commitment. *Social Behavior and Personality: An International Journal* **42** 395–405
61. Hackman J R and Oldham G R 1976 Motivation through the design of work: test of a theory *Organ Behav Hum Perform* **16** 250–79
62. Hackman J R and Oldham G R 1975 Development of the Job Diagnostic Survey. *Journal of Applied Psychology* **60** 159–70
63. Judge T A, Thoresen C J, Bono J E and Patton G K 2001 The job satisfaction–job performance relationship: A qualitative and quantitative review. *Psychol Bull* **127** 376–407
64. GIALLONARDO L M, WONG C A and IWASIW C L 2010 Authentic leadership of preceptors: predictor of new graduate nurses' work engagement and job satisfaction *J Nurs Manag* **18** 993–1003
65. Morrison E W 2011 Employee Voice Behavior: Integration and Directions for Future Research *Academy of Management Annals* **5** 373–412
66. Harrison D A, Newman D A and Roth P L 2006 How Important are Job Attitudes? Meta-Analytic Comparisons of Integrative Behavioral Outcomes and Time Sequences *Academy of Management Journal* **49** 305–25
67. Wang D., Gan C., Wu C. H. and Tang T. L. P. 2014 Transformational Leadership and Employee Work Outcomes: The Mediating Role of Leader-Member Exchange (LMX) and the Moderating Role of Power Distance *Journal of Leadership & Organizational Studies* **21** 375–87
68. Rich B L, Lepine J A and Crawford E R 2010 Job Engagement: Antecedents and Effects on Job Performance *Academy of Management Journal* **53** 617–35
69. May D R, Gilson R L and Harter L M 2004 The psychological conditions of meaningfulness, safety and availability and the engagement of the human spirit at work *J Occup Organ Psychol* **77** 11–37
70. Gao L, Janssen O and Shi K 2011 Leader trust and employee voice: The moderating role of empowering leader behaviors *Leadersh Q* **22** 787–98
71. Ducharme L. J., Martin L. S and Wiley J. W. 2017 Nonverbal Communication and Job Satisfaction Revisited: A Meta-Analytic Examination *J Bus Psychol* **36** 619–36
72. Whittaker S., Bergman O. and Clough P. 2016 Email in Academia: Expectations, Use, and Instructional Implications. *Comput Educ* **97** 1–15
73. Ipek K T 2013 Organizational Levels of Analysis of Communication Satisfaction and Identification in Relation to Job Satisfaction *Journal of Economics, Business and Management* **1**
74. Podkowińska Monika 2011 Communication in Employees' Motivation and Remuneration System Education of Economists & Managers/*Edukacja Ekonomistow i Menedzerow* **22**
75. Hrud S ( 2011 The Relationship Between Internal Communication & Job Satisfaction A Case Study. (Master's thesis Copenhagen Business School Marketing Communications Management.)
76. Kamasak R and Bulutlar F. 2008 The impact of communication climate and job satisfaction in employees' external prestige perceptions. *Yönetim ve Ekonomi* **15** 133–44
77. Goris J R, Vaught B C and Pettit J D 200AD Effects of communication direction on job performance and satisfaction: A moderated regression analysis. *Journal of Business Communication*,
78. Andrews M C and Kacmar K M 2001 Confirmation and extension of the sources of feedback scale in service-based organizations *The Journal of Business Communication* **38** 206–26
79. Michael D 2011 Supportive supervisor communication as an intervening influence in the relationship between LMX and employee job satisfaction, turnover intentions, and performance *Journal of Behavioral Studies in Business* **4** 1–28
80. Altun Gülova A , and Demirsoy Ö 2012 Business and Economics Research Journal,
81. Çorbacı S, and Bostancı A B 2013 Okullarda Öğretmenlere Yönelik Performans Yönetimi Uygulamaları ile Öğretmenlerin Örgütsel Bağlılık Düzeyleri Arasındaki İlişki [Relationship between Performance Management Application for Teachers in schools and Their Organizational Commitment Level]. *Uşak Üniversitesi Sosyal Bilimler Dergisi, Özel Sayı*
82. Luchak A A and Gellatly I R 2007 A comparison of linear and nonlinear relations between organizational commitment and work outcomes. *Journal of Applied Psychology*,
83. Rodwell J J , Kienzle R , and Shadur M A 1998 The relationships among work-related perceptions, employee attitudes, and employee performance: The integral role of communication. *Human Resource Management*,
84. Ölçüm Ç M 2004 Örgüt Kültürü ve Örgütsel Bağlılık [Organizational Culture and Organizational Commitment] Ankara: Nobel Yayın Dağıtım.
85. Janice A K and Barbara J K 2005 Psychological Contract Violation: Impacts on Job Satisfaction and Organizational Commitment among Australian Senior Public Servants *Applied H.R.M. Research*,
86. Robbins S P and Coulter M 2009 Management Pearson International
87. Vedat Z. Y. and Halil Ö M 2014 The Effects of Organizational Communication on Organizational Commitment and an Application *Australian Journal of Business and Management Research* **4**
88. Maurer T J, Weiss E M and Barbeite F G 2003 A model of involvement in work-related learning and development activity: The effects of individual, situational, motivational, and age variables. *Journal of Applied Psychology* **88** 707–24
89. Coyle-Shapiro J. A.M, Morrow P. C. and Kessler I. 2002 Serving the Servants: A Stakeholder Theory Perspective on HRM Practices and Employee Attitudes *Journal of Management Studies* **39** 517–43
90. Lee K, Carswell J J and Allen N J 2000 A meta-analytic review of occupational commitment: Relations with person- and work-related variables. *Journal of Applied Psychology* **85** 799–811
91. Zhu W, Newman A, Miao Q and Hooke A 2013 Revisiting the mediating role of trust in transformational leadership



- effects: Do different types of trust make a difference? *Leadersh Q* **24** 94–105
92. Giesbers A. P. M., Knippenberg D. V. and Sleegers P. J. C. 2013 *Task-Oriented and Relations-Oriented Leadership Effects on Teachers' Job Satisfaction, Organizational Commitment, and Organizational Citizenship Behavior in Primary Schools: A Comparative Study. J Sch Leadersh* **23** 1101–31
93. Shields J., Dissanayake W., Smith S. and Moston S. 2015 *Employee Silence and the Authoritarian Personality: A Latent Profile Analysis. Pers Individ Dif* **82** 222–7
94. Smeltzer L. R., Curtis K. and Meadows L. 2016 *Exploring Strategic Communication for Organizational Alignment Journal of Business Communication* **198**
95. Putnam L L and Wilson C E 2016 *Communicating the Spirit of Collaboration: The Case of Employee Ownership Manag Commun Q* **30** 334–53
96. Gilbert E., Bergstrom T. and Karahalios K. 2018 *Communication and Information: Alternative Uses of the Facebook News Feed In Proceedings of the ACM on Human-Computer Interaction* **2(CSCW)**, Article 83
97. Shockley-Zalabak P., Ellis K. and Cesaria R. *Organizational Communication for Survival: Making Work, Work. Oxford University Press.*
98. Meyer J P and Herscovitch L 2001 *Commitment in the workplace: toward a general model Human Resource Management Review* **11** 299–326
99. Richmond V. P. and McCroskey J. C. 2009 *Nonverbal Behavior in Interpersonal Relations Pearson.* 7





# THE EFFECTS OF TEACHERS' COMMITMENT ON JOB SATISFACTION AND PERFORMANCE

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## ABSTRACT

The purpose of this study was to determine the effects of teachers' commitment on job satisfaction and performance. Correlational method or Pearson  $r$  was conducted and validated through survey questionnaire to measure the level of commitment and job satisfaction of teachers and IPCRF or Individual Performance Commitment Review Form to validate the performance of 187 teachers of Nabunturan West District Elementary Teachers of Nabunturan, Davao de Oro. The extent of commitment of teachers was measured in terms of self-awareness, commitment and character as well as the job satisfaction of teachers in which determined as job security, work environment and job responsibilities. Results showed there was no associated correlation between the variables reflecting to Pearson  $r$  which has  $-0.023$  P-value of  $0.753$  for commitment to job satisfaction and Pearson  $r$  result which has  $0.009$  P-value  $0.907$  on commitment vs. instructional performance. Teachers who were more committed performed better as they were more self-aware and had stronger morals. Possessing a positive attitude about one's job makes one feel as though all of their demands, including those related to pay, the workplace, and obligations. Additionally, the teachers delivered excellent all-around performance to meet the demands that promotes competitiveness as educators. It is recommended that the Department of Education support the external elements that increase teachers' commitment, such as providing orientation and seminar workshops that inspire them to increase their dedication to teaching and teamwork. Reiterate the advantages and worries of educators as motivation for their profession.

**KEYWORDS:** teacher's commitment, job satisfaction, instructional performance, job responsibility, correlational study

## INTRODUCTION

Teacher commitment can be characterized as a multidimensional structure with four dimensions: commitment to students, commitment to teaching, commitment to school, and commitment to profession (Thien, Razak & Ramayah 2014). This is perhaps one of the reasons why many organizations aim for a reasonable balance between employee loyalty and performance outcomes (Danish & Usman, 2010). Significantly related factors to work engagement must be considered.

Bulut & Culha, (2010) observed that motivation to train, access to training, training benefits, and training support all have a favorable effect on employees' organizational commitment.

At some point during the consistency of level three, you become committed to the new lifestyle, habit or routine. You're seeing some concrete results. Your confidence is increasing because of it. This new-found confidence may even turn into inspiration which will carry you a long way (Partridge, 2016).

The level of corporate commitment of teachers appears to depend on the interaction between teachers in the school, teacher-student communication, the quality of work and the degree of perception of teachers' professions (Mart, 2013). Teachers who show low commitment may have a disruptive behavior in the work environment and may cause the school to deviate from the teaching objective (Mart, 2013).

**Five Levels of Commitment.** As stated by Howard and Partridge (2016) there are five level of commitment that which considers or support this study, among these are the self-awareness, willing to change, intense focus, commitment and character. These levels will eventually develop the commitment of teachers.

**Self-Awareness.** Self-Awareness or what can be interpreted as self-awareness is a way of thinking of a person about himself, his authority, responsibility, and targets in facing and resolving a problem so that the tasks and problems they carry can be resolved. That is why a person's awareness will greatly affect their performance in the organization (Prabowo, 2014).

Self-Awareness or self-awareness can also be interpreted as continuous attention to the inner state of the individual. When an individual has good Self Awareness, the individual can control himself, namely being able to read social situations in understanding other people and understanding others about him (Putri, Tazkiyah & Amelia, 2019).

**Willing to Change.** This is where most people get stuck. Once they get started on the goal, the skill, or the habit, they immediately realize implementation is going to be much harder than they thought.

Meanwhile, Trotsko et al. (2019) reported that the effectiveness of digital applications depends on subjective and objective factors, namely the level of teacher readiness and availability of supporting facilities, respectively. Teachers are a vital element



of this educational transformation, therefore, their positive attitude toward change, willingness, and initiative to develop competence is essential.

**Intense Focus.** Once you've made the decision to change, you'll enter into a period of intense focus to begin building the new habit. But you're only halfway there. For this reason, the degree of effectiveness of an institution requires a healthy working environment, aims focusing on the social needs, effective institutional structure, adequate resources, and consistent policies based on scientific and technological developments and qualified workforce (Ozsoy, 2015).

**Commitment.** Moreover, Abasilim, Gberevbie, and Osibanjo (2019) define organizational commitment as employee behaviour in order for the organization to be able to spend time on organizational matters, to build good relations with colleagues, and to have passion for hard work.

Additionally, Batugal (2019) points out that commitment is demonstrated by referring to the hard work of lecturers at a higher education institution in St. Thomas, The University of Paul, Philippines. On the other hand, Jawaad, Amir, Bashir, and Hasan (2019) suggest that emotional satisfaction in working relationships, as well as employee engagement with the company, represent dedication.

**Character.** Motivation has a dynamic character. It is achieved through meeting the personal motives or needs. Degree of individual performance is a function of the efficiency of motivation. Sometimes individuals are positively motivated if their expectations are realized and the needs are satisfied.

According to Barkhuizen (2017) also tried to provide a concise construction regarding the concept of language teachers' identity. He stated that language teacher identities are social, emotional, ideological, and historical, inside the teachers' mind and technological world outside.

These elements are constantly accepted, rejected, acknowledged and valued by either the teachers themselves or others in the field. They are core and marginal, personal and professional, they are dynamic, multiple, hybrid, and they are foregrounded and backgrounded.

**Job Satisfaction.** Management principles that enhance productive performance are widely preferred (Fernet, Trépanier, Austin, Gagné & Forest 2015).

Organizations should be knowledgeable about various elements that influence employee satisfaction and dissatisfaction. Job satisfaction, according to Parvin & Kabir (2011), indicates how a member of an organization is content with his or her job, whereas Sunaryo and Suyono (2013) define it as "employee attitude toward work".

**Teachers Job Securities.** According to Issue(2008), every year, 157000 men and women depart the teaching profession. Only when competent and effective teachers are engaged and retained in a school can the quality of the education in Malaysia

be improved.

**Impact of Work Environment.** Work environment, as articulated by Opperman (2002), is the sum of the interrelationships that exist among employees and employers, and even the environment in which the employees work, which includes the technical, social, and organizational environment.

**Job Responsibilities.** Krueger (2000), thirty music teachers in Washington's public schools were interviewed during their first ten years of teaching. The primary issue cited by those who indicated a wish to leave music education as a vocation was a lack of administrative support.

Isolation from other music teachers, poor music facilities, and inadequate resources were all secondary issues. Music teachers who had a good mentor or a support system made up of other music teachers were shown to be satisfied in their careers than those who were isolated.

**Teachers Performance.** Student achievement test scores, observed pedagogical practices, or employer or student surveys can all be used to demonstrate a teacher's impact on students' learning. Bestowing to Funmilola, Sola, and Olusola (2013), conducted a study to describe the effect of job satisfaction dimensions on job performance in a small and medium enterprise in Ibadan, Southwestern, Nigeria.

Using a total number of 105 enterprise as samples, the study found that pay effects significantly on job satisfaction and performance especially when employees feel that pay schemes are seen as just, clear, and link with their hopes. The study also found that the quality of supervisor-subordinate relationships effects significant positively on the employees' satisfaction and performance.

**Instructional Performance.** Instructional tasks are statutory curricula functions that are performed by the teachers to enable learners achieve the set educational goals in schools. This ultimately depends on the capacity of teachers to make effective use of instructional resources to ensure quality teaching learning process (Ayeni, 2011).

**Learners Academic Performance.** According to Craig (2009), it maintains that education will be more beneficial to students in the 21st century in following areas: 1) acquisition of knowledge and skills, and application of what have been learnt to deal with real world challenges rather than simply reproducing the information on tests for academic excellence; and 2) ability to think critically about information and solve novel problems, communicate, collaborate and adapt to change.

**IPCRF of teachers.** Agreeing to Canoma (2017), the objectives indicated are actually the duties and responsibilities that each teacher must do in service. This is a tool to check and balance if one is doing his duties diligently with quality, efficiency and on time. Many studies have shown that the performance of teachers is the major input in the attainment of quality education.



Teachers play a very vital role in achieving the objectives of Philippines' vision 2020. hence, what contributes and affects their performance need to be investigated (Haramain, 2021).

**OBJECTIVES**

This research aims to discover the challenges and opportunities faced by teachers commitment and performance in the field of teaching.

**METHODS**

A descriptive-correlational research design using the survey questionnaire to determine the relationship between the level of the commitment of the teachers and the job satisfaction and their instructional performance.

The study was conducted in the municipality of Nabunturan, well known as *The Heart of the Valley*. The municipality of Nabunturan is located in the northeastern section of Davao province, between 1250 and 27 degrees east longitude and 70 and 41 degrees north latitude. By concrete/asphalted National Highway, Nabunturan is 88 kilometers from Davao City and 33 kilometers from the newly created Tagum City.

In terms of public schools, Nabunturan is divided into two districts, Nabunturan East and Nabunturan West District. Nabunturan West, the locale of this research has ten elementary schools namely Nabunturan Central Elementary School SPED Center , San Roque Elementary School, C.M. Recto Elementary School, Linda Integrated School, Magsaysay Elementary School , Mipangi Elementary School, New Sibonga Elementary School, Bayabas Elementary School , Tagaytay Elementary School, and San Isidro Integrated School.

The first seven schools mentioned are situated along the national highway while the remaining three are located in the mountainous terrain of the locality of Nabunturan.

The respondents of this study were 187 teachers who assessed their own level of commitment and their job satisfaction and their instructional performance however; their instructional performance was also evaluated by their own school leaders.

In evaluating the teachers' instructional performance, the school head used the Individual Performance Commitment and Review Form (IPCRF). Table 1 below shows the respondent schools and the number of teachers together with their school heads.

**Table 1**  
**Respondents of the Study**

Name of School	School Heads/Head Teacher/Teacher-In-Charge	Position	Number of Teacher Respondents
Nabunturan Central Elementary School SPED Center	1	School Principal II	87
Bayabas Elementary School	1	Teacher-In-Charge	9
CM Recto Elementary School	1	Head Teacher	9
Linda Elementary School	1	School Principal I	11
Magsaysay Elementary School	1	School Principal I	18
Mipangi Elementary School	1	Teacher-In-Charge	17
New Sibonga Elementary School	1	School Principal I	14
San Isidro Integrated School	1	School Principal I	12
San Roque Elementary School	1	Teacher-In-Charge	7
Tagaytay Elementary School	1	Teacher-In-Charge	3
<b>Total</b>	<b>10</b>		<b>187</b>

The survey questionnaire has two components: Part I was the commitment of teachers and part II was on the job satisfaction and the instructional performance of the teachers. The data for the instructional performance were coming from the IPCRF which were assessed by the principal and the teachers themselves for the school year 2020-2021.

Five experts in the field validated the adapted research questionnaire to ensure that the items contained in the questionnaire were appropriate. Following validation, the questionnaire was pilot-tested to ensure that the research instrument was reliable. The questionnaire was pilot tested to a group of 10 teachers from another school who were not included in the study to check its reliability and validity.

The researcher prepared a letter of permission to the Schools Division Superintendent of the Davao de Oro to allow her to conduct this study. In addition, the researcher prepared another letter-request informing the 10 school leaders of the 10 responding schools of the study. The nature of the study was explained to them, and their full cooperation was greatly appreciated. After the data collection, the researcher tallied, collated and tabulated all the data and submitted them to the statistician for statistical treatment and the results were



subjected to analyses and interpretations.

## RESULTS AND DISCUSSIONS

This chapter presents the data and provides analysis and interpretation of the data gathered.

### Level of Commitment

**Self-Awareness.** Table 2 presents the level of commitment of teachers in terms of self-awareness.

**Table 2**  
**Self-Awareness of Teachers**

Self-Awareness (Willing to Change and Intense focus)	Mean	Description
1. I feel proud being a teacher.	3.80	Strongly Agree
2. I do not feel a strong sense of "belongingness" to my profession.	2.80	Agree
3. Even if it were to my advantage, I would have left my profession now.	1.80	Disagree
4. Teacher comes late at school, leaves early.	1.60	Disagree
5. I detest being supervised.	1.60	Disagree
6. I use copied lesson plan from the internet.	1.90	Disagree
7. I accomplish my job with enthusiasm	2.80	Agree
8. One of the few negative consequences of leaving this profession would be the scarcity of available alternatives.	2.90	Agree
9. Right now, staying with my profession is a matter of necessity and desire.	2.70	Agree
10. I prefer working at this school even though I have choices for working at another school.	2.80	Agree
<b>Overall Weighted Mean</b>	<b>2.50</b>	<b>High</b>

The overall weighted mean of the level of commitment of teachers in terms of self-awareness is 2.5, high. From the table, item no. 1, teachers feel proud of their profession has the highest rank with the mean rating of 3.80, strongly agree. Although there are two indicators with mean rating of 1.60, disagree. As indicated that teachers come to school late, leaves early and detest being supervised by the school heads or co-teachers. This means that teachers show promptness and show obedience in their profession.

**Commitment and Character.** Shown in Table 5 is the level of commitment and character of teachers.

**Table 3**  
**Commitment and Character of Teachers**

Commitment and Character	Mean	Description
1. I perceive the values of teaching profession more important than those of other values.	3.40	Agree
2. I comply with all school policies.	3.60	Strongly Agree
3. I spend time with the students on subjects (activities) related with the lesson inside as well as outside the classroom.	3.40	Agree
4. I do not hold remedial classes.	1.90	Disagree
5. I do not feel like "part of the family" at my profession	1.60	Disagree
6. I write sloppy lesson plans.	1.60	Disagree
7. I had not put so much of myself into this profession, I might have considered working elsewhere.	1.70	Disagree

8. I work hard for the school and have the tendency for taking extra periods assigned to me.	3.20	Agree
9. I would be very happy to spend the rest of my career with this profession.	3.50	Strongly Agree
10. I would feel guilty if I leave my profession now.	3.20	Agree
<b>Overall Weighted Mean</b>	<b>2.70</b>	<b>High</b>

The Level of commitment and character of teachers received an overall weighted average of 2.70, high. The highest rank in all statements with the mean of 3.60 with the descriptive equivalent of strongly agree is item no. 2, I comply with all school policies which is followed by item no. 9, I would be very happy to spend the rest of my career with this profession, with a mean of 3.50, strongly agree.

It is also reflected in the table that there are two indicators that received a mean rating of 3.40, agree. They do not feel like "part of the family" at their profession and write sloppy lesson plans with a mean rating of 1.60. It clearly shows that teachers are pleased with their profession, colleagues and make contextualized materials for teaching-learning process and feel part of the family in their respective stations.

### Level of Job Satisfaction

**Job Security.** Presented in Table 4 is the level of job satisfaction of teachers in terms of job security.

**Table 4**  
**Job Satisfaction of Teachers in terms of Job Security**

Job Security(Salary, Benefits, Rewards Performance, Recognition, Promotion )	Mean	Description
On my current job, this is how I feel about...		
1. The given salary for the work I do.	3.10	Satisfied
2. The chance to be promoted.	3.10	Satisfied
3. The benefits and compensation I receive are enough as much as other organizations can offer.	3.10	Satisfied
4. When all my hard works are not compensated.	2.40	Undecided
5. The way my job secures my future.	3.40	Satisfied
6. The way I get recognition to what I do.	3.10	Satisfied
7. Being able to compromise my work as job well done	3.20	Satisfied
8. The way how my work compares to the same salary grades from other departments or organization	2.80	Satisfied
9. The way how my wage compares with other teachers in school.	2.90	Satisfied
10. The opportunities for professional growth.	3.30	Satisfied
<b>Overall weighted Mean</b>	<b>3.00</b>	<b>Satisfied</b>

The level of job satisfaction of teachers in terms of job security attained an overall mean rating of 3.00, satisfied. Among the items, item no. 5, the way my job secures my future has the highest rank with the mean of 3.40 with the descriptive equivalent of satisfied





and followed by item no. 10, opportunities for professional growth with a mean rating of 3.30, satisfied. It shows that teachers are satisfied in terms of the given profession growth activities and secure their respective lives in the future and shows that they follow school rules and guidelines. In addition, item no. 7, being able to compromise works as job well done with a mean rating of 3.20, satisfied. Additionally, item no. 4, when all my hard works are not compensated received the lowest mean of 2.40, undecided. This means that teachers are pleased with their salaries nonetheless, there are some other related works which do not compensate for their hard work as an employee.

**Work Environment.** Presented in Table 5 is the level of job satisfaction of teachers in terms of work environment.

**Table 5**

**Job Satisfaction of Teachers in terms of Work Environment**

Work Environment (Policies, Organizational Structures, Physical, Emotional )	Mean	Description
1. The rules and policies of the department implement by the employees.	3.1	Satisfied
2. The harmonious relationship established towards my immediate head.	3.4	Satisfied
3. The conducive environment (well ventilated, lighting, etc.)	3.3	Satisfied
4. The spirit of cooperation towards my co-teachers.	3.3	Satisfied
5. The way my co-teachers be friends with others.	3.4	Satisfied
6. The way of guiding teachers when challenges occur.	3.4	Satisfied
7. The support gains through technical, social and in emotional aspects.	3.3	Satisfied
8. The satisfaction of accomplishing the given task.	3.4	Satisfied
9. The staging of hostile attitude in times of difficulties.	3.0	Satisfied
10. Demonstrate positive attitudes in workplace.	3.4	Satisfied
<b>Overall Weighted Mean</b>	<b>3.3</b>	<b>High</b>

The overall weighted mean of the level of job satisfaction of teachers in terms work environment is 3.3 which is described as high. It shows that items nos. 2, 5, 6, 8 and 10 attained the mean rating of 3.4 with descriptive equivalent of satisfied come to be the highest rank. It means that the work environment of teachers demonstrated pleasant-sounding work place. Moreover, there are three indicators that have the same mean of 3.30 with descriptive equivalent of satisfied in which the conducive environment (well ventilated, lighting, physical facilities, etc.); This means that some schools aided teachers with an environment conducive for and provide technical assistance that will cater the needs of the teachers. While, the rules and policies of the department implement by the employees with mean of 3.10, satisfied and lastly; the staging of hostile attitude in times of difficulties with mean of 3.0, satisfied. The teachers followed the different policies but somehow are intimidated especially if they are facing obstacles in their work environment.

**Job Responsibilities.** Presented in Table 6 is the level of job satisfaction of teachers in terms of job responsibilities.

**Table 6**  
**Job Satisfaction of Teachers in terms of Job Responsibilities**

Job Responsibilities (Duties, Moral & Ethics)	Mean	Description
1. The chance to communicate with school heads and co-teachers.	3.4	Satisfied
2. The chance to do things on my own.	3.4	Satisfied
3. The chance to develop my skills in my job.	3.4	Satisfied
4. The ability to do things right towards my work in the absence of others being insulted.	2.9	Satisfied
5. The chance to convey myself towards my immediate head or co-teachers.	3.3	Satisfied
6. The chance to suggest better ideas to the certain task.	3.2	Satisfied
7. The sense of exhaustion in going to work.	2.8	Satisfied
8. The manner of achieving a task in an unexceptional way to reach the deadline.	3.0	Satisfied
9. The chance to do something that makes use my abilities.	3.3	Satisfied
10. Punctuality in every work that I do.	3.3	Satisfied
<b>Overall Weighted Mean</b>	<b>3.2</b>	<b>HIGH</b>

Shown in Table 6 is the level of job satisfaction of teachers in terms job responsibilities with an overall weighted mean of 3.2, which is described as high. Items no. 1, 2, and 3 received the highest mean of 3.4 with a descriptive equivalent of satisfied. It indicates that the chance to communicate with school heads and co-teachers; the chance to do things on their own and the chance to develop skills in job are demonstrated.

Three indicators of Job Responsibilities in which the chance to convey themselves towards the immediate head or co-teachers; the chance to do something that make use of abilities; punctuality in every work that they do garnered the same mean of 3.30 with descriptive equivalent of satisfied. This means that teachers are able to use their abilities towards their immediate head especially if they manifested punctuality in the assigned tasks.

On the other hand, the ability to do things right towards in work in the absence of others being insulted garnered a mean of 2.90, satisfied. This indicates that as an educator they learn how to comprise themselves in a peaceable manner even experiencing difficulties at work. Lastly, the indicator that shows that the sense of exhaustion in going to work has received the lowest mean of 2.80, satisfied. This reflects how teachers felt adversity and exhaustion at work nevertheless they still do their job well to deliver quality education to their learners.

**Level of IPCRF Ratings of Teachers.** Table 7 is the level of Performance of Teachers in terms of Individual Performance Commitment Review Form of Teachers.



**Table 7**

**Level of Teachers Performance (IPCRF)**

Level of Performance	Frequency	Percentage
Outstanding	25	14%
Very Satisfactory	155	83%
Satisfactory	7	4%
<b>TOTAL</b>	<b>187</b>	<b>82%</b>

Table 7 shows that the level of performance of teachers based on Individual Performance Commitment Review Form for S.Y. 2020-2021. Out of 187 teacher respondents of Nabunturan West District Elementary Schools in Nabunturan, Davao de Oro, 155 teachers placed very satisfactory level of performance with the percentage of 83%. Twenty five or 14% of them have outstanding level of performance seven teachers placed in satisfactory level of performance with the percentage of 4%.

**Summary of the Level of Commitment of Teachers.** The Summary of the level of commitment in terms of self-awareness, commitment and character is presented in Table 8.

**Table 8**

**Level of Commitment of Teachers**

Indicators	Mean	Description
Self-awareness	2.50	High
Commitment and Character	2.70	High
<b>Overall Mean</b>	<b>2.60</b>	<b>High</b>

The level of commitment of teachers shows that the highest rank is the commitment and character with the mean of 2.70 with the descriptive equivalent of high, followed by self-awareness with the mean of 2.50 with a descriptive equivalent of high.

The overall mean score for the level of commitment is posted at 2.60 with the descriptive equivalent of high. This shows that the level of commitment of the teachers is high.

**Summary on the Level of Job Satisfaction of Teachers.** The Summary on the level of commitment in terms of self-awareness, commitment and character is presented in table 9.

**Table 9**

**Level of Job Satisfaction of Teachers**

Indicators	Mean	Description
• Job Security	3.00	Satisfied
• Work Environment	3.30	High
• Job Responsibilities	3.20	High
<b>Overall Mean</b>	<b>3.20</b>	<b>High</b>

The level of job satisfaction of teachers shows that the highest rank is the work environment with the mean of 3.30, high, followed by job responsibilities with the mean of 3.20, high and lastly job security with the mean of 3.00, satisfied. The overall mean score is

3.20 with the descriptive equivalent of high.

**Relationship between Commitment of Teachers and Job Satisfaction**

Table 10 presents the relationship between commitment of teachers and job satisfaction.

**Table 10**

**Relationship between Commitment and Job Satisfaction**

Pearson's Correlations			
Variable		Commitment	Job Satisfaction
1. Commitment	Pearson's r	—	
	p-value	—	
2. Job Satisfaction	Pearson's r	-0.023	—
	p-value	0.753	—

Analysis revealed that commitment of teachers has a significant negative relationship with job satisfaction. The result revealed that the p- value of 0.753 is greater than 0.05 which means that deviation from the null hypothesis is not statistically significant and the null hypothesis is accepted that there is no significant relationship existing between commitment and job satisfaction.

**Relationship between Commitment of Teachers and Instructional Performance**

Table 11 below presents the relationship between commitment of teachers and instructional performance.

**Table 11**

**Relationship between Commitment and Instructional Performance**

Pearson's Correlations			
Variable		Commitment	Instructional Performance
1. Commitment	Pearson's r	—	
	p-value	—	
2. Instructional Performance	Pearson's r	0.009	—
	p-value	0.907	—

Correlation was conducted to test the relationship between the commitment of teachers and instructional performance the result revealed that the p-value of 0.907 is greater than 0.05 which means that the null hypothesis is accepted which means that there is no significant relationship or association between the commitment of teachers and their instructional performance.

**Level of Commitment of Teachers according to Self-awareness.** The level of commitment of teachers obtained an overall mean of 2.60 with the descriptive equivalent of high. Among the two indicators, the commitment and character got the highest rank with the mean of 2.70 described as high. The



last is self-awareness that described as high with the mean of 2.50. The overall mean is 2.50 with a descriptive equivalent of high. This means that the level of commitment of teachers in terms of self-awareness is high. Teachers are aware and willing to change and focused on their job as teachers.

Determining and understanding their professional self-understanding can contribute to the development of the teaching profession and increase the quality of education. Therefore, teachers can cope with the personal problems they face and respond to the expectations of change and innovation of society the political environment.

The Department of Education, with its programs, projects and initiatives goes hand and hand with the NCBTS. It is recommended that DepEd should firmly implement the triangulation method of assessing job performance of teachers by means of intensive monitoring from the highest down to the lowest ranks other than just mere self-assessment (Cenas, 2017).

#### **Level of Commitment of Teachers according to Character.**

The Level of commitment and character of teachers received an overall weighted average of 2.70 with a descriptive equivalent of high. This means that the teachers possessed the high level of commitment and character expected of a professional teacher. Committed teachers are those who have excitement, passion, desire, enthusiasm and energy.

As DiPaola and Neves, (2009) mentioned, though a strong relationship was identified with passion for teaching and citizenship behavior the mediating effect of organizational commitment was not explored to date.

#### **Level of Job Satisfaction of Teachers in terms of Job Security.**

The level of job satisfaction of teachers obtained an overall mean of 3.20 with the descriptive equivalent of high. The teachers are satisfied in terms of their job security. Pay is very primary factor of satisfaction for almost every type of employee in private, public, small, medium and large organization. Research appears to be unclear regarding the influence of pay on job satisfaction. As to the working experience of teachers, a significant relationship between job satisfaction and experience was not found but difference is observed in education levels Kumara and Bhaskara, (2007).

Moreover, based upon Maslow's theory of human motivation, one of the most frequently cited theories of motivation in the management and organizational literature, Gawel (2017) concluded that the esteem needs of employees are not being met, causing dissatisfaction and stress due to bulk of job responsibilities handled by them.

4 The level of job satisfaction of teachers in terms work environment received and overall rating of 3.30 which is described as high. This means that the teachers are satisfied with respect to school policies, organizational structures, physical and emotional environment. Conferring to Toropova, (2020), the study employs TIMSS 2015 (Trends in International Mathematics and Science Study) data from Sweden.

Confirmatory factor analysis and structural equation modeling are used as main methods. Results demonstrate a substantial association between school working conditions and teacher job satisfaction.

5. The level of teachers' satisfaction in terms of job responsibilities has received an overall rating of 3.20 with a descriptive equivalent of high. This means that the teachers are satisfied in terms of their job responsibilities. Many teachers in the school admit that work situation is a cause of employee attitude in the organization and this the area in which HR manipulates the organization programs and practices of management. The most critical part of the job situation is the work itself which is normally unnoticed by the researcher when she investigated the job satisfaction.

6. The overall mean score of the level of job satisfaction of teachers is 3.20, high. The job satisfaction of the teachers occupies the important place in the list of main concerns of human resource management department. The reason of this importance is twofold. On one side it helps in retaining the employees and on the other side it raises their performance level.

7. The level of performance of teachers based on Individual Performance Commitment Review Form (IPCRF) rating garnered an overall percentage of 82% which is described as very satisfactory. For the Filipino teachers, Individual Performance Commitment Review Form (IPCRF) was introduced to DepEd in 2015.

It is a general plan of task and serves as guide to teachers to be written before the start of classes, implemented before the school year and to be rated at the end of the school year. This is a tool to evaluate performance. As stated in DepEd Order 2, S. 2015 - Guidelines on the Establishment and Implementation of the Results-Based Performance Management System (RPMS) in the Department of Education (DepEd), it aims to provide comprehensive guidelines for the adoption of the Civil Service Commission's (CSC) Strategic Performance Management System (SPMS) in DepEd.

According to Canoma (2017), the objectives indicated are the duties and responsibilities that each teacher must do in service. This is a tool to check and balance if one is doing his duties diligently with quality, efficiency and on time.

8. There is no significant relationship existing between commitment and job satisfaction. The result revealed that the p-value of 0.753 is greater than 0.05 which means that deviation from the null hypothesis is not statistically significant and the null hypothesis is accepted.

9. There is no significant relationship between the commitment of teachers and instructional performance. The result revealed that the p-value of 0.907 is greater than 0.05 which means that the null hypothesis is accepted. The finding does not conform with the finding of Brown et. al. (2011) that employees' commitment and loyalty are positively associated with higher



levels of workplace performance. However, the study of Fredberg, et al (2008) revealed that there is no connection between the commitment of employees and their performance. In a school setting, the study of Susada (2008) in revealed that the lone predictive model of teaching instructional performance of the public elementary school teachers was commitment.

## CONCLUSION

Based on the findings of the study, there is no relatively association between the teachers' commitment and job satisfaction and their instructional performance. Teachers with greater commitment performed well since they are fully aware of their functions and responsibilities as facilitators of learning. Having good attitude towards work is highly satisfied as their needs are gratified such as salary, work environment and responsibilities. Moreover, the teachers performed holistically and their performance is a reflective of being good facilitators of learning of which they cater the needs of learners, school and community.

## REFERENCES

1. Abasilim, U. D., Gberevbie, D. E., & Osibanjo, O. A. (2019). *Leadership styles and employees' commitment: Empirical evidence from Nigeria*. *SageOpen*, 9(3), 2158244019866287.
2. Ayeni, A. J. (2011). *Teachers' professional development and quality assurance in Nigerian secondary schools: World Journal of Education*
3. Barkhuizen, G. (Ed.). (2017). *Reflections on language teacher identity research* (pp. 111). New York: Routledge.
4. Batugal, M. L. C. (2019). *Organizational Culture, Commitment and Job Satisfaction of Faculty in Private-Sectarian Higher Education Institutions (HEIs)*. *World Journal of Education*, 9(2), 123-135.
5. Bulut, C., & Culha, O. (2010). *The effects of organizational training on organizational commitment*. *International Journal of Training and Development*, 14(4), 309-322.
6. Canoma, M. (2017). *The benefit to professional development*. *American Educator*, 26(2), 2225.
8. Cenas Pa-alisbo, M. (2017). *The 21<sup>st</sup> Century Skills and Job Performance of Teachers*. Retrieved 18 July 2019, from <https://files.eric.ed.gov/fulltext/ED578609.pdf>
8. Craig, D. J. (2009). *Defining 21st century teaching education*. <http://www.centreforpubliceducation.org>
9. Danish, R. Q., & Usman, A. (2010). *Impact of reward and recognition on job satisfaction and motivation: An empirical study from Pakistan*. *International journal of business and management*, 5(2), 159.
10. DiPaola, M., & Neves M. (2009). *Organizational citizenship behavior in Schools and its relationship to school climate*, *Journal of School Leadership*, 11, 424-47
11. Fernet, C., Trépanier, S. G., Austin, S., Gagné, M., & Forest, J. (2015). *Transformational leadership and optimal functioning at work: On the mediating role of employees' perceived job characteristics and motivation*. *Work & Stress*, 29(1), 11-31
12. Funmilola, O. F., Sola, K. T., & Olusola, A. G. (2013). *Impact of job satisfaction dimensions on job performance in a small and medium enterprise in Ibadan, South Western Nigeria*, *Interdisciplinary Journal of Contemporary Research in Business*, vol. 4(11), pp. 509-521.
13. Gawel, J. E. (2017). *Herzberg's Theory of Motivation and Maslow's Hierarchy of Needs*. Retrieved from <http://www.ericdigests.org/2017-1/needs>.
14. Haramain, M. (2021). *Peaceful Da'wah and Religious Conflicts in Contemporary Indonesia*. *KURIOSITAS: Media Komunikasi Sosial Dan Keagamaan*, 14(2), 208-223.
15. Jawaad, M., Amir, A., Bashir, A., & Hasan, T. (2019). *Human resource practices and organizational commitment: The mediating role of job satisfaction in emerging economy*. *Cogent Business & Management*, 6(1), 1608668.
16. Krueger, P. J. (2000). *Beginning music teachers: Will they leave the profession? Update: Applications for Music Education*, 19(1), 22 – 26.
17. Kumara, J. & Bhaskara, D. (2007). *Job Satisfaction of Teachers*. *Discovery publishing house, New Delhi, India*
18. Mart, C. T. (2013a). *A passionate teacher: teacher commitment and dedication to student learning*. *International Journal of Academic Research in Progressive Education and Development*, 2(1), 437-442
19. Mart, C.T. (2013b). *Commitment to School and Students*. *International Journal of Academic Research in Business and Social Sciences*, 3(1), 336-340.
20. Mart, C.T. (2013). *A passionate teacher: Teacher commitment and dedication to student learning*. *International Journal of Academic Research in Progressive Education and Development*, 2(1), 437-442.
21. Opperman C. S. (2002). *Tropical business issues. Partner Price Water House Coopers*. *International Business Review*.
22. Ozsoy, C. E. (2015). *Mesleki eğitim-istihdam ilişkisi: Türkiye'de mesleki eğitimin kalite ve kantitesi üzerine düşünceler*. *Colleges*, 173.
23. Partridge, A. G. (2016). *Employment trends in Western Cape Agriculture*. *Agriprobe*, 13(2), 54-59
24. Parvin, M. M., & Kabir, M. N. (2011). *Factors affecting employee job satisfaction of pharmaceutical sector*. *Australian journal of business and management research*, 1(9), 113.
25. Prabowo, A. S. (2021). *The Role of Self Efficacy and Self-Esteem in Improving Academic Performance Amongst Aviation Polytechnic's Students*. *Journal of Technical Education and Training*, 13(3), 20-28.
26. Putri, E. T., A. Y. Tazkiyah, R. Amelia. (2019). *Self-Awareness Training untuk Menghadapi Fenomena Pernikahan Dini*. *Jurnal Pelayanan Kepada Masyarakat Vol 1 (1)*
27. Sunaryo, S., & Suyono, J. (2013). *A test of model of the relationship between public service motivation, job satisfaction and organizational citizenship behavior*. *Review Integrative Business & Economics*, 2(1), 384
28. Thien, L., Razak, N., & Ramayah, T. (2014). *Validating teacher commitment scale using a Malaysian sample*. *SAGE Open*, April-June 2014: 1-9. DOI: 10.1177/2158244014536744, [sgo.sagepub.com](http://sgo.sagepub.com).
29. Toropova, A. (2020). *Teacher job satisfaction: the importance of school working conditions and teacher characteristics* <https://doi.org/10.1080/00131911.2019.1705247>
30. Trotsko, A., Rybalko, L., Kirilenko, O., & Trush, H. (2019). *Professional Self performance of teachers in the conditions of distance learning in higher education institutions*. *Information Technologies and Learning Tools*, No. 72, pp. 258-272, available at <http://doi.org.10.33407/itIt.v72i4.3088>





# TRANSITIONING FROM TRADITIONAL CLASSROOM TO NEW NORMAL EDUCATION SET-UP: A TEACHER PERSPECTIVE

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## ABSTRACT

Transitioning from traditional classroom to new normal set-up in education had greatly impacted education especially the teachers. Herewith, this study aimed to know the perspectives of teachers in the transitioning from traditional classroom to new normal education set-up. Hence, this qualitative phenomenological research study explored the perspectives of the teachers of Mawab Central Elementary School SPED Center and Assumption Academy of Mawab, Inc. The purpose of this study is to explore on teachers' experiences, challenges, coping mechanisms, insights, suggestions, and recommendations of teachers in the abrupt transition from traditional classroom to new normal education set-up. There were 10 purposively selected teachers who participated in the conduct of the study, five participants from public and another five from private school. Learning in the new normal presented obstacles and difficulties for teachers, according to the findings. They were able to showcase their flexibility and resiliency in dealing with the change. As a result of the pandemic, the study also found out that teachers were able to gain new skills, come up with new ideas, and improve their own creativity and adaptability to address challenges brought by the pandemic. The study concluded with recommendations for the best programs that could help teachers deal with adversity, as well as areas for further research.

**KEYWORDS:** new normal education, perspective, teachers, experiences, challenges, insights, suggestions, recommendations, phenomenological research, Philippines

## INTRODUCTION

The transition from traditional classroom to new normal set-up in education had greatly impact the education industry, particularly the teachers, who were responsible for providing quality learning to students. It has a significant impact in the sense that teachers must adjust and adapt to the abrupt change in order to still facilitate learning amidst pandemic.

In Turkey, the government shut down all early childhood education institutes and mandated distance learning at the start of the epidemic in March 2020. Due to school closings, maintaining education through other venues is now more crucial than ever in Turkey (Özer, 2020).

The education system in the Philippines changed from face-to-face instruction to distance learning. This necessitates a paradigm shift in educational institutions so they can provide various platforms while maintaining the same level of proficiency and comprehension (Dangle & Sumaoang, 2020).

In Mawab Central Elementary School SPED Center and Assumption Academy of Mawab, for the continuity of education and for every school to still attain its mission and vision which is to provide quality education to every Filipino learner, implemented the Modular and Online Distance Learning. These two platforms were based on surveys given to parents and guardians.

Moreover, teachers from both of the schools faced variety of challenges and issues. Some of these issues include a lack of resources, such as internet connection and laptop computers, as

well as other requirements for online distance learning and materials for module printing that would be used in modular distance learning. We also experienced that we need to do lot of things that were new to us in just a short period of time. Teachers were caught unprepared on how to deliver the lessons and on how to create meaningful learning in the new normal. Another challenge in this new normal education set-up that we experienced as teachers is the support provided by parents and guardians in order for the teachers' strategies,

innovations, and adjustments will be realized. The result of the study will serve as the foundation for programs aimed at continuing teacher professional growth and development, as well as school improvement and preparedness in the event of an emergency such as the COVID-19 Pandemic.

## OBJECTIVES

The purpose of this study was to explore the experiences, challenges, coping mechanisms, insights, suggestions and recommendations of teachers in the transitioning from traditional classroom to new normal education set-up.

## METHODS

This study was a qualitative study employing a phenomenological approach as it sought to explore the experiences, challenges, insights, and coping mechanisms of the teachers in the transitioning from traditional classroom to new normal education set-up. This research study utilized phenomenology as the research design.

Purposive sampling, a non-probability sampling method, was used to select participants for this study. The research



participants were 10 teachers in different grade levels who had a minimum of two-year teaching experience from Mawab Central Elementary School SPED Center and Assumption Academy of Mawab Inc.

This study used an interview guide created by the researcher as a qualitative analysis method. The researcher used a tool, which had a list of questions to keep track of to ensure that all of the topics necessary to address the research questions were covered. The study interview guide aimed to learn about the experiences, challenges, insights, and coping mechanisms of the teachers in the transitioning from traditional classroom to new normal education set-up.

With the approval of the Division of Davao de Oro, this research was conducted in Assumption Academy of Mawab and Mawab Central Elementary School SPED Center in the province of Davao de Oro.

The researcher conducted in-depth interviews with ten (10) participants to determine their experiences, challenges, and insights in the transitioning from traditional classroom to new normal education set-up.

After the interview, the researcher proceeded to data analysis. Qualitative data analysis consists of coding and categorizing patterns or themes found in the data. The clarity and applicability of the identified findings of this study heavily depend on my ability to analyze the data.

## RESULTS AND DISCUSSION

Table 1

The formulated theme and central ideas on the experiences of teachers during the transition from traditional classroom to new normal

Themes	Central Ideas
Experiences during Abrupt Transition from Traditional Classroom to New Normal	Teachers had difficulty in preparing learning materials and assessments which were among the most important tools available to teachers for facilitating learning.
Ways in which Experiences Made Informants Better Teacher during the Transitioning	Encouraging teachers to adapt to new trends, be flexible, and be more creative and patient

### Experiences of Teachers in the Transitioning from Traditional Classroom to New Normal Education Set-Up

From the data collected, two (2) themes emerged: (1) experiences during abrupt transition from traditional classroom to new normal, (2) specific challenges encountered in the new normal education set-up

#### Experiences during Abrupt Transition from Traditional Classroom to New Normal

The finding revealed that there were lot of difficulties faced by the teachers in the new normal. From the preparation of materials and assessments and modifications to be made, limited time in developing lessons. Malipot (2020) remarked that while some teachers are anxious about modular distance learning, other teachers are worried about the high cost of reproduction and must stay at the school until the evening to finish the printing on time.

Nicholls (2020) also noted that teachers have to do additional work as a result of distance learning. In order to distribute learning materials to students via printing, teachers will need to develop more lesson plans that are both comprehensive and easy for students to understand on their own. Teachers were forced to upgrade their skills relatively immediately to adapt to

the new teaching methods even though they were not entirely prepared for the change, making sure that pupils can still study even in the current environment.

#### Ways in which Experiences Made Informants Better Teacher during the Transitioning

Undoubtedly, the outbreak puts instructors' ability to adapt and be flexible in times of crisis. As a result, they are motivated to devise new and unique initiatives for connecting with their students and colleagues. Additionally, instructors received specific training to provide adequate education in light of the COVID-19 pandemic. Teachers, on the other hand, cannot simply disregard uncontrollable situations. Regardless of how difficult it is, teachers continue to make learning possible while aiding themselves and students in adjusting to the new normal (Agayon et al., 2022).

In addition, according to Lubart et al., (2013) persevering through uncertain obstacles and experimenting with previously unimaginable possibilities are frequently necessary to generate creativity. Hence, teachers were able to create ways, looked for possibilities and make themselves motivated in dealing with uncertainties.



**Table 2**  
**The formulated themes and central ideas on challenges faced by teachers during the abrupt transition from traditional classroom to new normal set-up**

Themes	Central Ideas
Specific Challenges Encountered in the New Normal Education Set-up	Teachers experienced challenges such as unavailability of learning materials and the slow internet connection.
Challenges in the Traditional Classroom Continued in the New Normal	Classroom management and the delivery of quality of education has been the challenge of the teachers even in the transition.
Effect of Challenges to One's Teaching	Teachers were encouraged to be more innovative and resilient

**Challenges faced by teachers during the abrupt transition from traditional classroom to new normal set-up**

From the data collected, three (3) themes emerged: (1) specific challenges encountered in the new normal education set-up, (2) challenges in the traditional classroom continued in the new normal, (3) effect of challenges to one's teaching.

**Specific challenges encountered in the new normal education set-up**

Teachers ensure students get the most out of the lessons during the outbreak. Nevertheless, educators have faced a lot of constraints and challenges because of the COVID-19 outbreak, but they have continued to serve by producing modules that serve as learning aids for students in the classroom (Alea et al., 2020). On the other hand, teachers were asked to do lot and various paper works in order to still deliver quality education amidst pandemic.

Caratiquit (2022) stated that teachers face a number of limits and obstacles as a result of the considerable changes in the new educational system. When modular training was employed in traditional learning continuity, several issues developed. Teachers, on the other hand, are responsible for their pupils' development and progress.

According to Macaraeg et al. (2021), the modular distance learning model has resulted in more work, increased health hazards, and increased expenses, prompting teachers to request contributions of bond paper and ink to print on to keep up with demand. These only underscore the fact that there are concerns with printed self-learning modules that must be addressed. (De Villa & Manalo, 2020).

**Challenges in the traditional classroom continued in the new normal**

Teachers encountered issues and difficulties during traditional classroom that have been continued in the new normal education set-up such as in delivering quality education even in traditional classroom. On the other hand,

students may interact and express their opinions only through virtual means, such as chatrooms or social media, and cannot communicate physically.

According to Bozkurt & Sharma (2021), to ensure the continuity of education, emergency remote teaching and learning were implemented. It is also arguably difficult on the part of teachers and students because of the online restrictions and problems they encountered. As mentioned by Liyanagunawardena and Williams (2021), the teachers were facing various difficulties partly due to the imposed restrictions but in most instances, these were due to the online medium selected to provide lessons.

**Effect of challenges to one's teaching**

The result proved that every challenge has a potential result, whether favorable or unfavorable. To continue providing high-quality education in the face of the epidemic, teachers must decide how to respond and handle the problem.

One of the instructors' strengths is their capacity to adapt when faced with hardship. Numerous roadblocks arise during this trying period, and educators are still adjusting to their new normal. As a result, instructors adopt a variety of coping strategies and innovations to overcome daily problems (Robosa et al., 2021).

In addition, in actuality, each faculty member at COVID-19 had a very distinct experience switching to online instruction (Arora & Chauhan, 2021). Teachers' classroom management abilities improved along with their level of weariness and cynicism (Sokal, et. al, 2021). When teaching (or working) from home for the first time, there are a lot of additional factors to take into account, such as maintaining a healthy work-life balance, disruptions at home, challenges keeping a personal connection with students, inability to read students' body language and distinguish their tones, and less control over students' attendance (Daumiller et. al, 2021).



**Table 3**  
**The formulated themes and central ideas on coping mechanisms of teachers in transitioning from traditional classroom to normal education set-up**

Themes	Central Ideas
Strategies Incorporated in the New Normal Education Set-up	Using of digital technologies, online learning resources and the use of various learning materials
Innovations Incorporated in the New Normal	Development of self-learning activity sheets and video lessons
Adjustment and Response Made to the Abrupt Transition	Teachers made themselves more flexible and collaborate well with their co-teachers
Effect of Parental Support in the Transition	Parents as a resilient partner of teachers and as an essential support

**Coping mechanisms of teachers in transitioning from traditional classroom to normal education set-up**

From the collected data, four (4) themes emerged : (1) strategies incorporated in the new normal education set-up, (2) innovations incorporated in the new normal, (3) adjustment and response made to the abrupt transition, (4) effect of parental support in the transition.

**Strategies Incorporated in the New Normal Education Set-up**

The use of technology by instructors is promoted in the twenty-first century, claim Jamon et al. (2021). In order to excel in the modern educational environment, they must be tech savvy. As a result, teachers utilize digital tools and online resources to continue to support learning in the face of emergencies like the Covid-19 outbreak.

The delivery of classes and themes in remote education utilizing computer- or internet-based technologies was managed and facilitated by teachers using ICT tools. ICT applications improve communication and collaboration between professors and students. Smartphones, SMS, online forums, chat, blogs, social media platforms, e-mail, and more allow students to communicate and work together to create an engaging learning environment (Caratiquit, 2022).

**Innovations Incorporated in the New Normal**

Teachers adopt a variety of coping strategies and innovations to overcome daily problems (Robosa et al., 2021). One popular way of distance learning is video lectures. They can, however, be included in one's classroom curriculum. Such an innovative instructional strategy will captivate pupils and motivate teachers. People can also access additional beneficial tools and information for self-study

during interactive video courses (ISpring, 2021)

**Adjustment and Response Made to the Abrupt Transition**

Collaboration is a well-known and officially adopted method in has not been around for very long in educational contexts. It has long been believed that a solitary activity in which the teacher is the sole practitioner and leader in their private classroom. (Hargreaves & O'Connor, 2017).

The findings demonstrated that teachers can adapt to new situations and respond fully. The new normal has also made it easier for teachers to get along with their coworkers and learn new things from them.

**Effect of Parental Support in the Transition**

The physical closure caused a quick transition to remote learning, putting greater emphasis on parents, responsible for their children's education, especially in the home (Aldossari & Chaudry, 2020). In addition, teachers must earn the support of the parents and partner with them to help the students learn with their modules. It is best to involve them in classroom conferences and keep them informed of the student's progress in school. The whole community may take part too (Capulso et al., 2021). to respond and handle the problem.

Strong relationships between educators and other external stakeholders, according to Caratiquit (2022), are essential. This will enable the entire school community to collaborate for the benefit of the kids, especially in the context of the new normal education. This shows that teachers and important stakeholders beyond the academic community are important to the school's program. Interaction between students and their families is prioritized throughout the new educational system.

**Table 4**  
**The formulated themes and central ideas on the insights teachers in transitioning from traditional classroom to normal education set-up**

Themes	Central Ideas
Insights gained in the transition	Teacher must promotes meaningful learning amidst pandemic and should equip themselves to be more effective and efficient





**Insights of teachers in the transitioning from traditional classroom to normal education set-up**

From the collected data, one (1) theme emerged: (1) insights gained in the transition

**Insights gained in the transition**

Educators require fresh methods and resources to support their instruction. Students in the 21st century need to be knowledgeable about more than just the fundamentals, as Sahin (2009) pointed out. In order to use their knowledge and abilities, students should be able to "think critically, apply knowledge to new contexts, analyze information,

comprehend new ideas, communicate, collaborate, solve issues, and make decisions" (Sahin, 2009, p. 1465). These learning abilities are essential in the twenty-first century because we need to equip our pupils with the more difficult aspects of the workplace.

The findings of this study indicate that teachers have a significant influence on how students learn in the new normal. Therefore, it can be concluded that teachers may need to fully grow in order to promote meaningful learning and meet all of the needs of the students in the middle of pandemic. This can be of enormous assistance to all teachers in ensuring high-quality instruction during pandemic.

**Table 5**

**The formulated themes and central ideas on the programs can be crafted based on the findings of the study**

Themes	Central Ideas
Best Program for the Teachers	Teacher must expose in trainings on different platforms and ICT

**Best program for the teachers based on the findings of the study**

From the collected data, one (1) theme emerged : (1) best program for the teachers

**Best program for the teachers**

Teachers emphasized the value of participating in various trainings. The implication of this could be teachers must attend to different trainings and seminars to ensure that they have the necessary skills and knowledge especially in dealing with uncertainties.

During COVID-19, teachers face many challenges. In a virtual environment, teachers who have never taught before are expected to provide instructions that support students emotionally and socially and promote home-school connections. In this sense, technology training through refresher course seminars enhances instructors' technological literacy, according to Ertmer and Ottenbreit-Leftwich (2006).

**CONCLUSION**

The new normal has been a great challenge for the teachers, students, and parents. They experience different challenges and difficulties in facilitating learning in this time of pandemic. To that effect, it would be a great help to expose teachers in different trainings specifically on the different online platforms and resources to become more knowledgeable and skillful that they can use to any uncertainties in the field of education. Hernandez (2021) pointed out that teachers should understand that increasing technological competence requires better and up-to-date equipment/devices to strengthen themselves in ICT through training and workshop which will hone their skills in different technological platforms in teaching and learning.

**REFERENCES**

1. Agayon, A. J. D., Agayon, A. K. R., & Pentang, J. T. (2022). *Teachers in the new normal: Challenges and coping mechanisms in secondary schools. International Journal of Humanities and Education Development (IJHED)*, 4(1), 67-75.
2. Aldossari & Chaudry, 2020- *Women and burnout in the context of a pandemic. First published: 17 October 2020. Wiley Online Library* <https://doi.org/10.1111/gwao.12567>.
3. Alea, L. A., Fabrea, M. F., Roldan, R. D. A., & Farooqi, A. Z. (2020). *Teachers' Covid-19 Awareness, distance learning education experiences and perceptions towards institutional readiness and challenges. International Journal of Learning, Teaching and Educational Research*, 19(6), 127-144.
4. Arora, R. G., & Chauhan, A. (2021). *Faculty perspectives on work from home: Teaching efficacy, constraints and challenges during COVID'19 lockdown. Journal of Statistics and Management Systems*, 24(1), 37-52.
5. Bozkurt, A., & Sharma, R. C. (2021). *On the verge of a new renaissance: Care and empathy oriented, human-centered pandemic pedagogy. Asian Journal of Distance Education*, 16(1), i-vii. <https://doi.org/10.5281/zenodo.5070496>
6. Capulso, L. B., Magulod, G. C., Jr., Nisperos, J. N. S., Dela Cruz, J. M. M., Dizon, A. M., Ilagan, J. B., Salise, G. C., Vidal, C. J. E., Pentang, J. T., & Dugang, M. A. P. (2021). *The teacher and the community, school culture and organizational leadership. Beyond Books Publication*.
7. Caratiquit, L. J. C., Caratiquit, K. D., & Tamanu, M. J. M. (2022). *Perception in Krashen's Monitor Utilization and the Learners' English-Speaking Performance. Journal of English As A Foreign Language Teaching and Research*, 2(2), 1-20.
8. Caratiquit, K. (2022). *Mediating effects of protective factors on COVID-19 anxiety and academic performance of K to 12 Filipino Learners: A PLS-SEM analysis with WarpPLS*.
9. Dangle, Y. R., & Sumaoang, J. D. (2020). *The implementation of modular distance learning in the philippine secondary public schools*.
10. De Villa, J. A., & Manalo, F. K. B. (2020). *Secondary teachers' preparation, challenges, and coping mechanism in the pre-implementation of distance learning in the newnormal. IOER International Multidisciplinary*



Research Journal, 2(3), 144-154.

11. Hargreaves, A., & O'Connor, M. T. (2017). Cultures of professional collaboration: Their origins and opponents. *Journal of Professional Capital and Community*, 2(2),
12. Hernandez, L. (2021). Strengths and challenges of distance learning modalities in the new normal: Basis for intervention program. *Journal Article. Journal of Humanities and Social Sciences*.
13. ISpring. (2021). Top 8 advantages of using video presentations in teaching. *eLearning Software: LMS and Authoring Tool | iSpring*.  
<https://www.ispringsolutions.com/articles/key-advantages-ofvideo-lectures>
14. Jamon, B. E. V., Boholano, H. B., Cabanes-Jamon, M. G., & Pardillo, M. F. (2021). Teachers lived experiences in the new normal in Philippine public schools: A phenomenology. *International Journal of Research*, 8(02), 773-782.
15. Liyanagunawardena, T. R. & Williams, S. A. (2021). Emergency remote education: experience from Sri Lanka during Covid-19. *Asian Journal of Distance Education*, 16(1), 207-229.  
<https://doi.org/10.5281/zenodo.4988349>
16. Macaraeg, C. A., Barcelo, J. R., Reyes, D. N. G., Mercurio, M. E., Bernardo, J. A., & Santos, M. D. (2021). Modular Distance Learning Expenses of Senior High School Teachers amidst the Pandemic
17. Nicholls (2020). Education in time of a pandemic: What students and teachers are in for this coming school year. Retrieved on March 25, 2021 from [shorturl.at/nLMR9](http://shorturl.at/nLMR9)
18. Ottenbreit-Leftwich, A., Liao, J. Y. C., Sadik, O., & Ertmer, P. (2018). Evolution of teachers' technology integration knowledge, beliefs, and practices: How can we support beginning teachers use of technology?. *Journal of Research on Technology in Education*, 50(4), 282-304.
19. Robosa, J., Paras, N., Perante, L., Alvez, T., & Tus, J. (2021). The experiences and challenges faced of the public school teachers amidst the COVID-19 pandemic: A phenomenological study in the Philippines. *International Journal Of Advance Research And Innovative Ideas In Education*, 7(1), 10-6084.
20. Sahin, M. C. (2009). Instructional design principles for 21st century learning skills. *Procedia Social and Behavioural Sciences*, Vol. 1, pp. 1464-146
21. Sharma, S. S. (2020). A note on the Asian market volatility during the COVID-19 pandemic. *Asian Economics Letters*, 1(2).
22. Sokal, A., Chappert, P., Barba-Spaeth, G., Roeser, A., Fourati, S., Azzaoui, I., ... & Mahévas, M. (2021). Maturation and persistence of the anti-SARS-CoV-2 memory B cell response. *Cell*, 184(5), 1201-1213.



# THE IMPACT OF DIGITAL LITERACY OF SCHOOL HEADS TO THEIR PERFORMANCE AS SCHOOL LEADERS

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## ABSTRACT

*Leadership is an important factor in the effective implementation of technology in schools. This study examines the impact and relationship of digital literacy of school heads to their performance as school leader. The digital literacy of the school head was measured through a survey questionnaire that sought to know their ICT background and level of knowledge on electronic technologies and computer program, On the other hand, performance of the school was measured through a survey questionnaire of teacher's evaluation of their school heads. The respondents were 30 school heads and 200 teachers of Pantukan North and South Districts, Division of Davao De Oro. The study revealed that the digital literacy of the school heads strongly influenced their performance in school. It is suggested that ongoing professional development opportunities on dimension of leadership and technology should be provided for principals to increase their levels of proficiency in computer use. This will help future researchers understand the importance of the use of technology in education and to come up with the best strategy to integrate ICT in their way of supervision, instruction, and administration.*

**KEYWORDS:** digital literacy, ICT competence, leadership performance, descriptive correlation

## INTRODUCTION

The integration of Information and Communications Technology (ICT) into classroom instruction, particularly in the new standard curriculum during this epidemic, is led by school administrators. The dissemination of knowledge and skills at all educational levels has been and will continue to be impacted by this condition. But despite the current pandemic condition, schooling will go on with the aid of ICT. The school administrators, on the other hand, also need to adopt the newest trends of the day, such as using technology and the internet; being adept at navigating particular educational platforms for online classes, conferences, and meetings with teachers; and efficiently submitting reports using various Microsoft applications. These are just a few of the prerequisites that a school administrator and instructors must overcome in order to impart the knowledge and skills necessary for 21st-century education.

To successfully lead their schools in the twenty-first century, school administrators need to be fully informed of the problems and promise of technology. As the faculty head, the coordinators, and the communicators of school events and programs, they must use technology effectively in these roles (Richardson & McLeod, 2011).

However, according to Kubota (2018) during his case study in the Philippines, the Department of Education (DepEd) gives training courses to teachers and principals (school heads) to encourage ICT literacy, however they are

only available in 'large' cities like Manila and Cebu. As a result, digital illiteracy among school personnel is still a problem faced by the Philippine educational system that needs to be addressed.

**The Concept of Digital literacy.** The phrase "digital literacy" encompasses media literacy, technology literacy, and ICT literacy, visual literacy, information literacy, and communication literacy. Hague (2010) defines digital literacy as the ability to engage in a range of critical and creative practices that involve understanding, sharing, and creating meaning with different types of technology and media. Beetham (2010) defines digital literacy as the learner's capacity to adapt to a digital environment through self-directed learning and employment. These two definitions concentrate on the abilities that a person with digital literacy may learn and use. These abilities include creativity and critical thinking, two traits that employers strongly value.

**E-leadership in implementing ICT.** School leadership has been highlighted as one of the major stakeholder roles impacting ICT transformation in schools among many aspects (Chen, 2013). Although principals are said to be responsible for systemic ICT transformations like ICT infrastructure deployment, cultivating an innovative school culture, and facilitating changes in teaching and learning practice as a school leader, empirical research on the impact of principal e-leadership is lacking (Chang, 2012).



**ICT competence, use and implementation.** Stuart et al. (2009) investigated the relationship between school leaders' ICT proficiency and desire to become ICT proficient. According to their results, the principals who considered themselves to be technology leaders possess high levels of ICT proficiency and routinely utilize ICT for administrative and educational responsibilities. Having computer and software proficiency makes school administrators more effective technology leaders (Stuart et al., 2009)

**Teacher's evaluation on their school head performance.** According to the study of Clark, Martorell and Rockoff (2009), there are several factors to determine the performance of a school head. The first one is the overall rating of a school leader using a certain tool wherein it sought to measure the school heads overall performance (Witziers, 2003). The second one is the student-based outcomes which includes the learner's attendance and engagement (Leithwood, 2003). The third one that measures school performance is using teacher-based outcomes such as teachers' evaluations of school principal performance and teacher mobility/attrition (Gates, 2006) The school head, according to Salwa et al. (2019), is one of the most important factors of the success of any educational effort and the most influential component in establishing high-quality educational processes and outcomes. Several studies have found that the school head's leadership has a direct and positive impact on teacher performance.

**Computer literacy development.** As computer technology becomes more widely available and advanced, the growing usage of electronic texts has broadened the definition of literacy and given rise to new literacies such as "computer literacy," "electronic literacy," and "information literacy." As a result of this circumstance, the definition of computer literacy is necessarily broadened (Verheijen, 2019). In the field of education, developing and improving computer skills is seen as a critical concern. (Falloon, 2020).

## OBJECTIVES

This Research aims to determine the relationship between digital literacy of school heads to their performance as school leaders

## METHOD

The study utilized the quantitative descriptive-correlational research design in determining the relationship between digital literacy of school heads and their performance through the aid of survey questionnaires to be administered to both teachers and school heads. According to Quaranta (2020), descriptive correlational studies describe the variables and the relationships that occur naturally between and among the variables. This design is being used to determine the relationship between digital literacy of school heads to their performance as school leaders.

The study was conducted in 30 selected schools of Pantukan District, seven of which belong to Pantukan North District (Ayan Elementary School, Bongabong Elementary School, Tagdangua Elementary and twenty-three of them belong to Pantukan South.

Pantukan is a coastal municipality of Davao De Oro. The center of Pantukan is situated at approximately 7° 8' North, 125° 54' East in the island of Mindanao and estimated 17.1 meters above mean sea level. It has a land area of 533.11 square kilometers or 205.83 square miles which constitutes of 11.69% of Davao De Oro's total land area. According to the 2020 census, it has a population of 90,786 people. This represented 11.83% of total population of Davao De Oro province, or 1.73% of the overall population of the Davao Region. The municipality is primarily dependent on mining, but agriculture thrives in communities within boundary. Pantukan is politically subdivided into 13 barangays. It comprises of 34 public elementary schools and 7 public high schools which were divided into 2 districts namely the Pantukan North District and Pantukan South District.

The respondents of this study were the 30 school heads and 200 teachers from the 30 public elementary schools in the district of Pantukan. The number of respondents per school is shown in Table 1 below.

**Table 1**  
**Respondents of the Study**

Name of School	School Heads	Position	Teacher Respondents
Ayan Elementary School	1	School Principal I	7
Bongabong Elementary School	1	School Principal I	7
Doroteo Elementary School	1	School Principal III	7
Lahi Elementary School	1	School Principal I	7
Magnaga Elementary School	1	Asst. School Principal II	6
Tagdangua Elementary School	1	School Principal II	6
Tugop Elementary School	1	School Principal I	7
Araiibo Elementary School	1	Head Teacher III	7





Biasong Elementary School	1	Teacher In-charge	6
Binogsayan Elementary School	1	School Principal I	7
Bon Temple Elementary School	1	School Principal I	7
Bongbong Elementary School	1	School Principal III	7
Boringot Elementary School	1	Head Teacher I	7
Diat Elementary School	1	Teacher In-charge	7
Las Arenas Elementary School	1	Teacher III/Teacher Incharge	5
Liniputan Elementary School	1	Teacher In-charge	2
Matiao Elementary School	1	School Principal II	7
Nagas Elementary School	1	Teacher In-charge/MT-II	7
Napnapan Elementary School	1	School Principal I	7
P. Fuentes Elementary School	1	Head Teacher II	7
Piasusuan Elementary School	1	Teacher In-charge	7
Pulang Elementary School	1	Teacher In-charge	7
Sarog Elementary School	1	Head Teacher I	6
Tagugpo Elementary School	1	School Principal II	7
Tapis Elementary School	1	Head Teacher I	7
Araibo National	1	School Principal I	7

High School			
Boringot National High School	1	Head Teacher III	7
Napnapan National High School	1	School Principal III	7
Tagugpo National High School	1	School Principal I	7
Tambongon National High School	1	Head Teacher III	8
<b>TOTAL</b>	<b>30</b>		<b>200</b>

To obtain the important data to answer the problems, a researcher-made survey questionnaire was utilized. There were two types of questionnaires. One was given to the school heads which consisted of two major parts inquiring about ICT background and level of knowledge in using electronic technology and computer programs. The other one was given to the teachers which sought to know the teacher's evaluation on their school head's performance. This questionnaire was adapted from the internet and was modified by the researcher.

The research-made questionnaires were submitted to the adviser for corrections and recommendations to ensure the validity of the questionnaire. After which it was checked by another five validators for further validation and content validity. The comments and recommendations were entirely taken after ensuring the quality and legitimacy of the instrument.

The data in this study were gathered through the following systematized procedures: The first step that was done was to get permission to conduct the study. The researcher sent request letters to the Schools Division Superintendent of Davao De Oro, District Supervisor of Pantukan South District and Pantukan North District, Principal and School Heads of the 30 selected schools to seek permission to conduct the study in their area of responsibility. Upon the approval of the request letters, preparation of the research instrument followed. The researcher prepared the validated questionnaires that were distributed to the teachers and school heads.

The researcher personally went to the selected schools and conducted the survey. A proper explanation of the purpose of the study was done to make it comprehensible to the respondents. Instructions were also given clearly on how to answer the statements in the questionnaires. Moreover, retrieval of the research instruments was done right after its administration.



After the retrieval, collation and tabulation of data were done right away. The data gathered were encoded and submitted to the statistician for statistical treatment. Subsequent to the statistical treatment of the data gathered, analysis and interpretation of the results and findings were also carefully done with regard to the problem raised in the first chapter of this research study.

## RESULT AND DISCUSSIONS

This chapter presents the data and provides analysis and interpretation of the data gathered.

**ICT Background.** Table 2 presents the level of digital literacy of school heads in terms of ICT background.

**Table 2**

**Digital literacy of school heads in terms of ICT background.**

Statements	Mean	Description
1. I have basic knowledge of computers.	3.47	Average
2. I have knowledge about computer terminologies	3.27	Average
3. I understand the technical aspects of computers	3.20	Average
4. I feel secure about the ability to interpret a computer manual	3.30	Average
5. I feel confident about using computers	3.23	Average
6. I know there are different Internet research tools (Google, Yahoo, etc.) available to use.	3.27	Average
7. I can turn on and shutdown a laptop or computer appropriately.	3.57	Excellent
8. I can differentiate a hardware from a software.	3.47	Average
9. I know how to print and photocopy a document in a printer	3.53	Excellent
10. I can name the different parts of a computer.	3.37	Average
11. I can determine the basic functions of each computer hardware.	3.27	Average
12. I understand the difference between closing/minimizing/hiding windows and quitting a program	3.37	Average
13. I know how to start and exit computer programs.	3.37	Average
14. I can name all the storage devices.	3.2	Average

15. I have the knowledge on how to navigate computer programs (Microsoft, Google and WPS programs etc.)	3.47	Average
<b>Overall Weighted Average</b>	<b>3.35</b>	<b>Average</b>

The overall weighted average of the school heads in terms of ICT background obtained an overall weighted average of 3.35. Furthermore, the table also presents two indicators that obtained the highest mean ratings of 3.57 and 3.53, excellent, the school head can turn on and shutdown a laptop or computer appropriately and the school heads know how to print and photocopy a document in a printer respectively. This means that school heads are outstanding and can-do tasks like printing and photocopying documents. The rest of the tasks related to ICT background of the school heads got a mean ranging from 3.2 to 3.47 and have a descriptive equivalent of average. This means that school heads have enough knowledge and skills in these features.

The overall mean is 3.35 with a descriptive equivalent of average. This means that the level of digital literacy of school heads in terms of ICT background is satisfactory as shown in Table 2. This implies that school heads were most familiar and had excellent literacy in just the basic function of the computer which is turning it on and off as well as printing and photocopying documents.

**School heads level of knowledge in using electronic technology and computer programs.** Shown in Table 3 is the level of knowledge in using electronic technology and computer programs.

**Table 3**

**School Heads' Knowledge in Using Electronic Technology and Computer Programs**

Indicators	Mean	Description
1. I can name and rename files/folder in my computer.	3.57	Excellent
2. I can encode document using the Microsoft Word	3.60	Excellent
3. I can use spread sheet using the Microsoft Excel	3.47	Average
4. I can create presentation using the Microsoft Power Point	3.43	Average
5. I can create and edit photos using the Graphics Program	2.63	Average
6. I can do Video Production using Moviemaker	2.49	Below Average



7. I can do virtual meeting/conferencing using online communication platform such as zoom, google meet and others	3.33	Average
8. I can send and receive e-mail using Google mail	3.63	Excellent
9. I can send and attach documents and photos using messenger	3.73	Excellent
10. I can search and collect information from the internet using the web browsers	3.5	Excellent
11. I can download applications using phone or laptop.	3.43	Average
12. I can install application in my phone or laptop.	3.53	Excellent
13. I can download images and videos from the internet	3.63	Excellent
14. I can retrieve lost files in my computer	2.77	Average
15. I can transfer a file from a hard drive to a USB drive.	3.6	Excellent
<b>Overall Weighted Mean</b>	<b>3.48</b>	<b>Average</b>

The level of knowledge of school head in using electronic technology and computer programs shows that the school heads are outstanding when it comes to sending and attaching document and photos using messenger because it has a highest rank with mean of 3.73 and with a descriptive equivalent of excellent. Items that include naming and renaming files/folder in my computer, encoding document using the Microsoft Word, sending and receiving e-mail using Google mail, sending and attaching documents and photos using messenger, searching and collecting information from the internet using the web browsers, installing application in phone or laptop, downloading images and videos from the internet, and transferring a file from a hard drive to a USB drive have the means ranging from 3.5 to 3.63 with a descriptive equivalent of excellent also. This means that school heads are competent enough to perform these tasks.

On the other hand, task of school heads like using of spread sheet or Microsoft Excel, creating presentation using the Microsoft Power Point, creating, and editing photos using the Graphics Program, doing virtual meeting/conferencing using online communication platform such as zoom, google meet and others, downloading applications using phone or laptop, and retrieving lost files in a computer have the mean ranging from 2.63 to 3.47 with a descriptive equivalent of average. This means that school heads have average knowledge and that they are familiar with the task stated.

Lastly, the item with a lowest rank is doing video production using moviemaker with the mean 2.49 with a descriptive equivalent of below average. This means that school heads' knowledge when it comes to video production is fair. It can also observe that school heads have excellent job when it comes to using computer programs but have only average knowledge in the basic computer background. This depicts that school heads know how to use these computer programs but have only minimal idea when it comes to knowing its names and terminologies.

The overall mean is 3.48 with a descriptive equivalent of average. This means that the level of knowledge in using electronic technology and computers is satisfactory as shown in Table 3.

#### Level of School Heads' Performance

This section presents the result to the second statement of the problem that examines the level of school heads performance as measured by their teacher's evaluation.

**Table 4**  
**Teachers' Evaluation to their School Heads**

Indicators	Mean	Description
1. Able to use technology effectively and efficiently whenever it is needed	3.48	Often
2. Engage ICT in providing intervention programs and innovations to teachers for continuous professional growth	3.5	Always
3. Demonstrate awareness of current technology in education	3.4	Often
4. Provide technical assistance to teachers with regards to different ICT teaching and learning, school operations and professional development	3.05	Often
5. Assign teacher-related online task only to teachers	2.85	Often
6. Work on his/her own reports using technology effectively and efficiently without asking help from the teachers	3.5	Always
7. Maintains, complete, and submits all reports online or in hardcopy form and record	3.5	Always



accurately, in a timely and professional manner		
8. Accomplish the school projects in each allotted period	3.6	Always
9. Exhibit virtual/online etiquette and guidelines	3.53	Always
10. Supervise and direct all personnel using messenger, and other online communication apps	3.6	Always
11. Provide sound leadership and management in integrating learning technologies across the curriculum	3.4	Often
12. Work on his/her personal documents on his/her own without bothering the teachers	3.48	Often
13. Attend administrators meetings/conference online capably.	3.6	Always
14. Establishes and maintain effective interpersonal relationships and communication with teachers	3.58	Always
15. Does not rely so much to teachers in terms of accomplishing reports and other required documents	2.75	Often
<b>Overall Weighted Average</b>	<b>3.35</b>	<b>Often</b>

The level of performance of the school heads reveals that accomplishing the school projects in each allotted period, supervising, and directing all personnel using their messenger, and other online communication apps, and attending administrations` meeting/ conference via online capably have the highest rank with the mean of 3.6 with descriptive equivalent of always. Aside from that task like engaging ICT in providing intervention programs and innovations to teachers for continuous professional growth, maintaining, completing, and submitting all reports online or in hardcopy form and record accurately, in a timely and professional manner, exhibiting virtual/online etiquette and guidelines, establishes and maintaining effective interpersonal relationships and communication with teachers have a mean ranging from 3.5 to 3.58 with a descriptive equivalent of always also. This means that the school heads have

excellent performance when it comes to accomplishing the tasks mentioned above. Furthermore, it also shows that duties like using technology effectively and efficiently, demonstrating awareness of current technology in education, providing technical assistance to teachers with regards to different ICT teaching and learning, school operations and professional development, assigning teacher-related online task only to teachers, providing sound leadership and management in integrating learning technologies across the curriculum, working on his/her personal documents on his/her own without bothering the teachers, and not just relying so much to teachers in terms of accomplishing reports and other required documents have the mean ranging from 2.75 to 3.48 with a descriptive equivalent of often wherein the task that has the lowest mean is not relying so much to teachers in terms of accomplishing reports and other required documents . This means that these tasks are often performed by the school heads in their respective schools and that teachers were able to notice it as well.

The overall mean is 3.35 with a descriptive equivalent of often. This means that the level of performance of the school heads as measured by the teacher`s evaluation is satisfactory as shown in Table 3.

#### Summary on the level of Digital Literacy of School Heads and Their Level of Performance

The Summary on the level of digital literacy of school heads in terms of ICT background, level of knowledge in using electronic technology and computer programs and the level of their performance as measured by the teacher`s evaluation is presented in Table 5.

**Table 5**  
**Summary on the level of Digital Literacy of School Heads and Their Level of Performance**

Indicators	Mean	Description	Indicator	Mean	Description
ICT Background	3.35	Average	Teachers` Evaluation	3.35	Often
Knowledge in using electronic technology and computer programs	3.48	Average			
<b>Overall Mean</b>	<b>3.42</b>	<b>Average</b>	<b>Overall Mean</b>	<b>3.35</b>	<b>Often</b>

The level of digital literacy of school heads shows that the highest rank is the level of knowledge in using electronic technology and computer programs with the mean of 3.48 with the descriptive equivalent of average, followed by the level of school heads ICT background with the mean of 3.35 with descriptive equivalent of average.





The overall mean score for is 3.42 posted at with the descriptive equivalent of average. This shows that the level of digital literacy is satisfactory. It can be observed that although computer technology is accessible to the school heads on average as most of them now own laptops but some of the school heads do not know how to manipulate further the devices.

On the other hand, table 4 also shows that teacher's evaluation to their school head has an overall mean of 3.35 with a descriptive equivalent of often. This only means that most of the school heads satisfactorily complied and perform task that involve ICT in managing and supervising their teachers. Moreover, it also depicts behavior of the school heads towards their teachers especially knowing the fact that most school head rely so much on their teacher in accomplishing their own report. It reveals that school heads who have minimal idea on digital literacy tend to assign teachers in accomplishing paper works since most of the reports are submitted in a softcopy or hardcopy form. Thus, providing the school heads with digital literacy development program is highly needed for the school heads to perform ICT related tasks at work.

#### Relationship between Digital Literacy and Teachers Performance

Using excel program is computing the correlation between computer literacy and teacher's performance, Table 6 below presents the relationship between digital literacy and teachers' performance.

**Table 6**

**Relationship between Digital Literacy and Teachers Performance**

	Pearson's r	P-value	Degree of Freedom
School Heads' Digital Literacy	0.967	< .001	SIGNIFICANT STRONG RELATIONSHIP
School Heads Performance			

Correlation was conducted to test the relationship between the school heads' digital literacy and school heads performance. The result reveals that the p-value 0.967 is less than 0.001 which means that there is a strong significant relationship between school heads digital literacy and school heads performance. Looking into the results presented, it appeared that the digital literacy of the school heads influences their performance as evaluated by their teachers. Moreover, the result also shows that there is essential task of the school heads that is not often performed due to lack of digital knowledge and skills. As a result, they rely so much on their teachers when it comes to accomplishing ICT related task works as shown on the data presented in Table 4.

After the data were analyzed and interpreted, the following discussions were made:

1. The level of digital literacy in terms of ICT background of school heads is 3.35, average. The result revealed that the school heads have enough knowledge when it comes to basic ICT background. However, the study also shows that among the 30 school heads there were still few of them who have fair knowledge when it comes to some basic functions of the computer, which means they need trainings on the basic of ICT. Thus, even school heads have excellent remarks when it comes to turning on and off the computer, they still need to learn and go beyond the basic function to effectively accomplish their ICT related tasks and reports in school.

A study proved that ICT in education has become vital in carrying out task in a more convenient way. However, there were still glitches in the implementation of ICT education due to some reasons like lack of ICT knowledge, no resources to be used and resistant to change. Teachers tend to stick to their old way of teaching because they are not familiar with using electronic technologies. Principals were under pressure to understand computer terminology like bytes, gigabytes, RAM, and ROM most specifically understand the software and hardware alternatives when acquiring supplies for their schools. Learning the basics of computers and knowing the ICT terminologies is the key to understand the significance of ICT in education. Through this, educators and administrators feel at ease utilizing technology and realizing its potential applications in education, they can help facilitate and incorporate ICT into the curriculum (Caldwell & Spinks, 2008).

Principals must be able to incorporate ICT into their everyday practices and cater to students' needs and ensure that technology is used effectively and consistently in the teaching-learning process. Principal should technologically pioneer. Hope, Kelly, and Guyden (2000) claim that technological leadership entails both having knowledge of the technology and how to use them to do jobs. An investigation made to administrators' contributions to the use of technology in three American schools' instructional environments districts, Gibson (2002) asserted that school administrators must concentrate their efforts on 10 areas of technology: existing practice, curriculum, resources, challenges, communications, support, staff development, and implementation. Principals must, therefore, have a firsthand understanding of the capabilities of new technology the ability to develop a school culture that stimulates the discovery of new approaches in their application and competency in their use. educating, training, and managing (Schiller, 2003). Schools thus require leaders who can encourage change, approach and assistance for a community learning about integrating technology.

Nowadays, it is not just only important to have computer skills, but it is necessary to all students, professionals, and entrepreneurs to remain competent and confident in this



technological age. At the very least, everyone must have basic computer abilities (Sharma, 2021).

2. The level of digital literacy of school heads in terms of using electronic technology and computer programs is 3.48 or average. The result shows that most school heads have satisfactory knowledge when it comes to computer programs. Having knowledge of the different computer programs is very vital in the work of administrators knowing that all reports and documents submitted in print or through online. Therefore, there is no way to neglect and reject ICT because whether we agree or not, we are already in the computer age where everything is run through technology. Levy (2018) emphasized that even though computer literacy is essential, does not mean that all school administrators need to be computer experts. To improve the standard of their supervision and successfully support their instructors, they should possess certain competencies. These competencies must include the following:; the capacity to read and write basic computer programs; the capacity to use computer programs and documentation that are educational in nature; the capacity to use computer terminologies, especially as it relates to hardware; the capacity to identify educational problems that can and cannot be solved using the computer, the capacity to locate information on computing as it relates to education; the capacity to discuss the moral and human-impact issues as they relate to the societal use of computers as well as the educational use of computers.

In addition to this, it was revealed in the study conducted by Stuart that the ICT proficiency and frequency of use in administrative and instructional activities are high among principals who consider themselves to be technology leaders. The ability to use software and operate a computer effectively really enables school principals to be proficient in the fundamentals of ICT, such as how word processing, spreadsheets, and presentation software work (Attaran & Vanlaar, 2001). Along with that, school leaders must also be familiar with using the internet to connect with their workers and the larger community, since email, messenger, and other communication platforms are used most frequently for communication,

It is important that school heads know and learn how to use new technologies in education. If these school leaders embrace it and understand its benefits for education, then technology adoption in schools is more likely. Anderson and Dexter (2005) suggested that professional development opportunities should be provided for principals to promote their levels of ICT use and to increase their productivity. In fact, effective training programs really assist the principals in learning how to use computers to get information and acquire new skills. Additionally, it aids in the development of decisionmaking and problem-solving procedures that ultimately lead to better accountability. Computer technology proved to be able to markedly improve the role of principals in the educational process. Therefore, it is very

important for principals to know how to use new and existing technologies.

3. The level of school heads' performance according to teachers' evaluation is 3.35, average. The study revealed that the school heads often perform some ICT related tasks and that they rely so much to their teachers in accomplishing those tasks. This may result in workload intensification among teachers that will probably affect their commitment at work. In addition, teachers need to feel that they are being supported by their school heads in the ICT implementation in education. Thus, school heads must also consider digital literacy development training not just for school heads' benefit but also for the good of the institution where he/she is affiliated.

According to Serhan (2007) school principals must understand the real setting of 21st century education. It is no longer limited to the traditional and bookish style where in all the context to be learned by the learners can only be found in the book or teacher.

Hence, principals should play a role in encouraging teachers' ICT use in shaping more meaningful learning. This phenomenon is because principals are the most influential individuals, and the rise of a school organization depends heavily on their hands. Thus, school heads must incorporate ICT in their way of supervising, administrating, and instructing a certain school. School heads are considered as one of the decision makers in school and must ensure that quality education is being served to the clientele. Part of this job is providing the teacher the professional development opportunities to increase their ability through the integration of ICT for formative learning assessment, individual instruction, accessing online resources and for fostering students' interaction and collaboration. Such training in ICT should positively impact teachers' general attitude towards ICT in the classroom but it should also provide specific guidance on ICT teaching and learning within each discipline. Without support from the administration, teachers tend to use ICT for skill-based applications which limit their capability to teach in a wider scope at a very creative way and the proficiency of the teachers in terms of passing the reports will be affected as well. To support teachers as they continue to embrace the new era of education, it is also essential for education managers such as supervisors, principals, and other decision makers to be trained in ICT.

4. There is a significant strong relationship between digital literacy skills of school heads and their performance as school heads. Looking into the results presented, it appeared that the digital literacy of the school heads influences their performance as evaluated by their teachers. Moreover, the result also shows that there is essential task of the school heads that was often perform due to lack of digital knowledge and skills. As a result, they rely so much on teachers when it comes to accomplishing ICT related task works.



This finding is aligned with those of prior findings such as Makewa, Meremo, Role and Role (2016), presenting the school heads' importance of using ICT in school administration. In fact, according to their study it emphasizes the importance of ICT in supervision, instruction, and students' administration that includes influencing and leading the staff to integrate ICT in their ways of teaching. The findings of this study are also supported by other studies and theoretical assumptions emphasizing that the leadership of a school can predict teachers' motivation, dedication, and teaching practice.

## CONCLUSION

Based on the findings of the study, it reveals that there were maximum number of school heads who are already equipped with ICT knowledge however there were also who have only minimal idea with regards to this equipment. The Department of Education provided great number of laptops, desktops and other electronic technology to all schools for the past years that is why school heads have their own ICT equipment for them to use at work. Yet, there were still few of them who were not familiar with the usage of these gadgets. It is true that school heads were already familiar with the basic functions of these ICT equipment however they lack knowledge on how to manipulate further the device especially when it comes to using it in accomplishing reports and other documents needed. According to the result as shown in table 4, school heads were resistant to change and does not want to learn this equipment because they rely most to their teachers in accomplishing ICT related task which may result to workload intensification among teachers, backlogs of projects and reports and learners will be affected as well. As a conclusion, school heads digital literacy definitely influences their performance as school leaders. Thus, providing ICT training program to all school heads and motivating them to embrace change as it is part of their work in leading ICT integration into school teaching.

## REFERENCES

- Anderson, R. E., & Dexter, S. (2005). *School technology leadership: An empirical investigation of prevalence and effect. Educational administration quarterly*, 41(1), 4982.
- Ataran, M. & Vanlaar, I. (2001). *Managing the use of school technology: and eight step guides for administrators. Journal of management development*, 20 (5), 393-401.
- Beetham, H., McGill, L., Littlejohn, A. (2010). *Beyond competence: digital literacies as knowledge practices, and implications for learner development. A paper for the ESRC Seminar Series Literacy in the Digital University*, 85-103. March 1st: Available at: [http://kn.open.ac.uk/LiDU/Seminar2/Beetham\\_et\\_al\\_paper.doc](http://kn.open.ac.uk/LiDU/Seminar2/Beetham_et_al_paper.doc)
- Caldwell, B. & Spinks, J. (2008). *Leading the self-managing school*. Falmer, London.
- Chang, I.-H. (2012). *The effect of principals' technological leadership on teachers' technological literacy and teaching effectiveness in Taiwanese Elementary Schools. Educational Technology & Society*, 15(2), 328-340
- Chen, W. C., Shih, Y. C. D., & Liu, G. Z. (2013). *Task design and its induced learning effects in a cross institutional blog-mediated telecollaboration. Computer Assisted Language Learning. http://dx.doi.org/10.1080/09588221.2013.818557*
- Clark, D., Martorell, P., & Rockoff, J. (2009). *School principals and school performance (Working Paper No. 38)*. Washington, DC: Urban Institute, National Center for Analysis of Longitudinal Data in Education Research
- Falloon, G. (2020). *From digital literacy to digital competence: the teacher digital competency (TDC) framework. Educational Technology Research and Development*, 68, 24492472.
- Gates M. S. (2006). *Mobility and turnover among school principals. Economics of Education Review. Elsevier*
- Gibson, I. W. (2002). *PT3 and T3L—Teaching tomorrow's technology leaders: Preparing school leaders to use technology. Proceedings of SITE 2002: Society for Information Technology & Teacher Education International Conference*. Nashville, TN
- Hague, C. (2010). *It's not chalk and talk anymore school approaches to developing students' digital literacy. Future Lab Innovation in Education. Available at http://futurelab.org.uk/resources/school-approaches-developing-students-digital-literacy*.
- Hope, W.C., Kelly, B., & Guyden, J. (2000). *Technology standards for school administrators: Implications for administrative preparation programs*.
- Kubota, K., Yamamoto, R., & Morioka, H. (2018). *Promoting ICT education in developing countries: Case Study in the Philippine*.
- Leithwood, K. (2003). *Leadership for school restructuring. Journal of Educational Administration Quarterly*, 30 (4), 498-518.
- Levy, L. (2018). *7 Reasons why digital literacy is important for teachers. Rossieronline.usc.edu. Retrieved 25 July 2018*.
- Quaranta G. (2020). *Quantitative descriptive-correlational research. Retrieved from https://graduateway.com/Descriptive-and-corellational-research/*
- Richardson, J. W., & McLeod, S. (2011). *Technology leadership in native American schools. Journal of Research in Rural Education*, 26(7). Retrieved from <http://jrre.psu.edu/articles/26-7.pdf>.
- Salwa., Kristiawan, M., & Lian, B. (2019). *The Effect of academic qualification, work experience and work motivation on primary school principal performance. International Journal of Scientific & Technology Research*, 8(8).
- Serhan, Derar. (2007). *School principals' attitudes towards the use of technology: United Arab Emirates technology workshop. The Turkish Online Journal of Educational Technology* 6(2):42-46.
- Schiller, J. (2003). *Working with ICT Perceptions of Australian principals. Journal of Educational Administration*, 41(2), 171-185.
- Sharma V. (2021). *ICT integration in the educational system of Philippines. Journal of Governance and Public Policy*, 5(3), 259-282.
- Stuart, L. H., Mills, A. M. & Remus, U. (2009). *School leaders, ICT competence and championing innovations. Computers & Education*, 53, 733-741.
- Verheijen, L. (2019). *Is textese a threat to traditional literacy? Dutch youths' language use in written computer-mediated communication and relations with their school writing. Utrecht: LOT*.
- Witziers, B. (2003). *Coördinatie van het onderwijs [Coordination of education]. Enschede, the Netherlands: Universiteit Twente*



## SALBABIDA AS A READING INTERVENTION PROGRAM: THROUGH THE LENS OF THE MENTORS

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### ABSTRACT

Teachers stumbled a lot of challenges during the pandemic and one of the most challenging parts was the poor reading skills of the students. Consequently, the teachers come up with a reading program that can ease this problem. However, along the process teachers experienced a lot of unexpected things and trouble. Hence, this qualitative phenomenological research study explored the lens of the teachers of Sagayen Elementary School. The purpose of this study is to explore on teachers' experiences, challenges, coping mechanisms, and insights on the Salbabida Reading Intervention Program. There were nine purposively selected teachers who participated in the conduct of the study. Conducting the reading program during the pandemic presented difficulties and challenges for teachers, according to the findings. The study found that teachers were fulfilled with the result of the program despite all the challenges they had encountered. Findings showed that there was indeed a reduction in the number of pupils considered as non-readers. The study concluded with recommendations for the Salbabida Reading Intervention program to be continued in the school.

**KEYWORDS:** reading problem, reading intervention program, experiences, challenges, coping mechanisms, insights, phenomenological research

### INTRODUCTION

Reading is fundamental in our society, everything that we do involves reading. Reading development is essential for student growth and success throughout their educational career (Graham et al., 2018). Now, that we are facing pandemic, teachers can hardly reach out their pupils due to face-to-face restrictions. As a result, as the cases of COVID-19 raging around the world so does the non-readers. According to Jenkins et al. (2021) more and more, children around the world are failing to read and it is expected to get worse due to COVID-19 pandemic.

Teachers are contemplating on what to do with these numerous numbers of non-readers. Reading intervention is one of the actions undertaken by different schools in the world. In fact, Jackson (2016) discovered that the educational methods employed by the instructors doing remediation matched the efficient methods identified in the most recent study literature. Teachers intervene with students until they are able to read or get back on track. However, not all programs are successful and beneficial; in fact, several original studies that have been published have shown contradictory findings about the success of remedial classes.

Due to a greater focus on addressing their reading disabilities over the past several years, an increasing number of reading programs for struggling adolescent readers have emerged. At Ankara University in Turkey there are children with learning disabilities and most of the children with reading difficulties have special needs students, who participate in inclusive education. A child with a learning disability was defined as an individual who performs significantly poor on reading and

writing tests compared to their IQ and grade level. The school has studied this issue and developed competency and performance-based techniques. The school called it the Tablet Computer Aided Intervention Program, based on a qualitative data the program rated positively by the students and found it effective to the students learning (Ozbek & Girli, 2017).

Triviño (2016) found that after the implementation of the intervention, the students' assessment results and participation in remedial and regular classes both significantly improved in the Philippines. According to Sommerhalder (2018), who showed in his study that there were no discernible improvements in students' academic performance when intervention materials were implemented, these findings are in contradiction. Furthermore, Wang et al. (2017) stated and agreed by Asio and Jimenez (2020) that the efficacy of remediation remains one of the thorniest issues in research and practice. Reading Intervention Program still need more substantial evidence to prove its effectivity especially on the changing tide of time processes of learning

In Sagayen Elementary School, Sagayen, Asuncion Davao del Norte there were 26 identified non-readers for school year 2020-2021 that is why the school initiated a reading intervention program that will ease this problem, it is called SALBABIDA. This program is designed to assist pupils who are challenged by the acquisition of early reading skills or older students with continued reading difficulties. This program was created because of the pandemic that we are facing today, pupils missed the opportunities to fully acquire the basic reading skill in the normal classroom setting.





However, the teachers were challenged in implementing this program because they were also adjusting due to the left and right work since the pandemic started and this program has limited resources, so aside from the materials the teachers need to spend their own money for the snacks and even for the fare of the children and also the threat of the virus, which is very risky both for teachers and pupils. From this, there was a need to conduct this study to delve more the experiences, challenges, coping mechanism, insights, and the perspectives of the teachers to the SALBABIDA reading remediation program. The researcher believe that the perspectives of the teachers will have a great review to the said program.

## OBJECTIVES

The purpose of the study was to explore the lens of the teachers regarding the intervention program which was the SALBABIDA for Non-readers in Sagayen Elementary School, Sagayen Asuncion Davao del Norte specifically the Grade 1 to Grade 3 teachers' experiences, challenges, insights, coping mechanisms and how this reading program yield to the students reading progress.

## METHODS

This chapter explained the research design of the study and discussed the methods that was used in collecting data about the lens of the teachers regarding the SALBABIDA reading intervention program specifically their experiences, challenges, insights, coping mechanisms and how this reading program yield to the students' reading progress.

This study was a qualitative study employing a phenomenological approach because it sought to explore teachers' experiences, challenges, insights and how this reading program yield to the students reading progress. This research study utilized phenomenology as the research design. Phenomenology is a qualitative research approach that helps in describing the lived experiences of an individual. The phenomenological method focuses on studying the phenomena that have impacted an individual (Harrapa education, 2021). This approach highlighted the specifics and identified a phenomenon as perceived by an individual in a situation. The researcher aimed to extract the purest data and explore the experiences, challenges, insights, and how this reading program yield to the students' reading progress.

Purposive sampling, a non-probability method of sampling, was used to pick the participants for this study. This study's sample preference was based on the researcher's own opinion and discretion and was based on one subgroup in which all sample members are comparable, specifically teaching primary graders. These teachers have at least nine years of teaching experience from various grade levels and these teachers that were chosen to be the participants of this study have a bigger number of non-readers compare to other teachers due to modular product because of pandemic. The participants were asked to sign a consent form stating that they are freely engaging in the study and that they were willing to share their expertise as needed.

The researcher followed the data analysis after the interview. The initial stage in data analysis was converted the recorded interviews or the MP3 format, which was manually transcribed by the researcher to obtain the raw transcription for the primary data.

The researcher used the coding as well as manual transcriptions. It was during this stage that data transcription was performed solely by the researcher using his or her own inherent abilities. After transcribing, the researcher allocated codes to the text segments of the participants' responses. Then, the researcher created the essential ideas using the codes that evolved. As a result, the codes were classified into categories.

Finally, the researcher used thematic analysis combined with data reduction techniques to identify important themes and essential concepts that emerged from the participants' responses.

## RESULTS AND DISCUSSIONS

The structured themes and the emerging therein were made as bases in broadening the discussion of the findings in this study. As each theme was linked to related literature and studies, substantial discussion was made in order to find their alignment with the theme.



**Table 1**  
**The formulated theme and central ideas on the experiences on the Implementation of the SALBABIDA Intervention Program.**

Themes	Central Ideas
Having difficulty on its initial implementation	Teachers were still surprised by the poor reading abilities of the pupils as compared to their corresponding grade levels.
Fulfilling despite the pandemic	Teachers feel fulfilled as they tried their best to address the needs of the pupils
Risky experience	Risky experience for the teachers as they encountered different situations.

**Experiences on the Implementation of the SALBABIDA Intervention Program.**

The emerging themes in this structured theme are: (1) having difficulty on its initial implementation, (2) fulfilling despite the pandemic and (3) Risky Experience

**Having difficulty on its initial implementation**

The findings revealed that the teachers were having difficulty on the initial implementation. This is somehow expected as part of the adjustment period, but teachers were still surprised by the poor reading abilities of the pupils as compared to their corresponding grade levels which explains why the Philippines once scored the lowest in reading comprehension among 79 participating countries in 2018 Program for International Student Assessment (PISA, 2018). They were having difficulties even on the basic letter sounds or phonemics. Respondents also struggled with mobilization as some pupils were from remote areas. Moreover, some purok leaders which were significant community partners in the SALBABIDA weren't cooperative towards the said project resulting to its failure in some areas due to absence of designated reading corners. Such poor response might be due to COVID scare which the teachers, themselves, also admitted despite loosened

IATF restrictions.

**Fulfilling despite the pandemic**

However, teachers still considered the program as a nice experience and made them feel fulfilled as they tried their best to address the needs of the pupils and extended help even from their personal pockets for discovering your fulfillment as a teacher is to commit to a more joyful teaching practice and positivity (Mendler, 2014). The teachers were also excited to be part of the program where they reached out their pupils despite the pandemic time. Teachers then had a chance to teach these pupils as the child sees the joy and excitement learning brings to life (Becton, 2022). Some of the teachers felt happy after extending help to the students who had poor reading skills.

**Risky Experience**

The conduct of the program was a risky experience for the teachers as they encountered different situations, and some were dangerous for their own lives as pandemic still there. Though they had a risky experience they still manage to finish the program successfully.

**Table 2**  
**The formulated themes and central ideas on Ways SALBABIDA Yield student Reading Progress**

Themes	Central Ideas
Reducing number of non-readers	There is reduction of non-readers
Reading improvement	The pupils shows improvement after the program was implemented

**Ways SALBABIDA program yield student reading progress**

From the data collected, two (2) themes emerged: (1) reducing number of non-readers, and (2) reading improvement shown among students

**Reducing number of non-readers**

Findings show that there is a reduction in the number of pupils considered as non-readers. One of the teachers stated that out of 26 non-readers there is only 10 non-readers left during that school year. With this we can already call the program a success (Namdi, 2005) as reading is one of the few academic areas in which teacher's demand success from all the children.

**Reading Improvement shown among students**

It is also emphasized the improvement among pupils specially in identifying letters and their respective sounds in which the teachers considered it as an accomplishment as Adler, 2001 said phonics instruction helps children learn the relationships between the letters of written language and the sounds of spoken language. As children advance they learn about the vowels and the various sounds associated with each vowel. Many teachers accomplish this by teaching letter-sound relationships in an organized sequence. Some of the benefits of systematic and explicit phonics instruction are increased word recognition, spelling, and reading comprehension among students. Though there were pupils who didn't show enough progress, a majority depicts that the SALBABIDA program was overall effective.



**Table 3**  
**The formulated themes and central ideas on Hardest Aspect in the Program Implementation**

Themes	Central Ideas
Risk of being infected with virus	Teachers were at risk during the implementation
Reading capabilities of students and various reading needs	Teachers having hard time dealing with the different reading capabilities and reading needs of the pupils
Lack of time for preparation and hardship in dealing with various reading needs	Due to lots of workloads teachers were unable to prepare instructional materials.

**Hardest Aspect in the Program Implementation**

This structured theme generated 3 emerging themes which are: (1) Risk of being infected with virus, (2) reading capabilities of students and (3) lack of time for preparation and hardships in dealing with various reading needs.

**Risk of being infected with virus**

In implementing a program, obstacles are considered given in the process especially that the program was implemented during the pandemic time, there are lots of hustles in the making as stated. Despite the best efforts to incorporate effective practices for educating young learners, schools should expect to face challenges when designing and implementing supplemental interventions for underachieving readers (Velten & Mokhtari, 2016). The first challenge was the risk of being infected with the virus, as we had heard in the news that the virus killed a lot of people. According to World Health Organization (WHO), there were 14.9 million deaths associated directly and indirectly with the COVID-19 pandemic described as excess mortality between January 1, 2020 up to December 31, 2021. During that time, teachers were naturally afraid of being infected but they still chose to teach the children despite the risk of being infected.

**Reading capabilities of students and various reading needs**

Reading capabilities of the students. Based on the school's performance indicator for school year 2020, there were 26

failed students, and the reason was that they were still non-readers at the end of the schoolyear. According to the responses of the teachers, one factor is that these children were not followed up by the parents because the latter themselves were also non-readers. Another one is that these pupils easily forget the things taught to them so the teachers cannot move forward to the next step in teaching reading. In dealing with various reading needs as these identified pupils were all non-readers but they have different grade levels which was a notable challenge because the ratio of the teacher -student in the SALBABIDA was far from ideal as the teacher can't provide enough focus attention to everyone's reading issues. Considering that everyone learns differently is one of the most important steps to take when it comes to effective teaching (Smith, 2021). Thus, the teacher can't expect that one approach which is effective to a particular pupil can be also effective to the rest of the group.

**Lack of time for preparation and hardship in dealing with various reading needs**

Lack of time for preparation, due to the overwhelming regular tasks of teachers making them unable to prepare materials for the program which was unfavorable as one of the critical components of effective teaching is preparation and planning, if the teacher lacks behind in planning, then it will lead to failure (Ecole, 2021).

**Table 4**  
**The formulated themes and central ideas on Effects of Program**

Themes	Central Ideas
Project simply adds more burden to the teachers' workloads	The program is an additional work to the teachers.

**Effects of Program School Responsibilities and Obligations.**

Another structured theme is the effect of the program to the school responsibilities and obligations of the teachers which has only one emerging theme meaning all the respondents have the same sentiment regarding this matter in which the project simply adds more burden.

Every program in the school adds another set of tasks which usually ends up in the hands of the teachers. Of course, they will have to support and cooperate with the school programs but sometimes it may take a toll on their focus and schedule and will cause a burnout. In the attempt to cope up with the

pandemic, new systems of learning were abruptly introduced which also brought new challenges and workloads for the teachers. They need to do a lot of printing, sorting, attending webinars and a lot more for the modular learning. The situation only proves the hectic work schedule of the teachers even before SALBABIDA started which could make the program ineffective specially at the beginning phase due to the lack of attention given by the preoccupied teachers. Burnout among teachers or commonly referred to as teacher burnout is a condition in which teachers are no longer able to work effectively because of excessive workload and stress (Freudenberger, 2012).



**Table 5**  
**The formulated themes and central ideas on Progress children show from baseline to current result**

Themes	Central Ideas
Unguided children show poor results	Poor result for children without support.
Students showing progress in reading	Majority of the students shows progress after the program.
Some have difficulty identifying letters and sound	Some can hardly remember the things that were taught to them even sounds of the letter
Children with parental support show better results	Pupils who received constant support from parents show better result.

**Progress Children Show from Baseline to Current Result.**

The themes derived from this structured theme are: unguided children show poor results, students showing progress in reading, some have difficulty identifying letters and sound, and children with parental support show better results.

**Unguided children show poor results**

The first theme, unguided children show poor result, isn't that surprising. Parental involvement in the education of students begins at home with the parents providing a safe and healthy environment, appropriate learning experiences, support and a positive attitude about school (Whitaker & Fiore, 2001). On the contrary, children without parental supervision led to have poor results in school. Sometimes, school lessons won't be as effective and can be easily forgotten if there is no follow up made at home.

**Students showing progress in reading**

Students showing progress in reading, majority of the respondents mentioned the effectiveness of the program based on the result of the post assessment that was conducted by the teachers. Assessments are considered as important part of instruction, so teachers use them for many reasons and using the right ones at the right time is a useful teaching skill (Linde, 2018). This proves that the program is effective because majority of the teachers were testifying that their children showed progress if they were to compare the result of the pre assessment and the post assessment.

**Some have difficulty identifying letters and sound**

The third theme discusses about the pupils having difficulty identifying letters and sounds. Usually, non-readers are from lower grade levels as they can hardly remember the things that were taught to them. But with the help of the SALBABIDA program, these non-readers were now able to identify some of the letters and sound. Not to an amazing extent but at least there was still notable progress to their reading skills. The program somewhat opens the readiness of the child in reading and reading readiness has been defined as the point at which a person is ready to learn to read and the time during which a person transitions from being a non-reader into a reader (UNICEF, 2012).

**Children with parental support show better results**

Lastly, children with parental support show better results. Many studies prove that children having a supportive parent on their studies tend to excel academically. To comply with the system

of integrated support for their students, schools need to build partnership with parents and develop mutual responsibility for children's success in the educational system. In this way, parental involvement is increased, parents' effort to support schools are encouraged, and they are directly making a positive impact to a successful educational system (Durisic, 2017).

**CONCLUSION**

With the SALBABIDA as a reading intervention program as the main focus of the investigation, the experiences of the teachers during the implementation of the program, the challenges encountered, mechanisms utilize in coping with the challenges, and insights of the teachers regarding the program, the experiences of the teachers stated in this research can help the school leaders and curriculum-makers to identify common issues within remediation programs as well as corresponding solutions to deal with them. This can also give educators a realistic view of the status of our education and the aspects to prioritize to enhance its quality.

The challenges that the teachers encountered were noted for future implementation to avoid or at least minimize the same identified issues for smoother and more effective results. As the challenges were addressed, the coping mechanism of the teachers can also be enhanced for them to easily deal and adapt to future obstacles Partnerships with different counterparts and stakeholders should be strengthened since children's education is a major social concern and can greatly affect our country's future.

Thus, everybody is responsible and should take active part in this kind of programs. The teachers' insights towards the SALBABIDA program give us a review on the program itself, whether it was effective or not. Findings show that there is indeed a reduction in the number of pupils considered as non-readers with every respondent still committed to continue the implementation of the program for the next school year specifically pointing version school-based as the better implementing style.

**REFERENCES**

1. Asio, J. M., & Jimenez, E. (2020). *Effect of remediation activities on grade 5 pupils' academic performance in Technology and Livelihood Education (TLE)*. *Pedagogical Research*, 5(4).
2. Becton, L. (2022). *Learning theories in education (A Complete Summary)*.





3. Durisic, M. (2017). *Parental Involvement as an Important Factor for Successful Education: Vkljucevanje Starsev Kot Pomemben Dejavnik Uspešnega Izobraževanja*. University of Ljubljana.
4. Graham, S., Liu, X., Aitken, A., Ng, C., Bartlett, B., Harris, K. R., & Holzapfel, J. (2018). *Effectiveness of literacy programs balancing reading and writing instruction. A meta-analysis*. *Reading Research Quarterly*, p. 53
5. *Ecole Global*. (2021). *Importance of Preparation and Planning for Teachers*.
6. Freudenberger, D. (2012). *Practical challenges in monitoring and adapting restoration strategies and actions*. *Biodiversity Monitoring in Australia*, 121.
7. Harappa Education. (2020). *Unveils A New Report: The State Of Behavioral Learning*.
8. Jackson, Y. (2016). *Health science administrators' perceptions of remediation with students in professional-track programs*. Walden University.
9. Jenkins, R., Yao, H., & Rusell, K. (2021). *Failing to read: Why Global disparities in Reading Skills Matter and What We Can Do About it*. Unicef.
10. Linde (2018) *Lesson Building*, Date Retrieved: December 18, 2020, from <https://study.com/academy/lesson/building-on-students-currentlanguage-skills.html>
11. Mendler, A. N. (2014). *The resilient teacher*. Alexandria, VA: ASCD
12. N'Namdi, K. (2005). *Guide to Teaching Reading at the Primary School Level*.p.7
13. Ozbek, A. B. & Girli, A. (2017). *The Effectiveness of a Table Computer-Aided Intervention Program for Improving Reading Fluency*. *Universal Journal of Educational Research*,758.
14. PISA. (2018). *Reading framework*.
15. Smith, T. (2021, April). *Guided reflective writing as a teaching strategy to develop nursing student clinical judgment*. In *Nursing forum* (Vol. 56, No. 2, pp. 241-248).
16. Sommerhalder, M. (2018). *arents' supporting their adolescents' independent remedial Math practices: The effects of a multi-component intervention package on Math academic performance*. University of Nebraska.
17. Triviño, P. C. (2016). *The effects of remedial programs on the study of living things in the science achievement of Grade 2 students*. *e-Proceeding of the 4th Global Summit on Education*. <http://worldconferences.net/home>
18. Unicef. (2012). *The state of the world's children 2012: children in an urban world*. *Esocialsciences*.
19. Velten, J., & Mokhtari, K. (2016). *Challenges inherent in the design and implementation of after-school intervention programs for middle grade under achieving readers*. *Texas Journal of Literacy Education*, 4(1), 14-20.
20. Wang, X., Sun, N., & Wickersham, K. (2017). *Turning Math remediation into "homeroom:" Contextualization as a motivational environment for community college students in remedial Math*. *The Review of Higher Education*, 40(3), 427-464. <https://doi.org/10.1353/rhe.2017.0014>
21. World Health Organization (WHO) 2022. <https://www.who.int/news/items/05-05-2022-14.9-million-excess-deaths-were-associated-with-the-covid-19-pandemic-in-2020-and-2021>
- Whitaker, T. (81). Fiore, D. (2001). *Dealing with difficult parents and with parents in difficult situation*.



# LOCUS OF CONTROL AND DECISION-MAKING COMPETENCE AS PREDICTORS OF WORK STRESS AMONG BUSINESS EDUCATION TEACHERS IN TERTIARY INSTITUTIONS IN NIGERIA

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## ABSTRACT

*Stress has become a common phenomenon that is increasingly associated with the workplace. This study investigated the extent to which locus of control and decision-making competence serve as predictors of work stress among business educators in public tertiary institutions in Anambra State. Two research questions guided the study, while two null hypotheses were tested at the 0.05 level of significance. The study adopted correlational survey research design. The sample comprised 112 business educators in all the public institutions in Anambra State. A total of three research instruments were used to elicit data for this study. They include the Locus of Control Scale (LCS), the Decision Making Competence Questionnaire (DMCQ), and the Work Stress Scale (WSS-10). The reliability coefficient alphas for the instruments were established using Cronbach's alpha statistics. The outcome yielded reliability coefficient alpha of 0.73 for LCS, 0.76 for DMCQ, and 0.88 for WSS. Data were collected through the direct administration of the instrument to the respondents. The collected data were analysed using simple linear regression. The findings of the study revealed, among others, that locus of control was a significant predictor of work stress among business educators in public tertiary institutions in Anambra State. The findings further revealed that decision-making competence is not a significant predictor of work stress among business educators in public tertiary institutions in Anambra State. Based on the findings, it was recommended that the school administration should encourage business educators in public tertiary institutions to strengthen their locus of control in order to lessen stress at work. They should implement training initiatives to educate business educators on the implications of locus of control in work stress. These initiatives could include workshops, seminars or online courses.*

**KEYWORDS:** *Locus of control, Decision-making competence, Work stress, Predictors, Business educators, Tertiary institutions*

## 1. INTRODUCTION

Stress has become a common phenomenon that is increasingly associated with the workplace. It seems to be everywhere and is perceived by many as constituting a major threat to both the mental and physical health of workers, especially those in the teaching profession. The World Health Organisation (WHO, 2016) stated that stress has become an increasingly health-threatening condition around the world. Today, a good number of studies, such as those by Lasebikan (2016), Alson (2019), and Akuezuilo and Azuji (2019), have shown that teaching is a highly stressful profession, not only in Nigeria but globally. Thus, stress has been highlighted as one of the primary elements affecting teachers' productivity and performance, especially among those teaching in public tertiary institutions.

People teaching business education programme in public institutions are referred to as business educators. This group of people, due to the nature of their job, was likely to experience work-related stress as a result of numerous job demands and pressures that could challenge their knowledge and abilities. More so, because of the important contribution these teachers make in the lives of students, stress among them has become an issue of great concern that cannot be easily overlooked. The reason is that business educators, much like teachers at all levels of schooling, are crucial agents of socialisation, helping students attain their full potential and develop into responsible citizens in addition to supporting learning.

In recent times, teaching has become increasingly stressful, especially in developing countries like Nigeria, where teachers seem to have become more like endangered species. The



situation even seems more challenging among those teaching in public tertiary institutions, such that these teachers not only battle with work overload, teaching both theoretical and practical business lessons, but also have to deal with an increasingly poor school climate, ineffective leadership, poor remuneration and poor work conditions coupled with the "publish or perish" syndrome that seem to have put every teacher on edge (Osamwonyi, 2016). All these factors put together seem to have jointly contributed to making the teaching profession more challenging and stressful, especially among business educators.

Teacher stress can be defined, according to Karner and Honing (2021), as a response of negative affect (such as anger or depression) by a teacher, usually accompanied by potentially pathogenic physiological and biochemical changes (such as an increased heart rate). This usually results from aspects of the teacher's job and is mediated by the perception that the demands made on the teacher constitute a threat to their self-esteem or well-being. Thus, in the context of this study, teachers' Work stress can be described as the teachers' adaptive response to any external action, situation or event that sets specific physical and/or psychological demands on the teacher as a person, mediated by individual features and/or psychological processes.

Business educators often experience the concepts outlined in the definitions of stress, which are essential for a comprehensive understanding of the subject. These include situational demands or stressors that cause people to adapt, in which individuals tend to react and adapt in different ways to the stressors they are presented with. In this situation, some form of physical and/or psychological response will likely occur. Therefore, both external and internal characteristics known as loci of control may come into play to determine the extent of physical and emotional responses exhibited by individuals as a result of stressors.

Locus of control, according to Rotter in Chiang, Fang, and Kaplan (2019), is a cognitive factor referring to the extent to which individuals perceive that they have control over the expectations of reinforcement and are responsible for the outcomes, successes and failures in their lives. It explains the degree to which one perceives events as being under one's control (internal locus) or under the control of external factors (external locus). Individuals with a high internal locus of control believe that outcomes such as success and failure are influenced by their own efforts and that responsibility for whether or not they get reinforced ultimately lies with them. On the other hand, individuals with an external locus of control believe that their own efforts have little impact on the amount of reinforcement they receive and that outcomes such as success and failure in life are controlled by external factors such as luck, chance, fate, destiny, society or other forces beyond their control.

Studies carried out by Clark, Jany and Philippi (2020); Ayodele and Oluwole (2015); Raveendran and Sivanewaran (2019); Padmanabhan (2021) and Locke (2016) have shown that locus

of control plays a significant role in stress management and increases or decreases negative emotions, particularly in the working environment. Since individuals differ in their locus of control, workplace stress may not have the same effect on all the teachers, going by the notion that there are ranges of personal, social, and environmental moderators within each person that could influence their susceptibility and coping abilities in relation to the stressors experienced.

Stress not only has negative consequences for teachers, it also results in lower student achievement and higher costs for schools and society as a whole. For instance, a study conducted in Lagos, Nigeria, showed that the negative impact of teachers' stress often results in students' poor performance, their indiscipline, and even increased school dropout rates (Katharine, 2014). However, for teachers in public institutions like business education, those with more positive work values would likely be more capable of handling teaching jobs. Such a teacher may have a more optimistic attitude towards educational tasks and devote more time to teaching business innovations.

However, literature (such as Kyriacou, 2017; and Schumann, 2019) shows that stressors are categorised using different levels of analysis. Kyriacou (2017), for example, differentiates stressors at the personal level (such as relating with colleagues), the school level (such as managing class size and workloads), and the system level (such as school demands). Sometimes, the response to such demands can be useful, helping the teacher push through fear or pain to achieve a specific goal. However, when the demands become stressful, as Harvard Health (2020) noted, they become debilitating and can affect the individual's physical and mental health.

Stress responses can occur when the perceived environmental demands exceed an individual's regulatory capacity (Karasek, 2019). Stress can arise quickly or evolve over time because of cognitive evaluations of situations and potential consequences (that is, depending on how individuals appraise the balance between perceived resources and perceived demands). Stress can be evaluated as challenging or threatening, which in turn has different effects on cognition. Thus, various individual features, such as decision-making competence and social orientation, may contribute to an individual's perception of stress.

Decision-making competence is defined according to Parker, Bruine de Bruin, Fischhoff and Weller (2017) as an individual's tendency to follow normative rational principles in decision-making. It can also be defined as a construct that can be assumed to be related to performance and exhaustion in work-life settings (Ceschi, Demerouti, Sartori, and Weller, 2017). For example, a study by Santos-Ruiz et al. (2012) reported that individuals with higher decision-making ability showed significantly lower levels of cortisol before as well as after they were confronted with a stressful situation. Thus, decision-making does not only include choice but also the processes associated with making a decision (that is, the decision-making process). Decision-making competence in the context of this



study involves how various aspects of teachers' decision-making processes influence decision outcomes.

According to Alson (2019), decision-making competence can be considerably affected by the dynamics of the environment because most naturally dynamic situations contain a lot of uncertainty. A dynamic situation continually changes, and a decision-maker has to take temporal changes into consideration. A business educator, as a decision-maker, therefore, can use feedback on the effect of his or her actions in the school. In other words, as decisions are made and actions taken, the results of the decisions may be taken into consideration and the information used in subsequent decisions. Additionally, in dealing with the uncertainty of a continually changing learning environment, the teacher as a decision-maker needs to achieve a trade-off between the cost of action versus the risk of not taking action, as they all have the tendency to create stress at the end.

Reports from previous studies such as Bruine de Bruin, Parker and Fischhoff (2007) and Dewberry, Juanchich and Narendran (2013) have shown that successful decision-making depends on the cognitive abilities to perform systematic and normatively rational decision processes and that decision-making competence has the tendency to affect real-life decision-making outcomes. Further, Shields, Lam, Trainor and Yonelinas (2016) found that experimentally manipulating acute stress affected participants' decision-making competence and performance outcome. However, the study did not go further to establish the relationship between decision-making competence and Work stress among the participants.

Business educators in tertiary institutions face a unique set of challenges and stressors, which can lead to burnout and decreased job satisfaction (Chambers, 2019). The stress of teaching complex theories, managing multiple classes and developing innovative learning experiences can be overwhelming. Additionally, the ever-evolving nature of business education and the need to keep up with the most current teaching techniques can add to the already heavy workload of business educators. The rising workload and lack of resources in many tertiary institutions have the tendency to create an environment that is not conducive to the teaching profession. Business educators often find themselves with limited resources, large class sizes and outdated teaching materials. This can lead to a feeling of isolation as well as decreased job satisfaction.

Furthermore, business educators often seem to lack adequate support from their institutions. They often seem to lack the mentorship and guidance needed to develop professionally and provide quality education. The lack of support can lead to feelings of burnout, which can ultimately affect students' learning (Chambers, 2019). It is therefore essential for tertiary institutions to address the unique stressors and challenges faced by business educators. This could include providing access to professional development and mentorship opportunities as well as adequate resources for teaching. Additionally, providing

adequate compensation for business educators is essential to maintaining job satisfaction and reducing stress.

It is important to note that some in-service programmes including sponsoring teachers for in-service training and organising seminars, workshops, conferences, and symposia on educational matters, have been organised by the government at various times towards improving teachers' job productivity and effectiveness, such programmes. These programmes are carried out with some noticeable improvement recorded in the issue of teachers' jobs, especially at the primary and secondary school level. However, not much seems to have been done in order to address the lingering issue of stress experienced by teachers in tertiary institutions, especially among business educators teaching in public institutions in Anambra State. This motivated the researchers to embark on this study.

### Statement of the Problem

Similar to other teachers in public institutions in Nigeria, business educators seem to encounter challenges that lead to enormous amounts of stress. In fact, stress levels among business educators seem to be increasing due to increased workload, high job demands, student misbehaviour, poor working conditions, poor relationships at work, role conflict, role ambiguity, a lack of complete autonomy, poor school ethos and decreasing developmental opportunities. These have the tendency to affect their health and well-being and would likely lead to teacher burnout, job dissatisfaction and poor performance.

Although literature is filled with studies on the causes, influence and effect of stress among teachers in Nigeria, not much has been done to investigate the contributions of variables like locus of control and decision-making competences as predictors of Work stress among business educators. The few available related studies were mostly conducted outside Nigeria, thus creating a gap in literature, which this study filled. Therefore, the problem of this study is to examine locus of control and decision-making competence as predictors of work stress among business education teachers in public tertiary institutions in Anambra State.

## 2. OBJECTIVES OF THE STUDY

The main purpose of the study was to examine locus of control and decision-making competence as predictors of work stress among business education teachers in public tertiary institutions in Anambra State. Specifically, the study examined:

1. The extent to which locus of control predicts Work stress among business educators in public tertiary institutions in Anambra State
2. The extent to which decision-making competence predicts Work stress among business educators in public tertiary institutions in Anambra State

### Research Questions

The following research questions guided this study:

1. To what extent does locus of control predict Work stress among business educators in public tertiary institutions in Anambra State?





- To what extent does decision-making competence predict Work stress among business educators in public tertiary institutions in Anambra State?

internally- and externally-worded items. Higher scores on LCS indicated externality, which is also the case with Rotter's (1966) measure.

**Hypotheses**

The following null hypotheses were tested at 0.05 level of significance.

- Locus of control is not a significant predictor of Work stress among business educators in public tertiary institutions in Anambra State.
- Decision-making competence is not a significant predictor of Work stress among business educators in public tertiary institutions in Anambra State.

Decision Making Competence Questionnaire (DMCQ) comprised 15 items that measured decisional self-esteem (respected and confident) and decision-making styles (vigilant and intuitive) of the study participants). It was measured on a 4-point rating scale of Always, sometimes, rarely and never.

The Work Stress Scale (WSS) was used to assess stress levels in young people and adults aged 12 and above. It evaluates the degree to which an individual has perceived life as unpredictable, uncontrollable and overloading over the previous month. In each case, respondents were asked how often they felt a certain way. The scale was measured on a four-point scale from 'never' to Always.

**3. METHODOLOGY**

The study was carried out in Anambra State and adopted correlational survey research design. A correlational design is a kind of design that o establishes a relationship between two or more variables as well as indicate the direction and magnitude of the relationship between the variables (Nworgu, 2015).

**5. STATISTICAL DESIGN**

Direct delivery approach was adopted in the administration of the questionnaire to the respondents. Data collected were analysed using the simple linear regression analysis to answer research questions and test the null hypotheses.

**4. SAMPLING DESIGN**

The entire population of 112 business educators in all the public institutions in Anambra State was used for the study. Thus, there was no sampling since the population was manageable. A total of three research instruments were used to elicit data for this study. Locus of Control Scale contained 16 work-related items (such as, job effort, getting a job, promotions) to which participants responded to on a four-point scale of Strongly agree to strongly disagree. The scale had equal numbers of

**6. RESULTS**

**Research Question 1**

To what extent does locus of control predict work stress among business educators in public tertiary institutions in Anambra State?

**Table 1: Regression Analysis on the Extent Locus of Control Predict Work Stress among Business Educators in Public Tertiary Institutions in Anambra State**

R	R Square	Adjusted R Square	R Square Change	Beta	% added
0.424	0.180	0.172	0.180	0.424	42.4

Table 1 show that the locus of control has a beta of 0.424. This indicates that locus of control contributes 42.4 percent of work stress among business educators in public tertiary institutions in Anambra State.

**Research Question 2**

To what extent does decision-making competence predict Work stress among business educators in public tertiary institutions in Anambra State?

**Table 2: Regression Analysis on the Extent Decision-making Competence Predict Work Stress among Business Educators in Public Tertiary Institutions in Anambra State**

R	R Square	Adjusted R Square	R Square Change	Beta	% added
0.012	0.000	-0.009	0.000	-0.012	1.2

In Table 2 shows that social orientation has a beta of -0.012. This indicates that decision-making competence contributes 1.2 percent to work stress among business educators in public tertiary institutions in Anambra State.

**Null Hypothesis 1**

Locus of control is not a significant predictor of Work stress among business educators in public tertiary institutions in Anambra State.



**Table 3: Regression Analysis on Locus of Control as a Significant Predictor of Work Stress among Business Educators in Public Tertiary Institutions in Anambra State**

R	R Square	Adjusted R Square	R Square Change	Beta	%add	Cal. t.	df	Pvalue	Remark
0.424	0.180	0.172	0.180	0.424	42.4	4.803	105	0.000	S

S = Significant

Table 3 reveals that at 105 df and a 0.05 level of significance, the calculated t is 4.803 with a p-value of 0.000, which is less than 0.05, and the null hypothesis is rejected. Therefore, locus of control is a significant predictor of work stress among business educators in public tertiary institutions in Anambra State.

**Null Hypothesis 2**

Decision-making competence is not a significant predictor of Work stress among business educators in public tertiary institutions in Anambra State.

**Table 4: Regression Analysis on Decision-Making Competence as a Significant Predictor of Work Stress among Business Educators in Public Tertiary Institutions in Anambra State**

R	R Square	Adjusted R Square	R Square Change	Beta	%add	Cal. t.	df	Pvalue	Remark
0.012	0.000	-0.009	-0.009	-0.012	-1.2	-0.126	105	0.900	NS

NS = Not Significant

Table 4 reveals that at 105 df and a 0.05 level of significance, the calculated t is -0.126 with a p-value of 0.900. Since the p-value is greater than the stipulated 0.05 level of significance, the null hypothesis is rejected. Therefore, decision-making competence is not a significant predictor of work stress among business educators in public tertiary institutions in Anambra State.

**7. DISCUSSION**

The findings of the study revealed that locus of control contributed 42.4 percent of work stress among business educators in public tertiary institutions in Anambra State. The finding also revealed that locus of control was a significant predictor of work stress among business educators in public tertiary institutions in Anambra State. The findings were consistent with previous research. The studies by Ayodele and Oluwole (2015), Raveendran and Sivanewaran (2019), Padmanabhan (2021) and Locke (2016) all showed that people with external locus of control are more likely to experience higher levels of work stress than people with internal locus of control. These studies suggest that an individual's locus of control is a significant predictor of work stress. The study of Ayodele and Oluwole (2015) provides justification for this finding. In their study, they investigated locus of control as a predictor of work stress among business education teachers in public tertiary institutions in Nigeria. They found that the locus of control of the teachers affected their work-related stress levels, with those who had an internal locus of control having lower stress levels than those with an external locus of control. The findings of the study also revealed that decision-making competence contributed 1.2 percent to work stress among business educators in public tertiary institutions in Anambra State. The findings further revealed that decision-making competence was not a significant predictor of work stress among business educators in public tertiary institutions in

Anambra State. The results of the study showed that decisions can affect how much stress people experience. While this contribution may seem small, it is important to recognise that even a small amount of stress can have a significant impact on an individual's wellbeing. Decision-making can be a difficult and stressful process, and the ability to make sound decisions can help reduce the amount of stress associated with it. Therefore, it is important to recognise the impact decision-making has on stress levels.

Bavol'ar and Orosova (2015) conducted a study that showed low relationships between decision-making styles and work stress. This finding suggests that decision-making competence may not be as influential in determining work stress levels as other factors. The fact that there are numerous other factors that can affect a person's stress levels may help to explain the findings that showed that decision-making competence is not a significant predictor of work stress among business educators in public tertiary institutions in Anambra State. For example, workload, job satisfaction, job security and work-life balance can all have a significant impact on the amount of stress an individual experiences. Therefore, it is important to consider other factors that may influence an individual's stress levels in addition to decision-making competence.

**8. CONCLUSIONS**

Based on the findings of the study, the study concludes that locus of control is a significant predictors of work stress among business educators in public tertiary institutions in Anambra State. Decision-making competence is not found to be a significant predictor of work stress.



## 9. IMPLICATIONS OF THE STUDY

The study suggests that locus of control and decision-making competence all have an effect on work stress among business educators in public tertiary institutions in Anambra State. These findings have important implications for business educators in public tertiary institutions in Anambra State. It suggests that the way business educators think about their ability to control outcomes and their decisions can all influence their work stress levels. Thus, business would see the need to pay more attention to these aspects of their work and consider ways to improve their locus of control and decision-making competence in order to reduce their stress levels.

## 10. RECOMMENDATIONS

Based on the findings of the study, the following recommendations were made:

1. Administrators of public tertiary institutions should encourage business educators in public tertiary institutions to strengthen their locus of control in order to lessen stress at work. They should implement training initiatives to educate business educators on the implications of locus of control on work stress. These initiatives could include workshops, seminars, or online courses.
2. Tertiary institutions administrators should provide resources and training for business educators to build their decision-making competence. They should encourage business educators to be more proactive in their decision-making processes and empowered to make informed decisions and take ownership of their choices.

## REFERENCES

1. Akuezuiilo, J.A and Azuji, I.M. (2019). *Extent of school-related stress occurrence among secondary school teachers in Anambra State: Implication for health counselling*. *International Journal of Research and Scientific Innovation (IJRSI)*, 6(5), 90-94. <https://www.rsisinternational.org/journals/ijrsi/digital-library/volume-6-issue-5/90-94.pdf>
2. Alson, J. (2019). *Stress among public school teachers*. *Journal of Research Initiatives*, 4(2), 3. Retrieved from: <https://digitalcommons.uncfsu.edu/jri/vol4/iss2/3>.
3. Ayodele, O. & Oluwale, A. (2015). *Locus of control as a predictor of work stress among business education teachers in public tertiary institutions*. *Journal of Educational Research and Reviews*, 3(3), pp.1-7.
4. Baval'ar, J. Orosova, O. (2015). *Decision-making styles and their associations with decision-making competencies and mental health*. *Judgement and Decision-making*, 10(1), 115-122.
5. Bruine de Bruin, W., Parker, A. M., and Fischhoff, B. (2007). *Individual differences in adult decision-making competence*. *Journal of Personality and Social Psychology*, 92(5), 938-956. doi: 10.1037/0022-3514.92.5.938
6. Ceschi, A. (2017). *Decision-making processes in the workplace: how exhaustion, lack of resources and job demands impair them and affect performance*. *Frontiers in Psychology*, 2(3), 321-333.
7. Chambers, J. (2019). *Supporting Business Educators: Preventing Burnout in the Classroom*. *Business Education Forum*, 73(1), 14-20.
8. Chiang, Y, Fang, W. and Kaplan, U. (2019). *Locus of control: The mediation effect between emotional stability and pro-environmental behaviour*. *Sustainability*, 11(820), 1-14.
9. Clark, K.; Jany, M.; and Philippi, C. (2020). *chronic stress in relation to locus of control*. *Undergraduate Research Symposium*. 31. <https://irl.umsl.edu/urs/31>.
10. Dewberry C., Juanchich M., Narendran S. (2013). *Decision-making competence in everyday life: the roles of general cognitive styles, decision-making styles and personality*. *Personal. Individ. Dif.* 55, 783–788. 10.1016/j.paid.2013.06.012
11. Harvard Health (2020). *Understanding the stress response*. Harvard Health Publishing. Retrieved from <https://www.health.harvard.edu/staying-healthy/understanding-the-stress-response>
12. Karasek R. A. (2019). *Job demands, job decision latitude and mental strain: implications for job redesign*. *Administrative Science Journal*. 24, 285–307.
13. Kärner, T., Höning, J. *Teachers' experienced classroom demands and autonomic stress reactions: results of a pilot study and implications for process-oriented research in vocational education and training*. *Empirical Res Voc Ed Train* 13, 8 (2021). <https://doi.org/10.1186/s40461-021-00113-3>
14. Katharine, R.P. (2014). *Locus of control, cognitive appraisal, and coping in stressful episodes*. *Journal of Personality and Social Psychology*, 46(3), 655-668.
15. Kyriacou C. (2017). *Teacher stress and burnout: An international review*. *Educational Resource*, 29(2), 146–52.
16. Lasebikan, V. O. (2016). *Expert panel's modification and concurrent validity of the teacher stress inventory among selected secondary school teachers in Nigeria*. *Psicologia: Reflexão e Crítica*, 29, 1–7. <https://doi.org/10.1186/s41155-016-0047-3>
17. Osamwonyi, E.F. (2016). *In-service education of teachers: Overview, problems and the way forward*. *Journal of Education and Practice*, 7(26), 83-87. retrieved from <https://files.eric.ed.gov/fulltext/EJ1115837.pdf>.
18. Padmanabhan, S. (2021). *The impact of locus of control on workplace stress and job satisfaction: A pilot study on private-sector employees*. *Current Research in Behavioral Sciences*, 2(9), 200-222.
19. Parker A. M., Bruine de Bruin W., Fischhoff B., Weller J. (2017). *Robustness of decision-making competence: Evidence from two measures and an 11-year longitudinal study*. *Journal of Behavioral Decision Making*, 12(12).
20. Raveendran, T. and Sivaneswaran, A. (2019). *Influence of locus of control on job stress of teachers in jaffna*. *Journal of Business Studies*, 6(2), 95-116.
21. Santos-Ruiz, A., Garcia-Rios M. C., Fernandez-Sanchez, J. C., Perez-Garcia, M., Muñoz-García M. A., Peralta-Ramirez, M. I. (2012). *Can decision-making skills affect responses to psychological stress in healthy women?* *Psychoneuroendocrinology*, 37, 1912–1921. 10.1016/j.psyneuen.2012.04.002
22. Schumann S (2019) *Belastungserleben von angehenden Lehrpersonen der Sekundarstufe II in der Schweiz und in Deutschland*. In: Holtsch D, Oepke M, Schumann S (eds) *Lehren und Lernen auf der Sekundarstufe II*. *Gymnasial- und wirtschaftspädagogische Perspektiven*. hep, Bern, pp 430–440
23. Shields, G. S., Lam J. C. W., Trainor, B. C., Yonelinas, A. P. (2016). *Exposure to acute stress enhances decision-making competence: evidence for the role of DHEA*. *Psychoneuroendocrinology* 67 51–60. 10.1016/j.psyneuen.2016.01.031.



# EFFECTIVENESS OF PUPPETRY ON CONCEPT FORMATION AMONG STUDENTS WITH MODERATE INTELLECTUAL DISABILITY

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## ABSTRACT

*The study under investigation is an experimental one which aims to find out the effectiveness of Puppetry on Concept Formation among students with moderate level of Intellectual Disability. Pre-test-Post-test Non Equivalent Groups Design was used for the study. For this purpose a sample of 12 students were drawn from a special school. Purposive sampling was used for the selection of sample. Students with mild intellectual disability were the sample of the study where 6 students were in the experimental group and 6 students in the Control group. The experimental group students were using Puppetry method. The control group students were taught through the existing method of teaching used for students with Intellectual Disability. For the analysis of the collected data the investigator used descriptive statistics like Mean, median, mode, standard deviation and Mean Difference Analysis. The study reveals that there exists significant difference between post test scores of Experimental and Control group with respect to Concept formation. Students in the experimental group show significantly better performance in terms of concept formation than students in the Control group as higher mean scores are attached with them.*

**KEYWORDS:** *Puppetry method, Children with Moderate Intellectual Disability, Concept Formation.*

## INTRODUCTION

It is a prejudiced notion perceived by the society that children with Intellectual disability cannot be taught. But the fact is that if an academic intervention designed exclusively on the basis of their individual needs, then such an activity will remove all the academic barriers in front of them. There must be a clear cut change in the mode of academic transaction in order to equip them to attain academic goals. Basic element which makes any academic matter erect and firm is nothing but the clarity in concept formation. Children with Intellectual disability have limited ability to acquire new concepts because of their limitations in cognitive as well as adaptive behavioural aspects. Concept Formation can be considered as the fundamental unit of cognitive Framework. Methodologies to develop concepts among students with Intellectual Disability is a matter of debate for more than a decade.

Children with Intellectual disability need opportunity for repeated practice and training. Then only the learned matter will be maintained among them with utmost fluency. Puppetry can be considered as an effective means to inculcate academic concepts in a clear and legible manner among children. (Renfro, 1984)

The present study is to find out the effectiveness of Puppetry method on Concept Formation among children with Intellectual Disability. Concept Formation stands for achieving a concept

which is new to the cognitive framework of children. In the present study, Concept Formation stands for making students able to understand the concept of different 'sense organs' with utmost fluency. In the present study Students with Moderate Intellectual Disability are those who display significant deficit in adaptive behavior and are functional with IQ range of 35-50.

Children with Intellectual disability have certain special needs of their own. Any intervention which caters the needs of children with Intellectual disability can be considered as suitable intervention for them. Hope puppetry will serve as a suitable academic intervention for children with Intellectual Disability since it offers a platform for them to have repeated practice (Korošec, 2012). Repeated practice will enable them to achieve a new skill/ concept. Hence the study can be considered as a significant one in terms of concept formation among children with Intellectual Disability.

## About puppetry method

Puppetry method is a pleasure based teaching strategy which make uses dolls to transfer the ideas to others (Brėdikytė, 2002). In the present study, puppetry method is made used to teach children with intellectual disability, the concept of sense organs. A clear cut script is being prepared to transact the concepts. Simple dialogues between puppets will be the main means to develop concepts in this method. Since dolls impart interest





among children, this method will definitely a positive learning attitude among children with Intellectual disability and eventually leads to clear and legible concept formation (Brédikyté, 2002)..

### Objectives of the Study

Objectives of the present study are:

- To study whether there exists any significant difference between the mean pretest scores of experimental and control groups with regard to Concept Formation.
- To study whether there exists any significant difference between the mean posttest scores of experimental and control groups with regard to Concept Formation.
- To study whether there exists any significant difference between the mean pretest and posttest scores of experimental groups with regard to Concept Formation.
- To study whether there exists any significant difference between the mean pretest and posttest scores of control group with regard to Concept Formation

### Hypotheses of the Study

The present study was to test the following hypothesis.

- There will be no significant difference between the mean Pretest scores of Experimental and Control groups with regard to Concept Formation.
- There will be no significant difference between the mean Posttest scores of Experimental and Control groups with regard to Concept Formation.
- There will be no significant difference between the mean Pretest and Post test scores of Experimental group with regard to Concept Formation.
- There will be no significant difference between the mean Pretest and Post test scores of Control group with regard to Concept Formation.

### Method

The present study comes under the purview of experimental study and it has been conducted by employing the Quasi Experimental Design. The design used in the present study was the Pre-test-Post-test Non Equivalent Groups Design.

Subjects in the experimental and control groups were equated on the basis of Gender, Intelligence quotient, Socio-economic Status, Instructional Efficiency and urban-rural locality.

### Participants

For the present study a sample of 12 students were drawn from a special school. Purposive sampling was used for the selection of sample. Students with mild intellectual disability were the sample of the study where 6 students were in the experimental group and 6 students in the Control group. The experimental group students were taught through the newly developed Puppetry method. The control group students were taught through existing method of teaching used for students with Intellectual Disability.

### Instruments

For the present experimental study, a Test for Concept Formation (Arun, 2019) was used as Pre test and Post test respectively in the Experimental and Control groups. A module for Puppetry method was utilized for treatment in the Experimental group.

### Statistical Techniques Used for Analysis

For the analysis of the collected data the investigator used descriptive statistics like Mean, median, mode, standard deviation etc. To compare the effectiveness of a multimedia package on Concept Formation among children with Intellectual Disability, Mean Difference Analysis was used.

## RESULTS AND DISCUSSION

The analysis of the study lead to the following findings. Summary of Mean Difference Analysis in case of Concept Formation are summarized and discussed in this section. Data and results of the t-test done for the comparison of pretest and posttest scores in respect of Concept Formation are presented in the following sections. Data and results of the comparison of pretest scores are presented in in Table 1.

**Table 1**

*Data and Results of the Comparison of Pretest Scores Between Experimental and Control group for the Total Sample*

Sl. No.	Variables	N	Mean	SD	t- Value	Level of Significance
1.	Pretest (Experimental)	6	5	0.89	1.00	Not Significant
2.	Pretest (Control)	6	4.83	0.98		

The obtained t value is 1.00 and it is below the table value set for significance even at 0.05 level. Hence it can be concluded that there is no significant difference exists between pretest scores of experimental and control groups. Both of the groups are

comparable since the level of performance of participants found to have no significant difference.



Data and results of the comparison of posttest are presented in in Table 2.

**Table 2**

*Data and Results of the Comparison of Post test Scores Between Experimental and Control group for the Total Sample*

Sl. No.	Variables	N	Mean	SD	t- Value	Level of Significance
1.	Posttest (Experimental)	6	8.33	0.81	7.39	0.01
2.	Posttest (Control)	6	4.66	0.51		

The obtained t value is 7.39 and it is greater than the table value for significance at 0.01 level. Hence it can be concluded that there is significant difference exists in between post test scores of Experimental and Control group with respect to Concept formation.

From the Mean Difference Analysis it is understood that students in the experimental group show significantly better performance in terms of concept formation than students in the Control group

as higher mean scores are attached with them. This means that students who are intervened with Puppetry method differ significantly than students who receive Existing method of Teaching with Intellectual Disability in terms of Concept Formation. This shows the effectiveness of puppetry method among children with Intellectual Disability.

Data and results of the comparison of pretest posttest scores in respect of Concept Formation are presented in in Table 3.

**Table 3**

*Data and Results of the Comparison of Pretest - Post test scores of Experimental group*

Sl. No.	Variables	N	Mean	SD	t- Value	Level of Significance
1.	Pre test (Experimental)	6	5.0	0.89	- 5.42**	0.01
2.	Posttest (Experimental)	6	8.3	0.81		

From Table 3, the obtained t value is -5.42 and it is greater than that of table value and significant at 0.01 level. Hence it can be concluded that there is significant difference exists in between pretest and post test scores of Experimental group with respect to Concept formation.

From mean value analysis we can understand that post test scores experimental group show significantly better in terms of concept

formation with respect to pretest scores. This means puppetry method is really an effective intervention to develop Concept formation among Children with Intellectual Disability.

Data and Results of the Comparison of Pretest - Post test scores of Control Group with regard to Concept Formation is presented in Table 4.

**Table 4**

*Data and Results of the Comparison of Pretest - Post test scores of Control Group*

Sl. No.	Variables	N	Mean	SD	t- Value	Level of Significance
1.	Pretest (Control)	6	4.83	0.98	0.277	Not Significant
2.	Posttest (Control)	6	4.66	0.51		

The obtained t value is 0.277 and it is lesser than that of table value even at 0.05 level. Hence it can be concluded that there is no significant difference exists in between pretest and post test scores of Control group with respect to Concept formation.

## MAJOR FINDINGS

Major Findings of the study are as follows.

- Puppetry method can be considered as an effective strategy for concept development among students with Intellectual Disability.

- There exists no significant difference between the pretest scores of experimental and control groups in case of Concept Formation.
- There exists significant difference in the post test scores of experimental and control group in terms of Concept formation (t-value 7.39\*\*).
- There exists significant difference in the pretest and post test scores of Experimental group in terms of Concept formation before and after intervention (-5.42\*\*).
- There exists no significant difference in the pretest and post test scores of Control group in terms of Concept formation before and after intervention.



## REFERENCES

1. Brėdikytė, M. (2002). *Dialogical Drama with Puppets (DDP) as a Method of Fostering Children's Verbal Creativity*. In E. Majaron & L. Kroflin (Eds.), *The Puppet – What a Miracle!* (pp. 33–60). Zagreb: the UNIMA Puppets in Education Commission.
2. Debouny, E. (2002). *Puppets as a teaching tool*. In E. Majaron & L. Kroflin (Eds.), *The Puppet – What a Miracle!* (pp. 53–58). Zagreb: the UNIMA Puppets in Education Commission.
3. Dunst, C. (2012). *Effects of puppetry on elementary students' knowledge of and attitudes toward individuals with disabilities*. *International Electronic Journal of Elementary Education*, 4, 451–457.
4. Hamre, I. (2012). *Affective Education through the Art of Animation Theatre*. In L. Kroflin (Ed.), *The Power of the Puppet* (pp. 18–28). Zagreb, Croatia: Union Internationale de la Marionette
5. Korošec, H. (2012). *Playing with Puppets in Class—Teaching and Learning with Pleasure*. In L. Kroflin (Ed.), *The Power of the Puppet* (pp. 29–45). Zagreb, Croatia: Union Internationale de la Marionette.
5. Renfro, N. (1984). *Puppetry, Language, and the Special Child*. Austin: N. Renfro Studios.



# FEMORAL NECK FRACTURES, EPIDEMIOLOGY, ANATOMICAL DESCRIPTION, MECHANISM OF ACTION, CLASSIFICATION, CLINICAL EVALUATION, IMAGING EVALUATION, TREATMENT AND COMPLICATIONS

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## ABSTRACT

**Introduction:** Femoral neck fractures (FNF) are frequent and devastating injuries in orthopedics and traumatology. It usually has several therapeutic options depending on the type of fracture and the comorbidities of the affected individual, among the conservative treatment alternatives are bed rest with or without traction and among the surgical alternatives are internal fixation.

**Objective:** to detail the current information related to femoral neck fractures, epidemiology, anatomical description, mechanism of action, classification, clinical evaluation, imaging evaluation, treatment and complications.

**Methodology:** a total of 40 articles were analyzed in this review, including review and original articles, as well as clinical cases, of which 31 bibliographies were used because the other articles were not relevant to this study. The sources of information were PubMed, Google Scholar and Cochrane; the terms used to search for information in Spanish, Portuguese and English were: fractures, femur, femoral neck, prosthesis, trauma.





**Results:** 80% are generated in women, and the incidence doubles every 5 to 6 years in women over 30 years of age. It presents bimodal incidence. The risk factors are female sex, white race, advanced age, poor health, smoking, alcohol consumption, previous fractures, history of falls and low estrogen concentrations. Magnetic resonance imaging (MRI) is the test of choice for the diagnosis of undisplaced or occult fractures not observable on plain radiographs. Up to 40% of impacted or nondisplaced fractures will displace if they do not undergo internal fixation. Secondary displacement is 5% following internal fixation. Pseudarthrosis may complicate up to 5% of non-displaced fractures and up to 25% of displaced fractures; furthermore, osteonecrosis complicates up to 10% of non-displaced fractures and up to 30% of displaced fractures.

**Conclusions:** femoral neck fractures present a high incidence, the mechanism of action mostly presented in young people is high energy trauma, in the elderly the most common mechanism is low energy falls. Patients with displaced femoral neck fractures are unable to walk and show shortening and external rotation of the lower limb. Anteroposterior projections of the pelvis are indicated, as well as anteroposterior and cross lateral projections of the affected proximal femur. The goals of treatment are to relieve the patient's pain, restore hip function and have rapid mobilization through anatomical reduction and internal fixation or by prosthetic replacement. Conservative treatment of fractures is recommended in individuals at extreme surgical risk; it can also be considered in individuals with dementia, who do not maintain the ability to walk and have little symptomatology due to hip pain. Among the most important complications are pseudarthrosis and osteonecrosis. Surgery to treat nondisplaced femoral neck fractures is associated with a higher number of consolidation and associated with less avascular necrosis compared to conservative treatment.

**KEY WORDS:** fractures, femoral neck, trauma, prosthesis.

## INTRODUCTION

Femoral neck fractures (FNF) are frequent and devastating injuries in orthopedics and traumatology. Studies showed in 1990 approximately 1.3 million hip fractures worldwide, predicting an increase between 7.3 and 21.3 million by the year 2050. The Garden classification is frequently used, which gives an approach in the treatment since it can be a conservative or surgical treatment. Studies show good results with conservative treatment; however, surgical treatment presents optimal results, but it must be kept in mind that all surgery is associated with some risk(1-9).

Low bone mass and low traumatic fractures in aging continue to be of concern. Some osteoporotic hip fractures can be prevented using pharmacological treatments, with various anti-catabolic and anabolic agents that have so far shown results in promoting bone mass and decreasing the risk of osteoporotic hip fracture(10-12).

The ideal in fractures of the proximal femur is surgical treatment within the first 24 hours, after this time the risk of perioperative complications such as pulmonary embolism, deep vein thrombosis, pneumonia, pressure ulcers and urinary tract infections increases. After 48 hours, the mortality rate increases significantly. Patients operated on within the first 48 hours have approximately a 20% lower risk of death within the next year, primarily individuals with comorbidities favor early surgery(9,13,14).

## METHODOLOGY

A total of 40 articles were analyzed in this review, including review and original articles, as well as cases and clinical trials, of which 31 bibliographies were used because the information collected was not important enough to be included in this study. The sources of information were Cochrane, PubMed and Google Scholar; the terms used to search for information in Spanish, Portuguese and English were: fractures, femur, femoral neck, prosthesis, trauma.

The choice of bibliography exposes elements related to femoral neck fractures; in addition to this factor, epidemiology,

anatomical description, mechanism of action, classification, clinical evaluation, imaging evaluation, treatment and complications.

## DEVELOPMENT EPIDEMIOLOGY

The incidence doubles every 5 to 6 years in women over 30 years of age. It presents bimodal incidence. The risk factors are female sex, white race, advanced age, poor health, smoking, alcohol consumption, previous fractures, history of falls and low estrogen concentrations. In young people it is mainly associated with high-energy trauma. Most of these fractures occur in the elderly, with a mean age of 72 years, as a result of low-energy falls(15,16).

Hip fractures make up less than 20% of osteoporotic fractures, yet they are the most devastating in terms of morbidity and mortality. More than 50% of individuals who suffer a hip fracture do not regain mobility within the first year after fracture. 1 in 5 women and 1 in 3 men die in the same period as a result of complications(12,17-19).

## ANATOMY

In the hip, the femoral head is almost spherical and articulates with the hollow sphere of the facies lunata of the acetabulum. The surface of the articular cavity represents 50% of the area of the femoral head(9).

The cervicodiaphyseal angle has an approximate value of  $130^\circ \pm 7^\circ$  and the approximate femoral anteversion is  $10^\circ \pm 7^\circ$ . The femoral neck has a small periosteal layer; because of that the bony callus is made by endosteal proliferation. The capsule connects in the anterior portion at the intertrochanteric line. In the posterior portion, the capsule is ligated 1 cm to 1.5 cm above the intertrochanteric line. Three ligaments are inserted here, the ischiofemoral, the iliofemoral or Bigelow's Y ligament and the pubofemoral. It is important to recognize a structure called calcar femoris which is practically a vertically oriented sheet that goes from the posteromedial portion of the femoral diaphysis to the greater trochanter.



Some forces that exert through the hip joint are remarkable as the elevation of the leg in extension representing 1.5 times the body weight, the monopodal position representing 2.5, the bipedal position representing 0.5 and the running representing 5.0.

In the internal anatomy we have that the direction of the trabeculae is parallel to the direction of the compressive forces, these follow the internal load lines. The vertically oriented bony trabecular arrangement is due to body weight loading through the femoral head, and the horizontal trabeculae are due to the action of the abductor muscles. These two trabecular systems interlock at right angles(15,16).

Bone healing depends on the blood supply to the femoral head, which may be cut off by fracture dislocation or increased intracapsular pressure, and the cellular coverage of the femoral head, which degenerates over time, restricting the entry of osteoprogenitor cells following a femoral neck fracture. In adult individuals, approximately 20% of the femoral neck surface is covered by cellular periosteum. The main blood supply to the femoral head comes from the superior, anterior and inferior retinacular arteries coming from the deep branch of the medial circumflex femoral artery and the arteries of the round ligament. The formation of post-traumatic osteonecrosis of the femoral head is related to the rupture of the retinacular arteries because they are the main blood supply(9,20,21).

**Figure 1. Femoral Neck Fracture.**



**Source:** The Authors.

### MECHANISM OF INJURY

Fractures of the femoral neck can be caused by high and low energy trauma.

Low energy trauma is more common in the elderly and can be direct as in a fall on the greater trochanter or a forced external rotation applied to the lower limb. They can also be indirect due to muscle traction that exceeds the resistance of the femoral neck. High-energy trauma is more common in young people and is caused by traffic accidents or falls from a great height.

Stress fractures are more common in athletes, conscripts and ballet dancers(15,16).

### CLINICAL EVALUATION

Individuals with displaced femoral neck fractures are unable to ambulate, in addition to showing shortening and external rotation of the affected lower limb. Those with stress or impacted fractures may present more subtle findings, such as pain on palpation over

the anterior capsule, pain on axial compression, lack of deformity, in addition to being able to walk with the lower limb. In the physical examination, pain is generated when performing hip mobilization, axial compression and palpation over the groin. In low energy fractures, which usually occur in elderly individuals, it is crucial to make a thorough anamnesis. In order to decide the best treatment, it is imperative to ask about the history of alteration or loss of consciousness, previous syncope, clinical history, chest pain, previous hip pain and ambulation capacity before the fracture. In all affected individuals, a complete secondary examination should be performed to discover associated alterations(15,16).

### IMAGE EVALUATION

Anteroposterior projections of the pelvis are indicated, as well as anteroposterior and lateral cross views of the affected proximal femur. Radiography with the injured hip in internal rotation can



be used to define the fracture pattern and treatment. Computed tomography (CT) may be used in the polytraumatized individual. Abdominal and pelvic slices can aid in the diagnosis of nondisplaced femoral neck fractures. Magnetic resonance imaging (MRI) is the test of choice for the diagnosis of

nondisplaced or occult fractures not visible on plain radiographs. Scintigraphy or CT is saved for individuals who have contraindications to MRI(15,16).

**Figure 2. Pelvis X-Ray showing a Femoral Neck Fracture to the left.**



Source: The Authors.

**Figure 3. Radiographs of the Proximal Femur, with presence of fracture.**



Source: The Authors.

#### CLASSIFICATION

There are three common classifications for femoral neck fractures: the Garden classification, the Pauwels classification and the AO classification.

Pauwel's classification: based on the angle between the fracture line and the horizontal, biomechanical forces that add pressure on the fracture line.



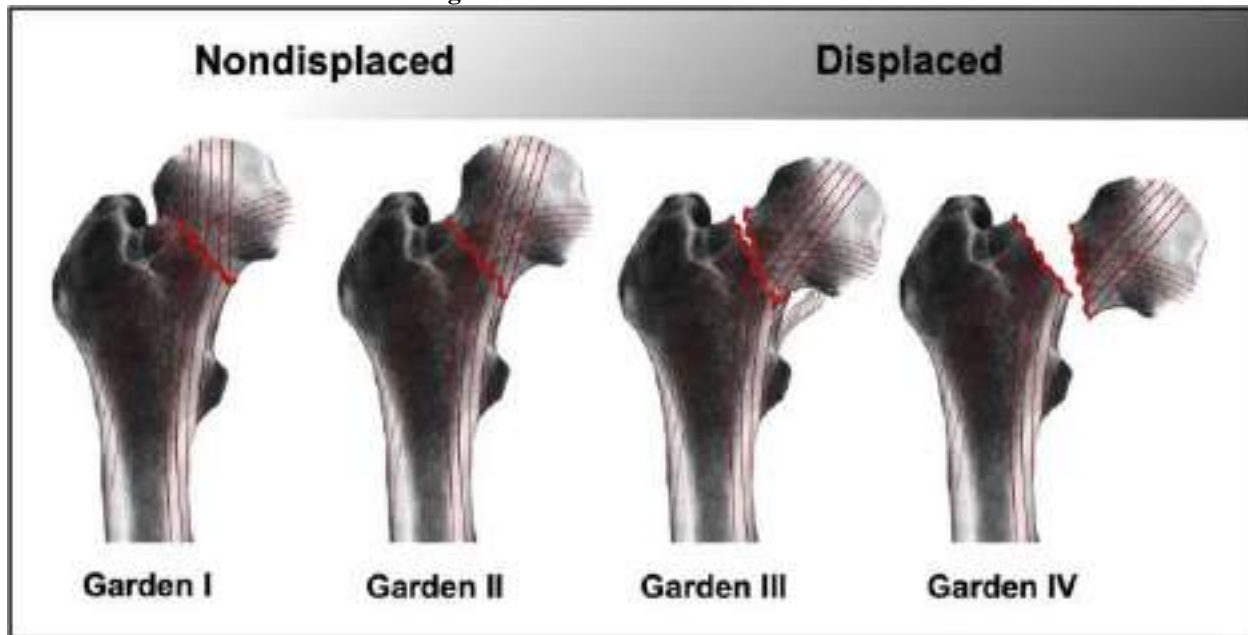
- Type I: 30°.
- Type II: 30° to 70°.
- Type III: > 70°.

The shear force is greater according to the increase of the angle, which generates greater fracture instability.

Garden's classification: is based on the level of valgus displacement. The displacement of the fracture is interrelated with the interruption of the vascular supply, therefore, it is associated with the risk of necrosis of the femoral head.

- Type I: Incomplete fracture-impacted in valgus.
- Type II: Complete fracture not displaced in the anteroposterior and lateral projections.
- Type III: Complete with partial displacement; the trabecular pattern of the femoral head is not aligned with that of the acetabulum.
- Type IV: Completely displaced; the trabecular pattern of the head is oriented parallel to the acetabulum.

Figure 4. The Garden Classification.



**Source:** Fischer H, Maleitzke T, Eder C, Ahmad S, Stöckle U, Braun KF. Management of proximal femur fractures in the elderly: current concepts and treatment options(9).

The AO classification combines fracture level, degree of displacement and fracture line angle.

In addition, according to their anatomical location, they can be subcapital, transcervical and basicervical, and are also usually described as non-displaced and displaced(9,15,16,22).

#### TREATMENT

The goals of treatment are to relieve the patient's pain, restore hip function and have rapid mobilization through anatomic reduction and internal fixation or by prosthetic replacement(15).

Adequate algic management should be performed. This is an important factor in the prevention of delirium. In perioperative pain in elderly patients, NSAIDs are not recommended, however, other medications such as paracetamol are indicated unless contraindicated. The next stage in pain control is intravenous or oral opioids accompanied by routine constipation prophylaxis(9,14,23).

If non-NSAIDs and opioids are not sufficient, femoral nerve blocks can be tried. Some studies report moderate-quality evidence for decreasing the risk of pneumonia, decreasing time to first mobilization, and decreasing the value of analgesics following single-injection blocks. High-quality evidence suggests that a regional block decreases pain within half an hour after block placement(9,24).

In patients with femoral fracture, routine laboratory tests are recommended such as:

- Complete blood count.
- Inflammatory markers such as CRP.
- INR
- Partial thromboplastin time.
- Basic metabolic profile.

Because affected individuals with femoral neck fractures are often prone to dehydration, venous hydration is likely to be needed. A flow rate of 100-200 ml/h for isotonic crystalloids is considered safe. However, volume status must be managed carefully, and because many elderly individuals have cardiac





comorbidities, predisposing them to heart failure triggered by volume overload(9,14).

Conservative treatment of fractures is recommended in individuals at extreme surgical risk; it can also be considered in individuals with dementia, who do not maintain the ability to walk and have little symptomatology due to hip pain. Early mobilization from bed to chair is vital to reduce the risks and complications of prolonged bed rest, such as retention of respiratory secretions, venous stasis, decubitus ulcers and atelectasis.

### Stress Fractures

Compression cortical stress fractures: minimal risk of displacement in the absence of other trauma; can walk with crutches until symptoms disappear. Surgery only if resistant pain.

Stress cortex overload fractures: high risk of secondary displacement; osteosynthesis with screws in situ is indicated.

### Impacted Fractures and Undisplaced Fractures.

Up to about 40% of these fractures will displace if internal fixation is not performed. Secondary displacement is 5% following internal fixation. In situ fixation with three cancellous screws is recommended, except in osteoarthritis or severe rheumatoid arthritis, pathologic fractures, Paget's disease and other disorders; these individuals warrant a hip prosthesis(15,16).

**Figure 5. Intraoperative of bipolar hip prosthesis.**



Source: The Authors.

### Displaced Fractures.

- Elderly: controversial management.
- High functional demands and good bone quality: total hip prosthesis of first choice, although reduction, open or closed and fixation can be considered, with a reoperation rate of 40%.
- Low demands and poor bone quality: hemiarthroplasty with a cemented unipolar partial prosthesis.
- With severe disease, dementia or bedridden: conservative treatment, if pain is intolerable, prosthetic replacement.



- Young people with high energy lesion and normal bone: urgent reduction, closed or open, with internal fixation and capsulotomy. A fixed angle implant may be considered.

### Rationale for Surgical Treatment

Femoral neck fractures can be treated by osteosynthesis, total hip arthroplasty or hemiarthroplasty. In individuals over 70 years of age with more than one comorbidity there is an elevated risk of approximately 83% of secondary fractures or dislocations when managed conservatively, demonstrating that the surgical procedure is the first line treatment for these individuals.

Early reduction of the fracture site is essential if possible because the risk of osteonecrosis may increase with time. Some reviews show that the quality of the reduction is the most notable predictor of fixation loss that the orthopedist can play a role in.

### Fracture Reduction Maneuver

It is done by flexion of the hip with gentle traction and external rotation to disengage the fragments; subsequently, to obtain the reduction, the limb is slowly put in extension and internal rotation. Subsequently, it should be confirmed by anteroposterior and lateral radiographs.

To consider that the reduction is acceptable, an anatomical or valgus alignment should be evaluated in the anteroposterior projection, it should be evidenced that the hip maintains anteversion and does not show posterior translation of the fracture surfaces in the lateral projection. In addition, the level of posterior comminution should be evaluated.

### Internal Fixation

The sliding screw-plate helps resistance to shear forces in fractures with a high Pauwel's angle; when this procedure is performed, a second screw or nail should be placed superiorly to maintain rotation at the insertion of the cephalic screw.

Multiple screw fixation is usually more accepted to stabilize the fracture; the screw thread should pass through the fracture site to provide compression. It should be performed with 3 parallel screws; placing more screws does not provide greater stability; on the contrary, it increases the risk of entering the joint. The screws must show an inverted triangle disposition, with one of them adjacent to the inferior part of the femoral neck and the other adjacent to the posterior part. It is advisable not to place the screws below the lesser trochanter in order to avoid stress accumulation and the risk of a subtrochanteric fracture.

### Prosthesis

The hip prosthesis has some advantages over internal fixation, such as faster recovery, as well as early ambulation with full weight bearing, eliminates the possibility of osteonecrosis, pseudoarthrosis and fixation failure. However, it also has some disadvantages due to the fact that it is a more invasive technique, such as greater blood loss.

### Monopolar Versus Bipolar Implants

The unipolar implant is cheaper. At the moment no results have been seen in which bipolar implants have greater advantages over unipolar implants, due to the fact that with time, bipolar implants can lose mobility in their internal articulation, becoming functionally unipolar implants.

### Cemented Arthroplasty Compared to Uncemented.

Cemented arthroplasty presents a lower incidence of intraoperative fractures, however the rate of intraoperative hypotension and death during cement pressurization increases.

### Primary Total Hip Arthroplasty.

Currently, the use of total hip prostheses has increased in the acute treatment of displaced fractures of the femoral neck. There is great scientific evidence that in hip arthroplasties, cemented implants generate less postoperative pain, which translates into better mobility. It is the standard treatment of choice in active patients due to better functionality and a lower reoperation rate. A cemented femoral stem leads to better fixation in osteoporotic bone. Several studies show better functional results compared to hemiarthroplasty and internal fixation, however total hip arthroplasty may be associated with a higher rate of dislocation. Finally, primary total hip arthroplasty eliminates the probability of acetabular erosions such as those seen in partial prostheses(9,15,16,25,26).

Hemiarthroplasty presents superiority when it comes to operation time and dislocation rate. Factors interconnected with the procedure, such as surgical approach, component positioning, soft tissue tension, orthopedic expertise and implant-related factors, play an important role in the risk of dislocation following total hip arthroplasty(9,26-29).

Systemic administration of tranexamic acid can decrease blood loss and transfusion rates and can be performed to control bleeding in anticoagulated individuals. However, there is still a lack of evidence on the optimal regimen, timing and dosage(9,30).



**Figure 6. Post-Surgical Bipolar Hip Prosthesis Fluoroscopy.**



Source: The Authors

### COMPLICATIONS

Affected individuals benefit from early mobilization because it reduces complication rates, as well as the risk of pneumonia, pressure ulcers, thromboembolism, and delirium.

Posterior pseudarthrosis of open reduction with internal fixation sometimes appears at around 12 months and shows as pain in the groin and gluteal region with hip extension or weight bearing. It complicates up to 5% of non-displaced fractures and up to 25% of displaced fractures. Older individuals with pseudarthrosis can be managed well with arthroplasty. Younger patients may benefit from a proximal femoral osteotomy. Some other techniques, such as cancellous bone grafting or pedicled muscle grafting, are no longer as commonly used.

Osteonecrosis following open reduction with internal fixation may show as pain in the groin, gluteal region or proximal thigh; it may be seen in up to 10% of non-displaced fractures and up to 30% of displaced fractures. Collapse is not perceived on radiographs in all cases. Treatment will be correlated with symptoms.

- Early without radiological changes: unloaded ambulation is performed. Central decompression may be used.

- Late with radiological changes: in older patients an arthroplasty can be performed, while in younger patients osteotomy, arthrodesis or arthroplasty can be performed.

Failure of fixation after open reduction with internal fixation is usually correlated with osteoporotic bone or technical drawbacks. Open reduction with internal fixation may be reattempted, or a prosthetic exchange may be attempted. Implants may protrude due to fracture collapse and screw displacement.

Dislocation can occur after the placement of a prosthesis, being more common in total hip prostheses compared to hemiarthroplasty, with an overall incidence of 1% to 2% (15,16,31).

### CONCLUSIONS

Femoral neck fractures present a high incidence, the mechanism of action mostly presented in young people is high energy trauma, in the elderly the most common mechanism is low energy falls. Patients with displaced femoral neck fractures are unable to walk and show shortening and external rotation of the lower limb. Anteroposterior projections of the pelvis are indicated, as well as anteroposterior and cross lateral projections of the affected proximal femur. The goals of treatment are to relieve the patient's pain, restore hip function and have rapid mobilization through anatomical and internal fixation or by prosthetic replacement. Conservative treatment of fractures is recommended



in individuals at extreme surgical risk; it can also be considered in individuals with dementia, who do not maintain the ability to walk and have little symptomatology due to hip pain. Among the most important complications are pseudarthrosis and osteonecrosis. Surgery to treat non-displaced femoral neck fractures is associated with a higher number of consolidation and associated with less avascular necrosis compared to conservative treatment.

## BIBLIOGRAPHY

- Xu DF, Bi FG, Ma CY, Wen ZF, Cai XZ. A systematic review of undisplaced femoral neck fracture treatments for patients over 65 years of age, with a focus on union rates and avascular necrosis. *J Orthop Surg*. 2017 Dec;12(1):28.
- Miller BJ, Callaghan JJ, Cram P, Karam M, Marsh JL, Noiseux NO. Changing Trends in the Treatment of Femoral Neck Fractures: A Review of the American Board of Orthopaedic Surgery Database. *J Bone Jt Surg*. 2014 Sep 3;96(17):e149.
- Kannus P, Parkkari J, Sievänen H, Heinonen A, Vuori I, Järvinen M. Epidemiology of hip fractures. *Bone*. 1996 Jan;18(1):S57–63.
- Florschütz AV, Langford JR, Haidukewych GJ, Koval KJ. Femoral Neck Fractures: Current Management. *J Orthop Trauma*. 2015 Mar;29(3):121–9.
- Cooper C, Campion G, Melton LJ. Hip fractures in the elderly: A world-wide projection. *Osteoporos Int*. 1992 Nov;2(6):285–9.
- Raaymakers E, Marti R. Non-operative treatment of impacted femoral neck fractures. A prospective study of 170 cases. *J Bone Joint Surg Br*. 1991 Nov;73-B(6):950–4.
- Thomsen NOB, Jensen CM, Skovgaard N, Pedersen MS, Pallesen P, Soe-Nielsen NH, et al. Observer variation in the radiographic classification of fractures of the neck of the femur using Garden's system. *Int Orthop*. 1996 Oct 23;20(5):326–9.
- Melvin JS, Mataszewski P, Scolaro J, Baldwin K, Mehta S. The Role of Computed Tomography in the Diagnosis and Management of Femoral Neck Fractures in the Geriatric Patient. *Orthopedics*. 2011 Feb;34(2):01477447-20101221–18.
- Fischer H, Maleitzke T, Eder C, Ahmad S, Stöckle U, Braun KF. Management of proximal femur fractures in the elderly: current concepts and treatment options. *Eur J Med Res*. 2021 Aug 4;26(1):86.
- Freemantle N, Cooper C, Diez-Perez A, Gitlin M, Radcliffe H, Shepherd S, et al. Results of indirect and mixed treatment comparison of fracture efficacy for osteoporosis treatments: a meta-analysis. *Osteoporos Int*. 2013 Jan;24(1):209–17.
- Murad MH, Drake MT, Mullan RJ, Mauck KF, Stuart LM, Lane MA, et al. Comparative Effectiveness of Drug Treatments to Prevent Fragility Fractures: A Systematic Review and Network Meta-Analysis. *J Clin Endocrinol Metab*. 2012 Jun 1;97(6):1871–80.
- Fuchs RK, Kersh ME, Carballido-Gamio J, Thompson WR, Keyak JH, Warden SJ. Physical Activity for Strengthening Fracture Prone Regions of the Proximal Femur. *Curr Osteoporos Rep*. 2017 Feb;15(1):43–52.
- Klestil T, Röder C, Stotter C, Winkler B, Nehrer S, Lutz M, et al. Impact of timing of surgery in elderly hip fracture patients: a systematic review and meta-analysis. *Sci Rep*. 2018 Sep 17;8(1):13933.
- Mears SC, Kates SL. A Guide to Improving the Care of Patients with Fragility Fractures, Edition 2. *Geriatr Orthop Surg Rehabil*. 2015 Jun;6(2):58–120.
- Koval KJ, Zuckerman JD. *Fracturas y luxaciones*. 2 ed. Madrid: Marban; 2003.
- Bucholz RW, Heckman JD, Rockwood CA, Green DP. *Rockwood & Green's fracturas en el adulto*. Madrid: Marbán; 2003.
- Delmas PD, Marin F, Marcus R, Misurski DA, Mitlak BH. Beyond Hip: Importance of Other Nonspinal Fractures. *Am J Med*. 2007 May;120(5):381–7.
- Vochteloo AJ, Moerman S, Tuinebreijer WE, Maier AB, de Vries MR, Bloem RM, et al. More than half of hip fracture patients do not regain mobility in the first postoperative year: Mobility and hip fracture. *Geriatr Gerontol Int*. 2013 Apr;13(2):334–41.
- Brauer CA. Incidence and Mortality of Hip Fractures in the United States. *JAMA*. 2009 Oct 14;302(14):1573.
- Calandruccio RA, Anderson WE. Post-fracture avascular necrosis of the femoral head: correlation of experimental and clinical studies. *Clin Orthop*. 1980 Oct;(152):49–84.
- Allen MR, Burr DB. Human femoral neck has less cellular periosteum, and more mineralized periosteum, than femoral diaphyseal bone. *Bone*. 2005 Feb;36(2):311–6.
- Zhao D, Qiu X, Wang B, Wang Z, Wang W, Ouyang J, et al. Epiphyseal Arterial Network and Inferior Retinacular Artery Seem Critical to Femoral Head Perfusion in Adults With Femoral Neck Fractures. *Clin Orthop*. 2017 Aug;475(8):2011–23.
- Morrison RS, Magaziner J, Gilbert M, Koval KJ, McLaughlin MA, Orosz G, et al. Relationship Between Pain and Opioid Analgesics on the Development of Delirium Following Hip Fracture. *J Gerontol A Biol Sci Med Sci*. 2003 Jan 1;58(1):M76–81.
- Guay J, Parker MJ, Griffiths R, Kopp S. Peripheral nerve blocks for hip fractures. *Cochrane Anaesthesia Group, editor. Cochrane Database Syst Rev [Internet]*. 2017 May 11 [cited 2023 Jul 20]; Available from: <https://doi.wiley.com/10.1002/14651858.CD001159.pub2>
- Parker MJ, Gurusamy KS, Azegami S. Arthroplasties (with and without bone cement) for proximal femoral fractures in adults. *Cochrane Bone, Joint and Muscle Trauma Group, editor. Cochrane Database Syst Rev [Internet]*. 2010 Jun 16 [cited 2023 Jul 20]; Available from: <https://doi.wiley.com/10.1002/14651858.CD001706.pub4>
- Rozell JC, Hasenauer M, Donegan DJ, Neuman M. Recent advances in the treatment of hip fractures in the elderly. *F1000Research*. 2016 Aug 11;5:1953.
- Dargel J, Oppermann J, Brüggemann GP, Eysel P. Dislocation Following Total Hip Replacement. *Dtsch Arztebl Int [Internet]*. 2014 Dec 22 [cited 2023 Jul 20]; Available from: <https://www.aerzteblatt.de/10.3238/arztebl.2014.0884>
- Konow T, Baetz J, Melsheimer O, Grimberg A, Morlock M. Factors influencing periprosthetic femoral fracture risk: a German registry study. *Bone Jt J*. 2021 Apr 1;103-B(4):650–8.
- Braun KF, Hanschen M, Biberthaler P. *Frakturoprothetik der medialen Schenkelhalsfraktur*. Unfallchirurg. 2016





*Apr;119(4):331–45.*

30. Zhang P, He J, Fang Y, Chen P, Liang Y, Wang J. Efficacy and safety of intravenous tranexamic acid administration in patients undergoing hip fracture surgery for hemostasis: A meta-analysis. *Medicine (Baltimore)*. 2017 May;96(21):e6940.
31. Kenyon-Smith T, Nguyen E, Oberai T, Jarsma R. Early Mobilization Post–Hip Fracture Surgery. *Geriatr Orthop Surg Rehabil*. 2019 Jan 1;10:215145931982643.

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# NATIONAL EDUCATIONAL POLICY 2020-STUDENTS PERSPECTIVE: A STUDY WITH REFERENCE TO BACHELOR DEGREE STUDENTS OF MANGALORE CITY

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## ABSTRACT

*National Educational Policy 2020 was first adopted and implemented in Karnataka state. Unified University and College Management System (UUCMS), is the Portal website. The students who applied for bachelor degree under NEP 2020 program, should register their details in UUCMS portal. It is the Unified computerized system in higher Education. From the process of admission of a student until he/ she gets the degree certificate, they should in the users of UUCMS. This study focuses on the perspectives of the students with regards to NEP 2020. The data was collected by distributing the questionnaire to 200 bachelor degree students in and around Mangalore study. The outcome of the research states that, "There is an association between age and benefits of the students from NEP 2020". The study also reveals that, even though after facing the difficulties, there will be great success in the future.*

**KEY WORDS:** NEP 2020, UUCMS, benefits, problems, digitalization.

## 1.1 INTRODUCTION

The National Education Policy of India 2020, was approved by the Union cabinet of India on 29<sup>th</sup> July 2020. As per the policy, the government clarifies that, no one will be forced to study any particular language [1]. This policy aims at reducing the curriculum load of students and allowing them to be more inter disciplinary. If a student wants to pursue fashion studies with physics or if one wants to learn bakery with computer science, they will be allowed to do so [2].

NEP 2020 aims to increase the gross enrollment ratio in higher education including vocational education from 26.3% (2018) to 50% by 2035. The fundamental principles of NEP 2020 are Access, Equity, Quality, Affordability and Accountability[3&4]. This research paper highlights the student perspectives with regard to adoption of NEP 2020 in under graduation level.

## 1.2 OBJECTIVES

The major objectives of the study are listed below,

- To know about National Educational Policy 2020
- To study the perspective of the students about NEP 2020
- To point out the benefits and challenges of using UUCMS

## 1.3 METHODOLOGY

The study considers both primary and secondary data. Primary data was collected through structured questionnaire method and which was circulated among the college students in and around Mangalore city.

Secondary data was collected through books, websites and from peer reviewed journals.

- **Sample size-** The total sample size selected for the study was 200 students who pursue their bachelors in Mangalore City
- **Sample Area-** The area chosen for the study was Mangalore city of Karnataka State.
- **Sampling Technique-**for the study researcher was used simple random sampling method to collect the first-hand information.
- **Sampling Tool-** for the study researcher has used percentage method, mean and chi square test.

## 1.4 HYPOTHESIS

The test the validity of the study following hypothesis were drafted.

H<sub>0</sub>: There is no association between age and benefits of the students from NEP 2020

## 1.5 SCOPE OF THE STUDY

There has been a massive change in the educational field. In every sector there is an adoption of technology, hence in educational field as well digitalization plays an important role. Karnataka is the first state which implemented NATIONAL EDUCATIONAL POLICY 2020 for the degree students in 2021-22 academic year [5]. NEP 2020 is a unique process, which gives importance not only for the education but also for the overall development of the students. In-fact extra curriculum activities are included with in the syllabus itself. Therefore, it's given an opportunity to study the concept "National Educational Policy 2020- students perspective- A study with reference to Bachelor degree students of Mangalore City".



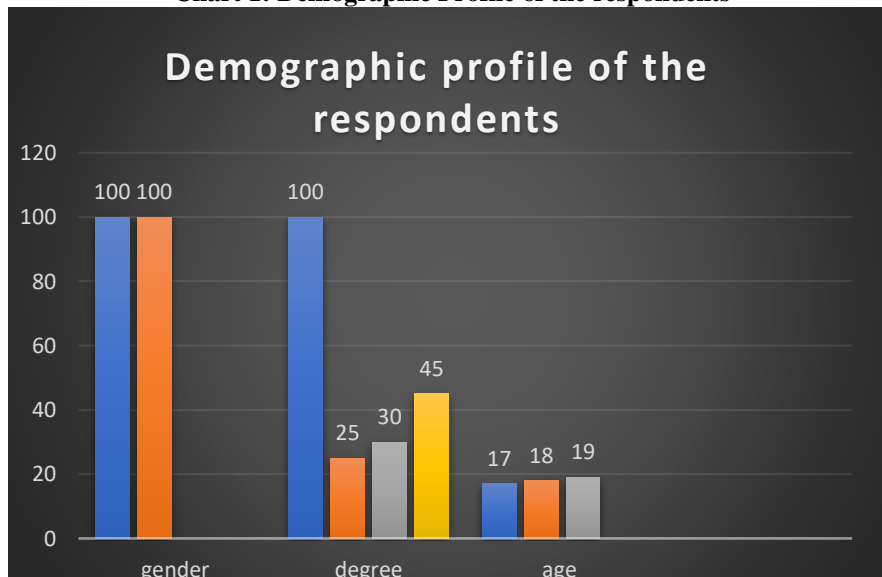
### 1.6 ANALYSIS AND INTERPRETATION

**Table 1: Demographic profile of the respondents**

Particulars	No of respondents	Percentage
<b>Gender</b>		
Male	100	50%
Female	100	50%
<b>Total</b>	<b>200</b>	<b>100%</b>
<b>Age</b>		
17	100	50%
18	50	25%
19	50	25 %
<b>Total</b>	<b>200</b>	<b>100</b>
<b>Type of degree they pursue</b>		
B.com	100	50%
BA	25	12.5%
BSC	30	15%
BBA	45	22.5%
<b>Total</b>	<b>200</b>	<b>100%</b>

Source: Survey data

**Chart 1: Demographic Profile of the respondents**



- The study shows that equal weightage was given to both male and female.
- 100 respondents belong to the age group of 17 years, 50 each respondent fall under 18 and 19 age group.
- 100 respondents were belonging to B.com degree, 25 belongs to BA, 30 respondents were selected from B.sc and 45 respondents were from BBA degree.

### 1.7 Survey Questionnaire

**Table 2: Are you aware of NEP 2020**

Particulars	No of respondents	Percentage
Yes	180	90%
Some what	20	10%
No	Nil	Nil
<b>Total</b>	<b>200</b>	<b>100%</b>

Source: Survey Data

Study shows that 90% of the respondents were aware of NEP 2020. 10% of the respondents are having little information about NEP. This shows that respondents were got good exposure from their teachers before the implementation of NEP 2020.

**Table 3: Major benefits of NEP 2020**

The below table shows the different benefits of NEP 2020 to the UG students. Here Likert's 5 scale rating method was followed. SA indicates Strongly agree with 5 points, A-Agree



with 4 points, N- Neutral with 3 points, D- Disagree with 2 points and SD- strongly disagree with 1 point.

Sl no	Particular	SA	A	N	D	SD	Mean
1	Universal access	50	125	15	10	--	4.075
2	New curriculum structure [6]	100	89	11	--	--	4.445
3	Attaining fundamental literacy [6]	50	130	10	10	--	4.1
4	Power of language	40	130	10	10	10	3.9
5	Bring back dropout students	30	120	30	10	10	3.75
6	Increased practical skills [7]	50	125	15	10	--	4.075
7	Multi stage entry and exit	100	100	--	--	--	4.5
8	Open elective subjective	50	150	--	--	--	4.25
9	Increased digitalized system [7]	40	130	20	10	--	4
10	Transparency	40	130	10	10	10	3.9
11	Allows student to opt creative combination of subjects [8].	30	120	30	10	10	3.75

Source: Survey Data

Study shows that, the respondents were strongly agree towards the following benefits from NEP 2020, Universal access (4.075), new curriculum structure (4.445), attaining fundamental literacy (4.1), increased practical skills (4.075), multi stage entry and exit (4.5), open elective subjects (4.25), increased digitalized system (4).

At the same time respondents agree with the other benefits of NEP 2020 such as power of language (3.9), bring back the dropout students (3.75), transparency (3.9), allows students to opt creative combination of subjects (3.75).

**H<sub>0</sub>: There is no association between age and benefits of the students from NEP 2020**

**Table No-4**  
**Results of chi-square test**

Chi square value	D.F	0.05 level of significance	Result
6933.633	8	15.50	Significant

Source: Survey data

The calculated value of Chi square =  $(O-E)^2/E = 6933.633$  is more than the tabulated value 15.50 at 8 degrees of freedom, it is significant. Hence, we reject null hypothesis and conclude

that "There is an association between age and benefits of the students from NEP 2020"

**Table 5: Challenges faced by the students from NEP 2020**

Sl no	Particular	SA	A	N	D	SD	Mean
1	Increased content of syllabus	50	125	15	10	--	1.9
2	More subjects	90	89	11	10	--	1.7
3	Creates confusion	50	130	10	10	--	1
4	UUCMS is not user friendly	40	130	10	10	10	2.1
5	High scope for discontinuation of the course [8]	30	70	30	30	40	2.9
6	No scope for other fields except studies [9]	50	95	25	10	20	2.27
7	Lack of quality of teachers	40	80	30	40	10	2.5
8	Lack of practical knowledge [9]	35	50	40	50	25	2.9
9	Server issues	40	130	20	10	--	2

Source: Survey Data

The results of the table show that, the below mentioned problems are agreed by the students, with their mean values also mentioned hereby, UUCMS is not user friendly (2.1), high scope for discontinuation of the course (2.9), no scope for other

fields except studies (2.27), lack of quality of teachers (2.5), lack of practical knowledge (2.9), server issues (2).





**Table 6: Overall perception of the students regarding NEP 2020**

Particular	No of respondents	Percentage
Very good	30	15%
Good	120	60%
Neutral	32	16%
Bad	8	4%
Very bad	10	5%
Total	200	100%

Source: Survey Data

The study points out that, overall, 60% of the students have good perception towards NEP 2020, 15%- very good, 16% neutral, 4% bad and 5% are having the opinion of very bad.

### 1.8 SUGGESTIONS

The suggestions of the study are examined below;

- To conduct more workshops to students, to enhance their knowledge on NEP regulations.
- To organize seminars and training programs to teachers, so that they can give reliable information to the students at the right time at right volume.
- Many students are finding difficulty in uploading UUCMS. Hence this system needs to be set in such a way that, the students should not face any difficulties while uploading the documents.
- Due to increased content of the syllabus, students find it strain in focus on soft skills. Therefore, if possible few contents should be eliminated. So that they can concentrate on practical oriented programs.

5. Kannan, V. (2021). *National Education Policy (NEP) 2020 and SCSVMV*. *CSI Transactions on ICT*, 9(1), 11-15.
6. Gupta, B. L., & Choubey, A. K. (2021). *Higher education institutions—some guidelines for obtaining and sustaining autonomy in the context of NEP 2020*. *Higher Education*, 9(1).
7. Kaurav, R. P. S., Suresh, K. G., Narula, S., & Baber, R. (2020). *New education policy: qualitative (contents) analysis and Twitter mining (sentiment analysis)*. *Journal of Content, Community and Communication*, 12(1), 4-13.
8. Maharaj, G. M. S. G., Ahuja, M., & Malhotra, A. K. (2021). *Implementation of National Education Policy (NEP) 2020 of India: A Perspective on Pedagogy from Bhagwad Gita*. *European Journal of Education Studies*, 8(8).

### 1.9 CONCLUSIONS

NEP 2020 is the dream of education system, which has bought a new idea. In fact, a miracle in higher education system. NEP 2020 has placed a foundation for digitalization in education policy. From the stage of entry of the student, till the stage of getting a degree certificate, a student should in regular touch with UUCMS. Though there are many issues in the beginning time, but later periods there will be great exposure. NEP 2020 will benefit in a huge way to the students in the days to come.

### REFERENCE

1. Panditrao, M. M., & Panditrao, M. M. (2020). *National Education Policy 2020: What is in it for a student, a parent, a teacher, or us, as a Higher Education Institution/University?*. *Adesh University Journal of Medical Sciences & Research*, 2(2), 70-79.
2. Kalyani, P. (2020). *An empirical study on NEP 2020 [National Education Policy] with special reference to the future of Indian education system and its effects on the Stakeholders*. *Journal of Management Engineering and Information Technology (JMEIT)*, 7(5), 1-17.
3. Smitha, S. (2020). *NATIONAL EDUCATION POLICY (NEP) 2020- OPPORTUNITIES AND CHALLENGES IN TEACHER EDUCATION*. *International Journal of Management (IJM)*, 11(11).
4. Dixit, R. K. *NATIONAL EDUCATION POLICY (NEP) 2020- OPPORTUNITIES AND CHALLENGES IN TEACHER EDUCATION*. *NATIONAL EDUCATION POLICY 2020*, 120.



## FORMULATION AND EVALUATION OF POLYHERBAL ANTACID TABLET

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### ABSTRACT

With ever increasing issue of hyperactivity both idiopathic and drug induced, the available allopathic antacids on chronic use are source of many side effects which can cause great discomfort to the patient. Hence, ayurveda approved herbs with antacid property used daily in one way or the other by the population can prove to be the best alternative to the issue of acidity. Hence, we developed a Polyherbal antacid tablet for the concerned issue along with expectation of great safety profile.

**KEYWORD:** - Polyherbal antacid, Hyperacidity, acid neutralizing capacity

### INTRODUCTION

Stomach is an integral part of body for digestion of food and is essential part of digestion system. It produces acid which is use in digestion of salivated food in stomach. Sometimes the acid production goes up which makes hyperacidity. It refers to a set of symptoms caused by an imbalance between the acid secreting mechanism of the stomach and proximal intestine and the protective mechanisms that ensure their safety. Gastric juice is made up of water, electrolytes, hydrochloric acid (HCl), enzymes, mucus, and intrinsic factor. HCl is se-created by the parietal cells. On the average, an adult stomach produces 1.5–2.5 litres of gastric juice per day. Measuring a pH of 1.5 on a pH scale (0–14), the gastric juice is a strongly acidic solution expressing a high concentration of hydrogen ions (H<sup>+</sup>). The acidic stomach content is essential for food digestion and activation of digestive enzymes. The stomach however sheds the mucous lining every three days. Stimulation of H<sup>+</sup>secretion occurs during feeding. In the event of ex-cess acid content, H<sup>+</sup>ions retract to the blood, leading to muscular contraction, inflammation, bleeding, pain and ulceration due to the stomach lining break down with subsequent acid attack on the stomach wall.

It must however be mentioned that via a natural mechanism, the stomach protects itself from acid degradation by the production of bicarbonate-rich mucus and the provision of rich blood supply.

To overcome the hyperacidity problem Physician, prescribe an antacid. An antacid is an antidote for reducing the H<sup>+</sup>in the stomach through neutralization reaction with the excess HCl in gastric juice and inhibition of the proteolytic enzyme, pepsin.

### MATERIAL AND METHOD

**Reagents & apparatus required:** Starch, distilled

water, Beaker, spatula, glass rod, tripod stand, water bath

**Instrument required:** Tablet punching machine, weighing balance, hot air oven

1.	Tulsi powder	47.7 mg
2.	Cinnamon powder	28.85 mg
3.	Harad powder	35.11 mg
4.	Piper powder	35.11 mg
5.	Amla powder	35.11 mg
6.	Liquorice powder	35.11 mg
7.	Ginger powder	31 mg
8.	Black pepper powder	18.85 mg
9.	Baheda powder	7.142 mg
10.	Cardamom powder	7.142 mg
11.	Clove powder	7.142 mg
12.	Saunf powder	7.142 mg
13.	Ajwain powder	7.142 mg

Table 1: Herbal Ingredients

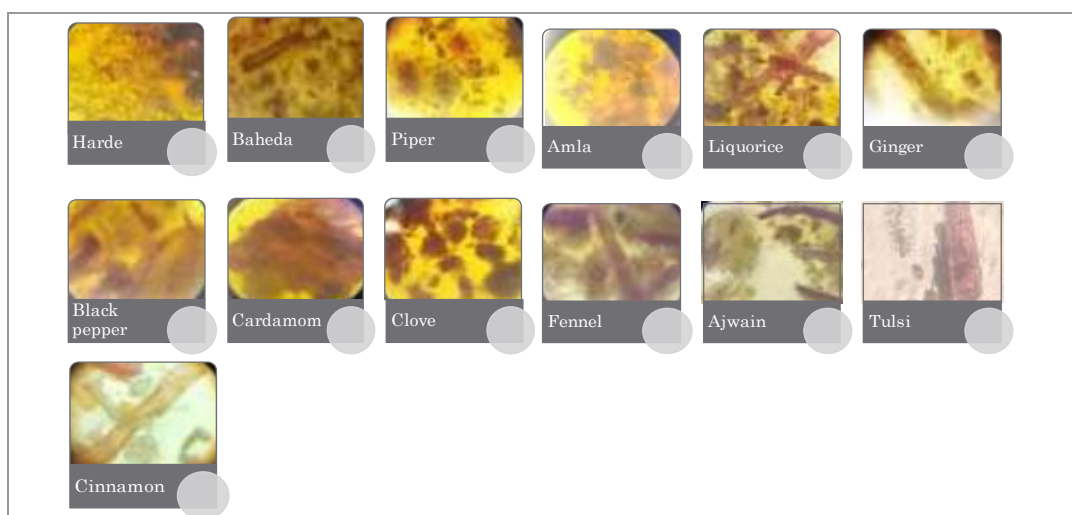


## PROCEDURE

- Weigh 5gm starch
- Add the weighed amount of starch powder into 100 ml water in a beaker
- Divide the mixture into 2 equal halves and heat one half until its 50% volume
- To the above 50% capacity add the other divided volume
- 5% starch paste for binding of powder to be punched is ready
- To the weight api for tablet add the starch paste solution slowly until a dough state is attained
- Pass the dough from sieve no. 10 to get granules of the powder
- The granules are dried either in sunlight or in hot air oven until complete dry granules are obtained
- Pass the dried granules from sieve no. 40 to obtain fine particles
- Tablet punching is done

### EVALUATION Of Herbal Ingredient

Parameter	Observation
<b>1. Organoleptic characteristics</b>	
Colour	Light brown
Odour	Aromatic
Taste	Aromatic
<b>2. Angle of repose</b>	Passable
<b>3. Bulk density</b>	0.5 gm/ml
<b>4. Tapped density</b>	0.66 gm/ml
<b>5. Compressibility</b>	24.2
<b>6. Hausner's ratio</b>	0.75
<b>7. Moisture content</b>	0.33%
<b>8. Ash content</b>	17.1%
<b>9. Ph</b>	6.5
<b>10. Acid insoluble ash</b>	3.40%
<b>11. Water insoluble ash</b>	13.70%
<b>12. Chemical test</b>	
<b>13. Test for carbohydrates:</b> Molish test-	Red ring at junction
<b>14. Test for protein:</b> Millon's test-	Yellow colour develops
<b>15. Test for alkaloid</b> Mayer's test-	Red ppt.
<b>16. Test for flavonoid:</b> Shinoda test-	Pink colour develops
<b>17. Test for tannin and phenolic compounds :</b> fecl <sub>3</sub> test-	Green colour develops
<b>18. Test for saponins</b> Froth test-	Development of foam
<b>19. Test for fats</b> Filter paper test-	Oil stain observed
<b>20. Powder Microscopy Analysis</b>	



**TABLE 2: Evaluation Of Herbal Ingredients**

**EVALUATION OF POLYHERBAL TABLET**

Parameter	Observation
Morphological evaluation	Deep brown colour Aromatic odour Aromatic taste
Hardness	4 kg/cm <sup>2</sup>
Friability	passes
Weight variation	Less than 5%
Disintegration	7 minutes 55 seconds
Acid neutralizing capacity	28 Meq

**Table 3: Evaluation of Tablet**

**RESULT AND DISCUSSION**

The difficulty in the acceptance of the Ayurveda and its formulation or polyherbal formulation is the lack of standard quality control profiles. The quality of herbal medicine i.e., the profile of constituents in the final product has implication in efficacy and safety. Hence, Quality evaluation of herbs and herbal preparation is a prime discussion of manufacturing industry and other organization dealing with ayurvedic and herbal products. Now a day’s most of the ayurvedic formulations are questioned for in-defined QC parameters. FDA has made the quality control and GMP mandatory for ayurvedic formulation, which has been implemented from 1<sup>st</sup> January 2003. Self- medication with herbal medicinal products is widespread. Self-medication with herbal medicinal products provides a sense of control or psychological comfort for the patient. Patients with chronic conditions such as eczema, arthritis, acidity, etc prefer herbal options because of its relatively no side effect advantage. There are a number of drawbacks associated with ayurvedic medicinal products like limited evidence of efficacy and activity in the form of well-designed clinical trials. FDA has introduced in-vitro test to determine acid neutralization capacity of antacid products. In-vitro test can be alternative to in-vivo conditions with respect to acid neutralizing capacity, onset of action and maximum buffering capacity of the antacid.

In the present investigation both the parameters: Acid neutralizing capacity (ANC) and buffering capacity (BC) have been employed to determine antacid activity.

These polyherbal formulation is expected to have many more application then once discussed in the report. <sup>15</sup>

**Acid neutralizing capacity of the formulation was found to be 28 Meq**

**CONCLUSION**

Herbal antacids are one of the major classes of over-the-counter drugs used by patient considering its efficacy and safety. However, there are many herbal formulations in ayurvedic practice used for treatment of acidity which needs to be standardized.

The side effects related to the use of antacids on a regular basis and their chances of overuse leads one to think of alternative approaches to find solution for the problem of acidity. As more and more common people approach internet search engines asking for home remedies, they are led to believe many hoaxes which are far from scientifically proven facts. The formulae prepared from





the combination of effective traditional remedies can act as quick relief of mild acid reflux at home without any fear of adverse effect.

## REFERENCE

1. *Indian Pharmacopoeia, Government of India Ministry of Health and Family Welfare. Delhi: Controller of Publications 1996; 2: 35, 448, 554.*
2. *United states pharmacopoeia*
3. *Dr. Ck Kokate, A.P. Purohit & S.B. Gokhale, pharmacognosy, 39<sup>th</sup> edition, nirali prakashan*
4. *Prof. J.S. Qadry, 'Pharmacognosy', CBS Publishers and distributors, 16<sup>th</sup> edition*
5. *K. sembulungum, prema sembulungum- essential of medical physiology, 6<sup>th</sup> edition, Jaypee brother's medical publishers(p) ltd*
6. *Tortora GJ, Grabowski SR. Principles of Anatomy and Physiology. HarperCollins College Publishers, 1993.*
7. *lachman*
8. *KD Pegu, Pharmacology of antacids, South Afr J Anaesth Analg 2020; 26(6) Supplement*
9. *Evaluation of acid neutralizing and buffering capacities of selected antacids in Ghana, I. Ayensu, S.O. Bekoe and J.K. Adu et al. / Scientific African 8 (2020) e00347*
10. *P.r.p verma, aparna Shrivastava and ashwani pathria, in vitro evaluation of some ayurvedic antacids, ancient science of life vol. No xvi 2 oct 1996, page 152 -15*
11. *Dhawal PP, Barve SS. Preliminary in-vitro evaluation of marketed formulations for antacid activity. Int J Basic Clin Pharmacol 2020; 9:57-62*
12. *Divya J.O and Faseela Mohammed Rasheed, Evaluation of the Effectiveness of Acid-Neutralizing Property of Traditional Antacids commonly used in India, Journal of Scientific Research, Volume 65, Issue 4, 2021*
13. *Sharma PK, Singh RP and Jain S: Development of a polyherbal capsule for the treatment of hyperlipidaemia. Int J Pharm Sci Res 2018; 9(6): 2501-06. Doi: 10.13040/IJPSR.0975-8232.9(6).2501-06*
14. *Biological standardization of some polyherbal formulations for antacid activity, Ingale Suvarna et al Der Pharmacia Lettre, 2014, 6 (1):83-86*
15. *Vandana P. and Prashant K. Evaluation of Antacid Activity of Garcinia Indica Fruit Rind by a Modified Artificial Stomach Model. Bull. Env. Pharmacol. Life Sci., Vol 2 (7) June 2013: 38-42*
16. *Banerjee ND, Shukla SS and Singh SR: Formulation and evaluation of Antacid Analgesic Tablet. Int J Pharm Sci Res 2013; 4(6): 2327-2335. Doi: 10.13040/IJPSR.0975-8232.4(6).2327-35*
17. *Namra Aziz et al, Evaluation of polyherbal powder for treatment of diabetes mellitus, Indian J pharm sci 2019; 81 (6): 1070-1077*
18. *Nanthini B et al., preparation and standardization of polyherbal capsule, journal of pharmacognosy and phytochemistry 2017;6(3): 739-741*
19. *Pal et al, formulation and evaluation of nutraceutical tablet using herbal drugs by direct compression method journal of drug delivery & therapeutics: 2014, 4(2), 47-51*
20. *Gawli vikas B et al, development and evaluation of polyherbal powder formulation as energy booster, journal of pharmacognosy and phytochemistry 2018; 7(3): 1576-1580*
21. *Gadhve manoj V et al. 2016, formulation development and evaluation of rapidly disintegrating antacid tablets Int J recent Sci Res. 7 (10), pp. 13802-13806*
22. *khandreBS, kshirsagar SS, Bhujbal NS, in- vitro gastric acid percent neutralizing potential of household remedies verses marketed antacid preparation: A case report, Journal of Drug Delivery and therapeutics. 2019; 9(4-s): 595-597*
23. *nusratun nahar et al, preliminary in vitro evaluation of some traditional ayurvedic antacids, oriental pharmacy and experimental medicine 2007 7(4), 441-443*
24. *Shery Jacob et al, acid neutralization capacity and cost effectiveness of antacids sold in various retail pharmacies in the United Arab Emirates, Hamdan medical journal 2016 (<http://dx.doi.org?10.7707/hmj.452>)*
25. *shyamalal book*
26. *D. Pradhan Et al, Golden Heart of The Nature: Piper Betle L., Journal of Pharmacognosy and Phytochemistry Vol 1 No. 6 2013 Pg 147-167*
27. *Lutchman D, Pillay S, Naidoo R, Shangase N, Nayak R, Rughobeer A. Evaluation of the buffering capacity of powdered cow's, goat's and soy milk and non prescription antacids in the treatment of non-ulcer dyspepsia. S Afr Med J*



# KERALIYA CONVENTIONAL TREATMENT MODALITIES AND SANSARJANA KARMA FOR PEDIATRICS; SHORT REVIEW

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## ABSTRACT

*Ayurveda, an ancient Indian System of Medicine, has been in mode from times immemorial to impart natural healing for various ailments. This system is believed to be quite safe and free from side effects as it is more close to nature. The development of Ayurveda in Kerala is particularly noted for its origins in non-brahminical traditions even before the entry of classical Ayurveda. Selected few brahmin households, named Ashtavaidyas, carried forward Ayurvedic tradition by practicing it as a health care service as well as by teaching its principles in the unique Gurukula tradition. The traditional practitioners of Ayurveda considered Ashtangahridaya as a primary text. Ayurveda physicians in the state developed simplified procedures of therapies of Kerala without violating the fundamentals of Ayurveda. Sirodhara, Pizhichil, Chauthi thirumal, Navarakizhi, Thalapothichil, Pachakizhi and Podikizhi are some of the Kerala special Ayurvedic procedures developed in Kerala. After samshodhana, the expulsion of doshas and mala from body impression of Agni converted into manda(mildest form) type<sup>1</sup>, hence cannot tolerate the caliber of food articles. This procedure helps to boost the agni gradually and digestive power turn into more powerful and stable by tiny fire with the help of vayu (air)<sup>2</sup> The disease child should take complete rest for an equal period of time for which he has undergone the therapeutic procedure. Sansarjana karma is done as the disease child requires to regain the strength of dhatus and to come to normalcy.*

**KEY WORDS** – Agni, Dhathu, Keraliya treatments, Sansarjana Karma, samshodhana

## INTRODUCTION

*Ayurveda, an ancient Indian System of Medicine, has been in mode from times immemorial to impart natural healing for various ailments. This system is believed to be quite safe and free from side effects as it is more close to nature. Therefore Ayurveda system of Medicine and Buddhist philosophy got more popularized in southern parts of India, especially in Kerala. After the decline of the Buddhism also practice of Ayurvedic treatment continues through temples in Kerala. The fundamentals of Ayurveda being practiced and taught in Kerala are not different from those of the rest of the country, in their essence and philosophy. However, there is a notable contribution from Kerala is continuation of the practice of panchakarma therapies. Due to this fact, modified techniques of Panchakarma treatment developed in Kerala, with reconstruction and globalization, people knowing their effectiveness and owing to more and more people are interested to get conventional Panchakarma practices and sansarjana karma procedures. More importantly, the Kerala special therapies were evolved which are essentially preparatory for main principal therapies in nature. Keraliya Panchakarma therapies include Dharaakalpam (pouring medicated oil on head), Pindasweda (sudation using medicated cloth bag), Annalepanam (application of medicated rice paste on body), Kayasekam*

*(medicated oil massage by squeezing oil from cloth) and Sirosekam (pouring medicated oil on head).*

*Ayurvedic treatment comprises of two major parts viz. Samshodhana Chikitsa (Bio cleansing therapy) and Samshodhana Chikithsa is one of the most effective healing modalities in ayurvedic treatment. It promotes detoxification and rejuvenation<sup>1</sup> Shodhana chikitsa (detoxification therapy) includes panchakarma which is the ultimate mind body healing experience for detoxifying the body, strengthening the immune system, restoring balance and wellbeing. Keraliya Pancha Karma is one of the treatment modalities in Ayurveda, it has to be employed in all the age group if the condition demands. But Acharya Kashypa advice to avoid excess pancha karma procedures in a children while explaining Chakrapani suggest to administer the pancha karma based on Swatantra Bala, and to avoid the in Paratantra Bala. Samhita mentioned that when we adopt Panchakarma in children consider Bala, Kala, Desh Agni, tolerance capacity, etc should be checked before employing the treatment in any age group.*

*However, before administration of Panchakarma procedures, one must carefully select, assess the Children's strength, constitution,*



age, season, disease stage and other relevant factors and prepare the patient explaining all the procedures to the children.

*Ayurveda chikithsa kramas* are now popularly thorough its efficacy and value added Ayurveda management modalities with profound use of natural herbal remedies. Thus, *Keraliya panchakarma* therapy is believed to impart radical elimination of disease causing factors and maintain the equilibrium of *Doshas*. Application of *sneha* over the head is named as *murdha* or *murdhini taila*, it has been mentioned under *bahyasnehana*. *Acharya Charaka* has mentioned the general properties of *murdhataila* who take daily oil on the scalp should not complain headache, baldness, or have the effects of decrepitude. It avoid hair falling, and delay early graying of hair, and strengthen the hairs, clears senses, improves skin texture, sleep pattern and person feel ease in every respect<sup>1</sup>. *Ayurveda texts* has mentioned *shiroabhyanga*, *shiroparisheka*, *shiropichu*, *shirolepana* and *shirovasti*<sup>2</sup> use for diseased child for cure the disease as well as swastha child for their rejuvenations.

### 1. Shiroabhyanga

*Shiro Abhyanga* is a traditional Ayurvedic therapy, involving a technique of the application of warm, herb-infused oil over the head with a gentle massage. *Shiro Abhyanga* has a variety of beneficial effects on the mind and body. It is one of the *Murdhni Taila*.

*Shiro Abhyanga*, nourishing the hair and skin of the scalp for the reason that it can absorbed into the deepest tissues of the scalp. All healthy children are benefited for *Shiro Abhyanga*, it is one of the daily regimen for good health (*Dinacharya*). Massage of luke warm oil over the skull cure many *shiroroga*, produce best quality of hair, causes *tarpana* of *shira*, improve facial skin and sensory functions turn into more powerful. It is indicated in rough, itching and polluted conditions of skull<sup>3</sup>. It has a profound effect on the brain and nervous system, as it improves sleep, enhances memory, improves concentration, and the functioning of *Indriyas* for children.

### Method of Administration

*Shiro Abhyanga* involves applying warm oil over the head, followed by *abhyanga* technique. The over the head is massaged in a synchronous way with focus on certain pressure points and *Marmas*. For this particular oil should be chooses in based on doshas of the condition.

### 2. Shiro Parisheka

A stream of liquid (medicated decoction, milk, butter milk, *ghrita*) falls over the forehead in a specific manner from a fixed point. It is also named as *shirodhara* in *dharakalpa*. This is an effective procedure, it cures *arunshika*, *shirotooda* (pricking type of headache), *daha*, *paka* and *vrana* (wounds) of the *shirsha*<sup>4</sup>.

*Shirodhara* is a type of *Murdha taila* (Application of oil to the Head/ scalp), in which prescribed medicated oil/ liquid is

continuously poured over the forehead and then allowed to flow over the scalp from a specific height for a certain period of time.

Pouring of various liquids as *kwatha* of drugs, *dugdha*, *takra*, *ikshu rasa*, *ghrita* and *taila* on the frontal area as a stream is *shirodhara*. It is also called as *shirosheka*. It is indicated in mental stress, hypertension, dermatological conditions, pediculosis, headache, anxiety, psychological illness, insomnia and in mental exhaustion (*Panchakarma* illustration pp82) It is indicated as *parisheka* in *shiroroga* with *dashmulasidhha kshira*<sup>8</sup> The applicable *dravya* should be selected on the bases of *dosha* and *roga* (*Dharakalpa*) it is mainly indicated in the *urdhvajatrugata* situated diseases.

The stream is poured from the four *angula* height in a specific oscillatory manner (*Dharakalpa*) this stream should be continuous and appropriate fast (not very fast) slow stream or interrupted stream may aggravate the disease. Morning time is appropriate for *shirodhara*, whereas avoid *shirodhara* at afternoon and at night (*Dharakalpa*)

### Mythological reference of Shirodhara

In Indian religious stories it has been mentioned to worship Lord Shiva with the *dhara* either of *jala* or *kshira*. It may indirectly indicate that it has better results on higher functions. Especially on *satva raja* and *tama* of *mana*, it is well known that Lord Shiva has very short temper (more *pitta dosha*) and used to of *Dhature* (narcotics which may disturbed the mental function) therefore to neutralize its effect *shirodhara* has to be done on the *shivalinga*. It may avoid stimulation (open) the third eye, it may possible that *satva raja* and *tama* are situated over the third eye, hence *shirodhara* has tremendous effect on higher functions.

### Benefits of Shirodhara

Regular *shirodhara* enhances blood circulation to the brain, improves memory, nourishes hair and scalp, assists in providing sound sleep and calms the body and mind. *Shirodharais* one of the most effective treatments for reducing stress and nervous tension. *Shirodhara* act to do the functions as *Dharakalpa*.

- It strengthen the *dhatu*s
- Enhance vitality and potency
- Improves the appetite, *ojas* and complexion of skin
- Increase power of senses
- It delayed the onset of old age
- Join the fractured bones
- Eliminates the morbid *doshas* and relieves the *shiroroga*.

### Contraindications for Shirodhara therapy

- Extreme hot weather
- When diseases are slightly aggravated
- When there is less sunshine
- In extreme cold weather
- In afternoon and during night time



### Other Contraindicated Conditions are

Full stomach, severe *vata* disorders, in severe anxiety, in low blood pressure, in brain tumor, in abrasions or cuts on head, when there are rashes on forehead or scalp and in the person who have aversion to oil.

### Recommended material of *shirodhara* according to *dosha*(*Dharakalpa*)

- **Vatadosha** - *Tilataila*, processed with *vataharadravya*, *dhanyamla*, *ksheerabalataila*, *dashmulabalashaya* and milk
- **Pitta and raktadosha** - *Ghrta*, milk, *usheera*, *chandana*, tender coconut water, cold water and breast milk
- **Kaphadosha** - *Taila* processed in *kaphaharadravya*, decoctions, *madhuyashti*, *nagar*, *musta* and processed butter milk.

*Dharanamed* accordingly the *dravya* has used as *shirodhara* with butter milk named as *takradhara*, with milk as *kshiradhara*, with breast milk as *stanyadhara*, with decoction as *kashyadhara*, with fermented preparation named *dhanyamladhara*. It is better to use fresh prepared *dhara* daily. Various prepared *dhara of aushadhigana* is used to alleviate the diseases.

### 3. *Shiro pichu*

*Shiro Pichu* means an Ayurvedic treatment procedure which includes keeping a sterile cotton pad dipped in herbal oils on the crown of the head at the *Brahmrandra* (anterior fontanelle) and wrapping it up with a bandage cloth. *Shiro pichu* is the easiest and simplest treatment modality in Ayurveda. *Brahmarandhra* is a place mentioned for *shiro pichu dharana*. Indicated in *keshashatana* (alopecia), *sphutana* (cracks) skin *dhupana* and in *netra stambha*<sup>5</sup>. *Shiro Pichu* is one of the sedative treatments in Ayurveda used for neuropathic conditions especially for headache. *Chandanadi Taila*, *Pinda Taila*, *Mashadi Taila*, *Amrutadi Taila*, *Manjishthadi Taila*, *Triphaladi Taila*, *ad Bala Taila* are used in different types of *shiro rogas*.

### Method of Administration

For this a thick cotton pad or sterile cloth dipped in sufficient amounts of lukewarm medicated oils or *ghrita* is applied on the top of the head for a specific time period. The cotton pad is kept on the bandage cloth and the bandage cloth is wound around the pad 3-4 times such that the cotton pad is locked within the bandage cloth. The cotton pad dipped in the warm oil (in this procedure, it should be maintained the warm temperature) and placed until the whole pad gets wet with the oil. After the completion of *Pichu dharana*, the bandage knot shall be opened and the bandage cloth and the *Pichu* should be removed carefully.

### 4. *ShiroVasti*

*Shirovasti* is a type of *Murdha taila*, in which the medicated oil is kept over the head with the help of a cap fixed for a prescribed period of time. First of all this procedure is

mentioned by *acharya Sushruta*.<sup>9</sup> *Acharya Charaka* does not describe about this therapy, whereas *acharya Vagbhata* quoted *shirovasti* in very detail. *Shirovasti* is not a part of *panchakarma* therapy it is included in *bahya snehana*<sup>7</sup>. *Narayana taila*, *Balataila*, *Ksheerabala taila*, *Chandanadi taila*, *Karpasasthyadi taila*, and *Dhanwantara taila* are commonly used medicated oils for diseased child.

### Method of Administration

The diseased child is made to sit comfortably in an armchair. The strip of cloth smeared with paste of black gram powder should be wound around the head 2 cm above the eye brows. It must be tight to prevent leaking of oil, without any discomfort. Then the cap is to be fixed over the strip and the junctions are to be sealed with black gram paste. To seal the junctions leak free, another layer of cloth smeared with the paste is also applied over the cap.

The medicated oil heated (body temperature) is to be slowly poured inside the cap over the head without any discomfort to the patient. The oil is to be filled up to a height of 5 cm above the scalp. Temperature of the oil is to be maintained by replacing with warm oil at regular intervals. The process is to be continued for 45 minutes. At the end of the procedure, the oil is to be taken out by dipping a cotton piece and squeezing in a container, subsequent the cap is removed and wiping off the oil with clean and dry towel.

### Duration of *shirovasti dharana*<sup>10</sup>

The procedure is usually done 7 days in the afternoon or evening (between 3 and 5 PM) for an average time of 45 minutes. According to *doshika* involvement the duration of wearing this cap is as following

- *Vatika* disorders - 10,000 matra (app. 53 minutes)
- *Paittika* disorders - 8,000 matra (app. 43 minutes)
- *Kaphaja* disorders - 6,000 matra (app. 31 minutes)
- Healthy state - 1000 matra (app. 5-6 minutes)

### Indications & Contraindications

Patient who is having neurological disorders such as *pakshagata*, *arditha*, *supthi*, and Severe /chronic diseases of head, *nidranasha*, *timira*, *shiro roga* and in *daruna roga*<sup>6</sup>. can get effect by using *shirovasti* and patient who suffering from infective diseases and Acute inflammatory conditions cannot use *shirovasti*

### 5. *Shirolepana*

*Shirolepana* is a procedure of application of paste of medicines on head for a specific period of time. *Shirolepa* is a special type of treatment performed on the scalp, in which paste of various herbs and medical powders are made into a paste and applied in the scalp. The scalp is then covered and tied with special kind of leaves which interact well with the scalp. *Shirolepa* helps in nourishing the scalp and the head, it improves the memory and concentration with long term application.





### Method of Administration

A herbal paste is applied over the head and this is covered with leaf, and medicated oil is applied over the head. After a specified duration the paste is removed and the oil is wiped off. After the removal of the herbal paste and the head is washed with warm water.

### Samsarjana karma for Pediatrics

The diseased child should take complete rest for an equal period of time for which he has undergone the therapeutic procedure as child requires to regain the strength of Dhatus and to come to normalcy.

*Peyadi Samsarjana Karma* is to be followed in all cases undergone *chikithsa* procedures i. e., liquids, semisolids and solid diet is given successively. The diseased child should give hot water for all purposes and sleeping in day time is to be avoided and proper sleep in the night is to be maintained. Traveling, sitting idle for a long time and talking in a high voice are to be avoided for them. After *samsarjana*, *rasayana chikitsa* may be administered to the child after this period.

Samsarjana karma help to the expulsion of *doshas* and *mala* from body impression of Agni converted into *manda* (mildest form) type<sup>1</sup>, hence cannot tolerate the caliber of food articles. This procedure helps to boost the *agni* gradually and digestive power turn into more powerful and stable as cow dung and *trinaburn* easily by tiny fire with the help of *vayu* (air)<sup>2</sup> spark of fire (*agni*) gradually flares up by the fuel like grass, cow dung, etc. Function of *agni* is regulated by *pachaka pitta*, *samanavayu* and *kledakakapha* which are being disturbed in *Shodhana* process so to normalize these factors a special *Samsarjana Krama* is planned. As per *Jejjata* "The liquefied vitiated *Doshas* come in *Amashaya*, which causes irritation in *Amashaya* weakening its

### Schedule of Samsarjana Karma.<sup>6</sup>

Showing the schedule of *Samsarjana krama*

S.No.		PradhanaShudhhi		Madhya Shudhhi		AvaraShudhhi	
1.	Total anna kala 1. Peya 2. Vilepi 3. Yusha 4. Mamsarasa	12 a) 3 anna kala b) 3 anna kala c) 3 anna kala d) 4 anna kala		8 e) 2 anna kala f) 2 anna kala g) 2anna kala h) 2 annkala		4 i) 1 anna kala j) 1 anna kala k) 1 anna kala l) 1 anna kala	
2.	Total days	7		5		3	
3.	Schedule	Morning	evening	morning	evening	Morning	evening
	First day	-	Yavagu	-	Yavagu	-	Yavagu
	Second day	Yavagu	Yavagu	Yavagu	Vilepi	Vilepi	Yusha
	Third day	Vilepi	Vilepi	Vilepi	Yusha	Mamsa rasa	*
	Fourth day	Vilepi	Yusha	Yusha	Mamsa rasa	*	*
	Fifth day	Yusha	Yusha	Mamsa rasa	*	*	*
	Sixth day	Mamsa rasa	Mamsa rasa	*	*	*	*
Seventh day	Mamsa rasa	*	*	*	*	*	

\* Normal diet

*Agni*". To boost this weakened *Agni* of *amashayasamsarjana* is followed.

The *samsarjana krama* includes *peya*, *vilepi*, *akrutayusha*, *krutayusha*, *akrutamamsa rasa* and *krutamamsa rasa* are given for 3, 2 and 1 *Anna kala* for *pradhana*, *madhyama* and *avarashuddhi* respectively<sup>3</sup> for the improve feeble *jathragni*.

*Sushruta* opined that it is more appropriate to consider the *Bala* of patient after *Shodhana Karma* for deciding the *samsarjana krama*.<sup>4</sup> For the individuals having good strength, medium strength and lesser strength three *Anna kala*, two *anna kala* and one *anna kala* are advised respectively.<sup>4</sup> Acharya Kashyapa describes three contents in *samsarjana krama* that is *kritayusha*, *akrutayusha* and *mamsarasa*. Administered in 1, 2 and 3 *annakala* in order for the *jaghanya*, *Madhya* and *pravara shudhi*<sup>5</sup>. Acharya *Sushruta*'s opinion that *yusha* of *kulatha*, *adhaki* or *mamsa rasa* can also be given. Dalhana explains that *peyadi krama* is also admitted by *Sushruta*, but if there is dominancy of *Vata* then *mamsa rasa*, if there is diminished *Kapha* then *Peya* and if there is *Kaphavridhi* then *Yusha* of *Kulatha* and *Adhaki* should be given.

### Characteristics Features After Peya

- *Sarvksham* (ability do everything)
- *Hysamsargo* (proper excretion of *mala*, *mutra* i.e. without interruption)
- *Ratiryukta/ preetiryukta* (satisfaction and agreeable state)
- *Sthriendriya* (stable sensory functions)
- *Balvana* (good strength)
- *Satvasampanna* (proper function of *manas* / psychic functions)



- Yavagu** :- Prepared by shali rice (old) and should be offered hot.
- Vilepi** :- Prepared by shali rice (old) add zero amount or very small amount of *sneha* and *lavana* with *anupana* of warm water.
- Yusha** :- prepared by munga , should be very liquid, *prusruthabhata* with *anupana* of warm water. It may be divided into two *akrityusha* (without *sneha* and *lavana*); *kritayusha* (with *sneha* and *lavana*). Acharya Kashypa also describe *akrita-krtayusha* (small amount of *amla*, *lavana* and *sneha* is added)<sup>7</sup>
- Mamsarasa** :-mamsa rasa of lava , kapinjhal prepared in water and add some salt and *sneha*.<sup>8</sup>

### Tarpana

Usually *peyadi krama* is observed after *samshodhana*, but under certain circumstances *santarpana* is preferred. Acharya Charaka says that if *shodhanais* improper, patient is addicted to alcohol, patient is of *vata-pitta prakriti* then *santarpana* is advisable. In this procedure in place of *peya*, *swachchhatarpana* and in place of *vilepighanatarpana* are given.

### Ashta Mahadoshakara Bhava

Some activities are to be strictly avoided after *samshodhanain* anticipation of *prakriti shapana* is achieved. Beside these, exposure to excessive cold or heat or dew, exposure directly to breezy wind must also be avoided<sup>9,10</sup>

- Ucherbhashya (loudly speaking)** - Causes problems of upper body parts.
- Kshobhayana (annoyance by disturbed traveling)** - causes problems of entire body parts.
- Atichakramana (over walking)** - causes problems of lower body parts.
- Atiasan(Sedentary habit /constant sitting)** - causes problems of mid body parts.
- Ajeernabhojana (Excessive ingestion of food/Indigestion)**- Causes *amaja vyadhies*.
- Ahitaahara (Ingestion of incompatible food /unwholesome diet)** - causes *vatadi doshika vyadhies*.
- Divaswapna (Sleeping during day time)** - causes *kaphaja vyadhies*.
- Maithuna (Sexual activities)**-causes *pittaja vyadhis*

### CONCLUSIONS

Keraliya Conventional therapies are the improved & advanced external *Snehana* & *Swedana* therapies of *shirorogas* as they had high therapeutic efficacy in healthy & diseased body. A sound theoretical foundation, immense clinical experiences and ability for innovation were originate of the traditional physician families of Kerala. This led to the development of a unique style of conventional treatment and *samsarjana karma* of Kerala which were the modified forms of the preparatory procedures of the classical treatment modalities especially for diseased child. The

keen observations of the clinical effects of such combinations therapy help to improve child health.

### REFERENCES

#### Keraliya Conventional Treatment Modalities

- Sharma PV, Caraka Samhita Suthrasthana, chapter 05, verse 81-83, Varanasi: Chaukhamba Orientalia. 2014
- Srikantha Murthy K.R, AstangaHridayamSuthrasthana, Chapter 22, verse 23, ChaukhambaKrishnadas Academy, 2000
- Sharma PV, Susrutha Samhita chikithsasthana, chapter 24, verse 25, Varanasi: Chaukhamba Orientalia. 2014. &Srikantha Murthy K.R, AstangaHridayamSuthrasthana, Chapter 22, verse 24, ChaukhambaKrishnadas Academy, 2000
- Srikantha Murthy K.R, AstangaHridayamSuthrasthana, Chapter 22, verse 24, ChaukhambaKrishnadas Academy, 2000.
- Srikantha Murthy K.R, AstangaHridayamSuthrasthana, Chapter 22, verse 25, ChaukhambaKrishnadas Academy, 2000.
- Srikantha Murthy K.R, AstangaHridayamSuthrasthana, Chapter 22, verse 26-31,ChaukhambaKrishnadas Academy, 2000.
- Sharma PV, Susrutha Samhita chikithsasthana, chapter 31, verse 2, Varanasi: Chaukhamba Orientalia. 2014. &Srikantha Murthy K.R, AstangaHridayamSuthrasthana, Chapter 16, verse 14, ChaukhambaKrishnadas Academy, 2000
- Srikantha Murthy K.R, AstangaHridayamuttrasthana, Chapter 24, verse 03, ChaukhambaKrishnadas Academy, 2000.
- Sharma PV, Susrutha Samhita uttarasthana, chapter 18, verse 50-51, Varanasi: Chaukhamba Orientalia. 2014. &
- Madham Shetty Suresh Babu, YogarathnakaraShirorogachikithsa (English and Hindi Edition), Chaukhamba Sanskrit Series Office, 2011.

#### SAMSARJANA KRAMA

- Sharma PV, Caraka Samhita Siddhithana, chapter 06, verse 24, Varanasi: Chaukhamba Orientalia. 2014. &Tewari PV. Kashyapa Samhita or VriddhaJivakiyaThanthra (English Translation), Khilastana chapter 7,verse 33 ,Varanasi: ChaukhambaVisvabharati; 1996.
- Sharma PV, Caraka Samhita Siddhithana, chapter 01, verse 12-13, Varanasi: Chaukhamba Orientalia. 2014.
- Sharma PV, Caraka Samhita Siddhithana, chapter 01, verse 11-12, Varanasi: Chaukhamba Orientalia. 2014
- Sharma PV, Susrutha Samhita chikithsasthana, chapter 39, verse 17-18, Varanasi: Chaukhamba Orientalia. 2014.
- Tewari PV. Kashyapa Samhita or VriddhaJivakiyaThanthra (English Translation), Khilastana chapter 7,verse 37 ,Varanasi: ChaukhambaVisvabharati; 1996.
- Sharma PV, Caraka Samhita Suthrasthana, chapter 15, verse 16, Varanasi: Chaukhamba Orientalia. 2014
- Tewari PV. Kashyapa Samhita or VriddhaJivakiyaThanthra (English Translation), Khilastana chapter 7,verse 38-40 ,Varanasi: ChaukhambaVisvabharati; 1996.
- Sharma PV, Caraka Samhita Suthrasthana, chapter 15, verse 16, Varanasi: Chaukhamba Orientalia. 2014
- Sharma PV, Caraka Samhita Suthrasthana, chapter 15, verse 18, Varanasi: Chaukhamba Orientalia. 2014
- Sharma PV, Caraka Samhita Siddhithana, chapter 12, verse 10-12, Varanasi: Chaukhamba Orientalia. 2014



## PEDAGOGICAL ESSENCE OF NOSIRUDDIN TUSI'S MORAL AND PATRIOTIC VIEWS

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### ABSTRACT

*This article clarifies the pedagogical essence of Nosiruddin Tusi's moral and patriotic views. Furthermore, the concept of ethics is described in terms of pedagogy.*

**KEY WORDS:** *Ethicist, enlightener, moral, social, education, scientist, artistic, creation, literary studies, researcher, philology, literary, skill, talent, high, scientific, sublime, poet, literary critic, quote, treatise, poetics, high, level, great, philosopher, scientist, science, poetry, tradition, Turkish, folk, basis, author, beautiful, manuscript, high, value, religion, nation, universe.*

Since morality is a form of social consciousness, its content changes with the society, each society defines moral norms and rules according to its economic and social requirements. These rules are considered acceptable for all members of the society, mandatory for everyone. Behavior that contradicts these norms and rules is considered inappropriate for the community and is not accepted by the community or other members of the community.

The content of moral education includes patriotism, friendship and companionship, mutual help, internationalism, conscious attitude to activities, discipline, responsibility, honesty, truthfulness, simplicity, humility, humane attitude to people, careful attitude to the environment - nature, etc. Patriotism is a moral quality expressed by love for one's homeland, country, land, and intolerance of its enemies. It is the leading moral quality, which lays the foundation for other moral qualities. So, the basis of every positive moral quality is love for one's nation, homeland, country, mother, small village. All positive qualities have a positive attitude towards a person and his homeland. Patriotism is a historical concept. The basis of people's patriotism is love and positive attitude to the country where they live and work, to the state and society that protects and defends it, to improve its material condition, and to raise its cultural level.

Patriotic education starts from the micro environment in which a person lives, from loving one's motherland, village, power, city. The basis of love for the Great Motherland, for the country that protects it, is this love. Education of national patriotism is carried out in systematic educational institutions through teaching and extracurricular activities. For example, from the lessons of history, the honorable historical path of the nation, victories and defeats in wars, their reasons, etc. in the course of studying, students will love their motherland, fight for its sovereignty and independence, hate enemies, and cultivate national vigilance. By studying the natural resources of our

country in chemistry, biology, geography lessons, they develop a sense of national pride, etc. is brought up [1].

A conscious attitude to work and workers also plays a key role in moral education. The social aspect of labor education is the basis of labor activity for people to consciously work for the benefit of the country; understand work as the first and main means of living; love and respect for all types of work, choosing a conscious type of activity, etc. First at home, and then at school, every person who is busy with various types of activities should come to the conclusion that he should engage in some labor activity in life, work in one or another sector of the national economy. This requirement is a mandatory vital requirement for every human being. Cultivating a conscious attitude to work means that everyone has an honest attitude to their work, honesty, honesty, and creativity.

An honest approach to work also requires serious effort, endurance and motivation from everyone during the activity. The socio-ethical aspect of the right attitude to work is the right choice of profession. It is related to people's conscious attitude to work. In the era of modern private entrepreneurship, choosing a profession based on such a conscious attitude to work, opportunity, interest and skills is especially important. Focusing students' attention on their physical and intellectual level, everyone should be able to objectively assess their physical and mental capabilities.

Choosing a profession should be approached from the point of view of these possibilities. Each person should choose a profession that will benefit both himself and society with that profession. Because during the time of the Soviet Union, the choice of a profession was made in the form of a template and without taking into account interest. For example, everyone who graduated from high school had to enter a university. Public opinion about this attitude was very strong. Therefore, every young person who graduated from school tried to enter a



higher educational institution. Here, admission to higher education institutions was in the first place. Useful work in the chosen field took the second place. This led to a stagnation of production and a decrease in labor productivity.

One of the important components of moral education is discipline. Discipline education is a valuable, important and essential quality of moral education. Thus, discipline is the first indicator of all human activities. That is why serious attention is paid to its effective formation at the first stage of education.

Discipline is self-control, conscious direction of activity of every person, regardless of age. Humanity is an important moral quality. It is based on respect for other people, their work, activities, personality. Humanity is one of the conditions for all-round development of a person. Humanitarianism also means fighting for the happiness of other people, bringing out their talent, skills and creativity, creating conditions for their development, and establishing sincere relations between people.

Humanitarian relations consider all people as equal persons, regardless of their social status: to be attentive to people's needs and help them: not to touch people's hearts - to be attentive to them; ability and motivation to understand others; being ready to protect the weak, etc. includes. Such views should be instilled in a person throughout his life.

People who treat others with respect are not self-satisfied and look down on others, they have a high communication culture. The prudence based on not offending others, not insulting them, not creating an unpleasant situation for them, and treating people like workers forces a person to act as above. Understanding the weaknesses and difficulties of others and not having a bad idea about forgiving them, tolerance and a broad worldview are formed in people. It also involves seeing and feeling the difficulties of others, helping them as much as possible, at least sharing their pain. Such views should be formed in people from a young age, otherwise they may develop indifference and cruelty towards others, surrounding people.

One of the important components of humanitarianism is the protection of the vulnerable. It begins in children at a young age and is carried out in the form of increasingly complex tasks, starting with the protection of animals and plants, helping the elderly and mothers. Humanistic relations, like other components of education, are carried out in parallel in systematic educational institutions, as well as in various institutions and organizations after the end of the educational period. In cultural institutions and other areas of pedagogical reality, work in this direction of education with the elderly and young people is carried out more widely. It is given as part of special events in departments and enterprises.

Nosiruddin Tusi's rich scientific and literary works are a monumental indicator of his worldview and knowledge. One of Nosiruddin Tusi's important services to world science is the construction of a large observatory in Marogaa. Nosiruddin

Tusi, a prominent political figure, tried to convince the ruler of that time that the construction of the "Maroga" observatory would be a moment to foresee world events, using his influence and deep knowledge in science. The empty pot method used to convince the ruler is still remembered today [2].

Nosiruddin Tusi, an ethicist and enlightener, expressed his moral and social views in the moral education book "Akhlaqi-Nasiri", which gained wide fame. This famous scientist was engaged in both artistic creation and literary studies. Researcher, doctor of philology Yaqub Boboev rightly writes that "His (Nosiriddin Tusi) literary skill, artistic talent remained in the shadow of his great and high scientific glory, or rather, scientist Tusi forgot poet and literary critic Tusi". From this point of view, the 9th chapter of the famous scientist's treatise "Poetry Measurements" and "Esasul-Iktibs" on logic attract attention as works of a high level dedicated to poetics. In this sense, Tusi can be compared with the great philosopher-scientist Aristotle and can be called the "Aristotle of the East". Nosiruddin Tusi is one of the first authors to write a book on poetics based on the works of the Turkic peoples, who have a rich poetic tradition, although he devoted his talent to more concrete sciences. These words, written in beautiful handwriting on the tombstone of the scientist, express the high dignity given to him: "Pillar of religion and people, king of the world of knowledge. Mothers, such a son was never born again."

It should be noted that social content occupies a leading place in Tusi's artistic heritage. First of all, because the social environment to which Nosiruddin Tusi belonged was mixed and rich in socio-political events, it was no coincidence that Nosiruddin Tusi himself, according to his personality and worldview, was engaged in various fields of science, thought about existence and the universe, and was an artist of words. It may be interesting that the scientist himself was exposed to several injustices and oppressions of that time. Nosiruddin Tusi, because of his unique talent, was met with envy by others and was imprisoned by the ruler.

It should be noted that the ruler Nasir Mohtasham, who treated him well during Kuhiston period of the scientist's life, later punished him and imprisoned him in the Alamut fortress. The scientist also described the gravity of his situation in his notes in the work "Sharhul-Isharat". However, it was in this difficult situation that such a talented scientist and writer wrote several valuable works. The days spent in prison in the best years of his life were reflected in the work of this great person with his search for justice, public objections and complaints. From this point of view, in his artistic heritage, the work "Pride" deserves special attention: the days spent in prison in the best years of his life were reflected in the work of this great person with his search for justice, public objections and complaints. From this point of view, in his artistic heritage, the work "Pride" deserves special attention: the days spent in prison in the best years of his life were reflected in the work of this great person with his search for justice, public objections and complaints. Therefore, Nosiruddin Tusi, who is known by the whole world as a great scientist and thinker, is also a beautiful poet and master of





delicate words. In addition to his rich scientific heritage, his artistic heritage, which is not less important, illuminates the creative talent of this great person and gives eternal life as a master of mature words in our literature [3].

*Tusi to the development of science and education of the Tajik people: dissertation ... candidate of historical sciences. - Dushanbe, 2021. - 162 p.*

As noted in the scientific and pedagogical literature, the nature and content of moral education changes depending on the socio-political structure. "Social consciousness, politics, law, philosophy, literature, culture, and history have a serious influence on the formation of morality. They affect the content and nature of moral education." Research shows that in most developed countries, moral education in the materials prepared for scientific pedagogy is systematized according to the moral values of that country.

One of the main tasks in the organization of educational work is to establish the issues of education of the future generation based on our national moral values, educational traditions of the Uzbek people, and wise ideas of our far-seeing geniuses. The famous thinker Nosiruddin Tusi's "Ethics-Nasiri" is the most valuable source in terms of the formation and development of moral education, as well as the correct construction of education issues in our time.

Many researchers consider Nosiruddin Tusi primarily a mathematician. His works played an important role in the development of geometry and trigonometry not only in the East, but also in Europe. The scientist's five-book "Treatise on Complete Quadrilaterals" is known as a work that played an important role in the development of the science of trigonometry in Europe. In this work, trigonometry is considered as an independent field of science for the first time in the history of world science. This pamphlet has been translated into English, Russian and French [4].

Among Tusi's studies in the field of algebra, the method of suppressing the whole degree and the Binomial formula are more known. In addition, his many works on history, mineralogy, physics, medicine, economics, geography, music and, of course, astronomy are also noteworthy. Among them are "History of Baghdad", "Treatise on the Reflection and Refraction of Light", "Euclidean Optics", "Treatise on the Study of the Rainbow", "Book on Precious Stones", "Laws of Medicine", "Treatise on Public Finances", "Choosing Auspicious Days" (astrology) and other works. His works are spread all over the world. They can be found in museums and libraries of Baku, Paris, Berlin, Vienna, Oxford, Cambridge, Leipzig, Munich, Florence, Cairo, Istanbul, Moscow, St. Petersburg, Kazan.

## REFERENCES

1. *Idibekov N. Ethics of Nosiriddin Tusi in the light of his theory of free will. - Dushanbe: Donish. 1987.-92s.*
2. *Shoikhtierov H. Social philosophy of Nosiriddin Tusi: dissertation ... Doctor of Philosophical Sciences. - Dushanbe, 2009. - 325 p.*
3. *Shoikhtierov H. Social philosophy of Nosiriddin Tusi: dissertation ... Doctor of Philosophical Sciences. - Dushanbe, 2009. - 325 p.*
4. *Abdukhamidov N.M. The contribution of Khoja Nasiruddin*



# WOMEN-ORIENTED NGO INTERVENTIONS TO BRING SOCIETAL CHANGES A CASE STUDY

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## ABSTRACT

All organizations related to rural or urban development, whether they are Non-Governmental Organizations (Non-Governmental Organizations) or the Government, make joint efforts in various activities. Some NGOs are engaged in helping the weaker sections of society, such as small farmers and marginal farmers, agricultural workers, women and reserved castes, while others are engaged in building schools and hospitals in rural areas, better nutrition for children, health care activities, and creating families. Welfare organizations, youth and women vocational training and special programs for the elderly. The main areas of work of the NGO are differently abled, drinking water, education and literacy, children, housing, land resources, microfinance (SHG), new and renewable energy, nutrition, rural development and poverty alleviation, vocational training, water resources, women's development and empowerment.

This case study explores the role and impact of an NGO focused on women's empowerment and gender equality in bringing about social change. The study offers an in-depth analysis of the intervention strategies used by the NGO, their effectiveness and the resulting changes in society. The case study highlights the importance of women's NGOs in addressing gender inequalities, promoting women's rights and promoting a more inclusive and equal society.

**KEYWORDS:** Non Government Organization (NGO), Government Organization (GO), Women, Empowerment, Self Help Group (SHG).

## 1. INTRODUCTION

The need for self-control in various situations is a basic human strength. Technology is the creative expression of that will. It is both a liberating effect and a limitation, depending special situation India has a rich tradition of volunteerism. But the role of a volunteer in the organization of social welfare and social development is still not understood after the seventh decade of planning. On the other hand, there was a quantitative increase in voluntary organizations quite quickly. The creation of autonomous state institutions, such as the Social Security Center the government, the Association of Voluntary Associations of Rural Development and others opened many new ones thanks to this volunteer organization. Voluntary organizations provided services e.g. individuals, groups and communities largely in India [1].

The level of NGO activity indicates the scope of the organization's work, such as local, international or national. Professor Peter Willetts of the University of London says Different organizations may interpret the definition of NGOs differently depending on the situation regarding. He defines a non-governmental organization as an independent voluntary association where cooperation is carried out permanent basis to achieve a common goal. This position recognizes two main

types of NGOs by fields of activity: operational NGOs that produce services and organize campaigns and non-governmental organizations. The ultimate goal of any organization is development and economic growth. In this regard the aim is to increase the availability of basic necessities for life and expand distribution such as food, shelter, health and protection; Raise living standards, including higher incomes, more jobs, better education and more attention to cultural and humanist values; to enlarge economic and social choices for individuals and nations liberating them slavery and dependency [2][3].

The key findings show that the empowerment of Indian women is important, and how NGOs' responsibility to this group plays an important role in making it a reality. When NGO personnel promote change for self-empowerment [4], such behaviour needs to be modelled in order to be successfully communicated, as suggested by the self-efficacy model of behavioural change [5]. This case study examines the role and impact of an NGO focused on women's empowerment and gender equality in bringing about social change. The study offers an in-depth analysis of the intervention strategies used by the NGO, their effectiveness and the resulting changes in society. The case study highlights the importance of women's NGOs in



addressing gender inequalities, promoting women's rights and promoting a more inclusive and equal society. Many authors have attempted to outline the nature, characteristics, and principles of organization in their own way. For sociologists, for example, organization means the study of interactions between people, classes, and corporate hierarchies. For psychologists, organization means that companies can explain, predict, and influence the behaviour of individuals within the company like top managers. This means combining the functional components in the best possible way so that the company can achieve its goals. An organization is a formal and/or informal organization, an organizational structure in which work is distributed, organized, defined and coordinated based on specific goals. An organization is a formal and/or informal organization. An authority structure for dividing, sequencing, defining and coordinating work is a defined goal [6]. Organizations follow a communication system to reach everyone. An organization is not just a structure, it is a structure for the people who run and organize the agency and do the actual work to achieve the agency's goals. First, organizational variables are numerical and their interrelationships are complex. Therefore, the selection and conceptualization of key variables for empirical testing is an ongoing problem in organizational research. Second, organizational terms are often subject to different interpretations depending on the context in which research is conducted. Third, the results of tissue studies do not provide a well-defined conceptual framework within which explanations can be provided. all. Therefore, there is no one-size-fits-all approach that is widely accepted by tissue researchers. A common feature of organizations is the division of work, authority, and communication responsibilities. It is neither random nor traditionally structured, but consciously planned to facilitate the achievement of specific goals. One or more of the powers to manage the coordinated efforts of an organization, align it with objectives, continuously review the organisation's performance, and change the organisation's structure as necessary to improve efficiency. central presence. Personnel change. Such as dismissing dissatisfied individuals and placing them in other positions, and restructuring personnel through transfers and promotions. Formal and informal organizations that aim to achieve social goals Leveraging goals knowingly or intentionally coordinating a large number of employees Subconsciously, covertly or overtly guided by an opposing theoretical framework Welfare needs of target groups. According to Dimock and Dimock (1964), "An organization systematically integrates interdependent parts to form an authoritative, unified overall idea Adjustments and monitoring can be made to achieve certain goals. the organization is both Structure and relationships.

## 2. NGO PROFILES

Since the last update in September 2021, several NGOs in India are actively working for women's empowerment. Here are brief introductions to some of the most important

**2.1 SEWA (Self-Employed Women's Association):** SEWA is a trade union and non-governmental organization whose aim is to promote the possibilities of FIEs to operate in the shadow economy. Founded in 1972, SEWA provides a range of services such as access to financial resources, healthcare, childcare and skills development to empower women to improve their socio-economic status and become independent [7].

**2.2 Breakthrough:** Breakthrough is an NGO focused on human rights and social change. She organizes campaigns and programs that address violence against women, gender inequality and women's empowerment. Breakthrough uses media, art and technology to raise awareness and advance women's rights [8].

**2.3 Azad Foundation:** Azad Foundation aims to promote economic and social empowerment of women through its Women on Wheels programme. It trains women from marginalized communities to become professional drivers, breaking gender stereotypes and creating income opportunities [9].

**2.4 Majlis Manch:** Majlis Manch is an organization that provides legal support and advocates for women's rights, especially in issues such as gender-based violence, discrimination and law enforcement. They focus on using the law as a tool for women's empowerment [10].

**2.5 Pragati Leadership:** Pragati Leadership focuses on empowering women in the corporate sector and in leadership positions. It offers training and development programs to improve women's leadership skills and advance their careers in various industries [11].

**2.6 GRAVIS:** GRAVIS (Gramin Vikas Vigyan Samiti) is an NGO working for women's empowerment in rural India. They focus on health, education, water and livelihoods and aim to improve the overall well-being and empowerment of women in rural communities [12].

**2.7 Goonj:** Goonj is an NGO working on various socio-economic issues including women empowerment. They implement programs that support women's health, education and economic independence, especially in marginalized communities [13].

**2.8 Nari Gunjan:** Nari Gunjan focuses on empowering women and girls with disabilities. The organization's goal is to provide education, vocational training and support services that help women with disabilities live independent and fulfilling lives [14].



### 3. RELATED WORKS

Sl. No	Focuses	Contribution	Reference
01	Gender Based Violence	Support service and awareness of women's rights	Kelly, R. E. (2007)
02	Women's Health and Reproductive Rights	Healthcare, Reproductive Rights, and Maternal Health Services	Gwatkin, D. R., Wagstaff, A., & Yazbeck, A. (Eds.). (2005)
03	Women's Education and Literacy	Education	Dsouza, R. (2011)
04	Economic Empowerment	skill development training, entrepreneurship opportunities	Datta, R. (2000)
05	Women in the Workforce	legal support and advocacy to women	AHMAD, Z. A. Z., Mubin, S. M., & Memon, M. U. (2012)
06	Legal Aid and Advocacy	Legal support and advocacy to women	Bartlett, L. (2004)
07	Women with Disabilities	Education and vocational training	Bajracharya, A., Jung, W., Prabhakar, B., & Singh, D. (2018)
08	Empowering marginalized communities, including women and transgender individuals	Healthcare, skill development, legal aid	Kumar, S. U. J. E. E. T. (2016)
09	Empowerment of women in rural areas	Vocational training programs, self-help groups, and awareness campaign	Vimukti Charitable
10	Empower women and address gender-based inequalities	Workshops, training programs, and advocacy campaign	World Health Organization. (2009)

### 4. RESEARCH METHODOLOGY

It is an exploratory study with the help of secondary data where the researchers have conducted a content analysis of various magazines, articles, google scholar, data-based and related websites.

### 5. OBJECTIVES OF THE STUDY

- To study the role of Voluntary Organisation in empowering women in the Indian context.
- To study various non-governmental organizations working for women.
- To study the NGO interventions on the welfare of women.
- To explore the role of NGOs in empowering women.
- To understand the challenges of NGO in women empowerment.
- To examine the outcome of NGO intervention based on SWOC analyses.

#### 5.1. Voluntary Organization

A Non-Governmental Organization (NGO) is a voluntary group of individuals or organizations, usually not affiliated with any government, established to provide services or promote public policy. Non Profit Organizations often rely on volunteers, so retaining volunteers is a top priority for these organizations.

However, volunteers can be on the edge of communication, especially when it comes to giving feedback to others in the organization [15]. Voluntary organizations and informal organizations are treated as one and the same. Maybe it isn't so. Not all informal organizations are necessarily voluntary. Voluntary organizations are of spontaneous origin, while informal institutions can also be state-subsidised. It can be useful to distinguish between voluntary organizations and NGOs. Voluntary organizations are spontaneous in origin, and NGOs can be funded by the state. Although agencies like All India Women's Conference, Indian Council of Child Protection etc. A non-governmental organization (NGO) is a group that operates independently of the government. It is usually non-profit. Non-governmental organizations, sometimes called civil society organizations, are established at the community, national and international levels to serve a social or political purpose, such as humanitarian aid or environmental protection. According to the rules of the Assembly of Voluntary Organizations, this is to promote balance and stable development based on the form of sustainable development; for the empowerment of women, Dalits and tribal and the urban poor. The fight against fundamentalism and communism; promote accountability and transparency in all fields of activity, including political activity; holding apart identity, cooperation with the government; educate, organize and agitate; power





versus the economic globalization; design value-based management; promote the networking of voluntary organizations with a common focus; to empower people from below and involve influence from above; Thursday to encourage tribal autonomy and panchayat Raj system for others; to accept development programs and public distribution system for people; integrate the economy [16]. The executive program around people- earning income [17] again should ensure that profit goes to people, popular education etc.; to create a common platform at the regional and local level levels; Promote inclusive structures and strive for dialogue with people and government.

### 5.2. NGO Interventions on the Welfare of Women

Non-governmental organizations play a crucial role in addressing various issues related to the well-being of women around the world. Their activities can range from direct support and services to advocating for political change and promoting a better life for women. Here are some common areas in that NGOs focus on

- **Gender-based violence** Many NGOs work tirelessly to combat gender-based violence, including domestic violence, sexual violence and human trafficking. They provide safe spaces, shelter, counselling, legal aid and educational programs for victims of violence [18]. They also raise awareness and advocate for stronger laws and policies to protect women from violence [19].
- **Health and Reproductive Rights:** NGOs work to improve women's access to quality health care, including sexual and reproductive health services. They provide information on family planning, maternal health and safe childbirth [20]. NGOs also protect women's reproductive rights and combat harmful practices such as female genital mutilation and child marriage [21].
- **Education and Empowerment:** Education is an effective tool to empower women [22]. NGOs often run programs to improve girls' access to education, reduce dropout rates, and provide vocational training to women in marginalized communities. Education empowers women to make informed decisions about their lives and careers.
- **Economic empowerment:** Economic empowerment aims to improve women's financial independence and livelihood opportunities [23]. NGOs can provide small loans, business training and mentoring programs to help women start or expand their businesses. Yet, women are actively working in the area of economically productive work and making a living worldwide [24].
- **Advocacy and Policy Impact:** NGOs often advocate for gender equality and women's rights locally, nationally,

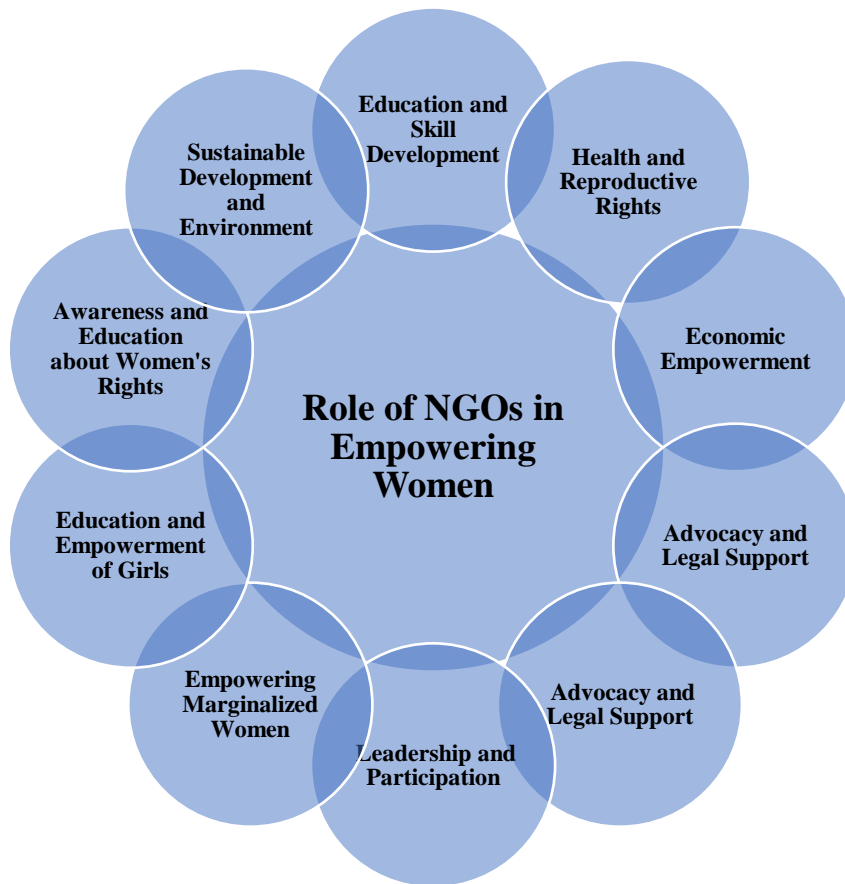
and internationally. They participate in political debates, lobby for legal reforms and work with governments and other stakeholders to bring about positive change.

- **Awareness and behaviour change:** NGOs run awareness campaigns to challenge harmful gender norms and stereotypes. These efforts are crucial to promoting gender equality and promoting respectful relationships between men and women.
- **Political participation of women:** Some NGOs focus on encouraging and supporting women's participation in politics and decision-making processes. They can provide leadership skills training, mentor aspiring female leaders and work to break down barriers that prevent women from participating in politics.
- **Disaster relief and humanitarian assistance:** Women often face special challenges and vulnerabilities during conflicts and natural disasters. NGOs address these issues by providing gender humanitarian assistance, ensuring access to essential services and protecting women from exploitation and violence.
- **Human trafficking and forced labour:** NGOs fight human trafficking and forced labour, which disproportionately affects women and girls. They rescue victims, provide rehabilitation and reintegration assistance, and work with law enforcement agencies to bring perpetrators to justice.
- **Empowering marginalized groups:** Some NGOs focus on specific groups of women, such as indigenous women, refugees or women with disabilities. They adapt what they do to meet the unique challenges these marginalized communities face [25].

NGOs work closely with governments, other NGOs, international organizations and local communities to maximize their impact. Their efforts significantly improve the well-being and status of women around the world. However, challenges remain and continued support and advocacy are needed to achieve full gender equality.

### 5.3. Role of NGOs in Empowering Women

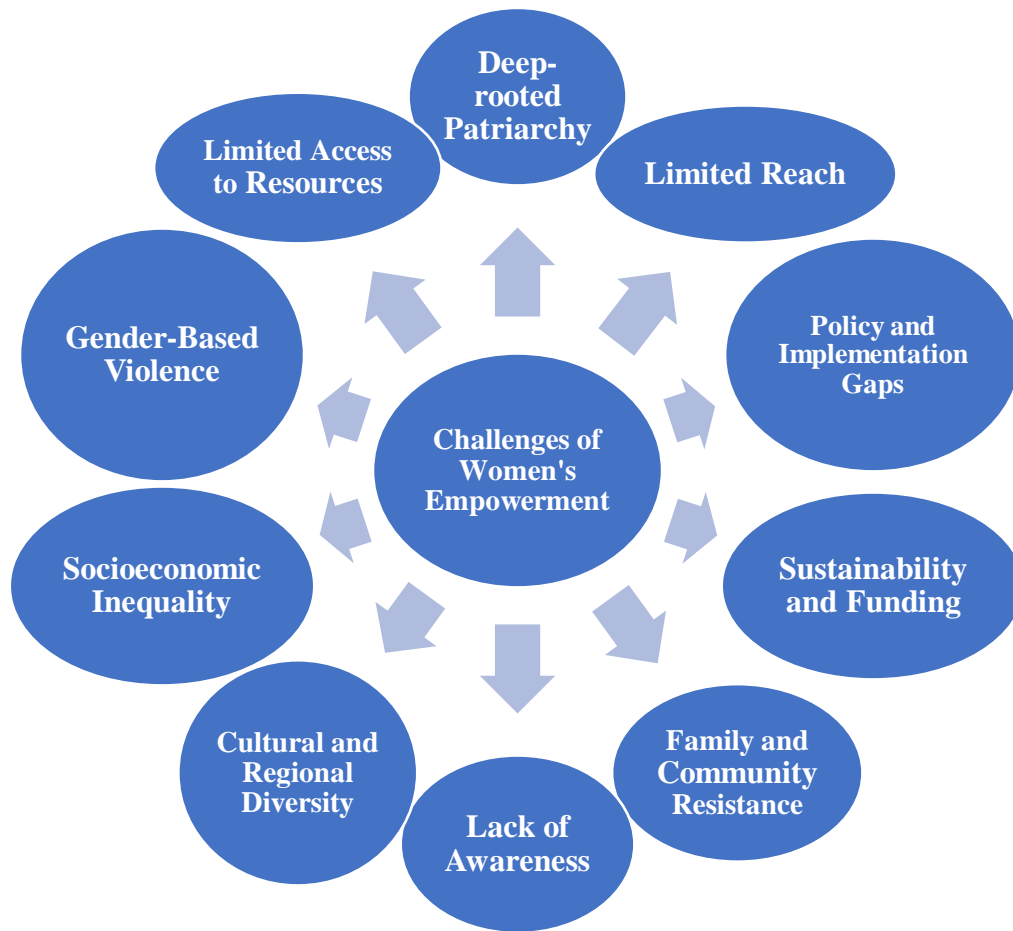
There has been considerable and multifaceted involvement of NGOs in the empowerment of women in India. Like other countries, faces challenges related from gender inequality, discrimination, violence against women, and limited educational and economic opportunities [26]. NGOs have a key role to play in addressing this issue and empowering women across different fields. In some key areas, the NGOs have made an important contribution:



Overall, NGOs in India have played a key role in encouraging change as well as contributing to the empowerment of women. Their efforts, in order to support gender equality, women's rights and sustainability within the country, have been complemented by government initiatives.

#### 5.4. Challenges of Women's Empowerment

NGOs in India have made considerable efforts to support women's empowerment, but face several challenges at the same time. The main challenges are as follows:



In spite of this challenge, NGOs continue their vigorous efforts to empower women in India. They can make significant progress on gender equality and women's empowerment by engaging in cooperation with local communities, public authorities as well as other interested parties through the use of innovative contexts and specific approaches.

**5.5. SWOC analyses of NGO intervention**

SWOC analysis is an analysis of strengths, weaknesses, opportunities and challenges. It is a strategic planning tool to help organisations including NGOs assess their internal and external factors in order to make more informed decisions, which lead to better results. Based on a SWOC analysis, we will assess the results of NGO interventions in India

**5.5.1. Strengths**

- i. Expertise and specialization: In particular areas such as education, health care, women's empowerment or conservation of the environment, there are many NGOs in India with expertise and specialised. They will be able to devise directed and effective interventions in their areas of competence.
- ii. Grassroots Presence: NGOs frequently have a strong local presence, which gives them more insight and connections with the communities in question. Their proximity also increases their capacity for dealing with the particular needs and challenges of the Community.

- iii. Flexibility and Innovation: NGOs, which often have more nimbleness and adaptability compared with large official bodies, allow for innovation and experimentation in solving problems.
- iv. Cooperative Partnerships: NGOs cooperate with the Government Agencies, other NGOs and International Organisations to build a network of partnerships enabling them to increase their impact and resources.

**5.5.2. Weaknesses**

- i. Limited resources: Due to the constraints of funds, some NGOs in India find themselves facing limited sources and are unable to scale up or extend their activities.
- ii. Capacity and expertise gaps: In areas such as project management, monitoring and evaluation or funding, certain NGOs may not have the necessary capacity or experience in order to make their activities effective and sustainable.
- iii. Sustainability challenges: NGOs, given the fact that they are using heavy reliance on funding from projects rather than developing robust more diverse sources of financing, may have difficulty in maintaining long-term sustainability.
- iv. Political and regulatory obstacles: For NGOs active in India, particularly those receiving foreign funding, it can be a challenge to deal with bureaucracy and complex legal requirements.



### 5.5.3. Opportunities

- i. Government Partnerships: As a way of dealing with social and development challenges, the Indian government appears to be increasingly interested in partnerships with NGOs which would offer more opportunities for impact and influence.
- ii. Technology advancement: In India, access to technology and the Internet has been increasing significantly which makes it possible for NGOs to use electronic tools in their outreach activities, awareness campaigns as well as data management.
- iii. Corporate Social Responsibility CSR: India's mandatory corporate social responsibility law encourages companies to invest in social initiatives through partnerships with NGOs, offering additional funding and resources for interventions.
- iv. Public Awareness and Support: The Indian public has a growing awareness and support for social and environmental issues, opening up the opportunity for NGOs to mobilise their citizens' backing and participation.

### 5.5.4. Challenges

- i. Change in the political climate: there could be challenges for NGOs in India, owing to changes in the political environment which might have an impact on regulatory conditions, finance sources and perceptions of society.
- ii. Increased competition: There has been an increasing number of NGOs in India, giving rise to increasingly intense competition for funding and resources.
- iii. Cultural and Social Norms: Some intervention or approach by NGOs, especially in delicate areas like the issue of equality between women and men as well as reproduction rights, may be hard to resist within deeply embedded societal and cultural norms.
- iv. Geographical differences: Ensuring the delivery and implementation of interventions in rural or disadvantaged areas can be difficult due to India's large geographical diversity.

Overall, NGOs in India have the potential to improve their interventions results and contribute more effectively towards positive societal change and development by taking advantage of their strengths, dealing with weaknesses, seizing opportunities and proactively addressing challenges. The ability of these interventions to adapt and cope with the dynamic social economic conditions in this country will also be decisive for their success.

## FINDING AND SUGGESTION

The NGOs are managed by an extraordinary and committed group of individuals in different parts of the country. Some organisations put women's empowerment at the top of their priorities. These top NGOs work to support crime victims in many ways, empowering women socially and economically. NGOs are fighting to enhance the rights of heterosexual women, sex workers, transgender, disabled women, young women, married women, HIV-positive women, and single

women. In this study, researchers find the problem faced by NGOs with regard to raising governmental funds, lack of political support, and lack of voluntary participation forms different groups. There are many negative influences on NGOs because of grant misuse these are the difficulties faced by the NGOs.

The empowerment and improvement of the lives of women in India can be immensely beneficial through cooperation with them. For NGO initiatives which focus on women's work in India, here are some suggestions: -

- i. Women's health and hygiene: create programs that provide women with access to healthcare services including education on menstrual hygiene and the distribution of sanitary products in rural and marginalised communities.
- ii. Promotion of Women's Arts and Crafts: Provide platforms for women artisans to showcase their skills and products, facilitating sustainable livelihoods through traditional arts and crafts.
- iii. Women's education: to improve the qualifications and employability of women, set up initiatives in areas such as Girls' Education, Adult Linguistic Programmes and Vocational Training.
- iv. Girl child education: Support initiatives that encourage parents to send their daughters to school and create scholarships or incentives to educate girls.
- v. Women's economic empowerment: To support the start of businesses or to improve existing ones, introduce microfinance and entrepreneurship programmes that provide financial assistance and training.
- vi. Health and Nutrition support to pregnant women: provision of antenatal and postnatal care programs, nutrition assistance as well as parenting classes for expectant or new mothers in order to promote maternal health and wellbeing.
- vii. Women's rights and legal aid: establish legal aid centres that aid women who are victims of domestic violence, discrimination or other violence, so that they can obtain justice and protection.
- viii. Gender-Based Violence Prevention: Launch awareness campaigns on gender-based violence focusing on prevention, bystander intervention and building a culture of respect.
- ix. Gender Awareness: Conduct workshops and awareness campaigns to raise awareness of gender equality for both men and women and promote a more inclusive and supportive society.
- x. Women in agriculture: Support and training for women farmers to take advantage of the latest farming practices, make use of available resources as well as connect them with market conditions that improve their economic situation.
- xi. Women's Mental Wellbeing: Dispatch mental well-being programs that address the interesting challenges women confront, such as postpartum misery and societal weights, advertising counselling and bolster.





- xii. Safe spaces and shelters: Establish safe spaces and shelters for women experiencing violence and homelessness, providing a safe environment and access to needed services.

In order to make your NGO's work sustainable and efficient, it is essential that you cooperate with locals, government agencies and other interested parties when dealing with women's issues. In addition, it will help the programmes to consider specific needs and challenges faced by women in different Indian regions when carrying out regular impact assessments as well as incorporating feedback from beneficiaries.

## REFERENCES

1. D'Mello, L. (2017). *NGO's Intervention to Bring Change in the Society-A Case Study of 'SIRRA.'* *International Journal of Case Studies in Business, IT and Education (IJCSBE)*, 1(1), 19-26.
2. Kumar R. (1992). *Social & Preventive Health Administration*. Rawat publication, New Delhi.
3. Kilby, P. (2010). *NGOs in India: The challenges of women's empowerment and accountability* (p. 148). Taylor & Francis.
4. Kowalski, J. (2021). *Between gender and kinship: Mediating rights and relations in North Indian NGOs*. *American Anthropologist*, 123(2), 330-342.
5. Handy, F., & Kassam, M. (2006). *Practice what you preach? The role of rural NGOs in women's empowerment*. *Journal of community practice*, 14(3), 69-91.
6. Dimock, M. E and Dimock, G.O. (1964). *Pubic Administration*. Holt, Rinehart and Winston Inc., New York, 517-518.
7. Datta, R. (2000). *On their own: development strategies of the self-employed women's association (SEWA) in India*. *Development (London)*, 43(4), 51-55.
8. Kelly, R. E. (2007). *From international relations to global governance theory: Conceptualizing NGOs after the Rio breakthrough of 1992*. *Journal of Civil Society*, 3(1), 81-99.
9. AHMAD, Z. A. Z., Mubin, S. M., & Memon, M. U. (2012). *Delinquency among street children in Karachi: The challenges to police and forensic medicine*. *Biomedica*, 28(2), 145-148.
10. Bao, G. *The Relationship Between IPV and Freedom: Dangerous Homes*.
11. Ullas, M., Prasad, V. L., & Pennobaliswamy, G. R. (2015). *Analyzing Constraints in Conflict Management in Wasteland Development Project*. *Indian Journal of Extension Education*, 51(1and2), 109-111.
12. Bartlett, L. (2004). *NGO update*. *Human Rights Brief*, 12(1), 13.
13. Sanjeev, G. (2011). *GOONJ—success through innovation*. *Emerald Emerging Markets Case Studies*, 1(3), 1-10.
14. Bajracharya, A., Jung, W., Prabhakar, B., & Singh, D. (2018). *The Empowerment of Women from the Excluded Communities in Bihar: A Documentation of the Nari Gunjan Model*.
15. Garner, J. T., & Garner, L. T. (2011). *Volunteering an opinion: Organizational voice and volunteer retention in nonprofit organizations*. *Nonprofit and Voluntary Sector Quarterly*, 40(5), 813-828.
16. Handy, F., Feeney, S., Kassam, M., & Ranade, B. (2006). *Grassroots NGOs by women for women: The driving force of development in India*. SAGE Publishing India.
17. Leach, F., & Sitaram, S. (2002). *Microfinance and women's empowerment: A lesson from India*. *Development in practice*, 12(5), 575-588.
18. George, G. R. (2007). *Interpreting Gender Mainstreaming by NGOs in India: A comparative ethnographic approach*. *Gender, Place and Culture*, 14(6), 679-701.
19. Kilby, P. (2010). *NGOs in India: The challenges of women's empowerment and accountability* (p. 148). Taylor & Francis.
20. Tinker, A. G., Finn, K., & Epp, J. (1998). *Improving women's health*. The World Bank, Washington DC.
21. Travasso, S. M., Rajaraman, D., & Heymann, S. J. (2014). *A qualitative study of factors affecting mental health amongst low-income working mothers in Bangalore, India*. *BMC women's health*, 14(1), 1-11.
22. Stromquist, N. P. (1990). *Women and illiteracy: The interplay of gender subordination and poverty*. *Comparative Education Review*, 34(1), 95-111.
23. Gupta, M. (2021). *Role of NGOs in women empowerment: case studies from Uttarakhand, India*. *Journal of Enterprising Communities: People and places in the Global Economy*, 15(1), 26-41.
24. Mehra, R. (1997). *Women, empowerment, and economic development*. *The Annals of the American Academy of Political and Social Science*, 554(1), 136-149.
25. Asthana, S. (1996). *Women's health and women's empowerment: a locality perspective*. *Health & Place*, 2(1), 1-13.
26. Nussbaum, M. C. (2004). *Women's education: A global challenge*. *Signs: Journal of Women in Culture and Society*, 29(2), 325-355.



# THE STUDY ON THE IMPACT OF DIGITALISATION ON THE WOMEN (RURAL WOMEN) IN INDIA

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## ABSTRACT

Digitalisation is the use of electronic or online method of transactions in many ways like financial transactions, education and in service and the social sectors like in social administration, digitalisation has made various job opportunities and empowerment of women in Indian states, Rural Education through mobile technology will allow rural women to stay updated with the latest developments encouraging literacy, improve skill capacity, establish and enhance financial independence and also prove to be a driving force in rising up to take part in societal activities that can help establish their dominance in the respective fields. What is Women Empowerment?

Women's empowerment refers to the process of enabling women to have greater control over their lives and to be able to make their own decisions. This can include empowering women to participate fully in the economy and in the political process, as well as empowering them to make decisions about their own health and well-being. Women's empowerment is important because it can lead to a range of positive outcomes, including increased economic growth and development, improved health and well-being, and greater gender equality. The research article explains the benefits of the women empowerment, especially rural women in India.

**KEY WORDS:** Digitalisation, Rural Women and women empowerment

## INTRODUCTION

The convenience offered by mobile and digital technology has ensured that women can more readily balance their homes as well as their careers all from the privacy of their homes. Digital fluency has a major role to play in achieving gender equality, enabling catalyzed communication and networking on a global scale. With the ubiquitous nature of digital technology, bridging gaps and access to resources as well as know-how especially to rural women is easily ensured.

## OBJECTIVES OF THE STUDY

### ➤ Balancing Work and Life

Striking a balance between work and personal life can be challenging. Set boundaries, prioritize self-care and communicate your needs to your manager. Remember that taking breaks and maintaining a healthy work-life balance can improve your overall well-being and productivity.

### ➤ Developing a Growth Mindset

Embrace the idea that dedication and hard work can improve your abilities and knowledge. Continuously invest in your professional development by attending workshops, webinars and conferences, and stay up-to-date with industry trends, positioning yourself as a valuable and adaptable asset in the tech world.

## RESEARCH METHODOLOGY

The research methodology uses secondary data, uses various internet sources and materials for the article.

## BENEFITS OF FINANCIAL INCLUSION FOR WOMEN

- The progress made in digital financial services has been heralded as one of the most important means to accelerate access to financial services for women.
- In particular, in areas where a large proportion of women were previously unbanked, access to financial services has significantly benefited women,[9] for example by enabling them to save and manage household expenditure and to improve food security, health care and the overall welfare of their families, thereby reducing poverty.
- In contrast to male earnings, female controlled finances are more likely to be spent on household expenses, such as utilities and food, as well as on child welfare including school tuition and medical care. Financial security has in turn empowered women and given them a role in the decision-making process in their households.
- Numerous studies have demonstrated that access to bank accounts and payments services are key to addressing today's pressing global issues of poverty, inequality and migration and have a measurable



impact on the reduction of poverty levels and promoting higher economic growth at a macro level. For individuals, greater financial inclusion can improve the economic and social aspects of life.

## BARRIERS TO WOMEN'S FINANCIAL INCLUSION

- There are various factors stifling progress in woman's financial inclusion, the most critical being the impact of social norms, which are prevalent mainly in Africa, Asia, the Middle East and parts of Eastern Europe.
- Social norms influence nearly every aspect of daily life, including financial services. They have an adverse impact on financial inclusion for women because they can limit women's ability to work outside the home, engage with male agents, or even own a phone. Cultural norms around what is acceptable for a woman to do, where she can go alone, or with whom she can interact can all serve to limit women's access to formal financial services.

Some common social norms and beliefs include:

- Women are primarily viewed as caregivers hence are confined to the home which also limits the scope of financial products they can access.
- Beliefs that women are not as financially savvy as men and must rely on their husbands/male relatives to make financial decisions and must therefore use joint bank accounts or their husband's account. For example, in many Middle Eastern countries, opening an account requires approval from a male guardian.
- Societal beliefs that women should not own property or be involved in financial decisions. Some countries have enacted inheritance laws which favour men over women, reducing women's access to family assets.
- Women are not expected to run businesses because doing so interferes with their primary responsibility of managing the household and looking after the family.
- Women cannot work in certain environments such as bars or restaurants, or in jobs which are typically held by men, and therefore have limited options for earning and saving money outside the house, which in turn makes it difficult for them to use formal financial services.

## RESULTS AND DISCUSSION

The rhetorical use of 'empowerment' in the development discourse started taking shape in the mid 20th century, as a means to challenge power structures for the public good. Since the mid 1990s it has been used profusely across all sectors (including corporations), giving it the nuance of a cliché. In the same rhetoric, the debate on women empowerment has intensified as a fundamental approach for transforming power relations in favour of women. However, while the term 'women empowerment' has been used frequently by policy makers, professionals, and academics; there is little clarity as to how it can be achieved.

## FINDINGS

- Additionally, access to useful and secure financial services has the potential to reduce hunger by empowering women and enabling them to improve their food security. As farmers, agricultural entrepreneurs and household caretakers, women are at the forefront of household food security and are essential to fighting hunger. Mobile money and other digital financial services have the potential to help women overcome the challenges they face when accessing and using financial services, particularly those related to mobility, time, safety and privacy.
- Women in tech may face biases and stereotypes that can hinder their progress. Educate yourself on recognizing and addressing these issues, and seek allies who can support you. Promote diversity and inclusion initiatives in your workplace, and be an advocate for other underrepresented groups, fostering a more equitable environment for everyone.
- Importance Of Mentorship

Having a mentor can offer priceless advice, assistance and networking opportunities. I encourage you to look for mentors who can guide you through your career, either inside or outside your organization, and remain open to getting constructive feedback and absorbing their knowledge and suggestions. The key is to stay open to learning from their experiences and advice, applying their wisdom to your own journey

## CONCLUSION

The age of internet and e-commerce has the potential to create opportunities for rural women like never before. The proliferation of digital technology, especially through smart phones has begun to provide a myriad of avenues to rural women in setting up their own e-commerce and unique businesses paving the way to financial independence, which ultimately is instrumental to their empowerment. The IT sector, making use of the proliferation of digital network connectivity to the most remote rural locations in India, has hence helped create large scale employment opportunities for rural women, more specifically the post-COVID scenario. With more and more people preferring to work from home, the location no longer holds a problem; it is the skill and expertise that matters.

## REFERENCES

1. <https://timesofindia.indiatimes.com/blogs/voices/digital-learning-paradox-and-women-empowerment/>
2. [https://www.torontocentre.org/index.php?option=com\\_content&view=article&id=33:removing-the-barriers-to-women-s-financial-inclusion&catid=14&Itemid=101](https://www.torontocentre.org/index.php?option=com_content&view=article&id=33:removing-the-barriers-to-women-s-financial-inclusion&catid=14&Itemid=101)
3. <https://idronline.org/the-problem-with-women-empowerment-schemes/>
4. <https://www.ohchr.org/en/topic/gender-equality-and-womens-rights?>



# AI IN NOMOPHOBIA DETECTION: LEVERAGING ARTIFICIAL INTELLIGENCE TO IDENTIFY AND ADDRESS SMARTPHONE DEPENDENCY

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## ABSTRACT

*Nomophobia or the anxiety of surviving without a mobile device is becoming more and more of a concern in modern life. Although using a smartphone occasionally is common, nomophobia can cause anxiety, despair, and other mental health issues. People's life can be significantly affected by the excessive use of smartphone, both mentally and physically. The possibility for using artificial intelligence (AI) to recognize and address smartphone dependence exists. AI can be used in a variety of ways to identify nomophobia. An area of research that has great potential is the use of AI to identify and treat nomophobia. This chapter covered the topic of using AI to identify and treat nomophobia. With further improvements, it was briefly addressed how AI may assist in identifying those who are at risk for nomophobia and render them targeted interventions and the assistance they need to manage their symptoms and improve their quality of life.*

**KEYWORDS:** *Nomophobia, smartphone dependency, artificial intelligence, detection, intervention*

## INTRODUCTION

The dreaded thought of surviving without a communication device (smart phones), termed as nomophobia, is becoming more and more of an issue in the modern world. While there are many advantages to smartphone use, it may also become excessive and develop dependency. Nomophobia, or the dread of being without or unable to use one's mobile phone, has emerged as a psychological issue in today's digital culture. The proliferations of smart phones and constant connectedness have exacerbated the problem of nomophobia, which could have detrimental impacts on mental health and general wellbeing. Nomophobia, which is a portmanteau of "no mobile phone phobia," is a phrase used to describe the worry or anxiety people feel when they are unable to use or have access to their mobile phones. Smartphone's have become an essential part of our life in today's hyper connected world by giving us continual access to social media, information, and conversation. While cell phones have many advantages, an unhealthy dependence on them has led to nomophobia, which affects people of all ages worldwide. This article examines nomophobia, its prevalence, origins, effects, and potential management strategies for this contemporary form of digital anxiety.

The possibility for using artificial intelligence (AI) to recognize and address smartphone dependence exists. Researchers and professionals are investigating how Artificial Intelligence (AI)

can be used to detect and comprehend nomophobia as technology develops, with the goal of creating efficient therapies and support systems for people who struggle with smartphone dependence.

## Understanding Nomophobia's Existence in the Modern World

Because smartphone are being used more often around the world, phobias of them are becoming more common. Nomophobia is a widespread issue and young people are more prone to it and numerous countries have a significant frequency of nomophobia. Nomophobia affects a sizable section of the population, according to studies.

## ORIGINS OF NOMOPHOBIA

According to Bhattacharya et al.'s 2019 reference, "The UK research organization YouGov originally used the term "nomophobia" in 2008 when conducting research for the UK Post Office on the fear experienced by mobile phone users. The phrase, which combines the words "no," "mobile phone," and "phobia," describes the fear of being without a mobile phone. Since the term was first coined, a growing amount of study has been done on nomophobia. Numerous other psychological conditions, including anxiety, melancholy, and social isolation, have been connected in research to phobia of the unknown. Nomophobia has also been related to a number of medical conditions, including headaches, insomnia, and muscle tension. Although the exact





reasons of nomophobia are unknown, it is believed that an increased reliance on mobile devices for communication, information, and entertainment is a contributing factor. Our use of mobile devices has become a need, and going without one can leave us feeling disoriented or alienated (iberdrola.com). The historical growth of mobile technology, the emergence of smartphone, growing reliance on mobile devices, fear of missing out, continual connectivity, and mobile internet addiction can all be linked to nomophobia. Understanding the psychological elements underlying nomophobia becomes increasingly important as the digital environment develops in order to effectively address the threats it poses to people's physical and mental well-being. Numerous elements contribute to phobia's existence.

### Prevalence of Nomophobia

According to studies that have been undertaken throughout the world. A study conducted in the United Kingdom discovered that nomophobia affects 66% of persons (Akram et al, 2019). And another study conducted in UK indicated that 58% of participants felt anxious when they were away from their phones, demonstrating the broad effects of nomophobia (King et al., 2013). High levels of nomophobia have been recorded in similar investigations in various nations, demonstrating that it is a global issue. Nomophobia is more prevalent in young people than in older adults, according to studies. For instance, according to a study conducted in India, 77% of young people and 58% of elderly persons both exhibit nomophobia (Singh et al., 2017). Nomophobia may be brought on by a variety of circumstances. Personality qualities, interpersonal connections, and smartphone usage patterns are some of these variables. For instance, nomophobia is more common in those who are nervous or who have low self-esteem (Riva et al., 2015). Numerous detrimental effects may result from phobias of the unknown. Anxiety, depression, and issues with social interactions may be among these effects. For instance, a study conducted in China discovered that nomophobes were more likely to struggle with despair and anxiety (Liu et al., 2017). According to the study, over 53% of mobile phone users in Britain became anxious when they lost phone signal, had a low battery, or ran out of credit. Similar to the anxiety people feel when their wallets or keys are lost, this anxiety was brought on by the separation from other significant items. Additionally, the research also revealed that younger persons, women, and those who depended more on their mobile phones for social connection had higher rates of nomophobia” [as cited in Bhattacharya et al., 2019]

Smartphone are increasingly used for communication, entertainment, and productivity due to their convenience, variety, and availability of constant connectivity (Leung,2017). The anxiety brought on by nomophobia can be exacerbated by the fear of missing out (FOMO) on social interactions, updates, or news via mobile devices (Clayton et al.,2015). Additionally, the ease of access to social media and other online resources via cell phones has the potential to breed compulsive habits that feed the dread of

disconnecting. The distinction between work and personal life has become more hazy because to smartphones' continual connectedness. The constant expectation to be accessible and responsive elevated stress levels and made it difficult to step away from work-related issues. Because people felt unable to be away from their phones even during downtime, this mismatch between work and life contributed to the emergence of nomophobia (Ayyagari et al., 2011). Nomophobia and mobile internet addiction are closely related forms of internet addiction. Social media and other applications' rapid satisfaction and easy access to online content led to compulsive phone use, which made people feel nervous or distressed while they were away from their phones (Kuss & Griffiths, 2017).

Understanding nomophobia requires being able to spot its symptoms. Nomophobia is characterized by frequent phone checking even when there are no notifications, continual phone use in inappropriate settings (such as while driving or eating), and increased anxiety when the phone battery is low (Andrade& Pedron,2016). When people are aware of these symptoms, they may look for the right solutions to control their smartphone use and digital reliance

### LEVERAGING ARTIFICIAL INTELLIGENCE TO IDENTIFY AND ADDRESS SMARTPHONE DEPENDENCY

A subfield of computer science called artificial intelligence (AI) is concerned with developing devices or computer systems that are capable of carrying out operations that ordinarily call for human intelligence. Problem-solving, decision-making, learning, language comprehension, perception, and other processes may be included in these tasks. In order to evaluate, analyze, and interpret information, AI systems use algorithms and data. This allows them to make defensible decisions and complete specified tasks without explicit human programming.

- **Data Analysis and Behavioral Patterns:** AI may be used to examine a variety of data, including usage patterns for smart phones, interactions on social media, and emotional reactions. AI systems can identify specific behavioral patterns that show smartphone dependency and nomophobia triggers by gathering, evaluating, and interpreting this data. Researchers and clinicians can learn more about the incidence and severity of nomophobia in various communities by understanding these tendencies. These actions may consist of excessive screen time, frequent notification checks, and social media usage patterns (Roberts & Yaya, 2018). Analyzing data from smartphone usage is one method AI can be used to detect nomophobia. Information about people's phone usage patterns, app preferences, and phone interactions can all be found in this data. The data can then be used by AI to find trends connected to nomophobia. AI might discover, for instance, that nomophobes are more likely to use social



media on their phones, check their email regularly, and have a large amount of unread alerts.

- **Personalized Detection and Intervention:** Applications powered by AI can offer individualized evaluations of people's smartphone usage and emotional responses. AI systems are able to identify the symptoms of nomophobia and determine how it affects a person's wellbeing by merging data from user interactions with sentiment analysis and machine learning. Based on these evaluations, users can receive targeted support and coping mechanisms through the development of individualized intervention techniques (Fitzpatrick et al., 2017).
- **Digital detox and time management:** By monitoring smartphone usage habits and delivering real-time feedback on screen time, AI can help users implement digital detox tactics. AI-powered apps can provide notifications and reminders to users to encourage healthy usage patterns, promote device breaks, and create a healthy connection with technology (Montag et al., 2018).
- **AI Chatbots for Emotional Support:** Chat bots are yet another tool that AI can use to identify nomophobia. Computer programs called chat bots can mimic human conversation. They can be used to gather information from people about their social interactions, mental health, and usage of smartphone patterns. Then, using this data, an AI model may be trained to recognize nomophobia. AI-driven chat bots can serve as digital friends by offering comfort and techniques for coping to people who are anxious due to nomophobia. According to Provoost et al. (2017), these chat bots can engage in empathic dialogues, lead users through mindfulness exercises, and provide relaxing techniques to assist manage nomophobia symptoms.
- **Early Warning Systems:** Artificial intelligence (AI) can be used to create early warning systems that pinpoint those who are at high risk of acquiring severe nomophobia. AI algorithms can notify users and mental health specialists by continuously monitoring smartphone usage data and spotting strange patterns or major deviations, enabling prompt intervention and preventive actions (Deady et al., 2018).
- **AI Therapy Platforms:** For people who are experiencing nomophobia, AI-powered therapy platforms can offer scalable and accessible mental health care. These platforms can provide evidence-based treatment interventions, such as exposure therapies and cognitive-behavioral approaches, tailored to the individual requirements and development of users (Duvall et al., 2021).
- **Natural Language Processing for Sentiment Analysis:** Natural Language Processing is another AI method for detecting nomophobia. AI systems can comprehend and interpret human language, including

posts on social media, texts, and online communications, thanks to NLP. Sentiment analysis algorithms can analyze the emotional state and spot indications of worry or distress brought on by smartphone use (Laranjo et al., 2018). This information is useful for assessing nomophobia.

- **Physiological and behavioral indicators:** To determine a person's reliance degree, AI-powered nomophobia detection systems can also make use of physiological and behavioral markers. For instance, AI systems can identify symptoms of stress or anxiety related to smartphone separation by tracking heart rate variability, sleep patterns, and physical activity data from wearable devices (Duvall & Duncan, 2021).
- **Personalized Detection Models:** AI enables the development of personalized nomophobia detection models. These algorithms can be taught to distinguish unique smartphone usage patterns and spot any abnormalities that might be a sign of hazardous usage. AI ensures a more accurate and efficient assessment of nomophobia risk by customizing the detection procedure to each user's unique patterns (Lee et al., 2020).
- **Real-time Monitoring and alarms:** AI-powered nomophobia detection systems can give users and pertinent participants real-time monitoring and alarms. AI can identify crucial situations and initiate notifications or interventions when excessive smartphone use or symptoms of distress are found by continuously evaluating data streams and user interactions (Ben-Zeev et al., 2015).
- **Early Intervention and Preventive Measures:** AI can enable early intervention and preventive measures for people at risk of developing nomophobia by analyzing big datasets and spotting early warning indicators. The detrimental effects on the mental well-being of users may be lessened with the use of this proactive strategy, according to Mokhtari et al. (2019).
- **Ethical considerations and data privacy:** It is crucial since data analysis for nomophobia detection entails gathering and processing sensitive user information. AI-driven platforms must follow stringent privacy regulations, making sure that user data is safeguarded and anonymized to preserve users' privacy and confidence (Kuss & Griffiths, 2017).

## PERSONALIZED INTERVENTIONS TO REDUCE SMARTPHONE DEPENDENCY

Smartphone reliance has come to be recognized as a major issue in today's culture, driven by the continual connectivity and digital interaction they offer. Nomophobia cannot be cured; however there are a variety of things that may be done to help patients manage their symptoms. These consist of limiting their usage of mobile devices, establishing personal boundaries, and developing alternative coping mechanisms for worry. The nomophobia is a



relatively recent condition that is spreading throughout our society. It's critical to be aware of the signs of nomophobia and to get support when need it. An individual can take a number of actions to control the symptoms and lead a more balanced life.

Personalized interventions can be extremely important in assisting people in reducing their smartphone dependence, which is a problem that has to be solved efficiently. Evidence-based interventions such as cognitive-behavioral therapy (CBT), mindfulness training, and exposure therapy can be adapted to each person's unique needs and challenges in order to encourage better smartphone usage patterns and promote digital well-being.

### 1. Behavioral Cognitive Therapy (BCT) for Smartphone Dependence

A common therapeutic strategy is cognitive behavioral therapy (CBT), which focuses on recognizing and changing harmful thought patterns and behaviors. CBT can be modified to target unhelpful smartphone usage behaviors in the context of smartphone dependency. The tailored intervention may include:

- **Recognizing Triggers:** Individuals can pinpoint particular triggers that lead to excessive smartphone use through self-monitoring and assessment. These triggers may be anxiety, boredom, or a craving for approval from others (Elhai et al., 2017).

- **Confronting Negative Thoughts:** People can develop healthier coping mechanisms and lessen their impulse to escape into digital gadgets by confronting illogical beliefs and thoughts related to smartphone use (Hadar & Hadar, 2015).
- **Behavioral Reinforcement:** CBT can assist people in creating positive reinforcement for cutting back on smartphone use. People are encouraged to sustain better behaviors by setting realistic objectives and encouraging efforts to limit screen time (Houghton et al., 2018).

### 2. Mindfulness Training for Smartphone Dependency:

Mindfulness training places an emphasis on in-the-moment mindfulness and accepting things as they are without judgment. Mindfulness interventions can target the following areas in the context of smartphone dependence:

- **Mindful Smartphone Use:** Encouraging people to use their cell phones mindfully and attentively rather than mindlessly scrolling or multitasking (Boyle et al., 2019).
- **Mindful Coping:** Educating people on mindfulness practices to control their emotions, tension, and compulsive smartphone checking (Li & Kan, 2021).
- **Mindful Distraction:** Using mindfulness techniques to take your mind off uncomfortable feelings or circumstances in place of your regular smartphone use (Watson & Robinson, 2019).

### 3. Smartphone Dependency Exposure Therapy:

To lessen anxiety and avoidance tendencies, exposure therapy entails exposing patients to their anxieties or triggers gradually and securely. Exposure therapy can involve:

- **Controlled Smartphone Exposure:** Gradually exposing patients to circumstances that frequently lead to excessive smartphone use, such as social networking apps or notifications, without allowing them to use their devices for extended periods of time (Wolitzky-Taylor, 2008). Desensitization is the process of repeatedly exposing people to their smartphones while resisting the impulse to use them excessively, which lessens the anxiety associated with losing their gadgets (Sturme, 2009).
- **Coping Techniques:** Educating people on how to deal with stress and discomfort when exposed to stimuli associated to smart phones.

### CONCLUSION

The integration of Artificial Intelligence (AI) in nomophobia detection offers a promising and innovative approach to understand and address smartphone dependency. By leveraging AI's advanced algorithms, data analysis, and natural language processing capabilities, researchers and professionals can gain valuable insights into behavioral patterns and emotional markers associated with nomophobia. This newfound understanding enables the development of personalized interventions and support mechanisms to promote digital well-being and alleviate the negative consequences of excessive smartphone use. As AI continues to evolve, its potential in the field of nomophobia detection holds great promise in creating a more balanced and healthy relationship with technology, empowering individuals to navigate the digital landscape with greater awareness and control. By fostering collaboration between technology developers, mental health experts, and users, we can harness the power of AI to shape a future where smart phones enhance our lives while safeguarding our mental and emotional well-being. We can harness the power of AI to create a future where smart phones improve our lives while preserving our mental and emotional health by encouraging collaboration between technology developers, mental health professionals, and users.

### REFERENCES

1. Akram, S., Ali, R., & Awan, U. (2019). *Nomophobia: A systematic review of prevalence, correlates, and consequences. Telematics and Informatics, 46*, 101256.
2. Andrade, E. B., & Pedron, C. D. (2018). *Nomophobia: A study with Brazilian students. Journal of Behavior, Health & Social Issues, 10(2)*, 57-63.
3. Ben-Zeev, D., Scherer, E. A., Wang, R., Xie, H., & Campbell, A. T. (2015). *Next-generation psychiatric assessment: Using smartphone sensors to monitor behavior and mental health. Psychiatric Rehabilitation Journal, 38(3)*, 218-226. doi:10.1037/prj0000130
4. Boyle, D. E., Maisonneuve, C., & Alden, L. E. (2019). *The effects of mindfulness on anxiety and depressive symptoms in adolescents with ADHD. Journal of Child and Family Studies, 28(9)*, 2341-2350.
5. Bhattacharya S, Bashar MA, Srivastava A, Singh A. *NOMOPHOBIA: NO MOBILE PHONE PHOBIA. J Family Med Prim Care. 2019 Apr;8(4):1297-1300. doi:*



- 10.4103/jfmnc.jfmnc\_71\_19. PMID: 31143710; PMCID: PMC6510111.
6. Clayton, R. B., Leshner, G., & Almond, A. (2015). The extended iSelf: The impact of iPhone separation on cognition, emotion, and physiology. *Journal of Computer-Mediated Communication*, 20(2), 119-135.
  7. Deady, M., Johnston, D., Milne, D., Glozier, N., Peters, D., Calvo, R. A., & Harvey, S. B. (2018). Adherence to a smartphone application for weight loss compared to website and paper diary: Pilot randomized controlled trial. *Journal of Medical Internet Research*, 20(4), e158.
  8. Duvall, J., & Duncan, C. (2021). Psychophysiological and self-report assessment of problematic smartphone use. *PLoS ONE*, 16(6), e0253012. doi:10.1371/journal.pone.0253012
  9. Elhai, J. D., Dvorak, R. D., Levine, J. C., & Hall, B. J. (2017). Problematic smartphone use: A conceptual overview and systematic review of relations with anxiety and depression psychopathology. *Journal of Affective Disorders*, 207, 251-259. doi:10.1016/j.jad.2016.08.030
  10. Fitzpatrick, K. K., Darcy, A., & Vierhile, M. (2017). Delivering cognitive behavior therapy to young adults with symptoms of depression and anxiety using a fully automated conversational agent: A randomized controlled trial. *Journal of Medical Internet Research*, 19(3), e96.
  11. Hadar, A. A., & Hadar, A. A. (2015). The impact of CBT and MBCT on smartphone usage and social anxiety. *Journal of Technology in Behavioral Science*, 1(3-4), 85-92.
  12. Houghton, S., Hunter, S. C., Rosenberg, M., Wood, L., Zadow, C., Martin, K., & Shilton, T. (2018). Virtually impossible: Limiting Australian children and adolescents daily screen based media use. *BMC Public Health*, 18(1), 1280.
  13. King, A. L., Valença, A. M., Silva, A. C., Baczynski, T., Carvalho, M. R., & Nardi, A. E. (2013). "Nomophobia": Impact of cell phone use interfering with symptoms and emotions of individuals with panic disorder compared with a control group. *Clinical Practice & Epidemiology in Mental Health*, 9, 41-46.
  14. Kuss, D. J., & Griffiths, M. D. (2017). Social networking sites and addiction: Ten lessons learned. *International Journal of Environmental Research and Public Health*, 14(3), 311. doi:10.3390/ijerph14030311
  15. Laranjo, L., Arguel, A., Neves, A. L., Gallagher, A. M., Kaplan, R., Mortimer, N., Lau, A. Y. (2018). The influence of social networking sites on health behavior change: A systematic review and meta-analysis. *Journal of the American Medical Informatics Association*, 22(1), 243-256. doi:10.1136/amiainjnl-2014-002841
  16. Lee, D., Jung, Y., Kim, H., Na, E., & Kang, M. (2020). Predicting smartphone addiction from smartphone use pattern using machine learning. *Human-Computer Interaction*, 10(1), 27-34. doi:10.15579/jhci.2020.10.1.27
  17. Leung, L. (2007). Stressful life events, motives for internet use, and social support among digital kids. *Cyber Psychology & Behavior*, 10(2), 204-214.
  18. Li, S., & Kan, S. (2021). Mindfulness and mobile phone use. *Current Psychology*, 1-8.
  19. Liu, Y., Li, Y., Zhang, H., & Liu, S. (2017). Nomophobia: Prevalence, correlates, and consequences among Chinese adolescents. *Telematics and Informatics*, 34(6), 1240-1246.
  20. Mokhtari, H., Rezvan, S., & Dehkordi, A. A. (2019). Predicting smartphone addiction based on the components of meta-cognitive beliefs and self-regulation in female students. *PLoS ONE*, 14(8), e0221570. doi:10.1371/journal.pone.0221570
  21. Montag, C., Becker, B., & Gan, C. (2018). The multipurpose application WeChat: A review on recent research. *Frontiers in Psychology*, 9, 2247. doi:10.3389/fpsyg.2018.02247
  22. Provoost, S., Lau, H. M., Ruwaard, J., & Riper, H. (2017). Embodied conversational agents in clinical psychology: A scoping review. *Journal of Medical Internet Research*, 19(5), e151.
  23. Riva, G., Baños, R. M., & Botella, C. (2015). Nomophobia: The fear of being without one's mobile phone. *Behavioral Psychology and Cognitive Processes*, 10, 95-106.
  24. Roberts, J. A., & Yaya, L. H. (2018). The dark side of smartphone usage: Psychological traits, compulsive behavior, and technostress. *Computers in Human Behavior*, 89, 347-353.
  25. Singh, S., Mishra, S., & Mishra, S. (2017). Nomophobia: A study of its prevalence and associated factors among college students in India. *International Journal of Mental Health and Addiction*, 15(2), 311-322.
  26. Sturmey, P. (2009). *The theory and practice of behavioral interventions in developmental disabilities*. Routledge.
  27. Watson, B., & Robinson, E. (2019). Managing screen time: The application of mindfulness-based cognitive therapy for smartphone addiction. *Journal of Social and Clinical Psychology*, 38(8), 627-643. doi:10.1111/jocp.12444
  28. Wolitzky-Taylor, K. B., Horowitz, J. D., Powers, M. B., & Telch, M. J. (2008). Psychological approaches in the treatment of specific phobias: A meta-analysis. *Clinical Psychology Review*, 28(6), 1021-1037.
  29. <https://www.iberdrola.com/home>





# THE IMPACT OF GRADING ON STUDENTS' LEARNING

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## **DESCRIPTION OF THE PROBLEM (WHY IS THIS A PROBLEM AND FOR WHO?)**

I have been practicing teaching for a number of years and the worst thing in my career that I do not enjoy is grading. To my mind, grades create an unhealthy school environment based on the “survival of the fittest” principles. In this unhealthy environment, students lose their integrity and motives, as well as they seem to be threatened with their bad grades or marks rather than feel engaging. Grades can depress pupils so much and when they get bad grades, they are not able to focus long enough to get things done. The problem is our educational system are dedicated by traditionalists who pretty much act in our outdated educational system that is infallible and refuse to significantly update it. And, in these schools, pupils are being taught to only know and memorize. I do not believe grading is being used in a traditional classroom in an effective way, as the purpose for grades are often misused. They are only snapshots of the “general” performance of a student at any time. I think grades are overrated, but no counter-productive. In exam-like conditions, the learner learns to perform under pressure fearing of something and feeling oppressive. They worry about marks because they have to deliver more than they receive: to their parents, teachers, colleges, in other words, to all that want those marks. Parents pressure them over bad grades and compare them to theirs, but every pupil has their strengths and weaknesses. As a result, pupils try to get high grades, because they do not want their parents to be pissed of, but their grades are not what they are worth, because they get grades but forget everything after each test. The reason is that they do not really care about what subjects they are learning, they just want to have good grades and for them grades are the only thing that matter. And, the irony is that some of them get good grades because they have a pretty good memory, but they actually could not care about the material and to fully understand. On the other hand, when it comes to the quizzes, some students get so anxious thinking of failing, as well as, because of depression and anxiety, they could not concentrate and their memory can be cloudy and they forget everything during the test and feel disappointed when they see the bad result, although they study hard. As a result, they become desperate for the future and obviously, it hurts their self-esteem. We should have schooling in the first place for preparing students for their lives and careers, but not give them a sense of frustration.

## **WHAT IS YOUR CREATIVE ANSWER OR ANSWERS FOR THIS PROBLEM?**

The point of the class should not be the grade, it should be to help grow skills and move on. We need more projects and assignments based on degrees and replace exams and test with projects that are completed with percentage points. Students can show their ability in a fair way by presenting portfolios or projects to give evidence of their knowledge in written form or via an interview. The most important thing is not telling the students what needs to be in the report exactly, and letting them explore the subject and figure out what needs to be discussed. This obviously takes a lot more effort than simply giving someone marks but is also much more informative. In addition, we can use homework as practice by assign questions as optional ungraded work. If a student wants to answer the questions and write out answers to be prepared for the fishbowl discussion, it is great. If another student is just not ready, it is not disaster. Some just do not like doing homework, but can enhance their understandings during the class and are able to demonstrate themselves joining the discussion. Different brains need different things, so our aim is not criticizing or discriminating, just finding a way to show their abilities and giving a sense of credibility in their knowledge. Sometimes, I do not grade my pupils' homework assignments, which is awesome for my students, because they know and I know how hard it is, but I correct their answers the next day during the class by giving some explanations according to their mistakes. By this way, they can develop the ability of self-evaluation which means that they reflect on their strengths and weaknesses and work on themselves to do their best.

## **WHY ARE THESE ANSWERS CREATIVE/INNOVATIVE?**

The current educational system is overly standardized that does not let people explore their interests. I think that it is a wasting talent, all we can do as teachers is encouraging students to go beyond their comfort zone, pushing them to think differently in creative ways rather than to urge to remember. Opportunities must be given to the students and they should be taught with constructivism. I really want to develop well-rounded students and citizens for the future of our world. Finding out about our students' flaws and potential must help us come up with a good guide to future prospects of students. We need to reflect and rationalize thoroughly in order to become effective teachers.



Only the teacher can identify the strength of students and lead to dreams come true by inspiring and motivating, not showing their lack of ability. Being able to determine your students' strength and weaknesses, as well as ensuring the students' best performance outcomes are the strategies that makes a teacher more effective. Every teacher has their own strategies to improve and broaden the knowledge of their students and handle their learning environment. An effective teacher absolutely manages to improve students' learning, as the general outcome of the learning is of primary importance in teaching. It helps you to be a great model as a teacher. Evaluation factors should not influence students' mood, as the increase of stress level hinders learning outcomes. By supporting activities during the class, students learn more while they have fun, and they do not feel pressure like: "I have to get at least a 70 on this test or I will get in troubles with the teacher, my parents, and people who attempt to judge me based on a number". If a teacher ensures her or his students learn with a sense of inspiration, she or he becomes an effective teacher. A teacher can suggest a lot by making comments and giving feedbacks on their work, as well as assist his/her students when necessary in order to allow them to see what has to be changed and improved. It is important to mention that nice comments always improve their confidence.

### **WHO IS THE TARGET AUDIENCE? (WHO COULD OR SHOULD USE YOUR CREATION?)**

The target audience mainly consists of educators who are responsible to teach students and deliver lessons in productive ways, as well as authorities who are concerned with the quality of education. Unfortunately, in education system, so few people in power that can make a difference and are actually trying to correct the situation and improve the standard of learning and what is actually important in the real life. Everyone who works within the educational system should not ignore the root causes of the problems in schools in terms of grading system. Where one teacher stands in front of 20 kids having strains, different needs, different gifts, different dreams, but all of them are taught the same thing in the same way. School systems are flawed in treating every student the same, and, in spite of their a range of passions, interests, strengths and weaknesses, none of them are considered. Education system should be to make a base for the kids to be creative. Consequently, they can be able to invent things that can shape the future of the world. Teachers should also care about pupils' personal education rather than care about how high their grades are. If a child had phenomenal secret talents, they should get to bring it out, because schools has such a specific and strict way of teaching. Grading should never be prioritized by educators rather than actual teaching, as well as they should more care about the students as individuals and their future.

### **HOW DID YOU REACH THE CREATIVE SOLUTION?**

My strong desire of creating ideal schools that is designed to create boredom to show abilities lead me to think deeply how to solve problems of depression and stress related to grading. At first, all pupils feel that school is a place to socialize and entertain themselves, but later, it sounds like for them: "welcome to school" and "here you will feel useless, suicidal, and depressed". They realize that school is a place to get good grades. But, what their grades mean, literally nothing, it only means they are good at the tests and memorizing, but not things that they will need to be good at in life. Pupils are always forced like robots to remember but not learn anything. We should consider that how only remembering will help them, as well as how schools can be designed more better to fit pupils' needs. Each one of students has a different talent and something they are not good at. It is true that many teachers just try to make sure if a pupil know the information, but do not care if he/she enjoys it or not. Each of students is so obsessed with the grades and do not see what the problem they are facing. Teachers should always be aware of what their students are interested in, why they are interested in it, and getting them to the point of being able to learn more. If they feel uninterested, they need to be motivated and instructed to learn other things. It will connect them with other people that are interested in the same things and they can get more and more efficiently. If they are struggling in something then we actually help them rather than say, "get over it and learn it".

### **HOW COULD THIS SOLUTION BE IMPLEMENTED? WHAT WOULD BE THE NEXT STEPS TO PERFECT, DISSEMINATE, AND GENERALLY MAKE YOUR CREATIVE SOLUTION AVAILABLE?**

As a human, we are not perfect and we need someone's help and guidance. Every pupil needs a tutor who will teach life and how to build life. I wish schools and parents appreciate the children's talent rather than their memory power. School should not be about getting grades, but it should be about learning. Students connect success with a number or a letter and literally think they are worthless if they are not perfect. Apparently, a lot of students learn to receive a good grade and there is too much emphasis on grades than the actual content and the use of it outside school. Many students do not actually and truly know what they are learning. So, grades should not be used as a weapon, because grading is not essential to the instructional process. On the other hand, a grade is just a product quality, students learn to memorize and replicate. The grade just shows how well they are able to perform rather than really learn. I really wish students had more opportunities to explore themselves, and felt support every time rather than struggling for their grades. It is crucial to start from a younger age exploring new possibilities rather than only focusing on grades and not being so afraid if things do not go as planned. It takes time, but we have to reshape education from the inside. Schools



should not keep students to think inside the box rather than outside of it.

### WHAT ARE THE STRENGTHS AND LIMITATIONS OF YOUR CREATIVE IDEA OR IDEAS?

Grades mean nothing, but failure is a key to success because if you do not try and fail, you are not challenging yourself in things you do not know, which means you are not learning anything, just regurgitating things you already know. We do not need grades as a means of pressure, however we do need assessments to do properly so that it informs students and their teacher how students can improve their skills, knowledge and understandings. Looking at the grades of students in high school is very important, as high schools can give someone who deserves a better place in the future. Schools expect students to get good grades, but they do not care what actually students want to do and all they want is from students to memorize. It does not matter if they understand or not and it does not matter if pupils can remember it the day after exam. Grades are no in way indicative of a student's self-worth, self-respect, originality, creativity, teamwork skills, interpersonal skills and their imagination. Grades are merely a tool of coercion used to judge or label students on their blind and passive conformity towards the educational bureaucrats' purely subjective and superficial standards. As a result, schools make pupils stressed because they force pupils to memorize things and take standardized tests for a number that barely does anything. They literally prioritize that over learning. Grades do not define intelligence, but it can be about effort, motivation, trying to learn something new. Some students do not study hard, because schools make them procrastinate and lazy. Some personally love learning but grades always discourage them. Some students are very capable, but do not try their hardest, or do not perform their full potential or maybe do not have enough motive. Schools need a reboot, as they are outdated and lame and kill creativity. We should kids to question things more than anything.

### WHAT DID YOU LEARN ABOUT CREATIVITY AND INNOVATION FROM DOING THIS PROJECT?

By doing this project, I realize that the most profound original creative ideas is so multidimensional in its nature that holds a factual inspiration for every field of existence to enhance the untapped creative potential still unexplored within the whole humanity. Anything can be taught, it just depends on the skills of the teacher to be able to intrigue the students enough to want to listen. Creativity is so valuable in life that it needs to be taught, because we need kids get better, not worse at creating things, building things, and solving problems as they go through school. I think the processing of thoughts is education. Fostering creativity or creating the appropriate environment that would allow for creativity should be the main responsibility for schools rather than judging students' grades. People think

of teaching as showing or instructing someone how to do something and they are not wrong. That is really the definition of teaching. But, you cannot really show someone how to be creative, since everyone is creative naturally, educators must provide them with the right resources, encourage them to follow their interests and use their core strength, and give them autonomy. Creativity can happen at random moments, it is not very predictable. That is why organizations often fail to teach creativity to their employees, because they are trying to teach them the process of creativity, but actually, creativity is anti-process, it is not something you can follow step by step or force in a set timeline. It is the free flowing of one's own ideas and making connections, both of which happen as they work on something. Different people approach it differently and inner process cannot be taught by the actual definition of teaching. We can only cultivate creativity by changing the way we teach and educate. We can start this by stopping barking orders at students and trying to get them all to conform to one path and curriculum like in the current prevailing education system. Creative minds needs its voyage and adventure, and it cannot do that within the confinements of a fishbowl and feeling concern, tension and depression with their grades.

### REFERENCES

1. Abadiano, H. R., & Turner, J. (2003). *Thinking it through: Re-examining our beliefs about assessment for diverse students. New England Reading Association Journal*, 39(1), 58- 63.
2. Docan, T. N. (2006, October). *Positive and negative incentives in the classroom: An analysis of grading systems and student motivation. Journal of Scholarship of Teaching and Learning*, 6(2), 21-40.
3. Glanevau, V., (2010) *Educating which creativity?*
4. *Thinking skills and creativity* <https://doi.org/10.1016/j.tsc.2017.11.006>
5. Glaveanu, V.P. (2017). *Creativity and Wonder. Journal of creative Behavior. Early view.*
6. Glaveanu, V. P. (2015). *Developing society: Reflections on the notion of societal creativity.*
7. In A-G. Tan & C. Perleth (Eds.), *Creativity, Culture, and Development* (pp. 183-200). Singapore: Springer.
8. Kohn, A. (1999, Mar). *From degrading to de-grading. High School Magazine*, 6(5), 38-43. Malouff, J. (2008, Summer). *Bias in grading. College teaching*, 56(3), 191-192.
9. Pulfrey, C., Buchs, C., & Butera, F. (2011). *Why grades engender performance-avoidance goals: The mediating role of autonomous motivation. Journal of Educational Psychology*, 103(3), 783-700.
10. Ritchhart, R. (2015). *How clear expectations can inhibit genuine thinking in students. In R. Ritchhart, Creating cultures of thinking: The 8 forces we must master to truly transform our schools. Josseu-Bass.*
11. Romanowski, M. H. (2004, Summer). *Student obsession with grades and achievement. Kappa Delta Pi Record*, 40(4), 149-151.
12. Roth, W. F. (2000, April). *Our grading system throws kids a curve. The Education Digest*, 65(8), 27-31.
13. Schinske, J., & Tanner, K. (2014, Summer). *Teaching more by grading less (or differently).*
14. *CBE-Life Sciences Education*, 13, 159-166.



15. Stefani, L. A. (1998, Dec). *Assessment in partnership with learners. Assessment and evaluation in higher education*, 23(4), 339-350.
16. Waters, F. H., Smeaton, P. S., & Burns, T. G. (2004, Summer). *Action research in the secondary science classroom: Student response to differentiated, alternative assessment. American Secondary Education*, 32(3), 89-10





# IOT IN SUPPLY CHAIN MANAGEMENT: AN OVERVIEW

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## ABSTRACT

*Internet of Things (IoT) is in every business in today's time. IoT is a web of billions of devices that are connected through the internet. In other words, this is the system in which all devices talk to each other. In this paper, we will know what is SUPPLY Chain Management and what is the need for IoT in it, what are its benefits, and what are the challenges. In Supply Chain Management, the product is delivered to the right customer at the right time. It is a global network that acts as a chain from the time the product is made to take it to the customer. But making this chain was very easy the first time because the number of customers was less, apart from this the company had a small network, within which she used to work. But now the network is big, and the number of customers is big, so the company is now taking the help of IoT.*

*In this article, we will know the meaning of supply chain management which has been given by different authors. Along with this, we will learn about IoT. What is its need and what are its benefits? In a way, we will do an overview study. How IoT has taken its steps and how the supply chain management is benefiting from it and at the very end we will see what is the benefit to the customer as well. This article of ours will be helpful for all those who want to take an overview of all these things.*

**KEYWORDS:** *IoT, Supply Chain Management, Benefits of IoT,*

## 1. INTRODUCTION

Supply chain management has an important role within the business. No business can run properly without supply chain management. This is such a chain that the chain that is formed by bringing goods from the company's supplier and taking it to the consumer is called supply chain management. It plays an important role in a business. Supply Chain Management (SCM) is to regulate the flow of goods. If this system of a business is correct, then the profit and sales of the business will be big. If all this is good then goodwill will also be good. If we understand the direct meaning of the supply chain, then it is to take goods or services to the right place at the right time. So we call it SUPPLY CHAIN MANAGEMENT. Many years ago today, the chain of supply chain management was very small. Because then there were not so many customers. That's why it was not so important. But as time changed, the customers of the company also increased due to which the sales of the company started changing. Along with this the company's competitors also started changing. So the old concept became obsolete. If a business does not have raw materials in the right quantity at the right time, then it cannot fulfill the demand of its customers. If all this is not done well then the business will not be able to run. A company also wants to be associated with its supplier. In earlier times the company had only one or two suppliers. But in today's time, it is very much. So that when the time comes, the most work can be done.

The better it is to win the supply chain management of a business, the better it will be. This chain provides a link. Today's era is the age of the internet. The Internet has made our work

very easy. The Internet of Things (IoT) is the system where devices talk to each other. With the advent of IoT, there has been a new life in supply chain management.

IoT has thus emerged as one of the most significant technologies in modern society, and it will continue to grow as more companies realize the need for connected devices for maintaining their competitiveness.

### 1.1 Meaning of Supply Chain Management

**1.1.1** Blockchains keep track of all relevant product data, stop fake goods from entering the market, and share information with other parties to improve decision-making. IoT sensors collect and keep track of information on entities during this process, including logistics, specs, affiliation, and value. The distributed network nodes keep track of the combined data and create a real-time communication package.

**1.1.2.** In recent years, the idea of SCM has evolved to assist in minimizing some of these disruptions through the use of technology and the creation of strong supply chain networks (Park et al., 2021). To effectively deal with pandemic scenarios, there is still more work to be done in this field. Supply chains have historically been based on mutual trust and collaboration. But the conventional supply chain has multiple flaws that cause overproduction, excess inventory storage, and increased waste throughout the entire system. Additionally, excessive buffer stockpiles, a mismatch in supply and demand, and improper information sharing among supply chain participants all contribute to this waste. This waste both directly



and indirectly affects the worldwide environment.

Despite several efforts by countries to realize the "circular economy" (hence referred to as CE) idea, this wastage, directly and indirectly, adds to the global environmental issues the world is currently facing. It is possible to convert the conventional supply chain into a "smart supply chain" to achieve the CE by utilizing applications of digital technologies. What is the process of supply chain management? [2]

### 1.2 Planning

To meet the demand for a company's product or service from customers, plan and manage the necessary resources. Once the supply chain is in place, choose KPIs to gauge its performance in terms of customer value delivery, efficiency, and effectiveness.

### 1.3 Sourcing

Select vendors to offer the products and services required to produce the finished product. Create procedures to oversee and manage supplier relationships after that. Ordering, acquiring, maintaining inventory, and authorizing supplier payments are important operations.

### 1.4 Manufacturing

Organize the steps necessary to take the raw materials, produce the product, test it for quality, package it for shipping, and plan the delivery.

### 1.5 Logistics and Delivery

Plan deliveries, dispatch loads, invoice clients and collect money while coordinating customer orders.

### 1.6 Returning

Establish a system or procedure for the return of faulty, extra, or unneeded goods.

## 2. LITERATURE REVIEW

**2.1 Bhaveshkumar N. Pasi et. Al(2020)** IoT has reached its greatest point with the introduction of intelligent sensors, big data analytics, and intelligent decision-making tools. Any industry employing IoT can increase operational efficiency by focusing on the most crucial component of its supply chain management. Users can access data anywhere, at any time, thanks to smart technologies. This study suggests a conceptual paradigm for the supply chain based on IoT. The suggestion covers four supply chain components: manufacturers, suppliers, and logistics. and clients. The hypothetical IoT-based framework offered provides a detailed process. for resource use and information sharing in SCM, which increases the operational effectiveness, shortened lead times, cheaper logistics, etc. Implementation of various supply chain units was proposed with illustrating an IoT framework

**2.2 Shivam Gupta et al(2018)** Global corporations are using their analytic skills to get an advantage over rivals. To better understand the interaction between the flexible information system and the smart supply chain, this study applies Organization Information Processing (Pinki, 2022) modeling. Results from the research of 150 responders show a

significant connection between agile information systems and the elements of the smart supply chain. A high level of supply (Present Position of Corporate Social Responsibility (CSR) in India, n.d.) chain flexibility can be achieved by combining the elements of flexible information system modules with the traits of smart supply chain management, according to the research.

**2.3 Shoue Chen et al(2013)** The entire chain from farm to fork, including manufacture, packing, transport, and storing, as well as any additional processing or cooking for consumption, is covered by the continuously expanding food supply chain. Smart (Retail Management, n.d.) packaging may affect the food's sustainability, safety, and quality along this supply chain. With the incorporation of cutting-edge electronics, wireless connection, and cloud data solutions, packaging systems have advanced to become smarter. This review integrates these theoretical frameworks and technological applications and focuses on how innovative smart packaging can be, even though there are numerous factors contributing to the loss and waste problems for foods throughout the entire (Student, n.d.) which is essential in tactical and operational elements that can improve product traceability throughout the entire chain..he supply chain equally will there be any improvement.

**Longfei He et al(2011)** Global manufacturing has seen significant changes as a result of recent breakthroughs in information technology. The Internet of Things (IoT), which enables novel supply-chain operations partly based on big-data analytics and changes like businesses, presents both theoretical and practical obstacles as well as opportunities, which are the topic of this study. We want to shed light on the IoT's guiding principle and its implications for big data analytics on the operational performance of supply chains, especially regarding the dynamics of operational coordination and supply chain optimization by leveraging big data obtained from smart connected products (SCPs), and the governance mechanism of big data sharing

**2.4 Sajjad Rahmanzadeh, et al.(2020)** In addition to the numerous research studies that have been presented in the open innovation domain and smart manufacturing systems,. A subset of this concept is being investigated to incorporate the designing process with supply chain production planning using a digital twin network to validate OSCM in practice. In addition, to deal with epistemic uncertainty, a fuzzy tactical planning model is developed, and an industrial study in the clothing manufacturing industry is used to study the developed model in greater detail. The findings show that the cost of designing the products accounts for only 2% of the total cost of the supply chain.



**2.5 Achilles D.Boursianis et al(2019)** Unmanned aerial vehicles (UAVs) and the internet of things (IoT) are two popular technologies used in agricultural fields that are transforming conventional farming practices into a new era of precision agriculture. In this work, we conduct a review of recent studies on the use of IoT and UAV technology in agriculture. In this article, we go over the fundamentals of Internet of Things (IoT) technology, including intelligent sensors, different types of IoT sensors, networks, and protocols used in agriculture. We also discuss IoT solutions and applications for smart farming.

We also discuss the function of UAV technology in smart agriculture by looking at how UAVs are applied in several different contexts, such as irrigation, fertilization, pesticide use, weed control, plant growth monitoring, crop disease management, and field-level phenotyping. The use of UAV systems in intricate agricultural situations is also examined. Our analysis leads us to the conclusion that IoT and UAV are two of the most significant technologies that change conventional agricultural methods into a new level of precision agriculture intelligence.

**2.6 Karim Lounis et all(2020)** Using various communication technologies and protocols, the Internet of Things (IoT) links billions of heterogeneous objects, or Things, to give end users access to a wide range of intelligent applications. As well as urging attackers to use IoT infrastructures to their advantage to carry out extensive, widespread, and catastrophic cyberattacks. IoT infrastructure security is highly dependent on its wired and wireless infrastructure's security. The most widely used infrastructure is reportedly wireless. It is simultaneously the most susceptible and important component of IoT. In this research, we develop a wireless IoT attack categorization system. Based on which security service was penetrated by the assault, this taxonomy classifies attacks.

### 3. OBJECTIVES OF THE STUDY

1. To know the meaning of smart supply chain management.
2. To know the meaning of internet of things.
3. To know how they relate IoT Internet of Things and supply chain management.
4. Why the IoT is important in smart supply chain management.
5. What are Obstacles to Supply Chain Management Use of the Internet of Things

### 4. HOW THE IOT RELATES TO THE SMART SUPPLY CHAIN MANAGEMENT [7]

The use of IoT devices has transformed supply chain management (SCM). Understanding where items are, how they are being held, and when they may be expected at a particular location is considerably simpler.

**4.1 Verify the Position of the Goods at Any Time** IoT gadgets might be fastened to certain storage containers, raw materials,

or finished goods. The Internet of Things gadget will send its location, which GPS satellites can receive and use to track the movement of products. [8]

**4.2 Streamline the Difficulty of Goods Movement** IoT devices can use goods tracking and route planning to determine where and when deliveries are delayed. This makes it possible to plan for emergencies and take detours to quicken the supply chain. [9]

**4.3 Find Items in Storage** When products are in a distribution center, IoT devices can still be attached to them. This provides precise identification and management of items while also making it much simpler to locate individual products inside a big warehouse.

**4.4 As soon as the goods are received, administer them.** SCM can certify the precise arrival time of items thanks to verified tracking through IoT devices. Other administrative actions, such as requests for onward delivery or supplier payments, may result from this.

### 5. WHY IOT DEVICES ARE IMPORTANT FOR SUPPLY CHAIN MANAGEMENT

IoT devices are extremely advantageous for all facets of supply chain management:

1. Assurance that items, both at rest and in motion, are found where stakeholders claim they are.
2. Early detection of problems with lost or delayed products.
3. Tracking and visibility of shipments and inventory in real-time.
4. Planning supply and demand will be simpler because all parties will be aware of when goods will be received and processed.
5. Improved quality control as a result of maintaining ideal conditions for raw materials and processed items.
6. Efficient product distribution and storage because of the simpler placement of commodities in warehouses.

### 6. THE OBSTACLES TO SUPPLY CHAIN USE OF THE INTERNET OF THINGS

Reliable network connectivity is necessary for the proper operation of IoT devices. For other IoT device types to transmit their positions to GPS satellites, Wi-Fi, Bluetooth, or other connectivity may be required. They won't function as effectively in areas where there is a lot of electrical or radio frequency interference. IoT device installation and powering must be done properly. They should only be handled, attached, or removed by trained personnel. Additionally, since poor use puts IoT devices in danger of harm, it's crucial to use the right IoT device for the task at hand.

### CONCLUSION

In this article, we have learned what is IoT. We learned how IoT has made supply chain management smart supply chain management. When the Internet of Things is used in supply



chain management, it is called smart supply chain management. Earlier the business of the company was not very big. That's why the company did not get so many orders nor did it have to keep much raw stock. Therefore the company's supply chain was very small. They could handle it comfortably. But as time changed the number of people started increasing. When people grow up, their needs are also bigger than their needs, since they become customers. Now due to the arrival of so many customers, the biggest problem in front of the companies was that raw materials, how to fulfill the customer's need as soon as possible. For this, companies changed their supply chain management to smart supply chain management. This smart supply chain runs on the basis of the Internet of Things or we can say that the backbone of the Internet of Things is Smart Supply Chain Management. Because of this, today companies are growing. We learned in this article what are the advantages and disadvantages of the Internet of Things in a business. How is it helpful in a business? We can say that it plays a very major role in the supply chain management of a business. We learned how it has made everything easy from manufacturing to its after-sale services. Due to this, new models of business have been set and now along with profit in the business, the need of the customer is also being fulfilled.

## REFERENCES

1. Y. O.-P. M. S. M. D. K. A. & L. S. Kazancoglu, "Circular dairy supply chain management through Internet of Things-enabled technologies," *Environmental Science and Pollution Research*, pp. 1-13, 2022.
2. P. M. V. J. K. & J. Reyes, "Managing the dynamics of new technologies in the global supply chain," *IEEE Engineering Management Review*, vol. 48, no. 1, pp. 156-162, 2020.
3. D. M. A. D. B. & R. J. Bumblauskas, "A blockchain use case in food distribution: Do you know where your food has been?," *International Journal of Information Management*, vol. 52, p. 102008, 2020.
4. Pinki, A. (2022). *Grey Market Premium and IPO Listing Gain*. *International Research Journal of Engineering and Technology*, 9(4).
5. Pinki, A. (2022). *DIGITAL BANKING IN INDIA: AN OVERVIEW*. *EPRA International Journal of Multidisciplinary Research (IJMR)*, 8 (5), 1, 1.
6. Pinki, A. (2022). *DIGITAL BANKING IN INDIA: AN OVERVIEW*. *EPRA International Journal of Multidisciplinary Research (IJMR)*, 8 (5), 1, 1.
7. *Present Position of Corporate Social Responsibility (CSR) in India: A Descriptive Study*. (n.d.). Retrieved July 13, 2023, from [https://scholar.google.com/citations?view\\_op=view\\_citation&hl=en&user=R7HmZqYAAAAJ&citation\\_for\\_view=R7HmZqYAAAAJ:qjMakFHDy7sC](https://scholar.google.com/citations?view_op=view_citation&hl=en&user=R7HmZqYAAAAJ&citation_for_view=R7HmZqYAAAAJ:qjMakFHDy7sC)
8. *Retail Management*. (n.d.). Retrieved July 13, 2023, from [https://scholar.google.com/citations?view\\_op=view\\_citation&hl=en&user=R7HmZqYAAAAJ&citation\\_for\\_view=R7HmZqYAAAAJ:UeHWp8X0CEIC](https://scholar.google.com/citations?view_op=view_citation&hl=en&user=R7HmZqYAAAAJ&citation_for_view=R7HmZqYAAAAJ:UeHWp8X0CEIC)
9. Student, B. P. R. (n.d.). *DIGITAL BANKING IN INDIA: AN OVERVIEW*.





# HOMOEOPATHY AND ITS APPLICATION IN CASES OF RHEUMATOID ARTHRITIS

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## ABSTRACT

*Rheumatoid arthritis is a chronic autoimmune disorder that causes inflammation and pain in the joints, leading to significant disability and reduced quality of life for affected individuals. Traditional treatment approaches often involve the use of nonsteroidal anti-inflammatory drugs (NSAIDs) and disease-modifying antirheumatic drugs (DMARDs). However, there is growing interest in alternative therapies such as homeopathy. This study aims to assess the efficacy of homeopathic treatment in rheumatoid arthritis by analysing existing literature and research findings. The findings suggest that homeopathic interventions may have a positive impact on symptom management, pain relief, and overall well-being in patients with rheumatoid arthritis. However, more rigorous research studies are needed to establish a stronger evidence base and to determine the mechanisms of action underlying homeopathic treatments for this condition.*

**KEYWORDS:** Rheumatoid arthritis, homeopathic treatment, efficacy, symptom management, pain relief.

## INTRODUCTION

Rheumatoid arthritis (RA) is a chronic autoimmune disease characterized by inflammation of the joints, resulting in pain, stiffness, and reduced mobility. The conventional treatment approaches for RA typically involve the use of NSAIDs and DMARDs, which aim to control inflammation and slow down disease progression. However, these treatments are not always effective for all patients and may have adverse side effects. As a result, there is growing interest in complementary and alternative medicine approaches, including homeopathy, which offers a holistic and individualized approach to treatment. Homeopathy is based on the principle of "like cures like," using highly diluted substances to stimulate the body's self-healing mechanisms. This paper aims to review the existing literature and research on the efficacy of homeopathic treatment in rheumatoid arthritis and provide an overview of the current evidence.

Homeopathy plays a potential role in the management of rheumatoid arthritis (RA) by providing individualized treatment based on the principles of "like cures like" and stimulating the body's innate healing abilities. While the exact mechanisms of action are not fully understood, homeopathy aims to address the underlying imbalances and restore the body's equilibrium. Here are some ways in which homeopathy can contribute to the management of rheumatoid arthritis.

## Symptom Relief

Homeopathic remedies are prescribed based on the specific symptoms experienced by each individual. They aim to alleviate pain, stiffness, swelling, and inflammation associated with rheumatoid arthritis. Homeopathic remedies are selected based on the principle of similars, meaning that substances that produce similar symptoms in healthy individuals are used to stimulate the body's self-healing mechanisms.

## Individualized Treatment

Homeopathy emphasizes the importance of individualization. Each person with rheumatoid arthritis may experience different symptoms and respond differently to various triggers. Homeopathic practitioners take into account the unique characteristics, modalities, and progression of symptoms in each patient to prescribe a customized treatment plan.

## Holistic Approach

Homeopathy considers the physical, mental, and emotional aspects of an individual. It aims to address the whole person rather than just the physical symptoms of rheumatoid arthritis. By considering the individual's overall well-being, homeopathy seeks to improve the quality of life and promote a sense of balance and well-being.

## Minimizing Side Effects

Homeopathic remedies are highly diluted and prepared through a process called potentization, which aims to enhance the healing properties of the substances while minimizing potential



side effects. This makes homeopathy a potentially safer alternative or complementary option to conventional medications used in the management of rheumatoid arthritis.

It's important to note that while some individuals may experience positive outcomes with homeopathy in managing their rheumatoid arthritis symptoms, the evidence base is still limited and more rigorous research is needed to establish its efficacy. It is recommended to consult with a qualified homeopathic practitioner who can provide personalized guidance and treatment based on the individual's specific needs and overall health. Homeopathy should be integrated into a comprehensive treatment plan that may include conventional medical approaches and lifestyle modifications for optimal management of rheumatoid arthritis.

In homeopathy, the treatment for rheumatoid arthritis is based on the principle of individualization, where the specific symptoms and characteristics of each patient are taken into account. A qualified homeopathic practitioner will conduct a detailed case analysis to understand the unique aspects of the individual's condition and prescribe a personalized treatment plan. Here are some common homeopathic remedies that are often used in the treatment of rheumatoid arthritis:

**Rhus toxicodendron:** This remedy is commonly used for joint pain and stiffness that worsens with initial movement but improves with continued motion. The joints may feel hot, swollen, and tender.

**Bryonia alba:** It is indicated when the pain is aggravated by any movement and relieved by rest. The joints may be red, hot, and swollen, and the person may prefer to remain still.

**Pulsatilla:** This remedy is suitable for individuals who experience shifting joint pain that moves from one joint to another. The pain is often worse at night and with heat, and the joints may feel swollen and stiff.

**Arnica:** It is used when there is a feeling of soreness and bruising in the joints. This remedy is especially helpful if the arthritis is the result of an injury or overexertion.

**Causticum:** It is indicated for individuals who experience stiffness and contractures in the joints. The person may have difficulty initiating movement and may feel relief from warmth.

**Kalmia latifolia:** This remedy is useful for individuals with shooting, stitching pains that move from joint to joint. The joints may be swollen, and the pain is often worse at night.

It's important to note that these remedies are just a few examples, and the selection of a specific remedy should be based on a thorough evaluation by a qualified homeopathic practitioner. The dosage and potency of the remedies will also be determined based on the individual's specific needs and response to treatment.

## CONCLUSION

In conclusion, the available evidence suggests that homeopathic treatment may offer benefits in managing symptoms and improving the quality of life for patients with rheumatoid

arthritis. Several studies have reported positive outcomes in terms of pain relief, reduced inflammation, and improved overall well-being. However, due to the limitations of existing research, including small sample sizes and methodological issues, further high-quality studies are required to validate these findings. Additionally, the mechanisms of action underlying homeopathic treatments for rheumatoid arthritis need to be explored in more detail. Despite these limitations, homeopathy shows promise as a complementary therapeutic option for individuals with rheumatoid arthritis, and its integration into comprehensive treatment plans warrants further investigation.

## REFERENCE

- (1) Samuel Hahnemann "*Organon of Medicine*"
- (2) "*Robbins and Cotran Pathologic Basis of Disease*" by Vinay Kumar, Abul K. Abbas, Jon C. Aster
- (3) Herbert A. Roberts "*The Principles and Art of Cure by Homoeopathy*"
- (4) Nicole Pommier and Michel Struhar "*A Handbook of Homeopathic Pharmacy*"
- (5) Kumar, Abbas, Fausto, Mitchell "*Basic Pathology*"



# FEATURES AND APPLICATION OF ROBOTIC LABORATORY DEVICES

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## ANNOTATION

*This article discusses the problem of using elements of robotics in the educational process of physics in higher military education, as well as the features of using robotic laboratory equipment in laboratory work in physics in higher military education. Emphasis was placed on the development of creative activity of cadets and students through the introduction of elements of robotics into education.*

**KEYWORDS:** *elements of robotics, educational technology, the study of physics, robotics in teaching and physics practice, robotics training modules, robotics educational projects, robotics, laboratory equipment robotics, robotics experiments, robotics lessons, robotics objects, NXT 2.1. Data logging, MINDSTORMS.*

Elements of robotics have been used in the world education system for 15 years. Robotics education is considered as a means of forming the engineering thinking of cadets and students of the higher military educational institution, getting them interested in creativity and applying it in practice, increasing their interest in engineering activities, professions and specialties.

For the development of robotics education, the following sufficiently complex educational issues should be put before the higher military educational institution:

1. Updating the resources of polytechnic learners, taking into account the direction of technical innovations such as robotics;
2. Organization of introducing innovations into the industry using robotics elements;
3. Organization of conducting a number of scientific and research works aimed at the development of robotics education.

Knowing the basics of robotics should be one of the main links of education for cadets and trainees of higher military educational institutions, and should also be included in the curriculum. Such reforms are being implemented in a number of developed countries of the world. For example, in the higher military educational institutions of the USA and Great Britain, preparing cadets and trainees for the development of technical projects with the help of robotics is considered a promising task.

Competition-based robotics is developing day by day in our country, thematic events are being held and mostly young people who are engaged in technical creativity participate in them. But the number of participants among cadets and trainees of the higher military educational institution is significant.

The Resolution of the President of the Republic of Uzbekistan No. PQ-5032, signed on March 19, 2021, "On

measures to improve the quality of education in the field of physics and develop scientific research", talks about "ensuring the inextricable connection of scientific research in the field of physics with production, expanding the scope of scientific work aimed at solving problems in economic sectors". Based on the modern requirements for the training of specialists in fire safety and technosphere safety, it is undoubtedly an urgent issue to analyze and improve its quality [1].

In addition, M. G. Ershov's generalization of the results of scientific research works entitled "Ispolzovanie robototekhniki v prepodavanii fiziki" and "Vozmozhnosti ispolzovaniya obrazovatelnoy robototekhniki v prepodavanii fiziki" conducted by M.G. This technology structure consists of 3 components[2,3]:

1. As an object of study;
2. As a learning tool;
3. As a means of increasing the creativity of cadets and

listeners.

In addition

The use of robotics elements in the teaching of physics in higher military educational institutions was experimented for the first time at the higher educational institution in the city of Ferm of the Russian Federation. The experience was related to the study of robotics in the field of applied technical knowledge. The experience lasted for 3 years. Based on the experience, thematic educational modules were developed and included the following educational materials:

1. Learning the elements of robotics through physical foundations;
2. Carrying out physical experiments using robotics elements;
3. Creation of robotic technical object models as physical and technical applications;



4. Carrying out robotic laboratory work at various levels;

5. Organization of project work on robotics.

Each module includes theoretical information, instructions, methodological recommendations, as well as photo and video materials on assembling robotic devices, computer programs. Each element of the module is inextricably linked with the science of physics and is aimed at expanding and deepening the knowledge of cadets and listeners in science.

It will be necessary to develop a curriculum as an object of learning robotics in the educational process. The structure of such programs is divided into 2 contents:

1. System of knowledge about robotics;

2. Experience of educational activities in accordance with the system.

In the first part, it is necessary to consider the physical operation of ready-made robotic systems at different stages of practice, while in the second part, it is necessary to study the main elements of the technology of applying robotic technologies. The second content provides for the formation of basic skills in designing and constructing robots with a simple structure and making them [2].

The above-mentioned content should become an object of study within the framework of various subjects of the curriculum (physics, mathematics, informatics, etc.). The role of physics in the study of robotics by cadets and students can be analyzed as follows:

1. Physical principles of the functions of robotics elements and the possibilities of higher military educational institutions in their study;

2. Physics laboratory experiments organized on the basis of robotics elements;

3. Possibilities of making modeling technologies and robotic devices and organizing these activities within the framework of science education.

The analysis shows that studying the physical basis of the operation of robotic systems is one of the main tasks of higher military educational institutions.

In order to learn the elements of robotics, the following issues should be included in the physical science curriculum:

1. Information on the history of robotics and its development prospects, the role and importance of robotic systems in the modern technological environment;

2. Fundamentals of the philosophy and methodology of robotics, characteristics of a robot as a technical object, types of robots, laws of robotics;

3. Computer and natural modeling of robots based on a cybernetic model of a robot, basic approaches to the design of robotic systems, special kits for making robotics and special software;

4. Modern solutions and technologies in the field of making and programming robots.

In the course of research, the principles and structure of the main devices that perform the work of each system of the robot cybernetic model are analyzed. As a result, information on basic physical phenomena and laws is developed for teachers of physics teaching the principle of operation of these devices [3].

If we pay attention to the scientific and research work being carried out today, we can see that robotics is widely used in their implementation. The need to use robotics in conducting scientific research is determined by the important functions of the robot as a technical object. A robot can replace a person in extremely heavy, continuous, dangerous and difficult experimental work. The advantages of robotic experimental devices undoubtedly include better research quality, a wide range of data recording and high accuracy.

Forming the skills of cadets and trainees on robotics experience is currently an urgent task. In general, adding a fully robotic experience to the science curriculum is critical. It will be convenient to record and process data in automatic mode, as well as manage experience. Such a robotic device must perform important mechanical actions and adapt to the required mode of operation. For example, controlling the temperature of the objects being studied, bypassing resonance frequencies, controlling the parameters of the electrical circuit, ensuring that the pressure of the gas in the tank is kept constant, etc. The quality of measurements increases due to the use of data-gathering sensor systems in conducting robotic experiments. An opportunity to automatically influence the learning object will appear. The accuracy of given exposure parameters increases, the possibility of automatic control of these parameters appears. The presence of electronic elements in the hardware part of the control system of the robot, as well as the availability of its modern software with the speed of the computer, achieves a quick reaction to external influences and a high sensitivity of internal changes in the robotic system.

The reaction of the robotic system to any impact can last for a certain time. The robotic experimenter is able to automatically manage and control the state of its internal system according to various parameters. For example, the accuracy of the angular rotation of the shaft of the electric motor of the educational robot is 10, which provides a sufficient amount of rotation balance of the object being studied, the smoothness of the forward movement of a mechanical part, and the strict periodicity of its vibration.

As an example, we can cite some robotic laboratory devices. It serves to study the dependence of the oscillation period of the spring pendulum on its mass and the stiffness of the spring. The experiment is carried out in two stages. A series of mechanisms are activated to ensure that the mass of the pendulum changes due to an increase in the number of loads, and as the stiffness of the spring increases, its elasticity decreases. Disequilibrium of the system and emergence of free oscillations occurs automatically. The period values of the oscillations of the spring pendulum are displayed on the microprocessor screen with the help of special modern software.

It is possible to display the results of the experiment graphically. System sensors monitor the experiment in the given mode. The experiment can be repeated several times, while the values of the loads and the stiffness of the spring can be changed. Based on the results of this experiment, students can draw conclusions about the laws of oscillation of a spring pendulum.





As another example, a model of the protection system was developed to prevent the overheating of the reactor of nuclear power plants and, as a result, the occurrence of fires. The protection unit of the reactor was assembled based on the use of sensors (Super Pro Prototype Sensor) based on the designers and connected to the Mindstorms microprocessor unit. The protective unit has a separate button for turning off the reactor, and a switch-switch for switching the reactor to unprotected mode. The possibility of turning off the protection unit made it possible to model the accident process of the Chernobyl NPP in the pump start-up model. A flame detector was used in the system for fire protection. When the sensor went off, the reactor was put into nuclear shutdown mode, the siren went off, and a rescue robot arrived in front of the reactor with an infrared sensor to find the source of the fire.

Important educational functions of robotics have been identified during current scientific and technical research. It is important for the teacher to know and expand these functions, which directs them to their use in the educational process. Let's take a look at these features:

1. Teaching function - teaching cadets a new and socially important technical culture, acquiring modern polytechnic knowledge and skills, and achieving the necessary and necessary technical and technological competitiveness by engaging in robotics.

2. Developmental and educational function - the application of robotics education in the educational process forms a set of mastering and understanding processes in cadets (sensing, thinking, imagining, speaking, etc.). The uniqueness of this effect is related to the high level of motivation in robotics. Direct manual labor and practical skills of independent solving of certain technical issues and advanced actions in solving them are the main factors of such effects [4].

The project activities of robotics cadets should always be connected with subjects in the educational process. It is appropriate to support such activities with robotics Olympiads. This ensures the creative qualities of robotics projects and raising team activity to higher levels. Implementation of disciplinary and interdisciplinary robotics projects by cadets and trainees is one of the important areas of application of robotics in the educational process.

As a result of the conducted research, we draw the following conclusions:

1. The technical creativity of cadets and trainees of higher military educational institutions is related to the development trends of the infrastructure of robotic facilities.

2. Pedagogical experiment-testing will allow robotics to be included not as an additional education, but as a basic education, and to find solutions for its effective use.

3. It became clear that in the application of robotics there is a need for necessary textbooks on physics, robotics education kits and special software. Restoration of the connection between technology and natural and mathematical sciences increases the effectiveness of the educational process.

## REFERENCES

1. Еришов М.Г. *Использование робототехники в преподавании физики*// Текст научной статьи по специальности «Компьютерные и информационные науки». Москва 2012.
2. Еришов М.Г. *Возможности использования образовательной робототехники в преподавании физики*// IV международная научная конференция «Проблемы и перспективы развития образования». Пермь 2013.
3. Дерягин А.В. *Цифровые технологии в учебном физическом эксперименте. монография* / – Казань: Изд-во Казан. ун-та, 2019. – 154 с.
4. Служев В.И. *О воспитательной и информационной роли курса физики МИПБ МВД РФ* // Сборник трудов Московского Государственного открытого педагогического университета, вып. № 40, 1998. –С.145-151.



# ORGANIZATIONAL CULTURE AND PROFESSIONAL COMMITMENT; A CORRELATIONAL ANALYSIS AMONG EMPLOYEES INVOLVED IN HIGH PRECISION JOB SETTINGS

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## ABSTRACT

*Present study aimed to reveal the relationship between organizational culture and professional commitment with regard to employees working in a job setting which demands high precision in their jobs. Sample size of the study were 100 professionals involved in high precision jobs like bio engineering, tool and die making related to air crafts and aerospace industries etc. Stratified random sampling were the sampling technique used in the study. Descriptive survey method was used as the main method for data collection. Tools used were organizational culture Inventory developed by Sunil & Aiswarya (2023) and revised version of Professional commitment developed by Mayor, Allen & Smith (1993). Superior-Subordinate relationship, Productivity of the firm, Relationship between co-workers, Work-Life balance, Employee engagement and organizational leadership were the six dimensions. Leadership. Extend of professional commitment can be divided into three, high, moderate and low. Three types of Employee commitment are cited in the professional commitment scale i.e., Affective Commitment (ACS), Normative commitment (NCS) and Continuance commitment (CCS). As per the results of the study, there exists a positive nature of correlation between organizational culture and professional commitment.*

**KEYWORDS :** *Organizational culture , Professional commitment, High precision jobs, correlation etc.*

## INTRODUCTION

High precision jobs are nothing but the jobs which are closer to the maximum extend of designed value. Allowable deviation or tolerance of these kinds of jobs are very less say in the order of micron. High precision jobs can be considered as productive occupational activities which supposed to invest whole hearted involvement of employees with its fullest concentration and utmost accuracy in dealings. Realization of these kinds of jobs are directly connected with quality of raw materials, appropriate production processes, environmental conditions and finally the capability of human resources involved in the job sector. Out of these four factors, context of discussion under this study is regarding the efficiency/performance of human resources involved in high precision jobs. Factors influencing the performance of human resources can be cited as Expertise/skill of employee, physical conditions of the personnel, mental conditions , environmental conditions, education, age etc. (Singh & Guptha, 2015).

Organizational culture, familial conditions, social conditions, communication, interpersonal relationships etc. can be cited as some of the determining factors of mental conditions. In high precision job settings, where accuracy, attention to detail, and

quality are critical, the organizational culture plays a significant role in shaping the work environment and employee behavior. Professional commitment can be viewed as the urge of a person to devote his maximum potentials towards the organization where he/ she is working in. Professional commitment is the desire of a professional to update, strengthen, and sharpen his professional competencies and to develop understanding and insight in different aspects of a profession (Alvi et al, 2015). It is referred to as the psychological link between an individual and his occupation that is based on an affective reaction to that organization. Professional Commitment is a term which stimulates a 'rejuvenating transformation' which reveals the positive attitudes in people and brings about positive changes in the personal domains for effective life (Sena, 2020). It is a matter of debate for a long time that whether there exists any significant factor which positively or negatively influence the professional commitment of employees. Even though we can quote enormous factors, present study is an attempt to reveal out the influence of organizational culture on professional commitment of employees working in high precision job settings. Organizational culture encompasses all factors.

Occupational progress has served a significant role in the development of all realms of the Nation. Especially the



contributions of high precision job settings like aerospace manufacturing industries added flying colours to the progressive potentials of state. Even now, the most valued asset of our nation is, obviously, the efficient and excellent professionals who make their effective presence around the entire world. Hence it can be considered as the need of hour to analyze the relationship between organizational culture and professional commitment among employees working in high precision job settings.

### OBJECTIVES OF THE STUDY

Following are the objectives involved in the study.

- To find out the nature of Organizational culture within high precision job settings.
- To find out the level of professional commitment among employees involved in high precision job settings.
- To find out the relationship between organizational culture and professional commitment among employees involved in high precision jobs.

### HYPOTHESES OF THE STUDY

Major hypothesis involved in the study is written below.

- There will be no significant relationship between the organizational culture and professional commitment among employees involved in high precision jobs.

### METHODOLOGY OF THE STUDY

Descriptive survey method was used as the main method for data collection. Sample size of the study were 100 professionals involved in high precision jobs like bio engineering, tool and die making related to air crafts and aerospace industries etc. Stratified random sampling were the sampling technique used in the study. Tools used were organizational culture Inventory developed by Sunil & Aiswarya (2023) and revised version of Professional commitment scale TCM developed by Mayor, Allen & Smith (1993)..Superior-subordinate relationship, Productivity of the firm, Relationship between co-workers, Work-Life balance, Employee engagement and organizational leadership were the six dimensions of Organizational Culture Inventory. Extend of professional commitment can be divided into three, high, moderate and low. Three types of Employee commitment are cited in the professional commitment scale i.e. Affective Commitment (ACS), Normative commitment (NCS) and Continuance commitment (CCS).

### RESULTS AND DISCUSSIONS

**Table showing the Frequencies and Percentages with regard to nature of Organizational culture in high precision job settings**

**Table No 1**

	Nature of Organizational culture	Frequencies	Percentages
1.	Conducive (151 and above )	25	25
2.	Moderate (98-151)	57	57
3.	Poor (upto 97)	18	18

From the above table it can be understand that 25% of the total sample opinioned that organizational culture of their institution found to be conducive. 57% of the sample felt a moderate level in

the organizational culture of their institution. 18% of the total sample found organizational culture of their institution as in poor level.

**Table showing the Frequencies and Percentages of employees having different levels of professional commitment**

**Table no 2**

Sl no	Extend of commitment	Frequencies	Percentages
1.	Affective	56	56
2.	Normative	20	20
3.	Continuance	24	24

From the above table it can be understand that 56% of the total sample have affective nature of commitment towards the organization they are working in. 20% showed Normative

commitment to their sector of work and the rest 24% have continuance commitment towards the organization.

**Table showing the relationship between organizational culture and professional commitment among employees working in high precision job settings**

**Table No 3**

Sl no	Dimensions	r value	P value
1.	Organizational culture	0.70	.000
2.	Professional commitment		



From the above table, obtained r value 0.70 indicates that there exists significant positive relationship between organizational culture and professional commitment. Both variables found to be directly proportional to each other. When organizational culture enhances, eventually professional commitment also will get strengthened.

### MAJOR FINDINGS OF THE STUDY

Major findings obtained from the study are as follows.

- 25% of the total sample opined that organizational culture of their institution found to be conducive.
- 57% of the sample felt a moderate level in the organizational culture of their institution.
- 18% of the total sample found organizational culture of their institution as in poor level.
- 56% of the total sample showed affective nature of commitment towards their organization.
- 20% showed Normative commitment to their sector of work
- 24% have continuance commitment towards the organization.
- There found to have significant positive relationship between organizational culture and professional commitment.

### IMPLICATIONS OF THE STUDY

- Conducive organizational culture leads to increase in productivity of the firm since number of professionally committed employees will also be high.
- Organizations must not be a 'pressure' building area for employees, but a 'pleasure' providing abode of peace which directly or indirectly results in the emergence of a group of professionally committed employees.
- Relationship between superior and subordinate must be co-ordinal, neither too strict nor too liberal.
- There should be an equilibrium between appreciations and criticisms by superior to subordinate.
- Handshakes, smiles, word of appreciation etc. from superior officers will definitely add up the level of confidence of employees and enhance their professional commitment.
- A habit of expression of gratitude must be encouraged among employees in any firm.
- Reduce the rejection of products in high precision manufacturing area.
- Route causes of efficiency reduction in high precision production have to be analyzed.
- Professional commitment of workforces can be enhanced through pleasant and encouraging industrial environment.
- Employers have to provide an emotionally securing relationship with employees.
- Occupational environment have to be devoid of ego related issues.

- Proper remuneration for employees have to be assured.
- Cordial relationship between employees has to be maintained.

### CONCLUSION

Present study was an attempt to analyze the relationship between organizational culture and professional commitment among employees working in high precision job settings. As per the result, there exists a highly significant correlation between these two variables. Level of happiness, satisfaction and comfort level of employees in the organizational setting can be considered as some of the significant determinants of professional commitment. It is essential to take measures to enhance harmony in workplace by the authorities. Producing and maintaining a culture that symbolizes these dimensions requires the commitment of organizational leaders and employees at all levels. A strong organizational culture in high precision job settings can significantly be contributed to improved performance, reduced errors, and enhanced job satisfaction among employees.

### REFERENCES

1. Abid Alvi, H., Hanif, M., Shah Nawaz Adil, M., Raheem Ahmed, R., Vveinhardt, J., & Professor, A. (2014). *Impact of Organizational Culture on Organizational Commitment and Job Satisfaction*. *European Journal of Business and Management Online*, 6(27), 2222–2839.
2. Sena, A. (2020). *The influence of organizational culture, job satisfaction, and professional commitment on innovative behavior of flight instructors at the civil flight school in Indonesia*. *Warta Ardhia*, 46(1), 1-17
3. Singh, A., & Gupta, B. (2015). *Job involvement, organizational commitment, professional commitment, and team commitment: A study of generational diversity. Benchmarking: An International Journal*, 22(6), 1192-1211.





# A STUDY ON SOCIAL MEDIA MARKETING OF NYKAA PRODUCTS AND ITS IMPACT ON CONSUMER BEHAVIOUR WITH SPECIAL REFERENCE TO COIMBATORE CITY

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## ABSTRACT

*The rapid growth of social media platforms has revolutionized the way businesses connect with consumers and market their products. This study aims to investigate the social media marketing strategies employed by Nykaa, a prominent e-commerce platform specializing in beauty and cosmetics, and the subsequent impact on consumer behavior. The study's results are not only relevant to Nykaa's marketing team but also hold implications for other beauty and cosmetics brands and businesses operating in the e-commerce domain. In a competitive market environment, the findings can help marketers develop innovative and targeted social media campaigns that resonate with their target audience, thereby optimizing their marketing efforts and achieving sustainable business growth.*

## INTRODUCTION

Himalaya Wellness Company (formerly Himalaya Drug Company) is an Indian multinational personal care and pharmaceutical company based in Bangalore. It was originally established by Mohammad Manal in Dehradun in 1930. It produces health care products under the name Himalaya Herbal Healthcare whose products include Ayurvedic ingredients. Its operations are spread across locations in India, United States, Middle East, Asia, Europe and Oceania, while its products are sold in 106 countries across the world. Himalaya Global Holdings (HGH), headquartered in Cayman Islands, is the parent company of Himalaya Wellness Company and the global holding company of the group. Apart from Bangalore, HGH has regional head offices in Dubai, Singapore and Houston. Himalaya Herbal Healthcare has a very wide range of products, which include "pharmaceuticals, personal care, baby care, well-being, nutrition and animal health products. The company has more than 290 researchers that utilise Ayurvedic herbs and minerals.

and ceremonial occasions were all included in the study. People would expect high-quality goods and services in the fiercely competitive world of business. A business cannot last for a long time if its products and services are of poor quality. Cosmetics are the lifeblood of the modern world, and they make a lovely present. They modestly believe that the recommendations will be beneficial for the pertinent cosmetics services to grow their business.

✓ **CA Priti Sharma, Dr. Rupa Khanna Malhotra and Mr. Omdeep Gupta (2021)<sup>2</sup>**, The findings of the study reveal that a customer's purchasing decision is influenced by a number of critical elements. The satisfaction a customer gets from using a commodity as well as the value he paid for it go a long way toward forming his opinion of a brand. Apart from a few complaints about poor packing quality, of the kind that Patanjali should take seriously, the largely good feedback was received from users of Patanjali's products in this study. Its distribution strategy, as noted, is incredibly effective and unique in that it has used all feasible avenues to reach customers, including franchisees, organized retail giants, disorganized stores, its own website, and internet shopping.

## REVIEW OF LITERATURE

✓ **D. GokulNath, R.Vishnu and Dr.G.Thanikacchalam (2023)<sup>1</sup>**, they found that this chapter investigates people's attitudes toward cosmetics. The respondents' responses about the types of cosmetics they use, the brands they like, and how they perceive the role of cosmetics in human life including its use for significant jobs

## STATEMENT OF THE PROBLEM

Despite the growing popularity of Himalayan products in Coimbatore city, there is a lack of understanding about the factors that influence customer preferences and purchase decisions. Therefore, this study aims to identify the key drivers of customer preference for Himalayan products and assess the level



of customer satisfaction with the product range and marketing strategies used by Himalaya. By addressing this knowledge gap, the study can provide insights that can help the company to improve its marketing strategies and enhance customer loyalty and sales in Coimbatore city.

### OBJECTIVES OF THE STUDY

1. To know the Consumer preference and awareness towards Himalaya baby products.
2. To identify the factors influencing the customers to purchase baby products of Himalaya.
3. To identify the level of satisfaction of customers using Himalaya baby products.
4. To know the problems faced by the customers by using baby products of Himalaya.

### METHODOLOGY OF THE STUDY RESEARCH DESIGN

Descriptive research design was used in the study to describe the awareness among the chemist and with regards to Himalaya its demand brand image and efficiency. Descriptive research design includes survey and fact-findings and enquires of varieties. The research was of descriptive design aim to procure a clear, complete and accurate description of the situation he can only report what has happened? What is happening?

### SAMPLE FRAME

The source of information are retailers, friends and relatives. The sampling frame includes following information.

### SAMPLING TECHNIQUE

Through the population is infinite in this study the simple random technique way used for collecting the data

### SAMPLING UNIT

The respondents of the study are called as sampling unit.

### SAMPLE SIZE

A sample size refers to the number of items to be selected from the population to constitute the study. The sample size of about 120 respondents were analyzed individually and concluded the result

### SOURCE OF DATA

Data in the study are of two types

1. Primary data
2. Secondary data

#### 1. Primary Data

Primary data were collected through survey from the customers using the questionnaire. Questionnaire helps to understand the performance of the customers. Only limited number of data is collected from the customers through primary data.

#### 2. Secondary Data

Secondary data needed for conducting this research work were collected from brochures of the company and, books and various journals.

### STATISTICAL TOOLS

The data collected from the customers during survey are analyzed using various tools.

The tools applied for this study is

- i) Percentage method
- ii) Two way analysis

### PERCENTAGE METHOD

In this project percentage method test was used. The percentage method is used to know the accurate percentages of the data we took, it is easy to graph out through the percentages. The following are the formula,

No. of respondents

$$\text{Percentage of Respondents} = \frac{\text{No. of respondents}}{\text{Total no. of respondents}} * 100$$

Total no. of respondents

### ANALYSIS AND INTERPRETATION

**TABLE 01**  
**USAGE OF HIMALAYA BABY PRODUCTS**

YEARS OF USAGE	NO. OF RESPONDENTS	PERCENTAGE%
Below 1 years	35	29%
1-3 years	44	37%
3-5 years	33	27%
Above 5 years	8	7%
<b>TOTAL</b>	<b>120</b>	<b>100</b>

Source: Primary Data

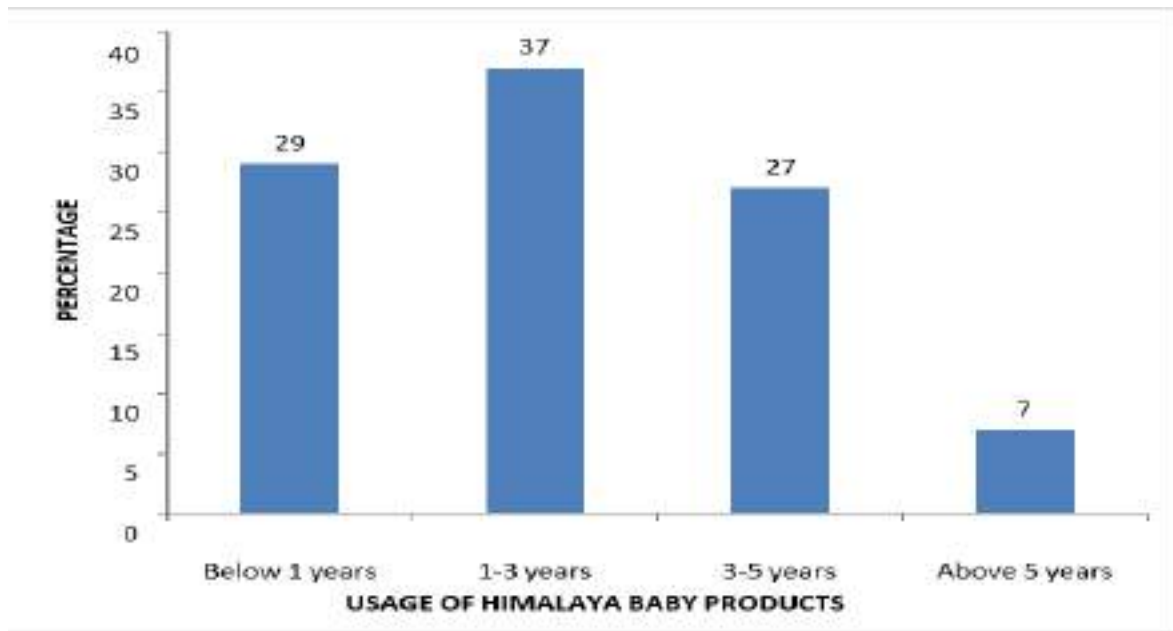


### INTERPRETATION

From the above table, 29% of the respondents use Himalaya baby products below a year, 37% of the respondents use Himalaya

baby products from 1 to 3 years, 27% of the respondents use Himalaya baby products from 3 to five years, 7% of the respondents use Himalaya baby product for more than 5 years.

It is found that maximum of the respondents are belongs to 1-3 years



**TABLE: 02**  
**REASON TO PREFER HIMALAYA BABY PRODUCTS**

REASON	NO OF RESPONDENT	PERCENTAGE %
Price	13	11%
Quality	55	46%
Attractiveness	12	10%
Chemical free	40	33%
<b>TOTAL</b>	<b>120</b>	<b>100</b>

Source: Primary Data

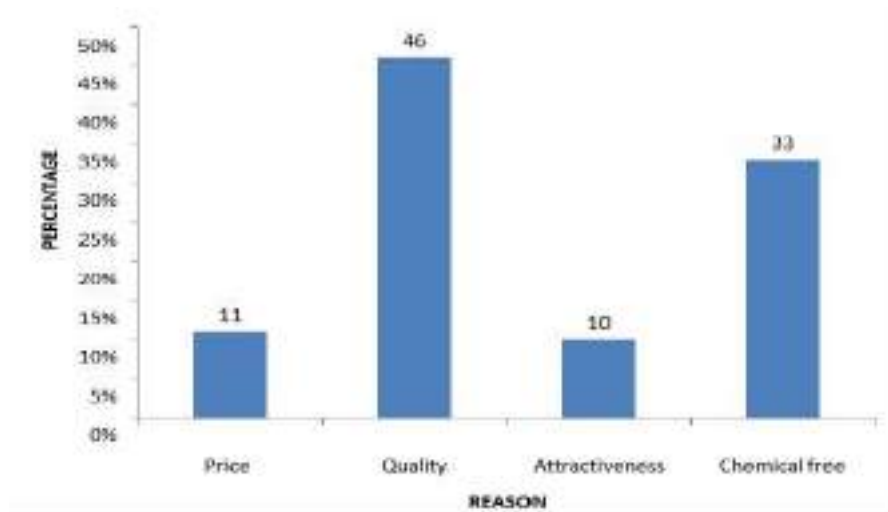
### INTERPRETATION

From the above table, 11% of the respondents buy Himalaya baby products because of the price, 46% of the respondents purchase Himalaya baby products for their quality, 10% of the respondents

buy Himalaya baby products for the attractiveness, 40% of the respondents purchase Himalaya baby products for their chemical free nature.



It is concluded that maximum number of respondents purchase Himalaya baby products because of the quality of the product.



**TABLE 03**

**LEVEL OF SATISFACTION THE CONSUMERS OF HIMALAYA BABY PRODUCTS**

LEVEL OF SATISFACTION	NO. OF RESPONDENTS	PERCENTAGE%
Highly satisfied	42	35%
Satisfied	62	52%
Neutral	13	11%
dissatisfied	1	1%
Highly dissatisfied	2	2%
<b>TOTAL</b>	<b>120</b>	<b>100</b>

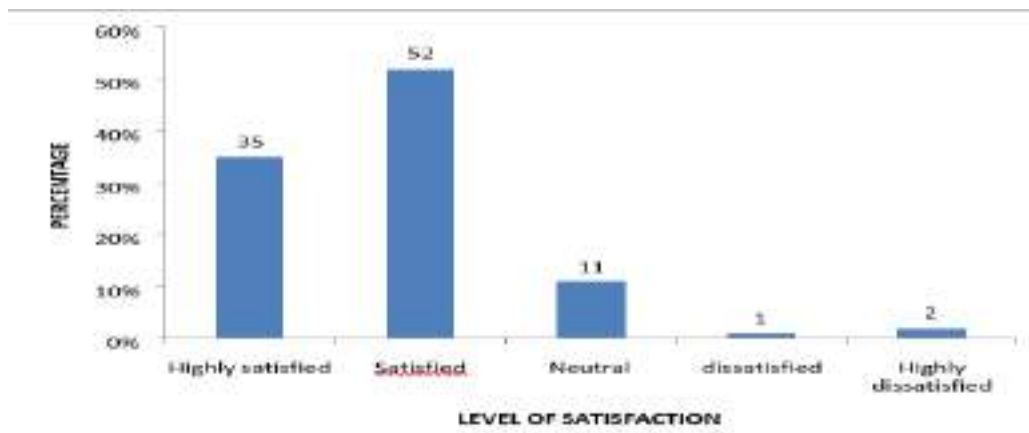
Source: Primary Data

**INTERPRETATION**

From the above table, 35% of the respondents using Himalaya baby products are highly satisfied. 52% of the respondents using Himalaya baby products are satisfied. 11% of the respondents

using Himalaya baby products are neutrally satisfied. 1% of the respondents using Himalaya baby products are dissatisfied. 2% of the respondents using Himalaya baby products are highly dissatisfied.

It is observed that the maximum number of the respondents using Himalaya baby products are satisfied.







## FINDINGS, SUGGESTIONS.CONCLUSIONS

### FINDINGS

- The maximum of 45% of the respondents purchase Himalaya babyproduct frequently in monthly basis.
- 46 of the respondents are considered as maximum respondents whopurchase Himalaya baby products from super markets.
- The majority of the respondents with 42.5 are satisfied by using Himalaya babyproduct.

### SUGGESTIONS

- ❖ More innovative techniques and strategies can be organized to maximize the sales of Himalaya baby products.
- ❖ Complement retailers with more gifts and offers for achieving the target.

After the study, it is understood that consumer satisfaction is a vital key. The company must attract its consumers by providing many free gifts related to their products to maintain long lasting market. Through the study on consumer preference of Himalaya baby products, the needs of the consumers is observed.

In overall, the consumers are satisfied with the brand, quality and price of the Himalaya baby products if the above suggestions implemented, the company will reach the highest target in future. Through the survey, it is found that the most of the consumers whole heartedly

### REFERENCE

1. D. GokulNath, R.Vishnu and Dr.G.Thanikacchalam(2023), A CONSUMER PREFERENCE RESEARCH DESIGN TO COSMETICS EXECUTED BY COLLEGE STUDENTS IN COIMBATORE CITY, *International Journal of Innovative Research in Engineering*, ISSN No: 2582-8746, Volume 4, Issue 1, January-February 2023, PP: 186-194.
2. CA Priti Sharma, Dr. Rupa Khanna Malhotra and Mr. Omdeep Gupta(2021), A STUDY OF PATANJALI PRODUCTS: AN EMERGING INDUSTRY OF UTTARAKHAND, *Ilkogretim Online - Elementary Education Online*, Vol 20 (Issue 2), 2021, pp. 2431-2439

### WEBSITE

[www.himalaya.com](http://www.himalaya.com)  
[www.google.com](http://www.google.com)

- ❖ Creative advertising increases the market in remote areas.
- ❖ Creating awareness in rural areas about Himalaya baby products. This encourages the people to purchase the products.
- ❖ Enhancing more eco-friendly baby products encourages the people to buy Himalaya baby products.

### CONCLUSIONS

The study reveals that most of the respondents are aware of the Himalaya products. Now people are not considering the cosmetics as luxury hence there is a need to advertise more to create awareness and use of Himalaya baby products. The present study reveals that the consumers have a good preference towards Himalaya Baby products. The popularity of the brand is also one of the factors encourages the consumers for their purchase duration.



# GROWTH AND PROSPECTS OF DAIRY INDUSTRY IN INDIA: A DESCRIPTIVE STUDY

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## ABSTRACT

*Milk provides good nutrition and helps the income of people in rural areas of the country. This study examines the growth and development of the Indian dairy industry. This study examines about milk production and consumption in the country. This study tries to estimate the milk production in the country given the current production model. It explores the relationship between the country's milk production and its international exports and imports.*

*These findings will assist policy makers and the agricultural industry in making production decisions. Statistical data, estimation and correlation analysis were used during the research process to show the relationship between the production, consumption and distribution of dairy products. The study found that under the current production pattern in the country, India could produce around 217 million tons of milk by 2025. In 2016-17, the country's milk consumption was 351 grams, 229 grams more than international milk. per person per day. Correlation analysis is used to determine whether there is a relationship between imports and exports of dairy products and milk. The findings show that milk has a positive ( $r = 0.220$ ,  $p = 0.601$ ) effect on exports of dairy products and a negative ( $r = 0.228$ ,  $p = 0.588$ ) effect on exports. The study found that there are many ways to promote, produce and distribute milk and its products that policymakers and the dairy industry can use to their advantage.*

**KEYWORDS:** Dairy Industry, Production, Consumption, Development, per capita milk availability and correlation analysis

## 1. INTRODUCTION

Milk production and farming, additional work to agriculture, is very beneficial because agriculture not only provides a way of working, but also the responsibility to improve the quality of food for families and provide a stable income for the masses. With the Flood Study in the country, the importance of the dairy industry has increased income and employment opportunities in rural areas. Thus, the dairy industry plays an important role in the production of dairy products and helps to make milk one of the most profitable products of the economy.

Avhad, Kadian, Verma, and Kale (2015) praised entrepreneurs for their important role in promoting business and technology. They believe that the creation of entrepreneurs through business development is directly related to the development of the country's economy. They draw attention to the fact that entrepreneurship can contribute to the development of the country in many ways. Businesses in developing countries include: integration, implementation, risk, innovation, science and technology, business expansion, networking, coordinating and managing the factory at all levels, creating processes and tools to reduce production costs and improve quality. They are aware of the important role that dairy producers play in the economic

development of the country, and at the same time, they respond to our country's largest dairy producers on the international map of the world.

In 1970, India was still a country with a milk deficit, with a production of only 20 million tons. Today, India has become the world's largest milk producer with a production of over 160 million tons with a share of 18.5%. Global milk production, which was 137.7 million tons in 2013-2014, increased to 164 million tons in 2017-2018. While the annual growth of milk production was 4% from 2011 to 2014, it increased to 6% from 2014 to 2017, while world milk production grew by only 2% in the same period. In addition, it is estimated that India's dairy industry will surpass the world's dairy industry with a CAGR of 4.2%, with an annual production of around 185 million tons, and the EU will be the largest producer by 2020.

India, In spite of its massive production milk and its products, the consumption of milk is increasing at a very fast pace. This massive consumption of milk is due to the increase in the purchasing power of people, growing urbanisation, changing food practice, lifestyles, and demographic growth. The per capita availability of milk is 351 grams in 2016-2017, which was



enhanced from 307 2013-2014 Grams. With its wide array of benefits, milk is the only source of animal protein and nutrients needed by the world's largest vegetarians. Demand for dairy products is driven by increased consumer interest in protein-rich foods and increased awareness of dairy products and accessibility from markets. Therefore, due to large and rapidly growing domestic demand combined with population growth and increasing purchasing power, most household goods are not enough money for the export market. India ranks 52nd in the world milk exporter ranking. In 2017, it accounted for 01% of the world's total milk exports.

Milk producing families drink about 55% of the milk they produce. Two-thirds of the milk produced in the country is sold in informal markets, with only 15-16% going to market management through cooperatives and private copy businesses. My country's production capacity, consumption capacity, international milk exports and the country's right to double the income of farmers are necessary to promote milk production and trade through agriculture. This study attempts to analyze the Indian dairy industry in terms of milk production and focuses on key issues and strategies to promote milk production through the dairy industry. Against this background, this article aims to answer the research question "How do dairy farms increase milk production through economic development".

## 2. REVIEW OF LITERATURES

I. **Kumar and Parappurathu (2014):** In his study analyzed the data collected from National Sample Survey Organization (NSSO) of the 38th, 50th, 61st, and 66th rounds covering the years 1983, 1993-94, 2004-05 and 2009-10 including both the rural and urban households. The average per capita consumption of over 30 days of all foods and non-foods commodities in a household are included in their analysis. The rising significance of dairy products in the food basket of the people of India are revealed in their study. The increasing demand for dairy products is found to be due to the higher income elasticity of demand, which is more significant in rural than urban areas. They found that the demand for value-added milk products like ice cream is increasing rapidly, whereas the demand for traditional milk products like butter and ghee is found to be in a negative trend. They commented that the rising demands for milk and milk products would put India under pressure to maintain at least the existing growth trend in milk production in the country. A slight deceleration in the growth of milk production would risk India's ability to maintain self-sufficiency and also have implications for the evolving international milk market. If India falls short of meeting its domestic need, it will have a substantial impact on the prices of dairy products in domestic as well as global markets. They suggested that the government of India, as well as the international community, arrange alternative supply sources to avoid milk deficiency in the future.

II. **Birthal and Negi (2012)** have opined that the demand for animal products is projected to rise rapidly, offering significant opportunities for enhancing agricultural growth and reducing rural poverty through the livestock route. The productivity of Indian livestock, however, is low and constrained by a low level of adoption of technologies, scarcity of feed and fodder, and poor animal health. Institutional and policy support to the livestock in terms of investment, credit, insurance, extension, and the market is not commensurate with its economic contribution. On the note of the financial contribution of livestock and dairy farming share in agricultural Gross Domestic Product (GDP) and employment generation (Patel, 2017) gave his opinion to recognise dairy farming as an important sector like agriculture rather than its subsidiary status.

III. **Sethumadhavan (2017)** concluded that the productivity of Indian cows and buffaloes are very low. The average milk yield from local cows, buffaloes and crossbreed cow 3 to 3.5 liters, 3.96 to 5.39 liters 5.82 to 7.80 liters per day, respectively. The milch yield is found to be significantly lower than cattle in the developed countries. The feed conversion efficiency is high in developed countries. The best-run farms in the world produce 1.6 kilograms of milk for every kilogram feeds, which is less than a kilogram in India. Scientific dairy practices like proper breeding, feedings, and hygienic management, along with quality inputs and extension support services, is required to achieve better productivity.

IV. **Chakravarty (2017):** In this study it has been preferred indigenous dairy cattle despite their low productivity because indigenous cattle are more sustainable in comparison to crossbreed cattle. He further said that indigenous cattle are more tolerant of heat, comparatively resistant to many diseases, low maintenance costs, and higher feed conversion efficiency. He also added that indigenous cattle milk contains a substance called A2 allele, which is good for human health. He also claims that an intense selection of dairy animals for higher milk production and milk quality has shown the decline in reproductive performance, including the fertility of dairy animals.

V. **Khamkar (2014):** In this Study it has been opines that the method of operation of the current dairy industry has developed into more consumers oriented. The producers have employed various innovative practices of organised retailing, supply chain management, balanced product portfolio, and product development. He also supplements how to milk producers have used mass media and advertisement for their competitive advantage. Consumers' awareness of product quality and variants coupled with consciousness have led the producer for new product development. He also adds that western culture also influences eating habits related to dairy products. Lastly, he concluded by stating that the immense growth of milk production was due to demand-side development and supply-side promotions. It is known from his observation that with



extensive dairy development programs and promoting entrepreneurs by increasing the value of milk products can go a long way in the milk market of the country.

- VI. **Nargunde (2013):** In this study on the role of the dairy industry in rural development, concludes that milk production has supplemented as a year-round source of income for small seasonal crops farmers and occasional labour. He estimated that up to 60-65 per cent of the marginal and small scale farmers' incomes derive from dairying.
- VII. **Jha (2005)** concluded that the efficient yet cost-effective procurement network, hygienic and economical processing facilities and innovativeness in the market place are the key to the success of dairy-enterprise. He emphasised the need for training to be imparted to the entrepreneurs to achieve this. He also highlighted the importance of commercial facilities, micro-level planning, and intervention by central and state governments on unexplored areas and, lastly, promoting awareness among educated and uneducated unemployed youth are important for the development of dairy industry in India.

### 3. OBJECTIVES OF THE STUDY

1. To study the production and consumption pattern of milk in line with the imports and export trends of milk in the country.
2. To forecast the future production of milk in the country and suggest ways and means promote milk production through entrepreneurship development.

### 4. HYPOTHESIS IN THE STUDY

**Ho:** The production of milk does not have any significant impact on the export and import of dairy products.

**H<sub>1</sub>:** The productions of milk have significant impact on the export and import of dairy products.

### 5. RESEARCH METHODOLOGY AND DATA COLLECTION

Secondary data were used for the study. They were collected from various publications, journals, magazines, articles from the newspaper, publications from state and central government departments, research articles available on various websites and other internet sources. The data gathered were codified and then administered using MS excel 2000 and SPSS English version 21.0 for analyses. Statistical tools like descriptive statistics, forecasting analysis, and correlation analysis were used for the analyses of research data.

**Figure 1: Distribution of Milk Production in Urban and Rural Areas in India**

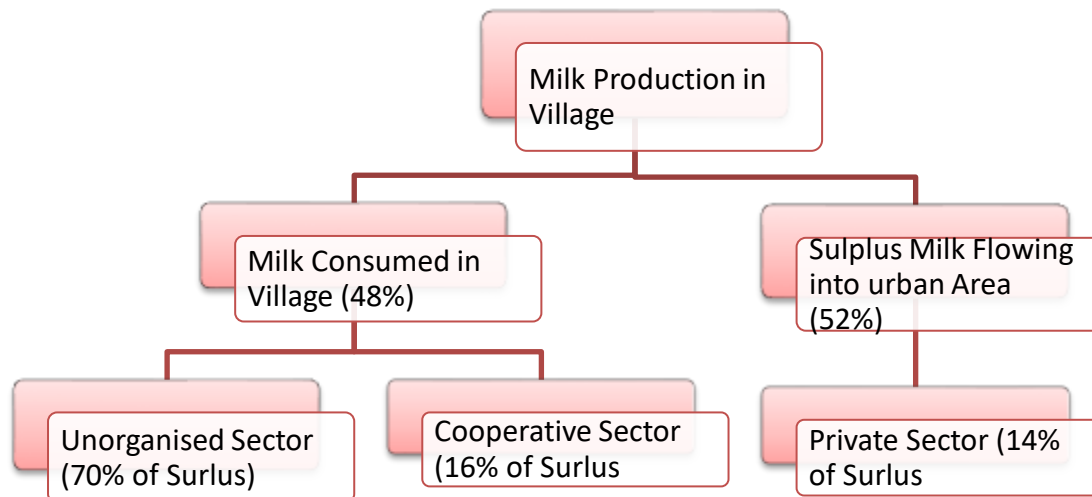
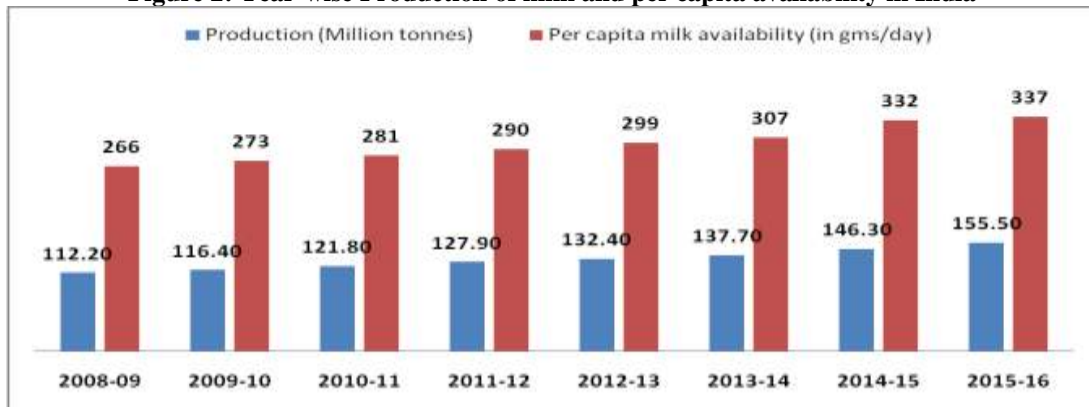






Figure 2: Year-wise Production of milk and per capita availability in India



Source: Department of Animal Husbandry, Dairying & Fisheries, Ministry of Agriculture, GoI.

Figure 2 shows the average milk production for the last eight years at the national level. From the table, it is understood that the average production of milk at the national level is 131.28 million tonnes (min=112.20 and max=155.50). The average per capita availability of milk for the last eight years was 298.13 gms/day (min=266 and max=337).

Despite being the largest milk producer in the world in terms of absolute quantity, India's average milk yield per cattle remains

comparatively very low compared with the developed nations and other developing countries. The small size milk production of rural India finds it difficult to adopt a modern dairy technology due to its economic inviability, which hampers quality management of milk at the farm levels. Milk consumption in India is substantial due to its largest vegetarian population in the world whose only source of an animal-based protein and essential nutrient is milk. Unlike other major dairy exporting countries, only a few surpluses remain for exports.

Table 1: Year-wise dairy India's export and imports in quantity and value

Year	Export		Import	
	Quantity (in Metrictonnes)	Value (in lakhs)	Quantity (in Metrictonnes)	Value (in lakhs)
2008-2009	48045.75	66107.09	1516.9	2435.48
2009-2010	26135.26	29817.14	31374.76	32224.6
2010-2011	27475.35	39646.7	54334.61	82240.52
2011-2012	23194.13	24726.47	70699.92	120393.14
2012-2013	69366.42	110351.04	7417.44	16653.65
2013-2014	113972.5	240545.2	9916.42	21283.6
2014-2015	55909.55	93722.18	11901.61	28278.12
2015-2016	28967.43	63333.54	16986.74	32230.14
<b>Total</b>	<b>393066.99</b>	<b>668249.36</b>	<b>204148.48</b>	<b>335739.25</b>

Source: Calculated by researcher

Source: Authors' calculation based on Agricultural and Processed Food Products Export Development Authority (APEDA) latest Report.

Table 1 shows India's dairy export and import for the last eight years. From the table it is understood that the average export of dairy products was 49,133.30 metric tonnes (min=23,194.13 and max=1,13,972.50) with an average value of Rs 83,531.17 lakhs (min=24,726.47 and max=240545.20). During the year under study and the average import was 25,518.55 metric tonnes

(min=1516.90 and max=70,699.92). Quantifying the value of imports in Rupees for the last eight years, we had Rs 33,5739.25 lakhs with an average of Rs 41967.41 lakhs, of which the minimum was 2435.48 lakhs and the maximum of Rs 1,20,393.14 Lakhs.

**Table 2: Correlation analysis of Export and Import of the country with production**

Variables	Export	Import
Pearson correlation	0.220	-0.228
Milk Production sig.(2-tailed)	0.601	0.588

Source: Computed from Table 1 and Figure 2

Correlation analyses were used to examine the relationship between import and export of milk products with that of the amount of milk produced. The result indicated that the production

of milk has a positive impact on the export of milk products ( $r = 0.220, p = 0.601$ ), whereas it has a negative impact on the imports ( $r = 0.228, p = 0.588$ ).

**Table 3: Milk output forecasting based on the last eight years of production**

Year	Milk production in (million tonnes)	Projected Year	Projected milk output
2008	112.20	2017	165.03
2009	116.40	2018	171.65
2010	121.80	2019	178.30
2011	127.90	2020	185.12
2012	132.40	2021	191.55
2013	137.70	2022	197.44
2014	146.30	2023	203.57
2015	155.50	2024	210.59
2016	158.32	2025	216.96

Source: Calculated by researcher

Table 3 showed the year wise estimated milk output until 2025 based on the production trend for the last eight years using forecasting analysis in MS Excel. As per the estimated data, it was found that the total output forecasted for the year 2025 is 216.96 million tonnes, which is not incongruent with the projection for the demand of milk made by the National Dairy Development Board by 2021-2022 which stands at 200 million tonnes. To meet the domestic consumption needs, livelihood to more than 90 million farm families and also generate revenue through export to the milk deficient countries, and we have a long way to go in producing milk through innovative farming models by promoting and motivating large numbers of small milk entrepreneurs in the country.

## CONCLUSIONS AND SUGGESTIONS

This study investigated the entrepreneurship development through milk production. India's position in the global market as the supplier is shallow despite its massive production. It was also found that the productivity of cattle is comparatively very low with that of developed and also developing countries in the world. Maximum of the milk products are consumed domestically, which are also handled by the unorganised sector. The present study is incongruent with the study by where they pointed out that India consumed 100% of its production. Analyzing the current economic conditions, the technical knowledge that our farmers possess, the climatic condition, and the lifestyle of rural India, it is observed that promoting indigenous cattle with the available resources and inputs from the government can boost production of milk in the country. After extensive research on the study area, few suggestions can be made on entrepreneurship development on milk production of the country. Firstly, Electricity charges

should be given at a subsidized rate to the small farmer. Secondly, credit facilities at a concessional rate with a more extended moratorium period and the longer repayment schedule should be arranged for the rural entrepreneur. Thirdly high-quality local breed cattle with high lactation yield must be made available to the farmers by the government, which will also include insurance cover to their cattle. Fourthly, a Milking machine should be provided to the small entrepreneur at an affordable price. Lastly, training on feed management, value addition on milk products, marketing, and also providing suitable marketing for their processed items will be a boon for the small producer, which will, in turn, help us in realizing our dreams of not only milk sufficient countries but also milk surplus country. Some limitations were found in the collection and interpretation of the data. Although the period and amount of data were deemed acceptable, a more extended period and more extensive data would have allowed us to run more analyses. The current study was limited to the overall milk production and consumption scenario of the country. An in-depth study can be undertaken on a specific area like management of feeds, breeds, marketing by the future researcher.

## REFERENCES

1. Anil Chawla, Nidhi Chawla, Y. P. & P. K. (2009). *Milk and Dairy Products in India-Production, Consumption and Exports. Hindustan Studies and Services (Second Edi). Hindustan Studies & Services Ltd and Infolitics.*
2. APEDA. (2016). *Agricultural & Processed Food Products Export Development Authority, Ministry of Commerce & Industry, GOI. Retrieved August 29, 2018.*
3. Avhad, S. R., Kadian, K. S., Verma, A. K., & Kale, R. B. (2015). *Entrepreneurial behaviour of dairy farmers in Ahmednagar district*



- of Maharashtra, India. *Agricultural Science Digest - A Research Journal*, 35(1), 56.
4. BIRTHAL, P. S., & NEGI, D. S. (2012). *Livestock for Higher, Sustainable, and Inclusive Agricultural Growth. Economic and Political Weekly*, XLVII(26), 89–99.
  5. Chakravarty, D. A. K. (2017). *Sustainable development of indigenous dairy cattle in India. In Kurukshetra (Vol. 65 (3), pp. 9–12).*
  6. *Dairy sector: Dairy sector to grow at 15% CAGR till 2020 to Rs 9.4 trillion: Report - The Economic Times. (2017). Retrieved August 29, 2018.*
  7. Dhawan, S. (2016). *A study of consumer behaviour towards various branded and non-branded milk with special reference to Jabalpur District in Madhya Pradesh. Imperial Journal of Interdisciplinary Research (IJIR)*, 2(12), 1582–1586.
  8. Imam, A., Zadeh, M. N., & Dubey, L. R. (2011). *Dairy Marketing Strategies in the Context of Globalization : Issues and Challenges. International Journal of Trade, Economics and Finance*, 2(2), 138–144.
  9. K. Jha, A. R. & S. (2005). *Entrepreneurship Development in Dairy sector. In M. A. P. and M. P. K. S. Dr Alok Jha (Ed.), Souvenir: National workshop on Entrepreneurship Development in Dairy and Food Industry (pp. 95–96). Karnal: Dr S. Singh.*
  10. Khamkar, S. K. (2014). *The Consumption Pattern of Dairy Products by Indian Consumers Since 2000. Asian Journal of Management Sciences*, 02(March), 170–172.
  11. Kumar, A., & Parappurathu, S. (2014). *Trends in the consumption of milk and milk products in India: implications for self-sufficiency in milk production. Food Security: The Science, Sociology and Economics of Food Production and Access to Food*, 6(August).
  12. Nargunde, A. S. (2013). *Role of Dairy Industry in Rural Development. International Journal of Advanced Research in Engineering and Technology*, 4(2), 8–16.



# TEACHING STRATEGIES USING THE MULTIMEDIA AND STUDENT'S ACADEMIC ACHIEVEMENT: AN EXPERIMENTAL STUDY

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## ABSTRACT

*Teaching strategies play an essential aspect in the teaching and learning process. Teachers have been considered individuals who play a vital role and are the key factor in the student's learning process. The main purpose of this study is to determine whether there is significant difference between traditional teaching and teaching using multimedia instruction in the academic achievement of the students in Camanlangan National High School. To this end, a quasi-experimental design was used, researcher identified two groups for this study. One of the groups is control group and the other group is experimental; each group consist of 35 students, 18 males and 17 females respectively. Traditional teaching or instruction was given to the control group and teaching using multimedia treated as experimental group. Both groups were subjected to pretest and posttest in the lesson tackled. The analysis of the posttest showed that there is no significant difference between the academic achievement of control and experimental group at a significance level of 0.05. The result was the academic achievement of both control and experimental rose in the posttest as a result in traditional teaching and using multimedia approach. The results also implied that the combination of traditional and using multimedia in teaching can be beneficial in teaching-learning process and they have shown a better result when traditional strategies combine with the multimedia and when they are combined with group strategies.*

**KEYWORD:** teaching strategies, multimedia, traditional teaching, quasi-experimental

## INTRODUCTION

### Problem and Its Background

Teaching strategies are crucial for effective learning, with teachers playing a vital role in shaping students' knowledge and skills. Traditional teaching methods, where teachers take a central role in instruction, have been used for years, as defined by Tularam (2018). However, modern approaches incorporate multimedia elements to enhance the learning experience, utilizing various media forms like text, images, audio, and video to engage students.

In Nigeria, there are concerns about poor academic performance in certain regions, indicating potential challenges in instructional delivery (Olowo et al., 2020). Similar challenges exist in India, where overcrowded classrooms hinder traditional teaching (World Class Education For Your World, 2022). The COVID-19 pandemic has also impacted education globally, forcing teachers to explore alternative methods due to restricted face-to-face learning (Valdez, 2010). In some regions in the Philippines, limited access to electricity and internet restricts the use of multimedia platforms, affecting students' ability to cope with such teaching methods.

Locally, at Camanlangan National High School, teachers face challenges in utilizing multimedia platforms due to poor internet connectivity and limited tech-literacy. The researcher of the school aims to investigate the impact of multimedia

platforms on student achievement, recognizing the significance of effective teaching strategies in enhancing learning outcomes.

### Statement of the Problem

This study aimed to determine the relationship of using multimedia as teaching strategy and the academic achievement of the students in Camanlangan National High School in New Bataan District for school year 2022-2023. Specifically, it sought to answer the following questions:

1. What is the level of academic achievement of the students in control and experimental groups as reflected in their pretest?
2. What is the level of academic achievement of the students in control and experimental groups as reflected in their posttest?
3. Is there a significant difference between the posttest of the control and experimental groups?

## METHODS

### Research Design

This study used the quantitative quasi-experimental design with two-group pretest/ posttest design. It used the scientific method to establish the cause-effect relationship among a group of variables, specifically two-group pretest/posttest design group of which a pretest then followed by the intervention and then posttest. The dependent variable of the study was observed in experimental as well as control groups before the intervention.





While the experimental group received treatment following which the posttest observation of dependent variable was carried out for both the groups to assess the effects of the intervention or treatment on experimental group (Jaikumar, 2018). It involved the manipulation of the independent variable to observe the effect on the dependent variable. It was generally used to establish the causality in situations where researchers were not able to randomly assign the subjects to groups for various reasons.

**Subjects of the Study**

The subjects of this study were the 70 Grade 8 students of Camanlangan National High School. They were purposively

selected from the two sections of Grade 8 where the researcher is currently handling Mathematics. The students were grouped heterogeneously to make sure those who were high, average, and low performing were equally distributed in each of the sections and to make sure that no one is better than the other. The duration of intervention is 30-days. The grade 8 section Gumamela was the experimental group while section Cattleya was the control group. The researcher also conducted a pilot testing beforehand with the remaining two sections of the grade level, that to identify problems before implementing it, also to examine the validity of each question.

**Table 1**  
**Subjects of the Study**

GROUP	Number of Students	Percentage (%)
Control (Group A)	35	50
Experimental (Group B)	35	50
<b>TOTAL</b>	<b>70</b>	<b>100</b>

Table 1 shows the total number of students in each group and their corresponding percentages. Group A as control group and Group B as experimental group. A total of 36 male students out of 70 respondents of the study.

**Research Instrument**

A forty-item test was prepared by the researcher for the pretest and posttest for both control and experimental groups. The coverage of the test was taken from the competencies during the third quarter. To equally distribute the questions based on the level of difficulty, the researcher prepared a table of specifications considering the six levels of cognitive domain: knowledge, comprehension, application, analysis, synthesis and evaluation.

**Validation of the Research Instruments**

The research instrument which was the teacher-made pretest-posttest was submitted to the researcher’s validators and research adviser for comments and suggestions, which was used in this study. After validation, the pretest-posttest underwent pilot testing to the two remaining sections of the grade level the Sunflower and Sampaguita of Camanlangan National High School, who were set as the respondents.

The pretest-posttest was scrupulously organized, and it included the presentation of the Table of Specification (TOS) to ensure that the test items were distributed properly.

Students who were not in the control and experimental groups were given the preliminary questionnaires to complete.

**Research Procedure**

The following procedure will be followed during the conduct of the study:

**Asking permission to conduct the study.** The researcher wrote a letter of permission addressed to the Schools’ Division

Superintendent and once approved another letter was prepared for the principal of Camanlangan National High School to formally ask her permission to conduct the study. After the approval, the researcher immediately began her experimentation using the two sections in Grade 8 as her subjects of the study.

**Conducting Pretest.** The researcher conducted a forty-item pretest to the control and experimental groups to determine their compatibility for the study and their prior knowledge.

**Intervention Period.** The researcher used the multimedia as the strategy in teaching Mathematics as the intervention for 30-days. Lesson plans were prepared during the intervention phase for about four weeks and a daily journal was written in monitoring the activities performed by the students.

**Conducting Posttest.** The researcher conducted a 40-item posttest after the intervention to determine whether there was a difference on their performance in Mathematics after the use of multimedia in teaching the subject. The results were subjected to statistical computations and after which, the results were analyzed and interpreted.

**Statistical Tools**

In the computation of the data and testing the null hypotheses of the study, the Statistical Package for Social Sciences (SPSS) and the following statistical tests were used.

**Mean.** It indicates how are the scores of pretest and posttest were distributed around the central part of distribution.

**Paired t-test Independent.** It was used to compare or measure the means of control and experimental group.



## RESULTS

This chapter presents the results obtained from the collected and the subsequent analyses in a sequence corresponding to the problems presented. Data and preliminary information were also provided as basis of the computation and interpretations of

the results. These results were computed through SPSS software.

### Level of Academic Achievement of the Pretest Scores of the Groups

Table 2 shows the results of academic achievement of the students pretest scores of the control and experimental group.

**Table 2**  
**Level of Academic Achievement of the Pretest Scores of Control and Experimental Group**

Pretest	No. of Students	Mean	Class Proficiency	Competency level
<b>Group A (Control)</b>	35	14.5	36.25%	Did Not Meet Expectation
<b>Group B (Experimental)</b>	35	14.9	37.25%	Did Not Meet Expectation

The above shows the level of performance of the students before the study of the two groups. The mean of control group was 14.5 and the mean experimental group was 14.9. The class proficiency shows that the control group got 36.25%, and the experimental group got 37.25%, but both groups did not meet the expectation level. It means that, both the respondents of control and experimental groups did not show or demonstrate competence in relation to the lesson or topics.

### Level of Academic Achievement of the Posttest Scores of the Groups

Table 3 shows the results of the academic achievement of the students' posttest scores from the control and experimental group.

**Table 3**  
**Level of Academic Achievement of the Posttest Scores of Control and Experimental Group**

Posttest	No. of Students	Mean	Class Proficiency	Competency level
<b>Group A (Control)</b>	35	18.6	46.5%	Did Not Meet Expectation
<b>Group B (Experimental)</b>	35	20.6	51.5%	Did Not Meet Expectation

The above table shows the level of performance of the students after the study of the two groups. The mean of control group was 18.6 and the mean of experimental group was 20.6. The competency level shows that both groups still did not meet the expectation. This would signify that after the intervention, still the respondents did not reach the expected level of competence for the specified lessons or topics. This could also mean that

there might be different factors that hinders them to reach the expected learnings after the said intervention.

### Significant difference between the posttest mean scores of the students in control group and the experimental group

Table 4 shows the results of the computations to compare the achievements of the students between the control and experimental groups as reflected on their posttest scores.

**Table 4**  
**Comparison of the Achievement of the Students between the Control and Experimental Group**

Posttest	No. of Students	Mean	t-value	p-value	Remarks
<b>Group A (Control)</b>	35	18.6	-0.154	0.137	Not significant
<b>Group B (Experimental)</b>	35	20.6			

Table 4 shows the level of performance of the students after the study of the two groups. An independent t-test was conducted to test if there is significant difference between the posttest of control and experimental group.

difference between the achievements of the students in the control and experimental group as reflected on their posttest scores.

The mean indicates that Group A (Control) got 18.6 and Group B (Experimental) got 20.6. The P-Value is 0.137 greater than 0.05, indicating that there is no significant. Therefore, the null hypothesis was not rejected and there was no significant

## DISCUSSIONS AND CONCLUSION

This chapter presents the discussions, conclusion and recommendations of the conducted research study. The sequence of the presentation and the organization of the findings were based on the problems presented.



## Discussions

**Academic Achievement of the Pretest Scores of Control and Experimental Group.** In the pretest scores of control and experimental group showed low mastery levels in the subject with class proficiency below 75%, likely due to disruptions caused by the COVID-19 pandemic. To address this, the researcher incorporated multimedia in the experimental group and used a traditional approach in the control group.

According to John Locke, in his theory “tabula rasa” or “blank slate” suggests that students gain knowledge through experiences and reflection. However, the pandemic has created challenges in coping with educational gaps. Teaching is a significant responsibility that requires collaboration and cooperation among teachers, students, and stakeholders. Effective teaching strategies are essential for engaging students and fostering a positive learning experience.

**Academic Achievement of the Posttest Scores of Control and Experimental Group.** Based on the result of the posttest of the control and experimental group both groups exhibited increase in their means. The mean of control group was 18.6 showed an increase of 4.1 from its’ pretest mean 14.5. The mean of experimental group was 20. showed an increase of 5.7 from its’ pretest mean 14.9. It implied that after the teacher conducted intervention both traditional and using multimedia instruction, students’ showed improvements when it comes to their learnings.

The Theory of Trauma by Ulman and Brother’ (1998) posits that traumatic experiences can shatter an individual’s sense of self, leading to intolerable disruptions. Natural disasters, like earthquakes, can have strong negative effects on people’s lives, causing physical, economic, and social losses. Such events are beyond our control, interrupting normal life and activities.

In the aftermath of an earthquake that affected our area, face-to-face classes were interrupted due to safety concerns, leading to a shift to blended modular learning with multimedia instruction. However, the trauma experienced by students, including fears of losing homes and lives, and the unpredictability of ground movements, impacted their ability to focus on studies.

**Academic Achievement of the Students between the Control and Experimental Group.** In the comparison of the achievements of the students in control and experimental group, it implied that the null hypothesis was not rejected and there was no significant difference between the achievements of the students in the control and experimental group as reflected on their posttest scores. The control group utilized traditional instruction while the experimental group used multimedia instruction.

In addition, the use of PowerPoint, posting educational videos and any other multimedia in teaching were found to be effective in aiding teaching-learning process. As pointed out by Lari (2014), the usage of PowerPoint presentations resulted to a positive significant effect on the learners’ achievement on test

scores. Using PowerPoint presentations further resulted to a better understanding of the lessons as well as in motivating the learners. Meanwhile, on the analysis of the posttest, result revealed that through acquiring or aiding multimedia in teaching the mean scores of academic achievements had increased. This result signified an improvement of the learners’ academic achievement during the posttest with the intervention of traditional and multimedia tools in teaching.

Thus, it can be concluded that social media have a dual impact on student achievement, and it is necessary to approach adolescents’ use of social networks with ultimate responsibility (Talaue at al., 2018).

According to the study of Abdulrahman et al. (2020) that several studies investigated the impact of ICT to education stated that multimedia technology has positive impact on the way teachers impart knowledge and the manner in which learners comprehend the subject matters. In addition, they revealed that multimedia tools have been developed to enhance teaching and learning for various field and multimedia tools were delivered using different technologies.

In addition, Da’lij (2008) as cited in Aloraini (2012) conducted a study entitled as “The effect of using Mathematics software produced locally on second grade intermediate female students’ academic achievement in Riyadh”. The study aims to identify the effect of using multimedia software produced locally on second grade intermediate female students’ academic achievement in mathematics. The study sample consisted of 70 female students divided equally into two experimental groups studying by the locally produced software and a control group studying the traditional method. The study revealed no statistically-significant differences at the significance level of 0.05 between the experimental and control groups.

Furthermore, in the study in Kogi State University found out that the exposure of the students to multimedia have effect on their academic performance. Evident show that social media have negative influence on the academic performance of students. Students who spend more time on multimedia like social media are likely to perform poorly in their academics this is because instead of reading books, they spend time chatting and making friends via social media and this will definitely bring negative effect on their academic performance (Asemah & Okpanachi, 2013).

## Conclusion

The academic achievement of both the control and experimental groups before the intervention shown in the computation of their class proficiency in their pretest scores. The academic achievement of the students in both control and experimental group showed improvement in terms of their means as shown in their posttest scores. But, the result implied there is no significant difference between the academic achievement of the two groups, thus, it can be concluded that both control and experimental groups improved using traditional teaching and using multimedia instruction in terms of their means but still did not meet expectation at their



proficiency level with the reasons mentioned above. The results showed that both approaches were effective in the teaching-learning processes during given thirty-day intervention. The result could also be mean that combination of traditional instruction and multimedia would enhance and give more improvements on the students' learning.

The results implied that the combination of traditional and using multimedia in teaching can be beneficial in teaching-learning process and they have shown a better result when traditional strategies combine with the multimedia and when they are combined with group strategies.

### Recommendations

Based on the conclusions derived from the findings of the study, the following recommendations are hereby presented:

1. There is a need for the teacher to engage in different kinds of teaching approaches to address the different needs of the students.
2. Teachers must be creative in delivering the lesson, in a way that students can actively participate and cooperate.
3. The school administrators should encourage and support the teachers for skills' training or any other trainings connected to teaching.
4. Expansion in using multimedia in teaching and be open to any available training courses to the teachers regarding the use of multimedia.

### REFERENCES

1. Abdulrahman, M. D., Faruk, N., Oloyede, A. A., Surajudeen-Bakinde, N. T., Olawoyin, L. A., Mejabi, O. V., ... & Azeez, A. L. (2020). *Multimedia tools in the teaching and learning processes: A systematic review*. *Heliyon*, 6(11), e05312.
2. Ahad, Annie Dayani, and Lim, Syamimi Md Ariff. (2014). 'Convenience or nuisance? The "whatsApp" dilemma'. *Procedia - social and behavioral sciences* 155 (October): 189–96. <https://doi.org/10.1016/j.sbspro.2014.10.278>.
3. Algerioy, Abdul Majid, (1999). *The impact of multimedia on the collection of first-grade students in secondary mathematics in Riyadh*, unpublished Master Thesis, King Saud University
4. Allagui, B. (2014). *Writing through WhatsApp: An evaluation of students writing performance*. *International Journal of Mobile Learning and Organization*, 8(3) 216-231.
5. Aloraini, S. (2012). *The impact of using multimedia on students' academic achievement in the College of Education at King Saud University*. *Journal of King Saud University-Languages and Translation*, 24(2), 75-82.
6. Amin, F. M., & Sundari, H. (2020). *EFL students' preferences on digital platforms during emergency remote teaching: Video conference, LMS, or messenger application?* *Studies in English Language and Education*, 7(2), 362-378.
7. Ansari, J.A., & Khan, N.A., (2020). *Exploring the role of social media in collaborative learning the new domain of learning*. *Ansari and Khan Smart Learning Environments* (2020) 7:9 <https://doi.org/10.1186/s40561-020-00118-7>.
8. Asemah, S., Okpanachi, R. (2013). *Influence of social media on the academic performance of the undergraduate students of Kogi State University, Anyigba, Nigeria*, *Research on Humanities and Social Sciences*, 3(12), pp. 90-96.
9. Bensalem, E. (2018). *The impact of WhatsApp on EFL students' vocabulary learning*. *Arab World English Journal*, 9(1), 23-38.
10. Berk, R. A. (2009). *Multimedia teaching with video clips: TV, movies, YouTube, and mtvU in the college classroom*. *International Journal of Teaching and Learning*, 5(1), 1-21.
11. Bin Tahir, S. Z. (2015). *Improving students' speaking skill through yahoo messenger at University of Iqra Buru*. *International Journal of Language and Linguistics*, 3(3), 174-181.
12. Blom, H., Marschark, M., Verloed, M. P. J. & Knoors, H. (2014). *Finding friends online: Online activities by deaf students and their well-being*. *PLoS ONE*, 9(2), e88351. DOI:10.1371/journal.pone.0088351.
13. Bonk, C. (2008). *YouTube anchors and enders: The use of shared online video content as a macro context for learning*. Retrieved January 6, 2015.
14. Bouhnik, Dan, and Mor Deshen. 2014. 'WhatsApp goes to school: Mobile instant messaging between teachers and students'. *Journal of Information Technology Education: Research* 13: 217–31. <https://doi.org/10.28945/2051>.
15. Bouslog, Michelle (2019). *Effective Teaching strategies used in today's classrooms*. Concordia University St. Paul, MN.
16. Boyd D., & Ellison, N. (2007). *Social network sites: Definition, history, and scholarship*. *Journal of Computer & Mediated Communication*, 13(1), 210-230.
17. Boyd, D. (2007). *Social network sites: Definition, history, and scholarship*. *Computer mediated communication*, 3-20.
18. Boynton JR, Green TG, Johnson LA, Nainar SM, Straffon LH. (2007). *The virtual child: Evaluation of an internet-based pediatric behavior management simulation*. *J Dent Educ*. 2007;71(9):1187–1193.
19. Burke, S. C., Snyder, S., & Rager, R. C. (2009). *An assessment of faculty usage of you Tube as a teaching resource*. *Internet Journal of Allied Health Sciences and Practice*, 7(1), 8.
20. Bosch, T.E. (2009). *Using online social networking for teaching and learning; Facebook use at the university of Cape Town*. *Communication: South African Journal for Communication Theory and Research*, 35(2), 185-200.
21. Carlisle, M. C. (2010). *Using YouTube to enhance student class preparation in an introductory java course*. *Proceedings of the 41st ACM technical symposium on computer science education*, 470-474.
22. Chakrabarti, A. K., & Santoro, M. D. (2004). *Building social capital and learning environment in university-industry relationships*. *International Journal of Learning and Intellectual Capital*, 1(1), 19-36
23. Chickering, A. W., & Gamson, Z. F. (1987). *Seven principles for good practice in undergraduate education*. *AAHE Bulletin*, 3, 7.
24. Coates, H. (2007). *A model of online and general campus-based student engagement. Assessment & evaluation in higher education*, 32(2), 121–141.





25. D'Souza, K., Henningham, L., Zou, R., Huang, J., O'Sullivan, E., Last, J., and Ho, K., (2017). Attitudes of health professional educators toward the use of social media as a teaching tool: Global cross-sectional study. *JMIR MEDICAL EDUCATION*. doi: 10.2196/mededu.642.
26. Davies, J. (2012). Facework on facebook as a new literacy practice. *Computers & education*, 59(4), 19–29.
27. Debate RD, Severson H, Zwald ML, et al. (2009). Development and evaluation of a web-based training program for oral health care providers on secondary prevention of eating disorders. *J Dent Educ*. 2009;73(6):718–729.
28. Dela Fuente, J. A. (2021). Implementing inclusive education in the Philippines: College teacher experiences with deaf students. *Issues in Educational Research*, 31(1), 94-110.
29. Dela Fuente, J. A. D. (2021). Facebook messenger as an educational platform to scaffold deaf students' conceptual understanding in environmental science subject: A single group quasi-experimental study. *International Journal of Education*, 14(1), 19-29.
30. DeWitt, D., Alias, N., Siraj, S., Yaakub, M. Y., Ayob, J., & Ishak, R. (2013). The potential of you tube for teaching and learning in the performing arts. *Procedia-Social and Behavioral Sciences*, 103, 1118-1126.
31. Duncan Stuart (2012). Humans are social beings. So if you're not social, what are you? [Online]. - 2012. - 1 28, 2016. - <http://www.stuarduncan.name/autism/humans-are-socialbeings-so-if-youre-not-social-what-are-you/>.
32. Eid, M. I. M., & Al-Jabri, I. M. (2016). Social networking, knowledge sharing, and student learning: The case of university students. *Computers & Education and Education*, 99, 14–27. Retrieved from <http://ssrn.com/abstract/42780765>.
33. Ellison, N. B., Steinfield, C., & Lampe, C. (2007). The benefits of Facebook "Friends": Social capital and college students' use of online social network sites. *Journal of Computer-Mediated Communication*, 12(4), 1143–1168.
34. Endeley, Robert E. 2018. 'End-to-End Encryption in Messaging Services and National Security — Case of WhatsApp Messenger'. *Journal of Information Security* 9: 95–99. <https://doi.org/10.4236/jis.2018.91008>.
35. Escobar-Rodríguez, T., Carvajal-Trujillo, E., & Monge-Lozano, P. (2014). Factors that influence the perceived advantages and relevance of Facebook as a learning tool: An extension of the UTAUT. *Australasian Journal of Educational Technology*, 30(2).
36. Fouda, O. (2008). *Computer uses in education, third edition*
37. Gikas, J., & Grant, M. M. (2013). Mobile computing devices in higher education: Student perspectives on learning with cellphones, smartphones & social media. *Internet and Higher Education Mobile*, 19, 18–26. <https://doi.org/10.1016/j.iheduc.2013.06.002>.
38. Gilakjani, A. P. (2012). A study on the impact of using multimedia to improve the quality of English language teaching. *Journal of Language Teaching & Research*, 3(6).
39. Godwin-Jones, R. (2008). *Mobile computing technologies: Lighter, faster, smarter*. *Language Learning & Technology*, 12(3), 3–9.
40. Gok, T. (2016). The effects of social networking sites on students' studying and habits. *International Journal of Research in Education and Science (IJRES)*, 2(1), 85-93
41. Gon, Sonia, and Rawekar, Alka. 2017. 'Effectivity of E-Learning through whatsapp as a teaching learning tool'. *MVP Journal of Medical Sciences* 4 (1): 19–25. <https://doi.org/10.18311/mvpjms/0/v0/i0/8454>.
42. Greenhow, Christine & Lewin, Cathy (2016) *Social media and education: reconceptualizing the boundaries of formal and informal learning, learning, media and technology*, 41:1, 6-30, DOI: 10.1080/17439884.2015.1064954.
43. Grosbeck, G., Bran, R., & Tiru, L. (2011). Dear teacher, what should I write on my wall? A case study on academic uses of Facebook. *Procedia-Social and Behavioral Sciences*, 15, 1425-1430.
44. Gruzd, A., Staves, K., & Wilk, A. (2012). Connected scholars: Examining the role of social media in research practices of faculty using the UTAUT model. *Computers in Human Behavior*, 28(6), 2340-2350.
45. Guan, N., Song, J., & Li, D. (2018). On the advantages of computer multimedia-aided English teaching. *Procedia computer science*, 131, 727-732.
46. Gunadevi K. J. S., Fathimah Pathma Abdullah & Raja Nor Safinas Raja Harun. Polytechnic. 2013.
47. Halvorson, Kristina (2017). What is strategy and why should you care?. An article in *Brain Traffic*.
48. Ham, J. and Schnabel, M. A. (2011). Web 2.0 virtual design studio: social networking as facilitator of design education. *Architectural Science Review*, 54, 108-116.
49. Hamad, M. M. (2017). Using WhatsApp to enhance students' learning of English language "experience to share". *Higher Education Studies*, 7(4), 74-87.
50. Heriyanto, D. (2015). The effectiveness of using YouTube for vocabulary mastery. *ETERNAL (English Teaching Journal)*, 6(1).
51. Hew, K.F. (2011). Students' and teachers' use of Facebook. *Computers in human behaviour*. Article available at doi:10.1016/j.chb.2010.11.020.
52. Hizon, I. (2018). The importance of instructional materials. *Sun Star Pampanga*
53. Hodges, C., Moore, S., Lockee, B., Trust, T., & Bond, A. (2020). The difference between emergency remote teaching and online learning. *EDUCAUSE Review*. <https://er.educause.edu/articles/2020/3/the-difference-between-emergency-remote-teachingand-online-learning>
54. Honeyman, M., & Miller, G. (1993). Agriculture distance education: A valid alternative for higher education?. *Proceedings of the 20th Annual National Agricultural Education Research Meeting*, 67-73.
55. Hsu, C.-K., Hwang, G.-J., Chang, Y.-T., & Chang, C.-K. (2013). Effects of video caption modes on english listening comprehension and vocabulary acquisition using handheld devices. *Educational Technology & Society*, 16 (1), 403–414. Isaac, Jerin C. (2010). *Methods and strategies of teaching: an overview*. Pondicherry University
56. Jaffar, A. A. (2012). YouTube: An emerging tool in anatomy education. *Anatomical sciences education*, 5(3), 158-164.



57. Jaikumar, M. (2018). A study to assess the effectiveness of structured teaching programme on knowledge, attitude and practice of menstrual hygiene among school children at selected school, Chennai. Volume-7, Issue-12, December-2018 ISSN No 2277 - 8160
58. Jernigan, C. & Mistree, B.F.T. (2009). Gaydar: Facebook friendships expose sexual orientation. *First Monday* 14(10).
59. Jimoyiannis, A., & Angelaina, S. (2012). Towards an analysis framework for investigating students' engagement and learning in educational blogs. *Journal of Computer Assisted Learning*, 28, 222-234.
60. Johansson, F., Kaati, L., & Shrestha, A. (2013, August). Detecting multiple aliases in social media. In *2013 IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining (ASONAM 2013)* (pp. 1004-1011). IEEE.
61. Junco, R. (2012). The relationship between frequency of facebook use, participation in facebook activities, and student engagement. *Computers & Education*, 58, 162-171.
62. Junco, R., & Clem, C. (2015). Predicting course outcomes with digital textbook usage data. *Internet and Higher Education*, 27, 54-63. doi:10.1016/j.iheduc.2015.06.001.
63. Kabilan, M.K., Ahmad, N. & Abidin, M.J.Z. (2010). Facebook: An online environment for learning of english in institutions of higher education? *Internet and Higher Education*, 13, 179-187.
64. Kaplan, A. M. (2015). Social media, the digital revolution, and the business of media. *International Journal on Media Management*, 17(4), 197-199.
65. Kirschner, P. A., & Karpinski, A. C. (2010). Facebook and academic performance. *computers in human behavior*, 26, 1237-1245.
66. Koomson, W. K. (2018). Mobile Learning: Application of whatsapp messenger as a learning tool in a university distance learning program in Ghana. *International Association for Development of the Information Society*.
67. Koranteng, F. N., Wiafe, I., & Kuada, E. (2019). An empirical study of the relationship between social networking sites and students' engagement in higher education. *Journal of Educational Computing Research*, 57(5), 1131-1159.
68. Koya, K. D., Bhatia, K. R., Hsu, J. T. S., and Bhatia, A. C. (2012). Youtube and the expanding role of videos in dermatologic surgery education. *Seminars in cutaneous medicine and surgery*, 31, 163-167.
69. Kvashali, Irina (2019). Why messenger are becoming more popular than social media. *Article Online. AmoCRM*
70. La Hanisi, A., Risdiyany, R., Dwi Utami, Y., & Sulisworo, D. (2018). The use of WhatsApp in collaborative learning to improve English teaching and learning process. *International Journal of Research Studies in Educational Technology*, 7(1), 29-35.
71. Lampe, C., Ellison, N., & Steinçeld, C. (2008). Changes in use and perception of facebook. In *proceedings of the ACM 2008 conference on computer supported cooperative work* (pp. 721-730). New York: ACM.
72. Lenhart, A., & Madden, M. (2007). Teens, privacy, & online social networks. *Pew Internet and American life project report*. Retrieved on 17 November, 2019 from [http://www.pewinternet.org/pdfs/PIP\\_Teens\\_Privacy\\_SNS\\_Report\\_Final.pdf](http://www.pewinternet.org/pdfs/PIP_Teens_Privacy_SNS_Report_Final.pdf).
73. Lari, F. S. (2014). The impact of using PowerPoint presentations on students' learning and motivation in secondary schools. *Procedia-Social and Behavioural Sciences*, 98, 1672-1677. <https://doi.org/10.1016/j.sbspro.2014.03.592>
74. Lihua, S., & Jiacheng, X. (2010). Using social software to improve learning performance of deaf university learner. *Proceedings of 2nd IEEE International Conference on Information Management and Engineering* (pp. 703-706). IEEE.
75. 10.1109/ICIME.2010.5478205.
76. Liu, C., & Long, F. (2014, January). The discussion of traditional teaching and multimedia teaching approach in college English teaching. In *2014 International Conference on Management, Education and Social Science (ICMESS 2014)* (pp. 31-33). Atlantis Press.
77. Loss, J. (2000). The communications contract. *The Internal Auditor*, 57(6), 88.
78. Lumapenet, H. (2022). The discussion of traditional teaching and multimedia teaching approach in college English teaching. In *2014 International Conference on Management, Education and Social Science (ICMESS 2014)* (pp. 31-33). Atlantis Press.
79. Mainit, K. P., & De Leon, J. A. V. (2022). Comparative analysis of teaching strategies used in lessons on culture and lessons on heritage of a selected Chinese-Filipino School. *Journal of Education and Learning*, 11(4), 41-51.
80. Maiorana-Basas, M., & Pagliaro, C.M. (2014). Technology use among adults who are deaf and hard of hearing: a national survey. *Journal of Deaf Studies and Deaf Education*, 19(3), 400-410. DOI:10.1093/deafed/enu005.
81. Manan, N. A. (2017). Whatsapp mobile tool in second language learning. *Indonesian EFL Journal*, 3(1), 87-92.
82. Manca S., & Ranieri, M. (2013). Is it a tool suitable for learning? A critical review of the literature on Facebook as a technology enhanced learning environment [Journal] // *Journal of Computer Assisted Learning*. - 2013. - 6 : Vol. 29. - pp. 487- 504.
83. Martin, Diaz, Sancristobal stobal, E., Gil, R., Castro, M., & Peire, J. (2011). New technology trends in education: Seven years of forecasts and convergence. *Computers & Education*, 57, 1893-1906.
84. Mazer, J. P., Murphy, R. E., & Simonds, C. J. (2009). The effects of teacher self-disclosure via Facebook on teacher credibility. *Learning, Media and technology*, 34(2), 175-183.
85. Mtega, W. P. (2021). Using whatsapp messenger for improving learners' engagement in teaching and learning: a case of undergraduate students at the Sokoine University of Agriculture, Tanzania.
86. Neo, M., & Neo, K. T. K. (2008). Using the web in the problem-based learning environment: Its impact on student learning. *International Journal of Instructional Media*, 35(2), 195-209.
87. Noraffandy Yahaya, Shufianah Puteri Yusof, Noor Dayana Abd Halim (2013). Students' participation in social networking writing tasks, *5thWorld conference on educational sciences, Rome Italy, 5-8 February 2013*.



89. Norlidah Alias, DeWitt, D., Saedah Siraj (2013). *Development of science pedagogical module based on learning styles and technology*. Kuala Lumpur: Pearson Malaysia Sdn. Bhd.
90. Olowo, B., Alabi, F., Okotoni, C. and Yusuf, M. (2020). *Social media: online tool to enhance secondary schools student's academic performance*. *International Journal on Studies in Education*. Volume 2
91. Pasek, J. & Hargittai, E. (2009, May 4). *Facebook and academic performance: Reconciling a media sensation with data*. *First Monday*, 14(5).
92. Preston, G., Phillips, R., Gosper, M., McNeill, M., Woo, K., & Green, D. (2010). *Web-based lecture technologies: Highlighting the changing nature of teaching and learning*. *Australasian Journal of Educational Technology*, 26(6), 717-728.
93. Ractham, P., Kaewkitipong, L., & Firpo, D. (2012). *The use of Facebook in an introductory MIS course: Social constructivist learning environment*. *Decision Sciences Journal of Innovative Education*, 10(2), 165-188.
94. Rambe, P. (2012). *Critical discourse analysis of collaborative engagement in Facebook postings*. *Australasian Journal of Educational Technology*, 28(2).
95. Raut, V. & Patil, P. (2016). *Use of social media in education: positive and negative impact to students*. *International Journal on Recent and Innovation Trends in Computing and Communication*. Volume: 4 Issue: 1 2321-8169 281 – 285.
96. Roblyer, M.D., McDaniel, M., Webb, M., Herman, J. & Witty, J.V. (2010). *Findings on facebook in higher education: A comparison of college faculty and student uses and perceptions of social networking sites*. *Internet and Higher Education*, 13, 134-140.
97. Ross, C., Orr, E. S., Sisic, M., Arseneault, J. M., Simmering, M. G., & Orr, R. R. (2009). *Personality and motivations associated with facebook use*. *Computers in Human Behavior*, 25(2), 578–586.
98. Sadaf, A., Newby, T. J., & Ertmer, P. A. (2012). *Exploring pre-service teachers' beliefs about using Web 2.0 technologies in K-12 classroom*. *Computers & Education*, 59, 937-945.
99. Sahin, I., & Shelley, M. (2008). *Considering students' perceptions: The distance education student satisfaction model*. *Journal of Educational Technology & Society*, 11(3), 216-223.
100. Said, M. N. H. M., Tahir, L. M., & Ali, M. F. (2014, April). *Facebook as a tool: Exploring the use of facebook in teaching and learning*. In 2014 *International Conference on Teaching and Learning in Computing and Engineering* (pp. 120-124). IEEE.
101. Sakkir, G., Dollah, S., & Ahmad, J. (2020). *Students' perceptions toward using you Tube in EFL classrooms*. *Journal of Applied Science, Engineering, Technology, and Education*, 2(1), 1-10.
102. Sánchez, R. A., Cortijo, V., & Javed, U. (2014). *Students' perceptions of facebook for academic purposes*. *Computers & Education*, 70, 138-149.
103. Santos, A. P. (2020). *In the Philippines, distance learning reveals the digital divide*. *The Heinrich-Böll-Stiftung European Union*.
104. Saputra, J. & Aziz, M. (2014). *Teaching Strategies*. Article online.
105. Saunders, S. and Mill, M.A. (1999), *The knowledge of communication skills of secondary graduate student teachers and their understanding of the relationship between communication skills and teaching*.
106. Sayan, H. (2016). *Affecting higher students learning activity by using Whatsapp*. *European Journal of Research and Reflection in Educational Sciences*, 4(3), 88- 93.
107. Seaman J., & Tinti-Kane, H. (2013). *Social media for teaching and learning*. *Pearson annual survey of social media use by higher education faculty [Journal]*.
108. Selwyn, N. (2009). *Faceworking: Exploring students' education-related use of Facebook*. *Learning, media and technology*, 34(2), 157–174.
109. Sharif R. (ND). *PC skills, English crucial, Kong tells grads*. *The Star Online*.
110. Sharna, Kajal (2019). *Role of teacher in our life*. *Journal of The Asian School*. Dehradun, India.
111. Simo P, Fernandez V, Algaba I, Salan N, Enache M, Albareda-Sambola M, Bravo ER, Sun~ e A, Garcia-Almin~ ana D, Amante B, Rajadell M. (2010). *Video stream and teaching channels: Quantitative analysis of the use of low-cost educational videos on the web*. *Procedia Soc Behav Sci* 2:2937–2941. Skiba DJ. 2007. *Nursing education 2.0: YouTube*. *Nurs Educ Perspect* 28:100– 102.
112. Smith, S. M., & Woody, P. C. (2000). *Interactive effect of multimedia instruction and learning styles*. *Teaching of psychology*, 27(3), 220-223.
113. Shrestha, P. (2011). *The potential of mobile technologies for (English) language learning in Nepal*. *Journal of NELTA*, 16(1-2), 107-113.
114. Statista, 2018. *Most popular mobile messaging apps worldwide as of April 2018, based on number of monthly active users (in millions)*. *The Statistics Portal*. Available at: <https://www.statista.com/statistics/258749/most-popularglobal-mobile-messenger-apps/>
115. Stegeman, C. A., & Zydney, J. (2010). *Effectiveness of multimedia instruction in health professions education compared to traditional instruction*. *American Dental Hygienists' Association*, 84(3), 130-136
116. Ta'amneh, M. A. A. A. (2017). *The effect of using whatsapp messenger in learning English language among university students*. *International Research in Education*, 5(1), 143-151.
117. Talaue, G. M., AlSaad, A., AlRushaidan, N., AlHugail, A., & AlFahhad, S. (2018). *The impact of social media on academic performance of selected college students*. *International Journal of Advanced Information Technology*, 8(4/5), 27-35.
118. Tess, P. A. (2013). *The role of social media in higher education classes (real and virtual)—A literature review*. *Computers in Human Behavior*, 29(5), A60–A68.
119. Tudor, S. L. (2013). *The role of multimedia strategies in educational process*. *Procedia-Social and Behavioral Sciences*, 78, 682-686.
120. Tularam, G. A. (2018). *Traditional vs non-traditional teaching and learning strategies-the case of E-learning*. *International Journal for mathematics teaching and learning*, 19(1), 129-158.
121. Valdez, P. N. (2010). *'Reflections on using the digital portfolio in academic writing in a Philippine university: Problems and possibilities'*. *Philippine ESL Journal*, vol. 5, pp. 160-170.



122. Veletsianos, G. (2012). *Higher education scholars' participation and practices on twitter*. *Journal of Computer Assisted Learning*, 28, 336-349.
123. Ventura, R., & Quero, M. J. (2013). *Using Facebook in university teaching: A practical case study*. *Procedia-Social and Behavioral Sciences*, 83, 1032-1038.
124. Wallace-Spurgin, M. (2019). *Measuring student cognitive engagement when using technology*. I. Sahin & V. Akerson (Eds). *ISTES Organization*.
125. West, A., Lewis, J., & Currie, P. (2009). *Students' facebook 'Friends': Public and private spheres*. *Journal of Youth Studies*, 12(6), 615-627.
126. Yana, K. (1997). *Image and signal processing*. *Yearbook of Medical Informatics*, 6(01), 359-363.
127. Yu, A. Y., Tian, S. W., Vogel, D., & Kwok, R. C. W. (2010). *Can learning be virtually boosted? An investigation of online social networking impacts*. *Computers & Education*, 55(4), 1494-1503.
128. Yaftian, N., & Barghamadi, S. (2022). *The effect of teaching using multimedia on Mathematical anxiety and motivation*. *Journal of Research and Advances in Mathematics Education*, 7(2), 55-63.
129. Zahn, C., Pea, R., Hesse, F. W., & Rosen, J.. (2010). *Comparing simple and advanced video tools as supports for complex collaborative design processes*. *The journal of the learning sciences*, 19, 403-440.
130. Zaitoun, Kamal Abdul Hamid (2002). *Educational technology in the age of information and communication, the world of books*, Cairo
131. Zhen, Z. (2016). *The use of multimedia in English teaching*. *US-China Foreign Language*, 14(3), 182-189.
132. Zhu, C. (2012). *Student satisfaction, performance, and knowledge construction in online collaborative learning*. *Journal of Educational Technology & Society*.





# EXPLORING THE IMPACT OF STRESS MANAGEMENT AND MOTIVATION ON THE PERFORMANCE OF COMMERCIAL BANKS IN BANGLADESH

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## ABSTRACT

*This research study focused on the relationship between stress management and motivation on the performance of commercial banks in Bangladesh, with a specific focus on employees. The study investigates how the work environment within the banking sector influences stress levels among employees and the role played by motivation in shaping their dedication to their jobs and organizations. A random sample of 480 employees from diverse commercial banks in Bangladesh is utilized for data collection. The data analysis employs SPSS, multiple regression tests, and beta coefficients for hypothesis testing. The findings of the study reveal that both stress management and motivation have a positive and significant impact on banks' performance, indicating their close relation with employees' loyalty and dedication to the banking sector. This research underscores the importance of implementing effective stress management strategies and fostering motivation to enhance the overall performance of commercial banks in Bangladesh.*

**KEYWORDS:** *Stress, Motivation, Performance, Commercial Bank.*

## INTRODUCTION

In the dynamic and competitive landscape of the banking industry, the performance and success of commercial banks largely depend on the commitment and dedication of their employees. Within this context, the management of stress and the cultivation of motivation among employees have emerged as crucial factors influencing organizational outcomes. For the first time, Selye (1980: 6) coined the word "stress," describing it as "the particular reactions of the organism to stimulants that induce change." This research study aims to explore the relationship between stress management, motivation, and the performance of commercial banks in Bangladesh, with a specific emphasis on employees. The banking sector in Bangladesh has been witnessing significant growth and transformation over the years, resulting in heightened pressures and challenges for its workforce. The demanding work environment, characterized by long working hours, intense competition, and stringent targets, often leads to elevated stress levels among employees. Consequently, the impact of stress on employee performance. Subsequently, on overall organizational performance becomes a matter of paramount concern. Simultaneously, the role of motivation in shaping employee attitudes and behaviors cannot be understated (Z. Baltaş & A. Baltaş, 2006). Motivated employees exhibit higher levels of commitment to their job and organization,

leading to increased productivity, customer satisfaction, and overall performance for the banks. Understanding the interplay between stress and motivation in the context of commercial banks in Bangladesh is essential to develop effective strategies to enhance employee well-being and organizational success (Cücelolu, 1998). To address these research objectives, a random sample of 480 employees from diverse commercial banks in Bangladesh is engaged in this study. The participants are chosen to ensure representative data collection and provide valuable insights into the perceptions and experiences of employees across various banking institutions. Data analysis is conducted using advanced statistical tools, including SPSS, multiple regression tests, and beta coefficients for hypothesis testing. The findings of this research shed light on the pivotal roles played by stress management and motivation in influencing employee commitment and loyalty to the banking sector. The study reveals that effective stress management practices positively impact employee performance and, consequently, contribute to the overall performance of commercial banks. Moreover, the research demonstrates that a motivated workforce exhibits higher levels of dedication, resulting in enhanced organizational outcomes and customer satisfaction. The implications of this research are far-reaching, emphasizing the critical importance for commercial banks in Bangladesh to invest in stress management



strategies and foster a motivational work environment. By prioritizing employee well-being and motivation, banks can cultivate a workforce that is dedicated, resilient, and committed to achieving the organizational goals, ultimately leading to sustainable growth and competitive advantage in the banking industry.

This study serves as a valuable contribution to the existing body of knowledge on stress management, motivation, and their impact on the performance of commercial banks in Bangladesh. By illuminating the connections between these variables, the research offers valuable insights for policymakers, HR practitioners, and bank management to devise targeted interventions aimed at improving employee well-being and driving organizational success in this dynamic and competitive sector.

### OBJECTIVES OF THE STUDY

- i. To analyze the impact of stress on organizational performance among the employees of commercial banks.
- ii. To analyze the impact of motivation on organizational performance among the employees of commercial banks.

### PROBLEM STATEMENT

The commercial banking sector in Bangladesh operates in a challenging and dynamic environment, where the performance and success of banks rely heavily on the commitment and dedication of their employees. However, the sector faces significant challenges related to stress and motivation among its workforce. Moreover, maintaining a motivated workforce is essential for ensuring sustained organizational performance and achieving competitive advantages in the industry. Understanding the relationship between stress management, motivation, and their impact on the performance of commercial banks is crucial to devising effective strategies that enhance employee well-being and optimize organizational outcomes. Despite the significance of stress management and motivation in the banking sector, limited research has been conducted to explore their combined impact on organizational performance in the specific context of Bangladesh. Therefore, this study seeks to address this research gap by examining the interplay between stress management, motivation, and their collective influence on the performance of commercial banks in Bangladesh.

### SIGNIFICANCE OF THE STUDY

This study provides a valuable addition to the existing literature and offers benefits for policymakers. Additionally, it will be advantageous for employees in the banking sector, as it provides insights into stress management at the workplace.

### LITERATURE REVIEW

#### Stress

In the banking sector, higher management often lacks awareness about the impact of stress on employee performance. As Subha and Shakel (2009) highlighted, this lack of concern for stress-related issues results in lower employee performance, jeopardizing the organizational reputation and leading to the loss of skilled employees. Studies by Babak et al. (2010) reveal that work overload and time pressure significantly contribute to stress, ultimately lowering employee performance. The excessive pressures and unmet job demand can lead to exhaustion and a decline in job interest among employees.

#### Motivation

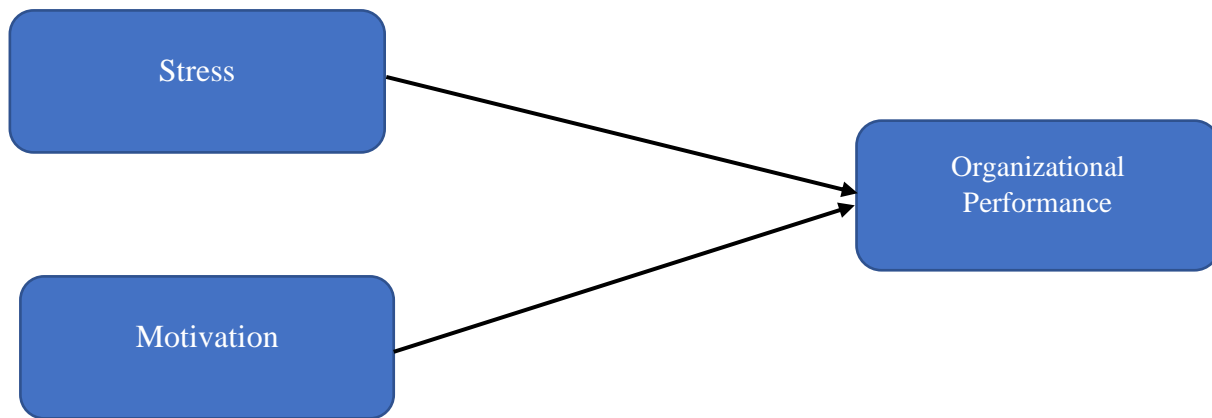
Emeka et al. (2015) found that all extrinsic influences positively impacted employee morale, leading to increased worker productivity. Attrams (2013) emphasized the significance of extrinsic influences, including monetary policy and good working relationships, in enhancing employee performance across both public and private sectors. Hong Tan and Waheed (2011), using the Herzberg two-factor theory in Malaysia's retail industry, concluded that hygiene factors, including compensation, business policies, and working conditions, played a more crucial role than intrinsic factors in motivating employees. William (2010) discovered that employees were motivated by extrinsic incentives, driving them to achieve high performance in their companies. Stella (2008) emphasized various factors, such as working conditions, work relationships, supervision, and job security, as essential contributors to employees' motivation.

#### Organizational Performance

Organizational performance is closely tied to organizational commitment, as high commitment levels contribute to enhanced performance. Researchers have classified organizational commitment into various dimensions to capture its multifaceted nature. Etzioni (1961) identified moral commitment, utilitarian commitment, and alienating commitment. O'Reilly and Chatman (1986) categorized it as adaptation commitment, identification commitment, and internalization commitment. Wiener (1982) distinguished instrumental commitment and normative-moral commitment, while Buchanan (1974) described identification, hugging, and loyalty commitment. Initially, Meyer and Allen (1984) classified organizational commitment into affective commitment and continuance commitment, later adding normative commitment as the third dimension (Allen & Meyer, 1990). Affective commitment reflects a strong personal bond and identification between employees and their employers. Employees with high affective commitment are motivated to stay with the company regardless of circumstances because they genuinely want to. On the other hand, continuance commitment is related to employees' awareness of the costs associated with leaving the organization.



**Conceptual framework**



**HYPOTHESES OF THE STUDY**

**H1:** Stress has significant negative impact on organizational performance among the employees of commercial banks in Bangladesh.

**H2:** Motivation has significant positive impact on organizational performance among the employees of commercial banks in Bangladesh.

**METHODOLOGY**

This study adopts a descriptive and quantitative research design and focuses on the employees working in the banking sector. The

total number of banking employees in Bangladesh, excluding those in Bangladesh banking, was approximately 175,027 as of 2017 ("Bangladesh Banking Sector: Number of Employees", 2019). The sample size for this study was 384, determined with a 5% margin of error using the table of Saunders et al. (2009). Data was collected through a questionnaire that was adapted and modified from Cohen et al. (1988), Tsigilis and Theodosiou (2003), and Alan and Meyer (1990). The collected data was analyzed using SPSS v22, employing various techniques such as reliability analysis, correlation, and regression analysis.

**ANALYSIS AND RESULT**

**Table 1: Reliability Analysis**

Variable Name	Cronbach Score
Performance	.78
Stress	.76
Motivation	.74

In this study, the researcher used the Cronbach alpha as a measure of reliability to assess the consistency of the data for the variables being studied: Performance, stress, and motivation. According to Pallent (2005), a Cronbach alpha value of .70 or higher indicates

that the data is reliable. In this study, the Cronbach alpha values for Performance, stress, and motivation are all above .60, indicating high reliability for each of these variables.

**Table 2: Demographic Analysis**

Age in Years	Percentage
26-35	36%
36-45	42%
Above 46	22%

The demographic analysis reveals that 36% of the respondents fall in the age group of 26-35, while 42% are between the ages of 36-45. The remaining 22% of respondents are above the age of

46. Notably, all participants provided positive and 100% response rates during the survey, indicating a high level of engagement and willingness to participate in the study.

**Table 3: Experience**

Experience in years	Percentage
1-5	38%
6-10	40%
Above 10	22%

The respondents' experience in the study varies between 1 to 10 years and above. Specifically, 38% of the participants have 1-5 years of experience, while 40% have experience ranging from 5-

10 years. Additionally, 22% of the respondents possess more than ten years of experience.

**Table 4: Correlation Analysis**

Variables		Organizational Performance
Stress	Pearson Correlation	-.354**
	Sig. (2-tailed)	.000
Motivation	Pearson Correlation Sig. (2-tailed)	.707**
		.000
Correlation is significant at the 0.01 level (2-tailed).		

The analysis employed Pearson's correlation coefficient (r) to examine the relationship between two continuous variables in terms of their strength of association. Table 4 presents the results of the correlation analysis conducted between the variables. The

findings reveal a significant negative correlation between stress and organizational Performance ( $r = -0.354^{**}$ ,  $p < .01$ ) and a significant positive correlation between motivation and organizational Performance ( $r = 0.707^{**}$ ,  $p < .01$ )

**Table 3- Multiple Regression**

Model	Unstandardized Coefficients		Standardized Coefficients	t	sig.
	B	Std. Error	Beta		
(Constant)	0.588	0.232		2.545	0.012
Stress	- 0.086	- 0.055	0.098	1.517	0.132
Motivation	- 0.026	- 0.061	0.027	4.563	0

a. Dependent Variable: Organizational Performance

In this study, a regression analysis was performed with Organizational Commitment as the dependent variable and Stress and Motivation as the independent variables. The coefficient of determination, denoted by R, was found to be 0.95, indicating that 95% of the variance in Organizational performance can be explained by the two independent variables. The results revealed that stress had a significant negative relationship of -348% with Organizational performance, indicating that higher levels of stress were associated with decreased levels of commitment to the organization. On the other hand, motivation had a significant positive relationship of 707% with Organizational performance, suggesting that employees who were extrinsically motivated exhibited higher levels of commitment to the organization. Both findings were statistically significant at the 0.05 level, indicating a reliable association between the independent variables (stress and motivation) and the dependent variable (organizational performance). The results underscore the importance of managing stress and fostering extrinsic motivation to enhance employees' commitment to their organizations.

## CONCLUSION

The primary objective of this study was to investigate how stress and motivation influence organizational performance among employees in the banking sector of Bangladesh. The research focused on understanding the relationship between these variables to gain insights into their impact on employees' commitment to their organizations. The study's findings revealed a noteworthy negative impact of stress on organizational commitment. This implies that higher levels of stress experienced by employees were associated with decreased levels of commitment to their respective organizations. Stress in the banking sector can arise due to various factors such as intense competition, demanding work schedules, and high-pressure targets, which can adversely affect employee loyalty and dedication. On the other hand, the research also highlighted the positive impact of motivation on organizational performance. When employees are motivated, whether through rewards, recognition, or other extrinsic incentives, they exhibit higher levels of commitment and dedication to their jobs and organizations. Motivated employees are more likely to be





engaged, productive, and proactive in contributing to the overall success of the organization. These findings underscore the significance of managing stress and fostering motivation in the banking sector to optimize organizational performance. Addressing stress-related issues and providing motivational incentives can enhance employees' commitment and overall engagement, leading to improved productivity and organizational success. The study's implications may guide policymakers, HR practitioners, and bank management in developing effective strategies to create a conducive and motivating work environment, ultimately benefiting both employees and the banking institutions in Bangladesh

## REFERENCE

1. S. Fisher, "Stress, health and disease," *British Journal of Hospital Medicine*, vol. 49, no. 10, pp. 687–688, 1993.
2. R. S. Lazarus and S. Folkman, *Stress, Appraisal, and Coping*, Springer, New York, NY, USA, 1984.
3. E. S. Williams, T. R. Konrad, W. E. Scheckler et al., "Understanding physicians' intentions to withdraw from practice: the role of job satisfaction, job stress, mental and physical health," *Health Care Management Review*, vol. 26, no. 1, pp. 7–19, 2001. [5] E. R. Voltmer, U. Kieschke, D. L. Schwappach, M. Wirsching, and C. Spahn, "Psychosocial health risk factors and resources of medical students and physicians: a cross-sectional study," *BMC Medical Education*, vol. 8, article 46, 2008.
4. L. N. Dyrbye, M. R. Thomas, and T. D. Shanafelt, "Systematic review of depression, anxiety, and other indicators of psychological distress among U.S. and Canadian medical students," *Academic Medicine*, vol. 81, no. 4, pp. 354–373, 2006.
5. E. R. Stucky, T. R. Dresselhaus, A. Dollarhide et al., "Intern to attending: assessing stress among physicians," *Academic Medicine*, vol. 84, no. 2, pp. 251–257, 2009.
6. N. Shields, "Stress, active coping, and academic performance among persisting and nonpersisting college students," *Journal of Applied Biobehavioral Research*, vol. 6, no. 2, pp. 65–81, 2001.
7. K. F. Helmers, D. Danoff, Y. Steinert, M. Leyton, and S. N. Young, "Stress and depressed mood in medical students, law students, and graduate students at McGill University," *Academic Medicine*, vol. 72, no. 8, pp. 708–714, 1997.
8. M. Schmitter, M. Liedl, J. Beck, and P. Rammelsberg, "Chronic stress in medical and dental education," *Medical Teacher*, vol. 30, no. 1, pp. 97–99, 2008.
9. R. J. Sawa, A. Phelan, F. Myrick, C. Barlow, D. Hurlock, and G. Rogers, "The anatomy and physiology of conflict in medical education: a doorway to diagnosing the health of medical education systems," *Medical Teacher*, vol. 28, no. 8, pp. e204–e213, 2006.
10. E. Cooley and T. Toray, "Coping in women college students: the influence of experience," *Journal of College Student Development*, vol. 39, no. 3, pp. 291–295, 1998.
11. J. G. Bramness, T. C. Fixdal, and P. Vaglum, "Effect of medical school stress on the mental health of medical students in early and late clinical curriculum," *Acta Psychiatrica Scandinavica*, vol. 84, no. 4, pp. 340–345, 1991.
12. E. Rodolfa, S. Chavoor, and J. Velasquez, "Counseling services at the university of California, Davis: helping medical students cope," *The Journal of the American Medical Association*, vol. 274, no. 17, pp. 1396–1397, 1995.
13. M. S. Bhatia, K. Garg, S. Chandra, and S. C. Malik, "Neurotic symptoms in first year medical students," *Annals of the National Academy of Medical Sciences*, vol. 28, no. 1-2, pp. 49–52, 1992.
14. B. A. Lerner, "Students' use of psychiatric services: the Columbia experience," *The Journal of the American Medical Association*, vol. 274, no. 17, pp. 1398–1399, 1995.
15. Zeenat Kanwal *Impact of Stress and Extrinsic Motivation on Organizational Commitment: Empirical Analysis of Banking Sector [17]* R. Saipanish, "Stress among medical students in a Thai medical school," *Medical Teacher*, vol. 25, no. 5, pp. 502–506, 2003.
16. H. M. Abdulghani, "Stress and depression among medical students: a cross sectional study at a Medical College in Saudi Arabia," *Pakistan Journal of Medical Sciences*, vol. 24, no. 1, pp. 12–17, 2008.
17. M. Amr, A. H. EL-Gilany, and A. EL-Hawary, "Does gender predict medical students' stress in Mansura, Egypt?" *Medical Education Online*, vol. 13, article 12, 2008.
18. F. Bineshian, M. Saberian, S. HajiAghajani et al., "P03-239 Study of stress level among medical school students of Semnan university, Iran," *European Psychiatry*, vol. 24, supplement 1, p. S1238, 2009.
19. G. M. Mouret, "Stress in a graduate medical degree," *The Medical Journal of Australia*, vol. 177, no. 1, pp. 1–10, 2002.
20. B. T. Shaikh, A. Kahloon, M. Kazmi et al., "Students, stress and coping strategies: a case of Pakistani Medical School," *Education for Health*, vol. 17, no. 3, pp. 346–353, 2004.
21. C. T. Sreeramareddy, P. R. Shankar, V. S. Binu, C. Mukhopadhyay, B. Ray, and R. G. Menezes, "Psychological morbidity, sources of stress and coping strategies among undergraduate medical students of Nepal," *BMC Medical Education*, vol. 7, article 26, 2007.
22. M. A. Elzubeir, K. E. Elzubeir, and M. E. Magzoub, "Stress and coping strategies among Arab medical students: towards a research agenda," *Education for Health*, vol. 23, no. 1, p. 355, 2010.
23. C. B. Shriver and A. Scott-Stiles, "Health habits of nursing versus non-nursing students: a longitudinal study," *Journal of Nursing Education*, vol. 39, no. 7, pp. 308–314, 2000.
24. [36] H. Nicholl and F. Timmins, "Programme-related stressors among part-time undergraduate nursing students," *Journal of Advanced Nursing*, vol. 50, no. 1, pp. 93–100, 2005.



# IMPETIGO, DESCRIPTION, ETIOLOGY, EPIDEMIOLOGY, PATHOPHYSIOLOGY, EVALUATION, DIFFERENTIAL DIAGNOSIS, TREATMENT, PROGNOSIS AND COMPLICATIONS

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## SUMMARY

**Introduction:** Impetigo is a common infection of the superficial layers of the epidermis that is highly contagious and usually originated by gram-positive bacteria, this disease manifests with the presence of erythematous plaques with a yellow crust, which may become itchy or painful. Diagnosis is usually based on signs and symptoms alone. Treatment involves topical and oral antibiotics and symptomatic care.

**Objective:** to detail current information related to impetigo, description, etiology, epidemiology, pathophysiology, evaluation, differential diagnosis, treatment, prognosis and complications.

**Methodology:** a total of 37 articles were analyzed in this review, including review and original articles, as well as clinical cases, of which 28 bibliographies were used because the other articles were not relevant to this study. The sources of information were PubMed, Google Scholar and Cochrane; the terms used to search for information in Spanish, Portuguese and English were: impetigo, cutaneous bacterial infection, S. aureus, streptococcal, bullous impetigo.



**Results:** Impetigo accounts for approximately 10% of skin complaints in the pediatric population and the main pathogens involved include *Staphylococcus aureus* and *Streptococcus pyogenes*. There are two common variants of impetigo: non-blistering (70%) and blistering (30%). *Streptococcus pyogenes* (group A streptococcus) is one of the most important bacterial causes of skin and soft tissue infections (STBI) worldwide. Impetigo is a non-life-threatening infection, but can lead to acute post-streptococcal glomerulonephritis.

**Conclusions:** Impetigo is a common disease in early life, especially in warm and humid climates. The infection can be blistering or non-blistering and is usually caused by *Staphylococcus aureus* and *Streptococcus pyogenes*. The infection usually affects the face, but can occur anywhere else on the body with a laceration, abrasion, insect bite, or other trauma. History and physical examination are paramount for diagnosis, which is usually based on symptoms and clinical manifestations alone. Treatment strategies for impetigo differ, depending on whether the condition is localized or generalized, as well as resistance patterns to the causative agents and current guidelines. Topical antibiotics alone or in combination with systemic antibiotics are most frequently used for treatment. The prognosis is usually good and complications are rare.

**KEY WORDS:** impetigo, *S. aureus*, blistering, cutaneous, skin.

## INTRODUCTION

Normally the dermis is colonized by a large number of bacteria that dwell on its surface or in the hair follicles. Occasionally, excessive growth of these bacteria leads to skin diseases(1,2).

Impetigo is a common infection of the superficial layers of the epidermis that is highly contagious and usually caused by gram-positive bacteria, this disease manifests with the presence of erythematous plaques with a yellow crust, which may become itchy or painful. Diagnosis is usually based on signs and symptoms alone. Treatment involves topical and oral antibiotics, in addition to symptomatic care(3-6).

Primary infection with impetigo and secondary bacterial infection with scabies, presenting *Staphylococcus aureus* and *Streptococcus pyogenes* (Group A *Streptococcus*, GAS) bacteria lead to increased morbidity and mortality rates, as well as increased health care costs. Lesions generated in impetigo are highly contagious and spread easily(3,6).

Some factors will play an important role in the resistance of the infection and will depend on the host, such as the presence of sebaceous secretion (fatty acids, especially oleic acid), lysozyme and defensin production, the integrity of the cutaneous barrier with its acid pH and a decent nutritional status(1,2).

Impetigo is a disease frequently associated with infants living in warm, humid climates. Impetigo infection can be blistering or non-blistering. The infection mostly affects the face, but it can occur elsewhere on the body if there is a laceration, abrasion, insect bite or other trauma. Diagnosis is usually clinical, based on signs and symptoms. For treatment, topical and oral antibiotics are usually used, in addition to symptomatic management(3).

## METHODOLOGY

A total of 37 articles were analyzed in this review, including review and original articles, as well as cases and clinical trials, of which 28 bibliographies were used because the information collected was not important enough to be included in this study. The sources of information were Cochrane, PubMed and Google Scholar; the terms used to search for information in Spanish, Portuguese and English were: impetigo, cutaneous bacterial infection, *S. aureus*, streptococcal, bullous impetigo.

The choice of bibliography exposes elements related to impetigo, description, etiology, epidemiology, pathophysiology, evaluation, differential diagnosis, treatment, prognosis and complications.

## DEVELOPMENT

### Etiology and Epidemiology

Impetigo is a common superficial bacterial infection of the skin, with an approximate worldwide presence of more than 140 million and about 162 million children worldwide according to other bibliographies. This condition makes up about 10% of skin complaints in infants. If we take into account the totality of the age ranges, we can see that this disease presents similar incidence in males and females; however, only in adults, males are more affected. Its presentation in children from 2 to 5 years of age is the most common, although it can be observed at any age. Infants are more affected than adults and the incidence improves with age. In addition, impetigo is more common in summer and autumn. Bullous impetigo is more common in infants; children under 2 years of age account for 90% of individuals affected with bullous impetigo(3,7-11).

*Streptococcus pyogenes* or group A streptococcus is one of the most notable bacterial sources of skin and soft tissue infections (STBI) worldwide. No other pathogen gives rise to as many varied clinical entities as *S. pyogenes*. In particular, this bacterium causes infections, with different names depending on the site affected:

- Impetigo: in the superficial keratin layer.
- Erysipelas: in the superficial epidermis.
- Cellulitis: in the subcutaneous tissue.
- Necrotizing fasciitis: in the fascia.
- Myositis and myonecrosis: in the muscle.

It is also the etiologic agent of Streptococcal Toxic Shock Syndrome (StrepTSS) and scarlet fever. Although impetigo is generally not life-threatening, it can lead to acute post-streptococcal glomerulonephritis (AGN)(12-15).

Post-streptococcal glomerulonephritis (PSGN) alters the glomeruli and small blood vessels of the kidneys. It is characterized by a rapid deterioration of renal functions due to a



type III hypersensitivity reaction following a streptococcal infection; resulting from specific strains of group A beta-hemolytic streptococci called nephrogenic streptococci. PSGN is most common in children 1 to 2 weeks after a sore throat or 6 weeks after a skin infection such as impetigo. It usually presents clinically compatible with nephritic syndrome, showing hematuria, oliguria, hypertension and edema. Rarely, it may pass as a nephrotic syndrome with significant proteinuria(16).

Among the pathogens primarily involved are *Staphylococcus aureus* and *Streptococcus pyogenes*. Two variants of impetigo are frequently presented, non-blistering impetigo representing approximately 70% and blistering impetigo approximately 30%(10,13).

Non-blistering impetigo is commonly generated by *S. aureus*, which accounts for approximately 80% of the cases. Group A

beta-hemolytic streptococcus (GABHS) is attributed to 10% of cases and the causative agent is a combination of *S. aureus* and GABHS 10% of the time. Methicillin-resistant *S. aureus* (MRSA) is currently more prevalent, particularly in hospitalized individuals. Community-acquired MRSA is currently increasing rapidly. The condition is more frequent in indoor populations, day-care centers and prisons(3,10).

Bullous impetigo is almost exclusively caused by *S. aureus*. Occasionally a deep ulcerative infection known as ecthyma may occur, which is a complication of bullous impetigo(3).

Risk factors for impetigo include crowding, young age, close contact, and warm, humid weather. In tropical climatic regions, GAS is considered the main pathogen and co-infection with *S. aureus* is common, while *S. aureus* has largely replaced GAS as the predominant pathogen in temperate climates(2,11,17).

**Figure1. Impetigo in a child.**



**Source:** image Courtesy S Bhimji MD. Nardi NM, Schaefer TJ. Impetigo(3).

### Pathophysiology

Impetigo can be categorized as primary or secondary. Primary impetigo involves previously normal skin afflicted by direct bacterial colonization. Secondary impetigo involves the formation of an infection at a site with a previous skin wound(3). Any modification of the skin barrier leads to the introduction of fibronectin receptors by GABHS and *S. aureus* which require fibronectin for colonization. Cuts, insect bites, trauma, surgery, burns, atopic dermatitis, lice, herpes, scratching and chickenpox are common mechanisms of disruption of the natural skin barrier and therefore present increased likelihood and susceptibility to develop impetigo. Post-injury, auto-inoculation at other sites is common. Immunosuppression, malnutrition, overcrowding, diabetes, poor hygiene and access to day care centers promote susceptibility to impetigo(3).

### Semiology

Non-blistering impetigo usually starts as a vesicle or pustule. Several vesicles coalesce and rupture, subsequently the emanating purulent exudate creates the characteristic honey-colored crust: it also has an erythematous base. There are usually many lesions on the face and extremities, most commonly on surfaces with a disruption of the skin barrier. The high speed of spread and the creation of satellite lesions come after autoinoculation, commonly on surfaces without apparent skin barrier disruption. Mild regional lymphadenopathy is a common related finding. Systemic symptoms, such as fever, are not usually present in non-blister impetigo(3,11).

Bullous impetigo starts with small vesicles that turn into flaccid blisters. The exfoliative toxin A produced by *S. aureus* generates loss of cell adhesion in the superficial epidermis. The blisters have in their interior a clear or yellow liquid that later becomes purulent or dark. Edema and erythema around the blisters are





usually absent. After the blisters break, an erythematous base with a ridge remains. Bullous impetigo does not give a honey-colored crust. Lesions usually appear in the intertriginous regions and on the trunk, in contrast to non-blistering impetigo, they may appear on the buccal membranes. Commonly, there are fewer lesions in non-blister impetigo. Regional lymphadenopathy is not present. Systemic symptoms, such as fever, are more common than in non-blister impetigo(3,18-20).

*S. aureus* produces exfoliative toxins, which are proteases that selectively hydrolyze one of the intracellular adhesion molecules, desmoglein-1, found in the desmosomes of keratinocytes located in the epidermal granular layer. Toxins are the most important

virulence factor of *S. aureus*, generating the separation of epidermal cells with the creation of blisters. The blisters are located in bullous impetigo and spread in scalded skin syndrome. There are at least 2 different variants of exfoliative toxins, so that exfoliative toxin A is linked to bullous impetigo and toxin B to scalded skin syndrome(2,21).

Ecthyma is a deep tissue configuration of impetigo. Ulcerative lesions enter through the epidermis and into the dermis. Ulcers appear as punch lesions with violaceous borders. The crusts may be honey-colored or brownish-black and the lesions may have pus(3).

**Figure 2. Bullous Impetigo –Desquamation Collarette and Flaccid Blisters.**



**Source:**Pereira LB. Impetigo - review. *An Bras Dermatol*(2).

### Evaluation

Anamnesis and physical examination are crucial to the correct diagnosis of impetigo, especially inspection, which is classically evidenced by distinctive honey-colored crusty lesions. Bacterial cultures can be used to confirm the diagnosis and should be sought in the presence of evidence of methicillin-resistant staphylococcus aureus (MRSA) or in an outbreak of impetigo. In addition, a skin biopsy may be considered in refractory cases if necessary(3,10).

The anti-streptolysin O (ASO) response is weak for impetigo alone. Therefore, streptococcal antibody serological tests are not often indicated for its diagnosis. However, it can be used when post-streptococcal glomerulonephritis is suspected in an individual with a new outbreak of impetigo(3).

It is important to consider human immunodeficiency virus (HIV) testing when a previously healthy adult individual presents with clinical manifestations of bullous impetigo(3).



## Treatment and Management

Management strategies for impetigo differ, according to whether the condition is localized or generalized, patterns of resistance to the causative agents, and prevailing models(17).

Topical antibiotics alone or in addition to systemic antibiotics are used to treat the disease. Topical antibiotics are often considered the treatment of choice for impetigo, however the clinical efficacy of these treatments are declining at an alarming rate because of the rapid emergence and spread of resistant bacteria. Systemic antimicrobials are recommended when deeper structures such as subcutaneous tissue and muscle fascia are involved, accompanied by fever, pharyngitis, infections close to the oral cavity, adenopathies, scalp infections and very numerous lesions (2,11).

The antibiotic used should cover the spectrum where *S. aureus* and *S. pyogenes* are present. As previously mentioned, impetigo is usually self-limited, however antibiotics reduce the permanence of the disease and the spread of lesions to other areas. In addition, antibiotic treatment reduces the chances of bacterial involvement of the kidneys, bones, joints and lungs, as well as acute rheumatic fever(3,22-24).

When the impetigo is regionalized, uncomplicated and non-blistering, topical therapy is suggested. The scab should be removed with soap and water prior to topical antibiotic therapy. Mupirocin, retapamulin and fusidic acid are the first-line treatments. Treatment for limited impetigo is topical and the use of oral systemic antibiotics is left for more extensive cases. The antibacterial action of Retapamulin is generated through inhibition of protein synthesis by selectively binding to bacterial ribosomes(2,3,10).

Ozenoxacin or ozenoxacin, a striking topical antibacterial agent with strong bactericidal activity against gram-positive bacteria, exists in cream presentations with 1% of active drug to manage impetigo, this drug is effective and well tolerated in individuals 2 months and older. It presents a rapid onset of response and a remarkable clinical and microbiological response compared to placebo. Topical ozenoxacin is an ingenious alternative for the treatment of impetigo(25).

Systemic antibiotics are indicated for all patients with bullous impetigo, as well as for non-blistering impetigo with more than 5 lesions, lymphadenopathy, systemic signs of infection, deep tissue involvement and lesions in the oral cavity. The antibiotics of choice are beta-lactamase resistant antibiotics such as cephalosporins, amoxicillin-clavulanate and dicloxacillin. Cephalexin is frequently used. If there is a positive culture only for streptococci, oral penicillin is the therapy of choice(3,26).

In places with a high prevalence of MRSA, as well as if cultures are positive for MRSA, the antibiotic of choice is clindamycin or doxycycline. The drug trimethoprim-sulfamethoxazole has a commensurate effect against MRSA, but should be used when

group A streptococci are not the causative agent, or in conjunction with an anti-streptococcal antibiotic(3).

Antibiotics are currently the first line treatment when multiple lesions are present, however with an increasing prevalence of antibiotic resistant bacteria, the successful management of impetigo in the future is of concern, the widespread use of these antibiotics contributes to antimicrobial resistance and presents its negative effects for individuals and communities.

Some studies agree that new antimicrobials and topical antiseptics are required as an alternative treatment strategy due to this drawback(27).

It is recommended to maintain good personal hygiene in all affected children, in addition to trying not to have contact with other infants during the active outbreak. It is important to emphasize the importance of cleaning hands, bedding, clothing, and affected areas likely to have had contact with infected fluids. Sores can be covered with a bandage to reduce distribution by contact. If the impetigo is reiterative, it is convenient to make an evaluation of the bacterial carriage that gives origin. Frequently the nose acts as a reservoir; carriers can be given mupirocin applied to the nostrils(3).

## Differential Diagnosis

- Scabies.
- Herpes simplex.
- Candidiasis.
- Varicella zoster.
- Atopic dermatitis.
- Contact dermatitis.

## Prognosis

The disease is most of the time mild and self-limited; however, antimicrobial treatment is frequently started to decrease the spread and improve the clinical course. Without any treatment, the natural course of the disease lasts 14 to 21 days and it is considered cured. Approximately 20% of cases resolve spontaneously. Scarring is infrequent, however some affected individuals may present pigmentary alterations, others may develop ecthyma. With medical treatment, healing takes up to 10 days. Newborns may develop meningitis. An unusual complication is acute post-streptococcal glomerulonephritis, which occurs 2-3 weeks after skin infection. Approximately 5% of the affected individuals with this disease will develop the associated glomerulonephritis, nevertheless at the moment there is no conclusive evidence if antibiotics support or not to diminish the incidence of post-streptococcal glomerulonephritis, this usually can happen after 1 or 2 weeks of the streptococcal infection, presenting clinically fever, hypertension, edema and hematuria(3,10).



## Complications

Complications are infrequent, however they may occur, some of the affected individuals may present renal failure, it is more common to present with an infection generated by streptococci; the renal alteration is shown 7 to 14 days after infection. The presence of blood in the urine and transient proteinuria may remain for weeks or even months. In addition, complications such as sepsis, meningitis, scarlet fever, septic arthritis and staphylococcal scalded skin syndrome may occur(3,10,28).

## CONCLUSIONS

Impetigo is a common disease in early childhood, especially in warm and humid climates. The infection can be blistering or non-blistering and is usually caused by *Staphylococcus aureus* and *Streptococcus pyogenes*. The infection usually affects the face, but can occur anywhere else on the body with a laceration, abrasion, insect bite, or other trauma. History and physical examination are paramount for diagnosis, which is usually based on symptoms and clinical manifestations alone. Treatment strategies for impetigo differ, depending on whether the condition is localized or generalized, as well as resistance patterns to the causative agents and current guidelines. Topical antibiotics alone or in combination with systemic antibiotics are most frequently used for treatment. The prognosis is usually good and complications are rare.

## BIBLIOGRAPHY

- Oumeish I, Oumeish OY, Bataineh O. Acute bacterial skin infections in children. *Clin Dermatol*. 2000;18(6):667–78.
- Pereira LB. Impetigo - review. *An Bras Dermatol*. 2014;89(2):293–9.
- Nardi NM, Schaefer TJ. Impetigo. In: *StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2023 [cited 2023 Jul 9]. Available from: <http://www.ncbi.nlm.nih.gov/books/NBK430974/>*
- Department of Paediatrics and Adolescent Medicine, The University of Hong Kong, Pokfulam, Hong Kong, Leung TN, Hon K, Leung AK. Group A *Streptococcus* disease in Hong Kong children: an overview. *Hong Kong Med J [Internet]*. 2018 Nov 9 [cited 2023 Jul 9]; Available from: <http://www.hkmj.org/abstracts/v24n6/593.htm>
- Clebak KT, Malone MA. Skin Infections. *Prim Care Clin Off Pract*. 2018 Sep;45(3):433–54.
- May PJ, Tong SYC, Steer AC, Currie BJ, Andrews RM, Carapetis JR, et al. Treatment, prevention and public health management of impetigo, scabies, crusted scabies and fungal skin infections in endemic populations: a systematic review. *Trop Med Int Health*. 2019 Mar;24(3):280–93.
- Castro MCR de, Ramos-E-Silva M. Cutaneous infections in the mature patient. *Clin Dermatol*. 2018;36(2):188–96.
- Sahu JK, Mishra AK. Ozenoxacin: A Novel Drug Discovery for the Treatment of Impetigo. *Curr Drug Discov Technol*. 2019;16(3):259–64.
- Breyre A, Frazee BW. Skin and Soft Tissue Infections in the Emergency Department. *Emerg Med Clin North Am*. 2018 Nov;36(4):723–50.
- Johnson MK. Impetigo. *Adv Emerg Nurs J*. 2020 Oct;42(4):262–9.
- Abrha S, Tesfaye W, Thomas J. Intolerable Burden of Impetigo in Endemic Settings: A Review of the Current State of Play and Future Directions for Alternative Treatments. *Antibiotics*. 2020 Dec 15;9(12):909.
- Stevens DL, Bryant AE. *Streptococcus pyogenes* Impetigo, Erysipelas, and Cellulitis. In: Ferretti JJ, Stevens DL, Fischetti VA, editors. *Streptococcus pyogenes: Basic Biology to Clinical Manifestations [Internet]*. 2nd ed. Oklahoma City (OK): University of Oklahoma Health Sciences Center; 2022 [cited 2023 Jul 9]. Available from: <http://www.ncbi.nlm.nih.gov/books/NBK587091/>
- Stevens DL, Bryant AE. Impetigo, Erysipelas and Cellulitis. In: Ferretti JJ, Stevens DL, Fischetti VA, editors. *Streptococcus pyogenes: Basic Biology to Clinical Manifestations [Internet]*. Oklahoma City (OK): University of Oklahoma Health Sciences Center; 2016 [cited 2023 Jul 22]. Available from: <http://www.ncbi.nlm.nih.gov/books/NBK333408/>
- Chelsom J, Halstensen A. [Streptococcus group A infections of skin, soft tissue and blood]. *Tidsskr Den Nor Laegeforening Tidsskr Prakt Med Ny Raekke*. 2001 Nov 20;121(28):3310–4.
- Brouwer S, Barnett TC, Rivera-Hernandez T, Rohde M, Walker MJ. *Streptococcus pyogenes* adhesion and colonization. *FEBS Lett*. 2016 Nov;590(21):3739–57.
- Rawla P, Padala SA, Ludhwani D. Poststreptococcal Glomerulonephritis. In: *StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2023 [cited 2023 Jul 22]. Available from: <http://www.ncbi.nlm.nih.gov/books/NBK538255/>*
- Gahlawat G, Tesfaye W, Bushell M, Abrha S, Peterson GM, Mathew C, et al. Emerging Treatment Strategies for Impetigo in Endemic and Nonendemic Settings: A Systematic Review. *Clin Ther*. 2021 Jun;43(6):986–1006.
- Bangert S, Levy M, Hebert AA. Bacterial Resistance and Impetigo Treatment Trends: A Review: Impetigo. *Pediatr Dermatol*. 2012 May;29(3):243–8.
- Sladden MJ, Johnston GA. Common skin infections in children. *BMJ*. 2004 Jul 10;329(7457):95–9.
- Cole C, Gazewood J. Diagnosis and treatment of impetigo. *Am Fam Physician*. 2007 Mar 15;75(6):859–64.
- Brazel M, Desai A, Are A, Motaparathi K. Staphylococcal Scalded Skin Syndrome and Bullous Impetigo. *Medicina (Mex)*. 2021 Oct 24;57(11):1157.
- Rush J, Dinulos JG. Childhood skin and soft tissue infections: new discoveries and guidelines regarding the management of bacterial soft tissue infections, molluscum contagiosum, and warts. *Curr Opin Pediatr*. 2016 Apr;28(2):250–7.
- Smith DRM, Dolk FCK, Pouwels KB, Christie M, Robotham JV, Smieszek T. Defining the appropriateness and inappropriateness of antibiotic prescribing in primary care. *J Antimicrob Chemother*. 2018 Feb 1;73(suppl\_2):ii11–8.
- Loadman MEN, Verheij TJM, van der Velden AW. Impetigo incidence and treatment: a retrospective study of Dutch routine primary care data. *Fam Pract*. 2019 Jul 31;36(4):410–6.
- Rosen T, Albareda N, Rosenberg N, Alonso FG, Roth S, Zsolt I, et al. Efficacy and Safety of Ozenoxacin Cream for Treatment of Adult and Pediatric Patients With Impetigo: A Randomized Clinical Trial. *JAMA Dermatol*. 2018 Jul 1;154(7):806–13.
- Koning S, van der Sande R, Verhagen AP, van Suijlekom-Smit



LWA, Morris AD, Butler CC, et al. *Interventions for impetigo. Cochrane Database Syst Rev.* 2012 Jan 18;1(1):CD003261.

27. D’Cunha NM, Peterson GM, Baby KE, Thomas J. *Impetigo: A need for new therapies in a world of increasing antimicrobial resistance. J Clin Pharm Ther.* 2018 Feb;43(1):150–3.
28. Walker MJ, Barnett TC, McArthur JD, Cole JN, Gillen CM, Henningham A, et al. *Disease Manifestations and Pathogenic Mechanisms of Group A Streptococcus. Clin Microbiol Rev.* 2014 Apr;27(2):264–301.

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# UNIFORMITY AND POSITIVITY INDEX OF THE ETHNIC STEREOTYPES AND SELF-STEREOTYPES AND FILIPINO STEREOTYPES OF THE KAPAMPANGAN, ILOCANO AND TAGALOG RESPONDENTS INSIDE AND OUTSIDE OF TARLAC STATE UNIVERSITY

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## ABSTRACT

*Tarlac State University (TSU) is a multi-ethnic and multicultural institution with a student population that is predominated by the Kapampangan, Ilocano, and Tagalog ethnolinguistic groups. This paper is a comparative study of ethnic and national stereotypes and self-stereotypes of these three ethnolinguistic groups. Using a modified Katz and Braly trait checklist, as well as their uniformity index, this paper was able to: 1) compare and contrast the uniformity as well as positivity of the three ethnic stereotypes; 2) compare and contrast the uniformity as well as positivity of the three ethnic stereotypes with their corresponding ethnic self-stereotypes; 3) determine the national self-stereotypes of the three ethnolinguistic groups; and 4) compare and contrast the uniformity as well as positivity of the three national self-stereotypes with their corresponding ethnic self-stereotypes. This paper is significant in understanding the peaceful and productive co-existence of the said three ethnolinguistic groups not only in TSU but also in Tarlac City, and Tarlac Province. This paper is also significant in exploring how multi-ethnicity and multicultural condition may contribute towards imagining national identity and building the nation.*

**KEYWORDS:** *Kapampangans, Ilocanos, Tagalogs, Ethnic Stereotypes, Ethnic Self-Stereotypes, National Stereotype, National Self-Stereotype, Uniformity Index, Positivity Index*

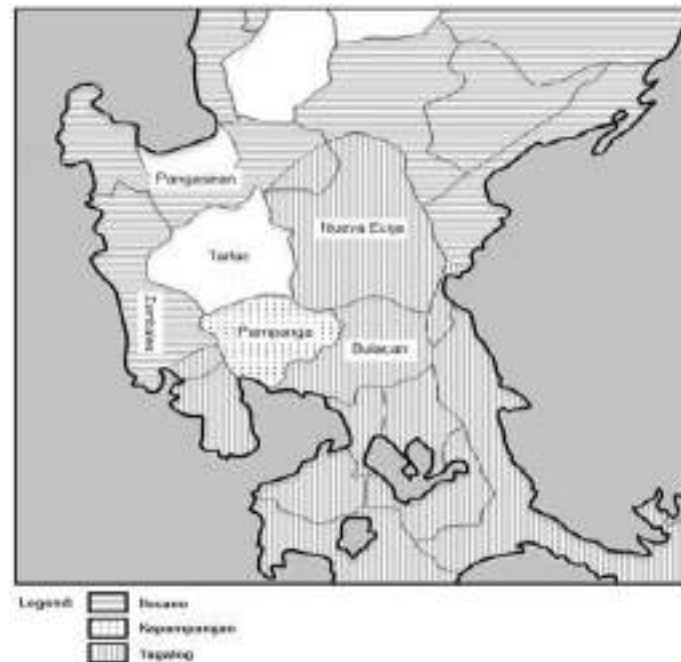
## INTRODUCTION

It can be said that the role of the teacher is very important in the teaching-learning process. Involved in this process is the teacher's creative interaction with his students who have different characteristics and beliefs. Getting to know the students being taught is also part of the meaningful value a teacher wants to achieve, but it cannot be done in daily discussions alone. It is necessary for the teacher to observe carefully inside and outside the classroom and give proposals that will be the basis of research that will help to obtain a peaceful and meaningful relationship in an academy or university.

The province of Tarlac in its history originated from two provinces: the North from Pangasinan and the South from Pampanga. The Northern part is not only from Pangasinan purists but Ilocanos as well. The Ilocanos even though they have their own language also have different dialects or vernaculars and so do the Kapampangans. All in all, it is very good to study the

different ethnolinguistic groups that live here in Tarlac, especially the students at Tarlac State University (TSU). TSU is a public state university founded in 1906 that has three campuses for its nine colleges. TSU is rich in different ethnolinguistic groups, it can be considered a multicultural space because here you can see different groups that come not only from Kapampangans, Ilocanos, there are also Bisayas, Muslims, Bicolanos, Pangasinenses and other different Tagalog. This is the nest of ethnolinguistic groups Ilokano, Kapampangan and Tagalog in Region III.

The background of the study was based on the researcher's own experience in relation to her daily academic interactions with students at the College of Education, Tarlac State University. The researcher notices the clustering of Ilokano, Kapampangan and Tagalog students according to their ethnicity whenever they are allowed to group themselves for group activities. From this, her interest was aroused to examine the relationship and relationships of students representing each ethnic group.



**Figure 1: Ethnolinguistic Map of Tarlac**  
(Mendoza et al., 2019)

Seen on the map, the province of Tarlac is surrounded by towns; from the North is Pangasinan whose main language is Iloko and Pangasinense, to the east there is Pampanga whose main language is Kapampangan and Bulacan whose main language is Tagalog. Also located in the Western part are Zambales and Nueva Ecija with Zambal, Tagalog and Iloko languages. The towns mentioned have different languages, and these languages have a complex culture carried by each ethnolinguistic group that married, worked and chose to live in the town of Tarlac. This has undoubtedly been the reason for the existence of many spoken languages and ethnic group identities of the people currently living in the province because it can be reflected in the students at TSU who identify each place and culture of their origin. In this analysis, it is important to study in a cultural space like TSU the conditions related to ethnic relations including the behaviors or characteristics that represent each group.

## METHODOLOGY

From the initial survey conducted on one hundred and fifty (150) student respondents who make up the three ethnolinguistic groups at TSU, data were obtained about the characteristics that describe the Ilokano, Kapampangan, Tagalog and Filipino. Anchored on Katz and Braly's research method, the characteristics gathered from the survey among the students were combined, and by obtaining the uniformity index, one hundred and sixty-two (162) characteristics were formed. With the developed list of characteristics, a questionnaire was developed that was used on

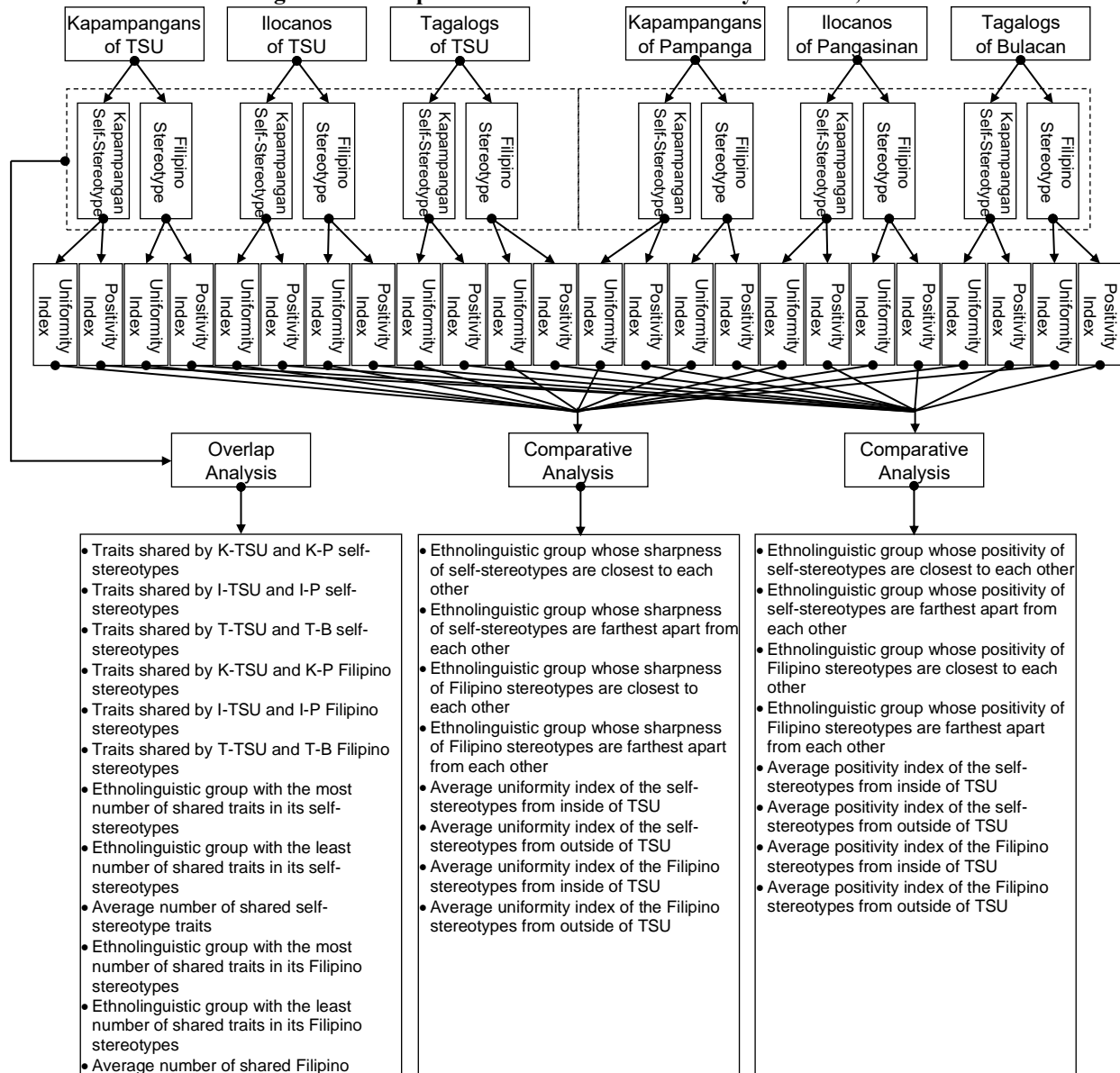
three hundred (300) student respondents in TSU and three hundred (300) respondents in Central and Northern Luzon representing Bulacan, Pampanga and Pangasinan.

The checklist developed by this paper contains 162 items, which is almost double the number of Katz and Braly's checklist which contains only 84 trait items. Using this 162-item questionnaire, 100 Kapampangan, 100 Ilokano, and 100 Tagalog students at TSU, who were not part of the first 150 informants answered the checklist to provide the twenty (20) characteristics that describe the three ethnolinguistic groups including being Filipino. Also, they can list down characteristics that are not on the list found in the checklist. From the twenty (20) characteristics, each respondent chose the first five characteristics that best describe Kapampangans, then Ilocanos, Tagalogs and Filipinos. To determine whether each of the TSU students is a Kapampangan, Ilokano, or Tagalog, the first language (mother language) used by the respondents was written on their questionnaire. Respondents from one hundred (100) Ilokano residents in Pangasinan, one hundred (100) Kapampangan residents in Pampanga and one hundred (100) residents in Bulacan also did a similar process. Residents who participated in Central and Northern Luzon were randomly selected from different towns.

This conceptual framework served as a guide for the researchers to achieve a comparative analysis of the survey conducted within TSU and in Central and Northern Luzon.



Figure 2: Conceptual Framework of Research by Mendoza, et al. 2019



The first objective of this paper is to profile the ethnic stereotype and self-stereotype of the three ethnolinguistic groups. In deriving their stereotype, this was done by identifying the top twelve (12) characteristics for each group based on multiple responses from the other two groups. For their self-stereotype, this was done by also identifying the top twelve (12) characteristics for each group based on the number of numbers they answered. The second main step of the paper is to obtain the uniformity index of the stereotype and self-stereotype of the three ethnolinguistic groups. For the uniformity index of ethnic stereotypes, they were calculated based on the method developed by Katz and Braly. "A uniformity index of a given ethnolinguistic group is reckoned by counting the number of traits the total frequency of which would equal the value of half of all the choices made by the respondents. The

smaller the uniformity index of a given ethnolinguistic group, the sharper its stereotype will be" (Katz & Braly 287).

The third main objective of the paper is to determine the positivity/negativity indices of three ethnic stereotypes and four ethnic self-stereotypes along with their view of the Filipino. This was done by first determining which of the one hundred and two (162) characteristics contained in the questionnaire were positive, neutral, or negative. Each of the top twelve (12) attitudes that make up the stereotype and self-stereotype of an ethnolinguistic group is defined as positive, neutral, or negative. The positivity/negativity index of an ethnolinguistic group is calculated by subtracting the total number of negative characteristics from its total number of positive characteristics.



Thus, having a greater number of positive characteristics than negative characteristics is also a more positive ethnic and self-stereotype.

The fourth step of the paper is to compare the similarities and differences of profiled stereotypes and self-stereotypes of Kapampangans, Ilokano, Tagalog and Filipino within TSU and Central and Northern Luzon. This was done to find out: a) what are the common stereotypes and self-stereotypes of the Kapampangans in TSU and Pampanga, as well as Ilocanos in TSU and Pangasinan, Tagalogs in TSU and Bulacan; b) which ethnolinguistic group has the greatest number of shared ethnic and self-stereotypes; and c) which ethnolinguistic group has the least number of shared ethnic and self-stereotypes.

The fifth part of the paper is the comparison of ethnolinguistic groups that: a) have the clearest self-stereotypes closest and

farthest from each other; b) which ethnolinguistic group has the clearest stereotype of Filipinos closest and farthest from each other; c) comparison with the average uniformity index of self-stereotypes from within TSU and Central and Northern Luzon; and d) comparison with the average uniformity index of stereotypes of Filipinos from within TSU and Central and Northern Luzon.

The last part is the comparison of a) ethnolinguistic group with a positive self-stereotype closest and farthest from each other; b) which ethnolinguistic group has a positive stereotype of Filipinos closest and farthest from each other; c) comparison with the average positivity index of self-stereotypes from within TSU and Central and Northern Luzon; and d) comparison of the average positivity index of stereotypes of Filipinos from within TSU and Central and Northern Luzon.

## RESULTS AND CONCLUSIONS

### Uniformity Indices of the Three Ethnic Stereotypes and Three Ethnic Self-Stereotypes

Ethnolinguistic Group	Uniformity Index			
	TSU Survey		Central/Northern Luzon Survey	
	Stereotype	Self-Stereotype	Stereotype	Self-Stereotype
Kapampangan	16.74	14.00	21.46	11.20
Ilokano	16.57	12.45	19.54	27.83
Tagalog	27.27	20.83	35.33	34.80
Filipino		19.18		25.00
Average	20.19	16.62	25.44	24.71

In the result of the study, based on the uniformity index of Katz and Braly, the one with a smaller total weighted mean, means that its stereotypical image is clearer. From the uniformity index of stereotype and self-stereotype from the survey conducted in TSU and Central and Northern Luzon, the researchers found that Kapampangans, Ilokano and Tagalogs have a clearer stereotype image based on student respondents from TSU with a total uniformity index of 20.19 while Central and Northern Luzon has a total uniformity index of 25.44. The self-stereotype image of Kapampangans, Ilokano, Tagalog and Filipinos is also clearer in TSU with a total uniformity index of 16.62 compared to the 24.71 uniformity index from Central and Northern Luzon. It just means

that within TSU, their stereotype image is more evident in ethnolinguistic groups with a uniformity index of a) Kapampangan (16.74) vs. Central and Northern Luzon. (21.46); Ilokano (16.57) vs. (19.54); Tagalog (27.27) vs. (35.33). Also, the self-stereotype uniformity index within TSU is more evident compared to Central and Northern Luzon for the following groups: Kapampangan (14.00) vs. (11.20); Ilokano (12.45) vs. (27.83); Tagalog (20.83) vs. (34.80); and in Filipino (19.18) vs. (25.00). From the obtained data, it means that each ethnolinguistic group has a clearer and better view of their own ethnic group and fellow ethnic group and even the Filipino race within TSU.

### Positivity Indices of the Three Ethnic Stereotypes and Three Ethnic Self-Stereotypes

Ethnolinguistic Group	Positivity Index			
	TSU Survey		Central/Northern Luzon Survey	
	Stereotype	Self-Stereotype	Stereotype	Self-Stereotype
Kapampangan	5.00	8.0	6.00	5.0
Ilokano	9.00	10.00	8.00	11.00
Tagalog	11.00	10.00	10.00	11.00
Filipino		12.00		11.00
Average	8.33	10.00	8.0	9.50

On the other hand, the stereotype image of the three groups Kapampangan, Ilokano and Tagalog was also proven to be more

positive in TSU with a total positivity index of 8.33 compared to a total positivity index of 8.00 from respondents in Central and





Northern Luzon. The self-stereotype for Kapampangan, Ilokano, Tagalog, and Filipino is also more positive in TSU with a total positivity index of 10.00 compared to a total positivity index of 9.50 from Central and Northern Luzon.

From the results of this first research about the perspective of each ethnolinguistic group on their stereotype, ethnic and national stereotype, it became the basis of the researcher to explore the factors, methods and mechanisms in the improvement of ethnic relations within of TSU as a space and mechanism of multiculturalism and nationalism.

At the beginning of "Imagined Communities" Benedict Anderson mentioned, for us to understand the concept of nationalism, we should know how our national identity is formed and changes from time to time and why it is important today. Therefore, being aware of one's own ethnic identity is the beginning of being aware of being part of a large national community. By being aware to this fact we can continue thinking about what we can contribute to the whole country in the field of culture, natural resources and other aspects and needs for national development.

The characteristics of being a Filipino are part of our national identity, so it is important to evoke in any cultural study the values related to being Filipino. Nationalism is a very big and very broad concept, but by focusing the study on this concept in the cultural space of TSU, it will be given a comprehensive structure. Knowing the conditions of multiculturalism within TSU as a multicultural space, this paper will promote the important lessons and knowledge of nationalism.

The contribution of the study does not mean only the investigation of the phenomenon to explain it, but putting a face to the phenomenon in its cultural context is much richer, but just as valuable. In this direction, the characteristic of TSU can be raised not only as a cultural space but also as a location where the minds, hearts and souls of future generations are forged. The researcher strongly believes that the application of the theory of Benedict Anderson (1991) and Ernest Gellner (2003), allied with the multiculturalism framework of F.P.A Demeterio (2009) will be guided in a deep analysis of the conditions and values presented by TSU as a mechanism of multiculturalism. The final point of analysis, TSU as a university, can be a stage of change towards nationalization. More than the abstractness of the cultural space, the characteristic and ability of a university is more effective than any other space when it comes to nationalization.

## REFERENCES

1. "History of Tarlac State University" (PDF). *Tarlac State University Annual Report*. Retrieved 10 August 2015
2. Katz, Daniel., & Braly, Kenneth. (1933). *Racial stereotypes of one hundred college students*. *Journal of Abnormal and Social Psychology*, 28, 280-290.

3. *Mendoza, et al. (2019). Comparative Study on the Ethnic Stereotypes of the Kapampangan, Ilokano, and Tagalog Students of Tarlac State University. Mabini Review 8:39-66*



# THE ROLE OF CORPORATE TRANSPARENCY IN MODERATING THE EFFECT OF TAX PLANNING, PROFITABILITY, AND LIQUIDITY ON COMPANY VALUE

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## ABSTRACT

*This research was conducted to analyze the effect of tax planning, profitability, and liquidity as well as the moderating impact of corporate transparency on the value of retail companies listed on the Indonesia Stock Exchange in the period 2015 to 2021. Using a causality approach and multiple linear regression on 224 panel data with STATA 16 software, this study found a positive effect of profitability on company value, while corporate transparency has a negative effect, and found no significant effect of tax planning and liquidity on firm value. In addition, it is known that company transparency weakens the effect of tax planning on company value, while it does not have a significant moderating effect on the effect of profitability and liquidity on company value. These results indicate that investors on the Indonesia Stock Exchange are interested in the level of profitability of retail companies, and in vice versa the company's transparency are not investors's favorite.*

**KEYWORDS:** Tax Planning, Profitability, Liquidity, Company Value, Company Transparency

## 1. INTRODUCTION

The value of the company is generally known as the selling value of a company which is seen from the operational success of its management and the level of selling value or liquidity. The public's assessment of a company's performance will be directly proportional to the potential increase in share prices and offerings in the capital market. In general, company value can be understood as a condition in which the company and its performance are positively received by the general public and the value or valuation of its shares can benefit shareholders or investors. This is what motivates management to always increase the value of the company, because the value of the company is a reflection of the selling price of the company (stock price for companies going public) and is the appreciation of investors towards the company, which will affect investment opportunities.

Increasing company value is a good signal for investors to invest. An increase in company value gives investors confidence in the company's current performance and even the company's prospects in the future (Nurhanimah et al., 2019). The value of companies that have gone public is reflected in the market price of the company's shares. While the value of a company that has not gone public is realized if the company is going to be sold (total assets and company prospects, business risks, business environment, etc.) (Rahayu & Sari, 2018). Therefore, when the value of a company is seen from the stock market price, it can be concluded that maximizing company value is the same as maximizing the stock market price.

The retail industry continues to experience changes every year, and there are always new challenges that must be faced by retail businesses in this competitive industry. Since 2017, there have been many large retail companies that have gone out of business. In Indonesia alone, since 2017 several well-known retail companies have decided to close their stores, including Debenhams, Lotus and 7-Eleven. The peak, in 2020, due to the COVID-19 pandemic, more and more retailers are closing their businesses. (hashmicro.com).

The Indonesian Retailers Association (Aprindo) stated that the indicator numbers for 2020, in the nine months of the pandemic, around 1,200 shops or 4-5 retail stores were closed per day. Meanwhile, from January to March 2021, around 90 retail stores or 1-2 stores were closed per day. Total of 1,250 -1,300 retail stores were closed throughout Indonesia. (kompas.com).

The main sources of state revenue are taxes, oil and natural gas, and mining products. Where this tax role is very important for country's operations. Meanwhile, from a company's point of view, tax is a cost or expense that will reduce its net profit. Tax planning is an important thing that needs to be done by companies because for companies, taxes are costs or expenses that will reduce their



net profit. This difference in point of view that motivates management to carry out several methods, one of which is by conducting tax management. With tax management, companies can fulfill their tax obligations to the state by optimizing and/or minimizing the tax burden to obtain the expected profit and liquidity.

Tax Planning is a management strategy for planning, implementing and controlling taxation aspects so that tax obligations can be fulfilled optimally, and other benefits that can be enjoyed by Taxpayer. (Anasta et al., 2023). In addition to being a company goal, company value also describes the company's long-term goals. The higher the value of the company, the greater the prosperity received by the shareholders. Therefore management is required to carry out policies that can increase the value of the company, one of which is by minimizing tax payments, or also known as tax planning.

Research conducted by (Saputra et al., 2021) found that tax planning has a positive and significant effect on company value and corporate transparency can reduce the effect of tax planning on company value, as well as in research (Hidayat & Pesudo, 2019) which concluded that tax planning has a positive effect on company value and corporate transparency moderates the effect of tax planning on company value. Different results were obtained in research (Bernardin & Karina, 2021), tax planning has a non-significant effect in a negative direction in influencing company value in mining companies and company transparency is not able to significantly moderate the effect of tax planning on company value in mining companies.

The high level of profitability will increase the value of a company. High profitability indicates that the company is able to earn high profits and is considered a positive signal for investors because the company has good prospects in the future. The successful company is a company that gets the maximum profit on a regular basis. If profit growth increases, the stock price will be high and will increase the company's value. Investors will be more attracted to companies that are profitable, because it indicates that the company's performance is good and that it has opportunities in the future.

Several previous studies have proven that profitability can affect the level of firm value (Ayem & Maryanti, 2022), because a high level of profitability is trusted by the public as a result of good company performance.

Liquidity describes the company's ability to meet its short-term financial obligations which must be met immediately when billed to maintain liquidity. The liquidity ratio is a ratio that describes a company's ability to fulfill or pay its short-term obligations in a timely manner. Liquidity greatly affects the value of the company, because a high liquidity value indicates a good company performance, so it will increase the stock price which reflects the value of the company. High or low liquidity ratios also affect investors' perceptions of the company.

Companies that have a high level of liquidity indicate that the company's growth opportunities tend to be high. The more liquid the company, the level of creditor confidence will be higher in providing funds, so it will increase the value of the company in the eyes of creditors and potential investors. (Lumoly et al., 2018).

Good corporate values are also reflected in the company's actions in conducting information transparency in disclosing information in accordance with the Decree of the Chairman of BAPEPAM LK Number KEP-431/BL/2012 concerning Submission of Annual Reports of Issuers or Public Companies. The more items disclosed by the company, the more transparent information will be in the public which will have an impact on a better and real company value because information transparency has a role as an openness in the decision process and information delivery. Accuracy in providing information means that the information provided is complete, accurate and relevant to all stakeholders.

Transparency is defined as information disclosure, both in the decision-making process and in disclosing material and relevant information about the company according to Tarihoran, what is meant by material and relevant information is information that can affect the ups and downs of stock prices. (Sari & Irawati, 2021).

Transparency is also able to produce more transparent company operations and reduce the ability to avoid taxes. Where the company's transparency is measured by the amount of information disclosed by the company in the financial statements.

In simple terms, it can be said that disclosure has a relationship with asymmetric information, namely disclosure can be used to overcome (reduce) asymmetric information. This can be explained as follows: : through the publication of financial reports which include disclosure, the market can evaluate how far the has disclosed all relevant information. If all relevant information has been disclosed, it means that information asymmetry should be reduced. (Prasetyo, 2022). Voluntary disclosure is defined as being able to reduce asymmetry information between managers and company owners and investors, if the information disclosed is appropriate and the amount of information presented is neither too much nor too little. If the information provided is too little, it will cause



information asymmetry. If there are too many, it will reduce the effectiveness of conveying information and will reduce the understanding of users of financial statements.

The differences between this research and previous studies are: 1). the addition of the independent variable profitability and liquidity, because profitability and liquidity are factors that greatly affect the value of the company and investment decision making by investors. 2). The sample studied was a retail company listed on the Indonesia Stock Exchange, because not many studies have taken retail company samples. 3). There is a COVID-19 pandemic in the research year which will affect the company's profitability.

## 2. LITERATURE REVIEW & HYPOTHESIS DEVELOPMENT

### 2.1 Literature Review

#### 2.1.1 Agency Theory

Jansen dan Meckling (1976) view the contract between shareholders and managers as an agency relationship . Specifically, the definition of agency theory is "Agency theory is a principle that is used to explain and resolve issues in the relationship between business principals and their agents. Most commonly, that relationship is the one between shareholders, as principals and company executives as agents".

#### 2.1.2 Signalling Theory

Signalling theory explains why companies have the urge to provide financial statement information to external parties, because there is information asymmetry between the company and outsiders. The company (agent) knows more about the company (principal) and its future prospects than outsiders. Lack of information about the company causes outsiders to protect themselves by providing a low price for the company.

#### 2.1.3 Company Value

According to (Hery, 2017) defines that the meaning of company value is as follows:

"Company value is a certain condition that has been achieved by a company as an illustration of public trust in the company after going through a process of activity for several years, starting from the company's founding until now."

#### 2.1.4 Tax Planning

According to (Anasta et al., 2023) states that:

"Tax Management is a management strategy to plan, implement, and control aspects of taxation that can benefit taxpayers and can fulfill tax obligations optimally". It can be concluded that tax planning is the first step of tax management or taxpayers to make tax savings.

#### 2.1.5 Profitability

According to (Kasmir, 2018) the profitability ratio is a ratio to assess a company's ability to seek profit or profit in a certain period. Profit is often a measure of company performance, is when a company has high profits it means good performance and when low profits mean bad performance.

#### 2.1.6 Liquidity

Liquidity shows the company's ability to carry out the company's obligations to fulfill its financial obligations that must be fulfilled immediately, or the company's ability to meet financial obligations when billed (Munawir dalam Satriana, 2017).

#### 2.1.7 Transparency

According to (Yadiati & Mubarak, 2017) Transparency is the provision of material and relevant information, whether regulated by law or not, but important for decision making.

### 2.2 Hypothesis Development

#### 2.2.1 The Influence of Tax Planning on Company Value.

Basically, tax planning can increase the value of the company because there is a potential take-over of state assets to shareholders. Tax planning is done by minimizing the amount of tax paid to obtain high profits so it will increase the value of the company.

Tax planning has a positive effect on company value. Investor awareness of tax regulations and fines influences investors' views of corporate tax planning. (Tarmidi & Murwaningsari, 2019)





But on the other hand, tax planning can also reduce company value, this is due to the tendency of management to take opportunistic actions towards tax planning activities which result in decreased profits and company value, also because of the costs incurred from tax planning, and the risk of the company being considered tax non-compliant.

Tax planning practices can reduce company value, tax planning is not always desired by shareholders because of the combined costs, which include costs directly and indirectly related to tax planning. (Kristianto et al., 2018)

H1: Tax planning affects the value of the company.

#### 2.2.2 The Influence of Profitability on Company Value.

The greater the value of profitability will increase the effectiveness and efficiency in generating profits. Therefore investors will be more prosperous. Signalling theory states that a large level of profitability indicates a good future opportunity that will increase the value of the company. This information is a positive signal for investors and can attract the attention of investors to invest, thereby increasing share prices and increasing company value.

Profitability has a positive and significant impact on company value. All investors want profit. Investors don't want to invest in companies that are losing money. One of the investors' considerations in choosing a company to invest is through profitability indicators. (Maghfirandito & Adiwibowo, 2022).

Profitability (ROE) is positively correlated and statistically significant to company value. Likewise, profitability as measured by ROA also has an impact on company value. The results of the study found that company size and profitability are factors that have a positive impact on company value. (Dang et al., 2019)

H2: Profitability affects the value of the company.

#### 2.2.3 The Influence of Liquidity on Company Value.

Liquidity reflects the company's ability to meet or pay its short-term obligations. Companies with high levels of liquidity tend to have opportunities to grow. The more liquid a company is, the higher the creditor's sense of trust in providing loan funds for the company.

The company's liquidity shows the company's ability to meet its short-term debt has a corresponding effect on company value. If the value of liquidity increases, the value of the company will also increase. With a good liquidity ratio, it shows that the company is able to pay off its debts, especially short-term debt. (Hidayati & Priyadi, 2022).

The liquidity ratio provides support for the formation of company value in Property and Real Estate companies. This is because liquidity can be used to analyze and interpret short-term financial positions, but it is also very helpful for management to check the efficiency of working capital used in the company. (Magdalena, 2019)

H3: Liquidity affects the value of the company.

#### 2.2.4 The Influence of Transparency on Company Value.

Voluntary disclosure is considered capable of reducing the level of information asymmetry between managers and company owners and investors, if the information disclosed is appropriate and the amount of information presented is neither too much nor too little. If the information provided is too little, it will cause information asymmetry. If there are too many, it will reduce the effectiveness of conveying information and will reduce the understanding of users of financial statements.

Research results of (Magdalena, 2019) indicates that transparency activities related to the state of the company provide support for the formation of corporate value in Property and Real Estate companies. This is because with a high level of transparency, the level of investor confidence in the company will be higher.

H4: Transparency affects the Company Value

#### 2.2.5 The Role of Transparency in Moderating the Effect of Tax Planning on Company Value.

Transparency can be defined as the availability of information about the company for public users, it can also function as effective good corporate governance to reduce conflicts of interest between shareholders. Information transparency makes business operations more transparent to governments, thereby weakening the ability to avoid taxes.

Research from (Khan et al., 2020) states that good corporate governance plays a positive role in reducing the negative relationship between tax avoidance and company value. Within this agency framework, we conclude that shareholders do not value tax planning and consider it only beneficial to management and managers who derive their personal benefit from

this activity. However, good corporate governance reduces this agency conflict and saves the company money because tax avoidance is directed to increase the value of the company.

H5: Transparency moderates the effect of tax planning on company value.

### 2.2.6 The Role of Transparency in Moderating the Effect of Profitability on Company Value.

Profitability can increase company value which is also weakened when transparency is carried out by the company. Clear disclosure of financial information by companies is considered to hinder the achievement of profit targets by company owners (Magdalena, 2019).

H6: Transparency moderates the effect of profitability on company value.

### 2.2.7 The Role of Transparency in Moderating the Effect of Liquidity on Company Value.

Liquidity can increase company value but weakens when transparency is carried out by the company. Disclosure of financial information clearly by the company is considered to hamper the capacity or ability of the company's current assets to cover their current liabilities (Magdalena, 2019).

H7: Transparency moderates the effect of liquidity on company value.

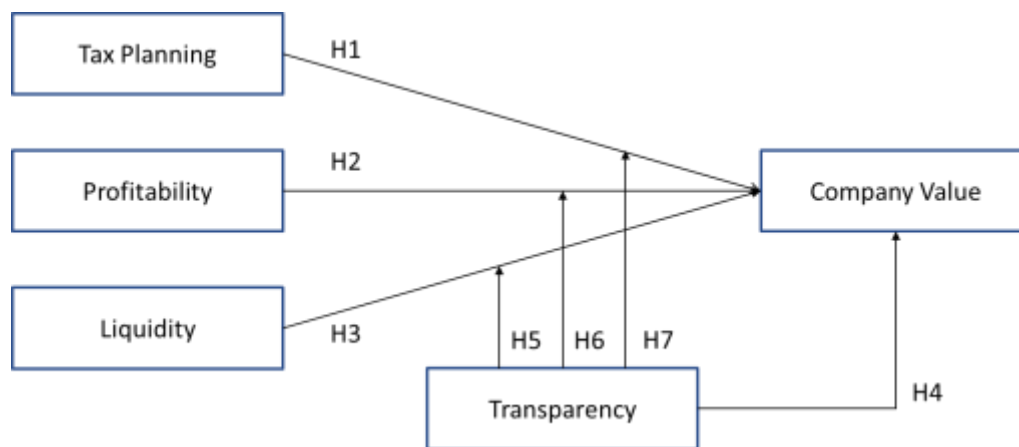


Image 1. Conceptual Framework

## 3. METHODOLOGY

### 3.1 Population and Sample

This type of research is causal associative research. Causal associative research is research that aims to analyze the relationship between one variable and another, and how a variable affects other variables

The population in this study are all retail companies listed on the Indonesia Stock Exchange (IDX) from 2015 to 2021, totaling 32 companies.

Sampling in this study using purposive sampling, namely the technique of determining the sample with certain criteria. The criteria for determining the sample in this study are:

1. Retail companies listed on the Indonesia Stock Exchange (IDX) and not delisted during the 2015-2021 period
2. Retail companies that publish financial reports consecutively from 2015-2021.
3. Retail companies that present financial statements in Rupiah for the 2015-2021 period.

Based on these criteria, the companies that became the research sample consisted of 32 companies with a study period of 7 years, bringing the total unit of analysis to 224 observations.

### 3.2 Variable and Measurement

#### a. Dependent Variable

In this study the dependent variable used is company value which is calculated using the Tobin'sQ formula.

$$\text{Tobin'sQ} = \text{MVE} + \text{DEBT} / \text{TA}$$

(Ningrum, 2022)



b. Independent Variable

Tax planning is calculated using the ETR formula.

$$ETR = \text{Tax Expense} / \text{Profit Before Tax}$$

(Sugiyono, 2019)

Profitability is calculated using the ROA formula.

$$ROA = \text{Net Profit} / \text{Total Asset}$$

(Hery, 2017)

Liquidity is calculated using Current Assets.

$$CR = \text{Current Asset} / \text{Current Debt}$$

(Kasmir, 2018)

c. Moderating Variable

Transparency is the extent of corporate information disclosure.

$$T = N/K$$

(Risma Magdalena, 2019)

Where N is Number of voluntary disclosure items in the report, and K is Total of all voluntary disclosure items

**3.3 Research Model**

The analytical method used in this study uses multiple linear regression analysis, with the following equation model:

$$CV = \alpha + \beta_1.TP + \beta_2.P + \beta_3.L + \beta_4.TP.T + \beta_5.P.T + \beta_6.L.T + e$$

Where CV is Company Value that influenced by Tax Planning (TP), Profitability (P), and Liquidity (L) also moderated by Transparency (T).

**4. RESULT AND DISCUSSION**

**4.1. Descriptive Analysis**

Based on the descriptive statistical analysis, the sample description is obtained as follows.

**Table 1. Descriptive Statistics**

Variable	Minimum	Maximum	Mean	Std. Deviation
TP	-10.3107	3.8082	0.0802	1.09273
P	-10.8894	0.5267	-0.2131	1.238535
L	0.0213	48.1146	2.3052	3.880298
CV	0.4562	771.8287	22.3269	82.26325
T	0.8222	1	0.9196	0.042378

Based on Table 1. it can be summarized as follows:

- 1) The minimum value of Tax Planning (TP) is -10.3107, with a maximum value of 3.8082. The average tax planning (TP) is 0.0802, with a standard deviation of 1.09273. With an average tax planning value of 0.08, it explains that the unit of analysis carries out quite high tax planning because the ETR value is lower than the applicable income tax rate, namely 0.25 (until 2019) and 0.22 (since 2020).
- 2) The minimum value of Profitability (P) is -10.8894, with a maximum value of 0.5267. Average Profitability (P) is -0.2131, with a standard deviation of 1.238535. With an average profitability value of -0.2131, it explains that on average the unit of analysis in the study period is in a loss or minus profit position.
- 3) The minimum value of Liquidity (L) is 0.0213, with a maximum value of 48.1146. Average Liquidity (L) is 2.3052, with a standard deviation of 3.880298. With an average liquidity value of 2.3052, it explains that on average the unit of analysis in the study period has a good ability to pay off its obligations, because the ratio of its assets is greater than its liabilities.
- 4) The minimum value of the Company Value (CV) is 0.4562, with a maximum value of 71.8287. The average company value (CV) is 22.3269, with a standard deviation of 82.26325. With an average retail company value of 22.3269, it



explains that on average the unit of analysis in the study period has high business growth potential and management has used company assets effectively.

- 5) The minimum value of Corporate Transparency (T) is 0.8222, with a maximum value of 1. The average Corporate Transparency (T) is 0.9196, with a standard deviation of 0.042378. With an average value of company transparency of 0.8222, it explains that on average the unit of analysis in the study period is able to provide information about the condition of the company and provide convenience in accessing that information to investors.

#### 4.2. The Best Model Selection

##### 4.2.1. Chow Test

The following results are based on the Chow test using STATA.

**Table 2. Results of the Chow Test**

$$F(31, 188) = 2.68$$

$$\text{Prob} > F = 0.0000$$

Source: STATA Software Data Processing Results

Based on the results of the Chow test in Table 2, it is known that the probability value = 0.0000 < 0.05, so the estimation model used is the fixed effect model (FEM).

##### 4.2.2. Lagrange Multiplier Test

The following results are based on the LM test using STATA.

**Table 3. Results of the LM Test**

Test:  $\text{Var}(u) = 0$

$$\text{chibar2}(01) = 16.79$$

$$\text{Prob} > \text{chibar2} = 0.0000$$

Source: STATA Software Data Processing Results

Based on the results of the LM test in Table 3, it is known that the probability value is 0.0000 < 0.05, so the estimation model used is the random effect model (REM).

##### 4.2.3. Hausman Test

The following results are based on the Hausman test using STATA.

**Table 4. Results of the Hausman Test**

$$\text{chi2}(4) = (b-B)'[(V_b - V_B)^{-1}](b-B)$$

$$= 15.18$$

$$\text{Prob} > \text{chi2} = 0.0043$$

Source: STATA Software Data Processing Results

Based on the results of the Hausman test in Table 4, it is known that the probability value is 0.0043 < 0.05, so the model chosen is the fixed effect model (FEM).

After conducting three tests to determine the best model for this study, it was found that in the Chow test the best model was the Fixed Effect Model (FEM), in the LM test it was known that the best model was the Random Effect Model (REM), and in the Hausman test it was known that the best model was the Fixed Effect Model (FEM), so the best model used in this study was the Fixed Effect Model (FEM).

#### 4.3. Classic Assumption Test

##### 4.3.1. Normality Test

In this study, the normality test for residuals used the Shapiro-Wilk (SW) test.

**Table 5. Normality Test with Shapiro-Wilk Test**

. swilk data\_residual

Shapiro-Wilk W test for normal data

Variable	Obs	W	V	z	Prob>z
data_resid~1	224	0.99437	0.927	-0.176	0.56999



Note that based on Table 5, it is known that the probability value (column Prob > z) is 0.56999. Because the probability value of p is greater than the significance level, which is 0.05. This means that the normality assumption is fulfilled.

#### 4.3.2. Multicollinearity Test

In this study, multicollinearity symptoms can be seen from the VIF value.

**Table 6. Multicollinearity Test with VIF**

Variable	VIF	1/VIF
X3	1.03	0.971339
X2	1.02	0.979377
Z	1.01	0.986497
X1	1.01	0.994754
Mean VIF	1.02	

Source: STATA Software Data Processing Results

Based on Table 6, the results of the multicollinearity test, it can be concluded that there are no symptoms of multicollinearity between the independent variables. This is because the VIF value < 10 (Ghozali, 2018).

#### 4.3.3. Autocorrelation Test

Assumptions regarding the independence of the residuals (non-autocorrelation) can be tested using the Runs test.

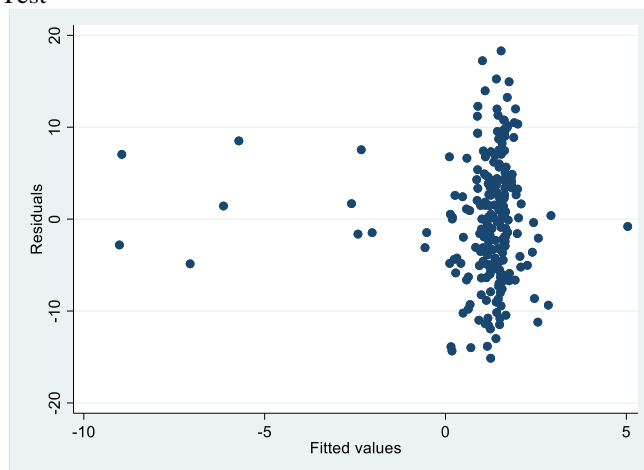
**Table 7. Auticorrelation Test with Uji Runs**

```
. runtest data_residual
N(data_resid~1 <= .0187772605568171) = 112
N(data_resid~1 > .0187772605568171) = 112
obs = 224
N(runs) = 105
z = -1.07
Prob>|z| = .28
```

Source: STATA Software Data Processing Results

Based on Table 7, the probability value (Prob > |Z|) of the Runs test is 0.28 > 0.05, it is concluded that there is no autocorrelation.

#### 4.3.4. Heteroscedasticity Test



**Image 2. Uji Heteroskedastisitas**

Note that based on Image 2, there is no clear pattern, and the points spread above and below the number 0 on the Y axis, so it is concluded there is no heteroscedasticity.



#### 4.4. Hypothesis Test

In testing the hypothesis, an analysis of the coefficient of determination will be carried out, testing the simultaneous effect (F test), and testing the partial effect (t test). Statistical values of the coefficient of determination, F test, and t test are presented in Table 8.

**Table 8. Fixed Effect Model (FEM) Regression Results**

Fixed-effects (within) regression	Number of obs	=	224
Group variable: Perusahaan	Number of groups	=	32
R-sq:	Obs per group:		
within = 0.0769	min =		7
between = 0.0040	avg =		7.0
overall = 0.0031	max =		7
corr(u_i, Xb) = -0.7029	F(4,188)	=	3.92
	Prob > F	=	0.0045

ln_ny	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
X1	.6931215	.389376	1.78	0.077	-.0749859 1.461229
X2	.9052593	.4334077	2.09	0.038	.0502921 1.760227
X3	-.0551211	.127137	-0.43	0.665	-.3059196 .1956774
Z	-97.53366	37.19674	-2.62	0.009	-170.9103 -24.15704
_cons	91.04751	34.23814	2.66	0.009	23.5072 158.5878
sigma_u	5.6789296				
sigma_e	6.0792088				
rho	.46599666	(fraction of variance due to u_i)			

F test that all u\_i=0: F(31, 188) = 2.68 Prob > F = 0.0000

Source: STATA Software Data Processing Results

Based on the test results in Table 8, the following equation is obtained:

$$CV = 91.047 + 0.693TP + 0.905P - 0.055L - 97.53T + e$$

Based on Table 8, it is known that the coefficient of determination (R-squared overall) is  $R^2 = 0.031$ . This value can be interpreted that Tax Planning (TP), Profitability (P), Liquidity (L) and Company Transparency (Z) explaining Company Value (CV) of 3.1%, the remaining 96.9% is explained by other variables outside this study.

The F test aims to examine the effect of the independent variables jointly or simultaneously on the dependent variables. Based on Table 8, it is known that the probability value (Prob > F) = 0.0000 < 0.05, it can be concluded that Tax Planning (TP), Profitability (P), Liquidity (L) and Company Transparency (T) simultaneously have a significant effect on the Company Value variable (Y) and this explains that this research model is suitable and feasible.

The results of the t-test to analyze the hypothesis based on table 8 are as follows:

- 1) Tax planning (TP) has a positive effect on Retail Company Value (CV), with a regression coefficient value of 0.6931, but not significant, with a probability value (P>|z|) = 0.077 > 0.05, therefore Hypothesis 1 is rejected.
- 2) Profitability (P) has a positive effect on Retail Company Value (CV), with a regression coefficient value of 0.9052, and significant, with a probability value (P>|z|) = 0.038 < 0.05, therefore Hypothesis 2 is accepted.
- 3) Liquidity (L) has a negative effect on Retail Company Value (CV), with a regression coefficient of -0.055, but not significant, with a probability value (P>|z|) = 0.665 > 0.05, therefore Hypothesis 3 is rejected.
- 4) Company transparency (T) has a negative effect on retail company value (CV), with a regression coefficient of -97.53366, and significant, with a probability value (P>|z|) = 0.009 < 0.05. therefore Hypothesis 4 is accepted.

#### 4.5. Moderation Testing

Next, a moderation test is carried out, namely testing whether Corporate Transparency (T) significantly moderates the effect of Tax Planning (TP), Profitability (P), Liquidity (L) on Company Value (CV). Moderation testing is carried out using the moderating regression analysis (MRA) approach.



**Table 9. Moderation Testing with MRA Approach**

Source	SS	df	MS	Number of obs	=	224
Model	701.862513	7	100.266073	F(7, 216)	=	2.21
Residual	9819.55153	216	45.4608867	Prob > F	=	0.0349
				R-squared	=	0.0667
				Adj R-squared	=	0.0365
Total	10521.414	223	47.1812289	Root MSE	=	6.7425

In_ny	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
X1	32.80689	15.50892	2.12	0.036	2.23869 63.37508
X2	10.16418	31.8867	0.32	0.750	-52.68474 73.0131
X3	-.7777205	2.713606	-0.29	0.775	-6.126258 4.570817
Z	4.369545	12.58173	0.35	0.729	-20.42913 29.16822
X1Z	-33.9452	16.54703	-2.05	0.041	-66.55952 -1.330873
X2Z	-10.31208	34.84763	-0.30	0.768	-78.99701 58.37285
X3Z	.7990698	3.123428	0.26	0.798	-5.35723 6.95537
_cons	-2.824185	11.46647	-0.25	0.806	-25.42469 19.77632

Source: STATA Software Data Processing Results

Based on the results of the moderation test in Table 9, the results are:

$$CV = -2.824 + 32.806TP + 10.164P - 0.777L + 4.369T - 33.945TP.T - 10.312P.T + 0.799L.T + e$$

- 1) Company transparency (T) significantly moderates the effect of tax planning (TP) on retail company value (CV), with a probability value ( $P > |t|$ ) in the interaction line  $TP.T = 0.041 < 0.05$ , therefore hypothesis 5 is accepted with a negative coefficient value explains that company transparency weakens the effect of tax planning on retail company value.
- 2) Company transparency (T) does not significantly moderate the influence of Profitability (P) on Retail Company Value (CV), with a probability value ( $P > |t|$ ) in the interaction line  $P.T = 0.768 > 0.05$ , therefore Hypothesis 6 is rejected.
- 3) Company transparency (T) does not significantly moderate the effect of liquidity (L) on retail company value (CV), with a probability value ( $P > |t|$ ) in the interaction line  $L.T = 0.798 > 0.05$ , therefore Hypothesis 7 is rejected.

#### 4.6. Discussion

##### 4.6.1. The Effect of Tax Planning on Retail Company Value

The results of this study did not find a significant effect of tax planning on retail company value. These results explain that the high or low value of the company is not influenced by tax planning carried out by company management. Investors do not pay much attention to the ratio of the amount of tax paid because investors' knowledge about tax planning is still low, investors will consider tax planning to cause risks such as suspicion of the tax authorities towards the company which will lead to company audits and incur audit costs which will reduce company profits. Due to the existence of audit fees, this raises agency costs which are the costs of decreasing welfare experienced by the principal due to differences in information between the principal and the agent's interests. The correct application of the theory is agency theory because the existence of audit fees raises agency costs which are the costs of decreasing welfare experienced by the principal due to differences in information between the principal and the agent's interests. The results of this study are similar with the results of the study (Sari, D., & Irawati, W. 2021) dan (Bernardin, D. A. Y., & Karina, E. 2021) who also did not find the effect of tax planning on firm value.

The relationship between agency theory and tax planning is that agents prioritize individual interests by obtaining large profits in tax planning. While the principal wants a large return.

##### 4.6.2. The Effect of Profitability on Retail Company Value

The results of this study found a positive effect on profitability on retail company value. These results explain that profitability is a benchmark used by investors in assessing the financial performance of an entity. This is because high profitability will show the company's ability to distribute high dividends to investors that will increase share value and company value. Signalling theory states that a high level of profitability indicates a good future opportunity that will increase the value of the company. This information is a positive signal for investors and will attract investors' attention to invest.

The results of this study are similar with the results of the study (Ayem & Maryanti, 2022) and (Dang et al., 2019) who also found a positive effect of profitability on firm value.

##### 4.6.3. The Effect of Liquidity on Retail Company Value

The results of this study found that liquidity has no significant effect on retail company value. These results explain that the higher or lower the liquidity of a company tends not to increase or decrease the value of the company. This is because investors



only look at the company's business activities without looking at the company's liquidity. At one point, liquidity that is too high can also reduce company profits because there are too many idle funds, causing a non-optimal turnover of funds and will cause the company's profits to decrease.

The results of this study are similar with the results of the study (Sadewo et al., 2022) and (Lumoly et al., 2018) who also found that liquidity does not have a significant effect on firm value.

#### 4.6.4. The Effect of Transparency on Retail Company Value

The results of this study found that transparency activities related to the state of the company have a negative influence on retail company value. These results explain that the transparency carried out by the company reduces the value of the company.

A research conducted by (Magdalena, 2019) explained that clear disclosure of financial information by companies is considered to hinder the achievement of profit targets by company owners.

The research results from (Rosita Anggraeni et al., 2020) also shows that the extent of disclosure of financial statement information is considered an obstacle in generating company profits. If the transparency carried out by the company hinders the achievement of company profits, then the transparency carried out by the company will hinder increasing the value of the company.

The things mentioned above are due to the large amount of information disclosed by management in the annual report, causing investors or company owners to know about the actual condition of the company. Appropriate application of the theory is signalling theory because with the information provided by management to investors through the company's financial statements, it causes investors to know the actual condition of the company.

#### 4.6.5. The Moderating Role of Transparency in the Effect of Tax Planning on Retail Company Value

The results of this study found that company transparency weakens the effect of tax planning on retail company value. These results explain that too much information provided by management will have a negative effect and hinder the course of tax planning carried out by the company which allows tax planning to not run optimally, so that it can reduce the value of the company.

The factor of investor knowledge about tax planning is still low, which considers tax planning to cause risks such as the suspicion of the tax authorities on companies that will cause company audits and incur audit costs that will reduce company profits. The correct application of the theory is agency theory because the existence of audit fees raises agency costs which are the costs of decreasing welfare experienced by the principal due to differences in information between the principal and the agent's interests.

#### 4.6.6. The Moderating Role of Transparency in the Effect of Profitability on Retail Company Value

The results of this study found that company transparency does not moderate the effect of profitability on retail company value. These results explain that the disclosure of information disclosed by management, both in the decision-making process and in disclosing material and relevant information about the company does not affect investors in assessing the company as long as the company generates profits.

Signalling theory states that a high level of profitability indicates a good future opportunity that will increase the value of the company. This information is a positive signal for investors and will attract investors to invest.

#### 4.6.7. The Moderating Role of Transparency in the Effect of Liquidity on Retail Company Value

The results of this study found that company transparency does not moderate the effect of liquidity on retail company value. These results explain that the disclosure of information disclosed by management, both in the decision-making process and in disclosing material and relevant information about the company does not affect investors in assessing the company as long as the company is liquid.

Signalling theory explains that the higher a company's ability to pay its short-term obligations will give a good signal to investors.





## 5. CONCLUSIONS AND SUGESTIONS

### 5.1. Conclusions

Based on the research results, it can be concluded that:

- 1) Tax Planning has no significant effect on Retail Company Value.
- 2) Profitability has a positive effect on Retail Company Value.
- 3) Liquidity has no significant effect on Retail Company Value.
- 4) Company transparency has a negative effect on retail company value.
- 5) Company transparency weakens the influence of Tax Planning on Retail Company Value.
- 6) Company transparency does not moderate the influence of Profitability on Retail Company Value.
- 7) Company transparency does not moderate the influence of Liquidity on Retail Company Value.

### 5.2. Sugestions

Based on the discussion and research results, the researchers suggest that retail companies increase their level of profitability, in order to attract investors to invest and to increase company value. In addition, for further research it is better to consider using other variables that will affect firm value.

## 6. REFERENCES

1. Anasta, L., Tarmidi, D., Harnovinsah, Temalagi, S., Oktris, L., & Dwianika, A. (2023). *Manajemen Pajak: Teori, Strategi, dan Implementasi* (B. Hernalyk, Ed.; 1st ed.). Salemba Empat.
2. Ayem, S., & Maryanti, T. (2022). *Reslaj: Religion Education Social LaaRoiba Journal Pengaruh Tax Avoidance dan Profitabilitas terhadap Nilai Perusahaan dengan Kebijakan Dividen sebagai Variabel Moderasi*. *Reslaj: Religion Education Social LaaRoiba Journal*, 4. <https://doi.org/10.47476/reslaj.v4i5.1077>
3. Bernardin, D. A. Y., & Karina, E. (2021). *Nilai Perusahaan: Perencanaan Pajak Dan Kepemilikan Manajerial Serta Transparansi Perusahaan Sebagai Pemoderasi*. *Jurnal Financia*, 2(1). <http://ejournal.ars.ac.id/index.php/financia>
4. Dang, H. N., Vu, V. T. T., Ngo, X. T., & Hoang, H. T. V. H. (2019). *Study the Impact of Growth, Firm Size, Capital Structure, and Profitability on Enterprise Value: Evidence of Enterprise in Vietnam*. *The Journal of Corporate Accounting & Finance*. <https://doi.org/DOI 10.1002/jcaf.22371>
5. Ghozali, I. (2018). *Aplikasi Analisis Multivariate Dengan Program IBM SPSS 25 (9th ed.)*. Badan Penerbit Universitas Diponegoro.
6. Hery. (2017). *Kajian Riset Akuntansi* (A. Pramono, Ed.). PT. Grasindo.
7. Hidayat, S. W., & Pesudo, D. A. A. (2019). *Pengaruh Perencanaan Pajak Dan Kepemilikan Manajerial Terhadap Nilai Perusahaan Dengan Transparansi Perusahaan Sebagai Variabel Moderasi*. *International Journal Of Science and Business*, 3(4), 367–376. <https://ejournal.undiksha.ac.id/index.php/IJSSBIindex>
8. Hidayati, A., & Priyadi, M. P. (2022). *Pengaruh Profitabilitas, Likuiditas Dan Keputusan Investasi Terhadap Nilai Perusahaan Pada Perusahaan Sub Sektor Farmasi Yang Terdaftar Di BEI*. *Jurnal Ilmu Dan Riset Akuntansi*, 11(3).
9. Kasmir. (2018). *Analisis Laporan Keuangan*. Rajawali Pers.
10. Khan, N., Ullah, N., Aman, N., & Sulehri, N. A. (2020). *Impact Of Tax Avoidance On Firm Value And The Moderating Role Of Corporate Governance: Evidence From Pakistan Manufacturing Firms*. In *Iqra Journal of Business and Management (IJBM)* (Vol. 122, Issue 2).
11. Kristianto, Z., Andini, R., & Santoso, E. B. (2018). *Pengaruh Perencanaan Pajak Dan Tax Avoidance Terhadap Nilai Perusahaan Dengan Kinerja Keuangan Sebagai Variabel Intervening (Studi Empiris Pada Perusahaan Manufaktur Sektor Properti dan Real Estate Yang Terdaftar di BEI Periode 2012-2016)*. *Journal Of Accounting*, 4(4).
12. Lumoly, S., Murni, S., & Untu, V. N. (2018). *PENGARUH LIKUIDITAS, UKURAN PERUSAHAAN DAN PROFITABILITAS TERHADAP NILAI PERUSAHAAN (Studi pada Perusahaan Logam dan Sejenisnya yang Terdaftar di Bursa Efek Indonesia)*. In *Pengaruh Likuiditas..... 1108 Jurnal EMBA* (Vol. 6, Issue 3). [www.kemenperin.go.id](http://www.kemenperin.go.id)
13. Magdalena, R. (2019). *Analisis Pengaruh Profitabilitas, Likuiditas Dan Penghindaran Pajak Terhadap Nilai Perusahaan Dengan Transparansi Sebagai Variabel Moderasi*.
14. Maghfirandito, M., & Adiwibowo, A. S. (2022). *Struktur Modal Dalam Memoderasi Pengaruh Profitabilitas, Ukuran Perusahaan Dan Pertumbuhan Perusahaan Terhadap Nilai Perusahaan (Studi Empiris pada Perusahaan Manufaktur yang terdaftar di Bursa Efek Indonesia tahun 2016-2019)*. [Http://Ejournal-S1.Undip.Ac.Id/Index.Php/Accounting](http://Ejournal-S1.Undip.Ac.Id/Index.Php/Accounting), 11(2), 1–12.
15. Ningrum, E. P. (2022). *Nilai Perusahaan (Konsep dan Aplikasi)* (Kodri, Ed.; 1st ed., Vol. 1). Penerbit Adab.
16. Nurhanimah, N., Anugerah, R., & Ratnawati, V. (2019). *Pengaruh Earnings Management Dan Tax Avoidance Terhadap Nilai Perusahaan Dengan Struktur Kepemilikan Sebagai Moderating Variable Pada Perusahaan Kelompok LQ 45 Di BEI Tahun 2013-2016*. *JOURNAL OF APPLIED BUSINESS ADMINISTRATION*.
17. Prasetyo, A. A. (2022). *Meminimalisir Asimetri Informasi Melalui Pelaporan (Disclosure) Laporan Keuangan*. *TRANSEKONOMIKA: Akuntansi, Bisnis Dan Keuangan Volume 2 ISSUE 1* (2022), 2(1). <https://transpublika.co.id/ojs/index.php/Transekonomika>
18. Rahayu, M., & Sari, B. (2018). *Faktor-Faktor Yang Mempengaruhi Nilai Perusahaan* (Vol. 2, Issue 2).
19. Rosita Anggraeni, N., Dwi Mulyani, S., & Akuntansi Fakultas Ekonomi dan Bisnis Universitas Trisakti, M. (2020). *Pengaruh Perencanaan Pajak, Kepemilikan Manajerial Dan Profitabilitas Terhadap Nilai Perusahaan Dengan Transparansi Perusahaan Sebagai Variabel Moderasi*. In *KOCENIN Serial Konferensi* (Vol. 11, Issue 1).



20. Sadewo, F., Santoso, B., & AP, I. N. N. (2022). Pengaruh Profitabilitas Dan Likuiditas Terhadap Nilai Perusahaan Dengan Struktur Modal Sebagai Variabel Intervening (Studi Pada Perusahaan Manufaktur Yang Terdaftar Di BEI Sektor Industri Barang Konsumsi Periode 2015-2019). *JURNAL MAGISTER MANAJEMEN UNIVERSITAS MATARAM*, 11(1).
21. Saputra, A. D., Akram, & Sasanti.Elin Erlina. (2021). Pengaruh Perencanaan Pajak Terhadap Nilai Perusahaan Dimoderasi oleh Transparansi Perusahaan (Studi Pada Perusahaan Non-Keuangan Di BEI) (Vol. 1, Issue 3). [www.idx.co.id](http://www.idx.co.id).
22. Sari, D., & Irawati, W. (2021). Pengaruh Perencanaan Pajak, Struktur Modal Dan Kepemilikan Manajerial Terhadap Nilai Perusahaan Dengan Transparansi Perusahaan Sebagai Variabel Moderasi. *Jurnal Akuntansi Barelang*, 6(1).
23. Sugiyono. (2019). *Metode Penelitian Kuantitatif, Kualitatif R&D*. Alfabeta.
24. Tarmidi, D., & Murwaningsari, E. (2019). *The Influence of Earnings Management and Tax Planning on Firm Value with Audit Quality as Moderating Variable*. 10(4). <https://doi.org/DOI: 10.7176/RJFA>
25. Yadiati, W., & Mubarok, A. (2017). *Kualitas Pelaporan Keuangan (1st ed.)*. Kencana.



# PROGRESSION OF DIABETIC RETINOPATHY IN PATIENTS AFTER COVID-19

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## SUMMARY

**Research Objective:** assessment of the degree of progression of diabetic retinopathy (DR) in patients who have had a coronavirus infection.

**Methods.** A retrospective and prospective analysis of the severity of DR was performed in 84 patients with type 2 diabetes mellitus who underwent COVID-19. Based on a comparative analysis of the dynamics of the disease during the pandemic (2020-2021) and the "pre-pandemic period" (2018-2019).

**Results.** In persons who underwent COVID-19, the progression of the stages of non-proliferative retinopathy prevailed. In most cases, there was a transition from the mild stage of non-proliferative retinopathy to moderate and moderate to severe.

**Conclusion.** Postponed COVID-19 contributes to a significant progression in the form of an increase in the level of the non-proliferative stage of DR

**KEY WORDS:** COVID-19; diabetic retinopathy; progression.

## INTRODUCTION

Throughout the pandemic, scientific publications have increasingly focused on publishing and expanding research [1,2,3,4] dedicated to ophthalmological manifestations of coronavirus infection. According to the literature, numerous cases of various visual organ impairments have been identified in COVID-19, as confirmed by various studies [5,6,7]. Complications related to the vascular coat and retina, resulting from developing coagulopathy and vasculitis, are of great interest as they significantly alter the course of the disease towards aggravation [8,9].

Currently, diabetic retinopathy (DR) represents one of the most common retinal diseases that can lead to vision loss in working-age individuals. Patients with diabetes mellitus (DM) are particularly vulnerable to coronavirus infection since there are multiple publications indicating a more severe course of the disease in such patients and its association with obesity as one of the most significant comorbidity factors [10,11,12,13].

Some studies [14,15,16] have shown that coronavirus infection can influence the course and prognosis of DM and its

complications through various mechanisms. It is particularly important to note the impact of glycemic decompensation in patients, which can be induced by the direct effect of the virus, as previously described as COVID-19-associated hyperglycemia in patients without a history of DM. Prolonged therapy with glucocorticosteroids, sometimes administered as methylprednisolone pulse therapy, is also a significant factor affecting the glycemic level [17,18].

Given the above, special attention should be paid to studying the impact of coronavirus infection on diabetic retinopathy (DR), including its peculiarities in terms of progression, various stages, and complications.

## RESEARCH OBJECTIVE

To assess the degree of diabetic retinopathy (DR) progression in patients who have experienced a coronavirus infection based on a comparative analysis of the disease dynamics during the pandemic period (2020-2021) and the pre-pandemic period (2018-2019).



**MATERIAL AND METHODOLOGY**

**Patients.** The study included 84 patients with diabetes mellitus (DM) who had confirmed laboratory evidence of past COVID-19 and underwent examination and treatment at the Termez Branch of the National Scientific and Practical Medical Center of Medical Genetics. The mean age of the patients was 56.6±6.3 years. The gender distribution was as follows: 35 males (41.7%) and 49 females (58.3%).

**The Inclusion Criteria for Patients in the study were as follows**

Confirmed diagnosis of diabetic retinopathy based on ophthalmological examination data;  
 Availability of ophthalmological examination data conducted at the institution where the study was performed in 2019;  
 Confirmed diagnosis of past COVID-19 based on immunological (ELISA, PCR) or instrumental (chest CT scan) diagnostic methods;  
 Availability of laboratory test results (complete blood count, biochemical blood analysis, coagulogram) and information on the received treatment for COVID-19.

**The Exclusion Criteria for patients in the study were as follows**

Inability to comply with the requirements of the study; presence of systemic diseases that could affect the study results;  
 Presence of glaucoma or other pathologies of the fundus (macular edema, epiretinal fibrosis, wet or dry age-related macular degeneration, etc.)  
 Use of medications that could potentially affect the course of diabetic retinopathy.

**METHODOLOGY**

A retrospective analysis of ophthalmological examination results of patients with type 2 diabetes mellitus (DM) in 2018-

2019 was conducted at the Termez Branch of the Republican Scientific and Practical Medical Center of Medical Genetics. The examination involved comparing the ophthalmological findings of patients during their visits to the center at two time points, with a temporal interval of 10-12 months between them. Subsequently, the study took on a prospective nature.

The third data collection point involved examining patients by an ophthalmologist during their stay at a COVID-19 treatment facility in the period of 2020-2021. The examination was conducted during the acute phase of COVID-19, 14 days after confirming the diagnosis. It included ophthalmoscopy using a portable fundus camera and an assessment of the stage of diabetic retinopathy (DR) according to the ICO classification (2017).

For the fourth data collection point, patients were revisited 10-12 months after recovering from COVID-19, and their complete ophthalmological examination results were analyzed at the specialized ophthalmological institution (Termez Branch of the Republican Scientific and Practical Medical Center of Medical Genetics). The evaluation included assessing the stage of DR based on the ICO classification (2017).

**RESULTS**

Over the 10-12 month period in 2018-2019, according to the data from the retrospective analysis, progression of diabetic retinopathy (DR) was observed in a total of 17 eyes (10.1%). When analyzing the stages of DR where progression was more frequently detected, the ratio was approximately equal, with the pathological process progressing more in the mild non-proliferative and moderate non-proliferative stages of DR (Table 1).

**Table 1  
 Dynamics of DR progression.**

Stage of DR	1 <sup>st</sup> data collection point		2 <sup>nd</sup> data collection point		3 <sup>rd</sup> data collection point (acute stage of COVID-19 in 2020-2021 yy)		4 <sup>th</sup> data collection point (full examination after 10-12 month)	
	n	%	n	%	n	%	n	%
No DR	16	9,5	12	7,1	10	6,0	5	3,0
Mild NPDR	28	16,7	27	16,1	23	13,7	16	9,5
Moderate NPDR	42	25,0	41	24,4	45	26,8	41	24,4
Severe NPDR	38	22,6	42	25,0	44	26,2	56	33,3
PDR	44	26,2	46	27,4	46	27,4	50	29,8
<b>Total</b>	<b>168</b>	<b>100</b>	<b>168</b>	<b>100</b>	<b>168</b>	<b>100</b>	<b>168</b>	<b>100</b>

Comparing the data from the 2nd and 3rd data collection points, the time interval between eye examinations for patients ranged from 3 to 6 months. This comparison of chronological points was conducted to determine the progression of DR during the acute phase of COVID-19. The table results demonstrate that during this chronological period, despite the development of

COVID-19, progression was only observed in 10 eyes (5.9%), among which there were only 2 cases of progression to the severe non-proliferative stage and no cases of progression to the proliferative stage.





In-depth ophthalmological examination data revealed progression of the DR stage in only 44 eyes of 36 patients (42.8%) out of 84, when comparing the DR structure based on the results of the 3rd and 4th examination points. The analysis showed that in individuals who had recovered from COVID-19, progression of the non-proliferative retinopathy stages prevailed. In most cases, a transition was observed from the mild stage of non-proliferative retinopathy to the moderate stage, and from the moderate stage to the severe stage. According to classification criteria, progression of ophthalmoscopic DR symptoms, such as microaneurysms, microhemorrhages, intraretinal microvascular abnormalities, and venular caliber changes, was observed. Development of neovascularization, fibrosis, preretinal or vitreous hemorrhage, indicating progression to the proliferative stage, was comparatively less frequent. In 4 eyes (3.7%) of patients, cases of transition from severe non-proliferative to proliferative stage of DR were identified.

In all cases during the retrospective analysis, a comparison of the mean best-corrected visual acuity (BCVA) was also conducted. The comparative analysis at two study points, 1 and 2, demonstrated no significant differences in BCVA between the mean values: 1st study point -  $0.83 \pm 0.06$ , 2nd study point -  $0.82 \pm 0.07$ ,  $p = 0.628$ . According to the data from the 4th follow-up point, which was approximately 10-12 months after recovering from COVID-19, a significant decrease in the mean value was observed in patients, despite the fact that the differences compared to the values at the 1st and 2nd follow-up points were not statistically significant.

## CONCLUSION

In conclusion, it was found that previous COVID-19 infection contributes to significant progression in terms of increasing the level of non-proliferative DR, as evidenced by an increase in microhemorrhages and intraretinal microvascular abnormalities based on the DR classification.

## REFERENCES

1. Bertoli F, Veritti D, Danese C, et al. Ocular Findings in COVID-19 Patients: A Review of Direct Manifestations and Indirect Effects on the Eye. *J Ophthalmol.* 2020;4827304.
2. Ahmed I, Liu TYA. The Impact of COVID-19 on Diabetic Retinopathy Monitoring and Treatment. *Curr Diab Rep.* 2021;21(10):40.
3. Al-Dwairi R, Rwashdeh H, Otoom M. The Influence of COVID-19 Lockdown in Jordan on Patients with Diabetic Retinopathy: A Case-Control Study. *Ther Clin Risk Manag.* 2021;17:1011-1022.
4. Boden I, Bernabeu MO, Dhillon B. et al. Pre-existing diabetic retinopathy as a prognostic factor for COVID-19 outcomes amongst people with diabetes: A systematic review. *Diabetes Res Clin Pract.* 2022;187:109869.
5. Caporossi T, Bacherini D. et al. Retinal findings in patients affected by COVID19 intubated in an intensive care unit. *Acta Ophthalmol.* 2020.
6. Guemes-Villahoz N, Burgos-Blasco B, Donate-Lopez J, et al. Retinal findings in COVID-19 patients with diabetes mellitus. *Diabetes Res Clin Pract.* 2020;168:108395.

7. Invernizzi A, Torre A, Parrulli S, Zicarelli F., et al. Retinal findings in patients with COVID-19: Results from the SERPICO-19 study. *EClinicalMedicine.* 2020;27:100550.
8. Jamali S, Ashrafi E, Mohammadi SF. Personal Experience With COVID-19 and Community Screening of Diabetic Retinopathy in Iran. *J Diabetes Sci Technol.* 2020;14(4):737-738.
9. Chatziralli I, Dimitriou E, Kazantzis D, Machairoudia G, Theodossiadis G, Theodossiadis P. Effect of COVID-19-Associated Lockdown on Patients With Diabetic Retinopathy. *Cureus.* 2021;13(5):14831.
10. Cyrino FVR., Ferronato S, Araujo SAV, Giachetto V, Saud LD. Applicability of portable retinal cameras and telemedicine as facilitating tools in screening diabetic retinopathy in the COVID-19 pandemic scenario. *Arq Bras Oftalmol.* 2022.
11. Das AV, Narayanan R, Rani PK. Effect of COVID-19 Pandemic on Presentation of Patients With Diabetic Retinopathy in a Multitier Ophthalmology Network in India. *Cureus.* 2021;13(10):19148.
12. Dhillon N, Santiago C. Management of acute proliferative diabetic retinopathy related complications during the first COVID-19 wave. *BMC Ophthalmol.* 2022;22(1):119.
13. Ghamdi AHA. Clinical Predictors of Diabetic Retinopathy Progression; A Systematic Review. *Curr Diabetes Rev.* 2020;16(3):242-247.
14. Jenkins AJ, Joglekar MV, Hardikar AA, Keech AC, O'Neal DN, Januszewski AS. Biomarkers in Diabetic Retinopathy. *Rev Diabet Stud.* 2015;12(12):159-195.
15. Lani-Louzada R, Ramos CdVF, Cordeiro RM. et al. Retinal changes in COVID-19 hospitalized cases. *PLoS ONE.* 2020;15(12):e0243346.
16. Landecho MF, Yuste JR, Gándara E. et al. COVID-19 retinal microangiopathy as an in vivo biomarker of systemic vascular disease? *J Intern Med.* 2021;289(1):116-120.
17. Malerbi FK, Morales PHA, Regatieri CVS. Diabetic retinopathy screening and the COVID-19 pandemic in Brazil. *Arq Bras Oftalmol.* 2020;83(4).
18. Marinho PM, Marcos AAA, Romano AC. et al. Retinal findings in patients with COVID-19. *Lancet.* 2020;395(10237):1610.



# PUBLIC SCHOOL LEADERS' LIVED EXPERIENCES ON 21<sup>ST</sup> CENTURY LEADERSHIP: A PHENOMENOLOGICAL STUDY

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## ABSTRACT

*The twenty-first century has brought about new innovations and challenges in the field of education. The major goal of this study is to investigate the experiences, problems, coping techniques, and insights of Pantukan South District public-school educational leaders leading in the twenty-first century. It employs the qualitative phenomenological research method and relies on in-depth interviews to collect data. Six educational leaders from Pantukan South District were chosen as research participants using a purposive sample technique. This study indicated that educational administrators confront numerous obstacles in dealing with their staff, fiscal matters, stakeholders, and learners. They were shown, however, developing coping mechanisms to alleviate their predicament. This study also emphasized the hard effort and strong commitment of public-school educational leaders to their jobs. As a result, it was found that, despite all of the obstacles that educational leaders in the twenty-first century face, they can always find ways to cope and adapt. As a recommendation, educational leaders should continue to improve themselves, both personally and professionally, by attending trainings and seminars with the assistance of the department of education. The findings of this study would serve as a springboard for future research into the experiences of other school administrators, instructors, and students who had also witnessed changes in 21st-century education.*

**KEYWORDS:** *Twenty-first century education, public school administrators, Phenomenology*

## INTRODUCTION

The twenty-first century has brought about a new revolution in education (Ayiro and Sang, 2010). With the fourth industrial revolution's major social, political, and economic upheavals, education systems all over the world were obliged to undergo educational reforms, modifying their curriculum to fit the needs and demands of this era.

As school managers, school leaders are directly responsible for problems and implementation concerns related to educational reforms, which causes some leaders to be hesitant to adapt to these changes, despite Lingard (2018) viewing this change as both a response to and articulation of globalization. According to Apsorn, Sisan, and Tungkunan (2019), administrators in Thai education are having difficulties with educational technology, which is one of the primary characteristics of 21st century education, since they lack preparation in learning technology itself.

Every country in the world is struggling to maintain their education systems up to date with contemporary educational advancements, and the Philippines is no exception. Indeed, it has already begun educational reforms, transforming its 10-year basic education into a K-12 curriculum, with a goal of preparing Filipino students to confront the challenges of the twenty-first

century (Adarlo et al., 2017). However, it is definitely not exempt from all of the new curriculum implementation challenges.

As an example, Blasabas and Sumaljag (2020) claimed that the lack of training and orientation in adjusting to new educational trends and low budget allocations as a result of their being unprepared for the task at hand were two of the most frequent challenges faced by school administrators in Davao del Sur. It is evident that implementing educational changes in response to the world's constant change has produced a new set of leadership criteria that must be met and difficulties that school leaders must face.

In Davao de Oro, particularly in Pantukan, there were school administrators who had difficulty dealing with the challenges posed by educational shifts brought about by 21st century advancements, primarily because they were having difficulty adjusting to new educational and social trends, as well as learning how to use technology itself.

Multiple studies have shown that principals' leadership and skills are critical to the success of educational institutions. However, research have revealed that school principals are having difficulty transitioning to this new era of education. As a result, the researcher was compelled to investigate the experiences of public-



school administrators, their coping techniques in the face of adversities, and the insights they obtained as leaders in this new. Exploring their experiences would provide them with the attention they need from the Department of Education, as the quality of our nation's education is likewise heavily reliant on them.

### THEORETICAL LENS

This study was anchored on the lens of Transformational Leadership Theory which was first introduced by James V. Downton in 1973 and was expanded by James MacGregor Burns in 1978. This theory encourages leaders to demonstrate authentic, strong leadership with the idea that employees will be inspired to follow suit.

Transformational leadership is leadership theory where a leader works with followers to identify the changes needed, create a vision through inspiration, and execute the change with a group of highly committed followers. In this study, this theory explained that during reforms or changes in the educational system, school leaders must tap the potential and motives of his followers to make it easier to reach the goals of the organization. Additionally, during tough times, leaders must not easily feel discouraged. Instead, they must find innovative solutions to problems and create new and dynamic paths for their teams to follow.

### OBJECTIVES

This phenomenological qualitative study aimed to explore public school leaders' experiences in dealing with 21<sup>st</sup> century education. This further investigates the challenges they have encountered, strategies they have used in order to cope with it, and the insights they have gained from it.

### RESEARCH QUESTIONS

1. What are the experiences of public-school administrators as a 21<sup>st</sup> century leader?
2. What are the challenges experienced by the public-school administrators as a 21<sup>st</sup> century leader?
3. What are the coping strategies of public-school administrators in dealing with the challenges encountered as a 21<sup>st</sup> century leader?
4. What insights did the public-school administrators gained from their experiences as 21<sup>st</sup> century leaders?

### REVIEW OF RELATED LITERATURE

When changes occur in educational processes, school leaders are directly affected because they are one of the people actively involved in the execution of the changes. Several works of literature were studied and deemed to be relevant to the current study. The relevant literatures for this study focused on studies of 21<sup>st</sup> century leadership, the obstacles they faced, and their coping mechanisms as 21<sup>st</sup> century leaders.

### 21<sup>st</sup> Century Leadership

The twenty-first century leadership is concerned with how managers and leaders adopt and acquire a modern mindset in order to be prepared to deal with the century's distinctive difficulties. The evolution of human connection with their surroundings has an impact on the field of leadership, in particular. As we face and address several issues in the twenty-first century, leadership faces a completely new set of management challenges. Denning (2020) claims that twenty-first-century leadership is more than just a slight improvement over traditional management.

Historically, effective school principals merely required to be well-versed in management and politics (Kinney, 2009). These abilities, however, will no longer suffice. A school administrator in the twenty-first century must have sophisticated work skills (Vaillant & Garcia, 2009), since the job becomes more demanding as a result of new expectations, changes in governmental regulations, and more responsibility (West et al., 2014).

Educators and educational leaders have a social and ethical responsibility to assist individuals in developing the ability to (re)construct this problematic worldview in favor of one that is more supportive of social justice and sustainability (Lupinacci, 2017). Prandini et al. (2012), on the other hand, noted that leaders in the twenty-first century consider normative and strategic sustainability while making decisions. Dealing with a real experience necessitates harsh learning environments that encourage problem-based, action-oriented learning toward long-term corporate accountability.

### Challenges of School Administrators

Due to differences, school administrators faced challenges in professional development, scheduling, workloads, lack of support, cultural diversity, and financial responsibility.

Continuing professional development is one of the issues that educational leaders encounter. School systems anticipated principals to have exceptional credentials, experience, and dispositions in order to modernize visions, facilitate transformative change, and engage in instructional leadership (Richardson, Watts, Hollis, & McLeod, 2016). The incapacity to deal with people was identified as a primary factor for principal failure in curriculum implementation in studies of effective principals (Lunenbergh, Muse, & Abrams, 2011). They were unsure whether they possessed the appropriate knowledge and abilities for the new position (Phillips, 2018).

As educational leaders' roles get more complex over time, and as their duties increase, most educational leaders find it challenging to schedule their workloads. Principals were frustrated as curriculum revisions to address the needs of today's world were implemented. Bridges and Searle (2011) and Cheung et al. (2012)



concluded in their studies that principals' expectations of having a stabilized, reduced, and more manageable workload during educational reforms were unrealistic because they were working 55 hours per week, a 10% increase from before the reform was implemented. Phillips (2018) noticed the similar problem in Iowa after seven years, when principals were frustrated because there was not even enough time to do their duties in a day. Principals reported greater responsibilities and accountability (Ng & Pun, 2013). These demands were inappropriate because they contributed to their school time and took time away from them (Bridges & Searle, 2016). Time management and balancing the administrator's responsibilities were important aspects in successfully implementing a curriculum overhaul.

According to studies, one of the most difficult challenges they have faced is a lack of support. Support from the government and the reforming agency was critical for school administrators, and most of them agreed that they did not receive enough (Cheung & Man Wong, 2012; Durban & Catalan, 2012; Phillips 2018). The majority of the support needs mentioned were in resolving teachers' allegations to their school administrators. Scarcity of resources, heavy workloads, and learner diversity were among the everyday demands that agencies should consider in addressing (Cabili, Sequete, & Capilitan, 2015; Cheung et al., 2012; Nahal, 2010).

### Coping Strategies of School Administrators

These were just few among all of the issues and challenges faced by educational leaders from their day-to-day living. However, despite these challenges, they found strategies that somehow alleviated their situations. They changed their previous and usual practices in several ways (Husband & Hunt, 2015). Mokhele (2012) concluded in his study that principals motivated the teachers and engaged the society in fulfilling their educational goals. These coping strategies geared the school administrators to the well-being of the entire school and served as their weapon on strengthening the implementation of 21<sup>st</sup> century education (Blasabas & Sumaljag, 2020).

Communication is essential in any organization, and educational organizations are no exception. Sharing and exchanging information was critical in developing and maintaining connections, especially during major changes such as educational reforms. Principals conveyed to teachers that the new reform standards were fair and attainable provided their attitudes and needs were taken into account in addition to the externally imposed directives (Brezicha, Bergmark, & Mitra, 2015). Communication was utilized to generate common meanings, construct visions, and guide an organization through periods of change.

Educational leaders are truly resilient and are positive thinkers. As a matter of fact, most of them have developed their own personal coping strategies when faced with different challenges, be it personal or professional problems. Individuals adopted various coping strategies on their own (Xiao & Cooke, 2012) when stoked with challenges. Helitzer, Graeber, Lanoue, and Newbill (2015) stated that they involved generating, implementing, and evaluating personal actions to solve the problem.

School principals demonstrated a sound understanding of the necessity to change first and assess the entire school's needs to lead the change (Ibrahim & Al-mashhadany, 2012). Such positive attitude in manifesting individual coping had a significant impact on person's well-being and Somech & Drach-Zahavy (2012) proved that is a better approach to mitigating work-family conflicts.

As their responsibilities become more wider and heavier, educational leaders have discovered the importance of responsibility delegation. Delegation is assigning responsibility or chunking work and giving authority how to do the task (Huang et al., 2016). Research has shown that leaders who delegate had higher rates of effectiveness (Drescher, 2017). Rogers (2018) also added that influential leaders delegate works, allowing themselves to have more time to strategize and plan while providing new avenues to develop their skills and confidence. When done successfully, this would be beneficial to both parties.

As a result, the literatures described above, such as the need for professional development, irritation with task distribution, a lack of assistance, dealing with varied learners, and financial responsibility limits, indicated the school administrator's huge obligation. Going through the difficulties of implementing the new curriculum, in particular, put their leadership in directing the school toward transformation to the test. School administrators must be aware of how to accept their responsibilities, handle their demands, and be aware of numerous areas and places for improvement when dealing with such challenges. Principals' expected responsibilities demanded fast response and attention. In exchange, they may successfully implement the desired curriculum adjustments as specified by our educational system.

### METHODS

This study used a qualitative research approach, especially a phenomenological design, to analyze the participants' leadership experiences, leadership obstacles, and coping strategies. Phenomenology is a qualitative research method used to describe how people react to a specific phenomenon (Neubauer et al., 2019). Phenomenological study attempts to set aside preconceived beliefs and prejudices regarding human perceptions, emotions, and reactions to a circumstance. It allows the researcher to delve into the observations,





understandings, and feelings of individuals who have witnessed or lived through the event or circumstance of interest.

Through this design, the researcher was able to collect and gather data that were essential to this study. Moreover, participants were identified using purposive sampling. There were six participants all coming from the Pantukan South District.

The researcher's goal was to uncover the actual experiences of the school leaders as they perform their duties in this new era of education.

The researcher used interview guide questions in his interview with the participants. Through the interview guide questions, there will be unity of the questions used by all the interviewees. In addition, this instrument is essential so that the researcher will not forget in the interview.

The researcher conducted in-depth interviews with six (6) participants to determine their experiences as 21<sup>st</sup> century leaders. Before the interview was conducted, consent letters were shown to inform them of the purpose of the research.

The data collected were analyzed using thematic analysis. According to Braun and Clarke (2014), thematic analysis is a foundational method of analysis that uses interpretation and description to examine the relevance of the cohesive learning and the theme that can be applied to the data.

## RESULTS

Based from this study's purpose, thorough data analysis from the participants' responses from the Key Informant Interview were repeatedly conducted. The following results presented herewith are placed into four clusters based on the four research questions of the study. The first part centered on educational leaders' experiences on twenty-first century leadership. The second part focused on the challenges encountered by the participants as twenty-first century leaders. The third cluster deals with the coping strategies of the informants in dealing with problems as twenty-first century leaders. And the last part focused on the insights gained by the informants from their experiences as twenty-first century leaders.

### Positive Experiences as 21<sup>st</sup> Century Leaders

When asked about their positive experiences leading in this new era of education, three themes have emerged from the informants' responses; (1) learned to use technology and digital apps, (2) opportunities for self and professional development, (3) transmission of information becoming fast.

### Learned to Use Technology and Other Digital Apps.

Because of the increased labor and reporting

required of them by the DepEd, school administrators learnt the technology. The circumstance has undeniably forced school administrators to investigate the usage of technology in order to submit mandatory reports and execute other activities demanded of them. Because technology is prevalent and rapidly evolving in today's world, the necessity for principals to adapt and implement technological innovations is critical. In this regard, principals are encouraged to strengthen their technological leadership in order to satisfy the demands of the new world order (Hacifazlioglu, Karadeniz, & Dalgic, 2011).

### Opportunities for Self and Professional Development

**Opened.** The interviews with the participants also revealed a plethora of options for their personal and professional development. As a response to the ever-changing demands of the world, the Department of Education invites school leaders to participate in trainings and seminars that will help them develop their personal and professional needs. Professional development (PD), continuous professional development (CPD), and in-service training (INSET) are all types of professional learning that principals pursue after completing their first training (Craft, 2000). As evidence of the department's efforts to meet the professional needs of school leaders, they chose to form relationships with international and local training managers and offer all-expense-paid trainings and seminars for the participants, which benefited them the most.

**Fast Transmission of Information.** Aside from the aforementioned beneficial experiences, the school leaders were also able to benefit from the fast transfer of information via the internet of things (IOT), which resulted in a faster and larger communication system. Communication is an important aspect in educational organizations because it serves as the foundation for educational practice and is part of the process that leads to the attainment of its goals (Mercouri & Stamatis, 2009). Pasiardi (2001) agreed, stating that educational organizations, like any other, rely on good communication, which is one of their essential characteristics, to ensure their purposes and goals are met.

### Negative Experiences as 21<sup>st</sup> Century Leaders

Participating school heads also have unpleasant experiences as leaders in the 21<sup>st</sup> century; (1) hard time dealing with new breed of teachers, (2) filtering and distinguishing information, (3) problem with work-life balance, (4) cynical stakeholders, (5) inadequate and low-quality educational materials.

**Dealing With New Breed of Teachers Is Hard.** The new generation of instructors frequently has different perspectives and mindsets than the school authorities. The new generation of instructors, who are products of a highly digitalized environment, are techno-savvy and may offer unique perspectives on various topics that can



be leveraged to benefit the school. However, because of the generation gap, others, particularly seasoned teachers, may have difficulty dealing with children due to their distinctiveness in the way they react and interpret things. According to Subramanian (2017), one of the issues of today's population is the existence of a gap in the thinking, opinions, and outlooks of younger generations.

**It Is Difficult to Filter Information.** One of the informants' bad experiences is filtering large amounts of information from the internet. While having free and easy access to information via the internet of things is beneficial to everyone, the accuracy of all information is not guaranteed, and deciphering too much information can be time consuming and unpleasant. According to Quaglio and Millar (2020), having too much knowledge can make it harder to comprehend a problem or make effective and sound decisions. Furthermore, they stated that information overload is linked to loss of control, emotions of overwhelm, decreased intellectual performance, and decreased job satisfaction, none of which are healthy for anyone, even school leaders.

**Work-Life Imbalance.** School leaders frequently struggle to reconcile their personal and professional lives due to the huge workload and demands placed on them. Because time is limited, balancing principals' workloads and home responsibilities can be stressful (Yang, 2020). Kochan, Spencer, and Mathews (2000) agreed, stating that managing principals' work and time, as well as coping with stress, tasks, and responsibilities of the job, was the key challenge for both men and women principals. The sheer volume of work has overburdened twenty-first-century principals. When not handled properly, stress generated by work-life imbalances can have a negative impact on their performance and effectiveness as school leaders.

**Some Stakeholders are Cynical.** Dealing with skeptical and closed-minded stakeholders was another negative experience the informants had. However, their significance for the school's development and success cannot be overstated. Partnership is at the heart of effective initiatives that engage families and communities. This is significant since the responsibility for students' educational development is shared by parents, school staff, and community members (Henderson & Map, 2002). As a result, their opinions, whether positive or negative, should be heard and weighed for the benefit of the school as a whole.

**Educational Materials are Inadequate and Low Quality.** While it is evident that proper support in terms of providing resources is required to equip students with 21st century capabilities. However, according to the findings of this study, many of the interviewees reported to have received insufficient

and sub-standard learning resources such as computers, books, and even LMs. Inadequate learning materials can lead to a slew of additional issues during the teaching and learning process. According to Taboh (2015) in her article, a shortage of classroom materials hampers student progress.

### **Challenges Encountered in Handling Relationship with Staff**

When asked about the challenges they have encountered dealing with school staff, three emerging themes emerged: (1) dealing with individual differences and attitude problems, (2) technology integration among senior teachers, (3) and establishing and maintaining trust.

#### **Individual Differences and Attitude Problems.**

Dealing with the different variations of their employees is one of the most prevalent issues that informants encounter. Organizations are made up of unique individuals who work in a collaborative environment (Fred Luthans, 2003). It is a fundamental truth that all persons are distinct in their abilities, skills, and knowledge; also, they differ in their perceptions and attitudes toward their profession. Because this growing issue is inherent in any institution, failing to address it may result in pandemonium. This can lead to misconceptions and misinterpretations, which can have a negative impact on productivity (Colquitt & Wesson, 2009). However, when these variations are handled with appropriately, incalculable effects can occur, as indicated by Batey and Furnham (2006), who noted that creativity and work intelligence are effective outcomes of lined individual differences.

#### **Technology Integration Among Senior Teachers.**

It is an undeniable fact that school principals are primarily responsible for the educational needs of students. As a result, they urge their employees to go with the flow and adapt to the ever-changing educational trends. One of the key characteristics of 21st century education is the widespread use and integration of technology in teaching-learning processes; nonetheless, this study found that there are still instructors, particularly "seasoned ones," who are resistant to change. According to Abdul Rahim, Lokman Mohd Tahir, Siti Anis, and Mohd Ali (2020), one of the most significant challenges that principals encounter is teacher resistance to change and growth in instructional competence and professional development.

#### **Establishing and Maintaining Trust.**

Trust is important. Employees who work in high-trust workplaces have lower stress, burnout, and sick days than those who work in low-trust ones. These benefits are related with increased productivity, higher involvement, and more vitality. According to research, teachers' trust in the principal influences their trust in their colleagues, which is related to student accomplishment (Handford, 2013). Given its



significance, this study reveals that some school administrators struggle to create and maintain trust among school workers. Leaders consider retaining trust to be more difficult than gaining trust. In fact, they regard it as one of the most difficult aspects of leadership (Bryk & Schneider, 2003). This was supported by Robinson (2007) who said that in order to effectively maintain and build trust, one must practice collaborative problem-solving by dropping their pre judgements about the issue, and many find it to be difficult.

### **Challenges Encountered in Maintaining Good Rapport with Stakeholders**

Three emerging themes educed from this; (1) problem with miscommunication, (2) low participation and cooperation, (3) and unpleasant treatment by stakeholders.

**Miscommunication.** Clear and frequent communication is essential for both sides to ensure understanding, harmony, and cooperation. Failure to establish excellent communication can have major effects and cost you a lot of money in the long run. Poor communication creates expectation issues with stakeholders, as well as confusion and misconceptions regarding what is expected of both sides. According to Trujilo (2020), miscommunication caused by poor communication can impair relationships between team members, stakeholders, and clients. It has an impact on their trust and degree of support for the organization.

**Low Level of Participation and Cooperation.** A school, as an educational institution, cannot exist on its own. A project is considered successful when it meets or exceeds its objectives and meets or exceeds the expectations of stakeholders (Watt & Baron, 2020). However, research reveal that some stakholders provide little to no cooperation in school activities. For example, Dr. Rico Jaboya (2018) discovered difficulties in the participation of external stakeholders in his study on the implementation of school-based management (SBM) in CAMANAVA. This is a sad fact because cooperation and initiative among stakeholders is always considered as crucial for the success of any educational program.

**Unpleasant Treatment of Stakeholders.** The informants were also challenged by the stakeholders' evident changes in treatment with school staff. The treatment of stakeholders toward school workers, particularly teachers, has changed recently, and some of it may be seen on social media sites. Parents, for example, have utilized the Zoom chat feature to publicly criticize teachers and reprimand teachers when they make a mistake (Maloy, 2021). Hawk (2022), despite the fact that teachers had worked extensively to master new digital platforms, resolve technological issues from afar, and overcome Zoom

fatigue, all while feeling the same isolation as many of the pupils, some parents were dismissive. Stakeholders must also learn to respect school personnel in the same way that school personnel respect them. The shift in teacher attitude is a social justice issue since mistreatment by school stakeholders has a direct impact on teachers' social-emotional competence and well-being (Schonert-Reichl, 2017). They must empathize with teachers because their mental health may impair their effectiveness at work, influencing their children's education.

### **Challenges Encountered in Handling Fiscal Matters**

Participants also encountered challenges pertaining to fiscal matters; (1) insufficient funds and (2) sourcing out of funds.

**Insufficient Funds.** The school, like any other institution, cannot function successfully without finances. This has long been a problem for school administrators. Despite the government funds received, the informants believe that they are insufficient. Among the financial obstacles were the fact that they had to reduce their own budgetary requirements and even shift funds for far more critical and urgent matters (Caldararu, Szekeres, & Paunica, 2022). Furthermore, they stated that the poor quality of education was a direct result of the financial crisis.

**Sourcing Out Funds is Difficult.** When funds from the government become insufficient, school administrators try to discover ways to raise funds from its stakeholders in order to keep school projects running. However, this is not something that everyone can do. Due to a lack of resources, school officials must seek alternative sources. As a result, while the endeavor to generate revenue within the administrative operations of the school is very important, this situation has a negative impact on the administrators and results in them not spending enough time on primary duties (Sipahioglu, 2023). Similar research showed that the difficulty in locating financial resources has a negative impact on pupils, instructors, and administrators (Altunay, 2017; and Korkmarz, 2005).

### **Challenges Encountered in Managing Learners**

This structured theme elicited two emerging themes; (1) dealing with learners' diversity, and (2) molding learners for high moral values.

**Learners' Diversity.** The interviewees stated to have encountered difficulties dealing with the diversity of learners. Individual uniqueness can result in a surprisingly greater culture of innovation and creativity, but dealing with it personally can be a time-consuming process. Because of differences in ethnicity, culture, or ethnic orientation, students may fail to identify and respect one another (Rogers, 2023). Such disparities can have an impact on communication and teamwork among



students.

**Molding Learners' High Moral Values.** Over time, society's moral and social standards have deteriorated, particularly among youth. Today's students appear to have forgotten that sustaining high moral principles is just as vital as achieving good scores in school. According to Farmer, Reinke, and Brooks (2014), learners' habits have altered dramatically over the last several decades, including teachers in educational centers in a considerable behavioral change. This has been a difficulty for the informants because they are one of the people in charge of shaping intellectual but ethically upright learners. Taneri, Gao, and Johnson (2016) state that parents, principals, and instructors all play crucial roles in the lives of kids since they function as influencing variables.

### **Coping Strategies with Issues Affecting Relationship with Staff**

While it is true that school leaders faced numerous challenges and problems along the way, this did not deter them from continuing to develop as leaders by implementing strategies that they believe will benefit them, such as (1) bonding with staff, (2) practicing empathy and sympathy, (3) practicing fairness, and (4) emphasizing the importance of Emotional Quotient.

**Bonding with Staff.** Developing a strong good relationship with your staff is critical to the success of your institution. Principals must get an in-depth knowledge of each staff member in order to form the relationships that create teams (Rieg, & Marcoline, 2008). One method is to spend time with them and talk about matters unrelated to their profession. Bonding and spending quality time with them allows for mutual understanding and a terrific opportunity for individual evaluation. This method enables them to create a tailored educational system in which all staff members work in unison.

**Practice Empathy and Sympathy.** Developing a strong feeling of understanding and rapport with your employees is one method of establishing and maintaining organizational trust. Empathy and sympathy are both necessary for fostering a healthy work atmosphere. When school leaders can put themselves in the shoes of their employees, they can better comprehend and respond to their demands (Yussif, 2022). School administrators can better engage with their staff and develop a positive relationship with everyone in the school this way.

**Practice Fairness.** Trust between management and employees is essential in any firm (Callaway, 2006). Individual staff being treated fairly and equally fosters a strong sense of trust and contributes to the establishment's healthy relationships. As a result, mutual trust among organizational members fosters

communication and exceptional organizational achievement.

**Emphasize Importance of Emotional Quotient.** The development of emotional intelligence abilities provides sufficient leadership qualities for the organization to advance and achieve its goals. The emotionally intelligent leader principal, in particular, is capable of inspiring and facilitating a self-conscious and organizational culture by embracing the values of understanding, trust, prospect, achievement, and effectiveness, as well as combining emotions, beliefs, vision, and values in a flexible manner (Brinia, Zimianiti, Panagiotopolous, 2014). The ability to recognize and control one's own emotions in constructive ways to reduce stress, conquer problems, and diffuse disputes is referred to as emotional quotient. Intelligence Quotient (IQ) will no longer suffice for today's school leaders. To be successful in his industry, a leader must be aware of his own and others' emotions. Principals who understand their employees' emotional needs typically create a pleasant environment in which instructors are effective and kids thrive academically (Brackett, Rivers, Lerner, Salovey, & Shiffman, 2006; Mills, 2003).

### **Coping Strategies with Issues Pertaining to Stakeholders**

Two emerging themes were elicited from this structured theme; (1) practicing honesty and transparency, and (2) keeping communication line open.

**Practicing Honesty and Transparency.** Honesty and transparency are not only ethical values, but also effective instruments for establishing relationships and influencing stakeholders. When educational leaders are concerned about the reputation of their school, transparency and communication take the lead (Leedy, 2018). In today's digitally linked society, trust is more crucial than ever. Creating a culture of transparency is a major contributor to trust. Being sincere, genuine, and respectful in your words and deeds is what it means to be honest. Transparency, on the other hand, necessitates being open, clear, and accountable for your actions and decisions. Schools that are transparent and honest are educational institutions where information is presented in a clear, understandable, and accessible manner (Ergun, 2020).

**Keeping Communication Line Open.** According to the responses of the research informants, one method of managing with stakeholder concerns was to ensure adequate communication on both sides. Effective communication management is an important aspect of leadership. Regular and open communication allow stakeholders to share their problems, new ideas, and unique viewpoints. Tyler (2016) stated that "effective communication promotes motivation and builds staff culture." This is critical to remember, as he also stated that poor communication leads to discontent.





### **Coping Strategies with Fiscal Matters**

This structured theme resulted to have two emerging themes in this research; (1) practice transparency, and (2) implementation of plans.

**Practice Transparency.** Transparency is a basic yet powerful technique for preventing organizational corruption. It guarantees that resources are used responsibly and efficiently. Transparency, as previously said, fosters confidence among both internal and external stakeholders. According to Gayon (2015), some administrators believe that transparency will assist boost teacher, student, and community morale. Others, she continued, believe that keeping public financial data out of the public eye will help their schools/office run smoothly.

**Implement Plans Properly.** Every school has developed an Annual Implementation Plan (AIP) that demonstrates the careful planning of the government's budget. Essentially, it is a draft or a recommendation on what to buy for the entire school year. Setting goals is a vital ability for a school leader to have, especially when money is involved. Setting crucial goals, according to Winston and Poorman (2021), should come before needs and wants because it will direct your financial decisions and focus on what's vital.

### **Coping Strategies Pertaining to Learners.**

There are three themes emerged from this structured theme; (1) develop empathy, (2) being firm and flexible, and (3) recognizing efforts and achievements.

**Develop Empathy.** Empathy is undeniably important in properly running schools. It is a fearsome confidante who enables educational leaders to create collaborative groups that influence, innovate, and improve student results. Empathy allows school administrators to comprehend kids' views, needs, and intentions, which adds to building positive relationships with them. According to Richardson et al. (2012), learners are more likely to engage in school and classroom situations if they have a favorable and intimate relationship with their teachers and other school personnel. Empathy is a great tool for better understanding what motivates learners' behavior and developing solutions to assist them. This is significant because students who learn and think differently need to feel understood and supported.

**Be Firm Yet Flexible.** Another coping method for learners' issues is to be firm while remaining flexible. One of the many qualities a principal should have is the ability to be stern with students while maintaining a positive relationship with them. When it comes to implementing school policies and applying school punishment, a principal should be forceful in his decisions and comments. Discipline is very important

in all educational institutions since it encourages students to create responsible behavior, which leads to a self-disciplined person. It teaches pupils the art of self-control, and social disorder can only be prevented if constraints are ingrained in students' personalities (Were 2006). Furthermore, an administrator must be adaptable, particularly when it comes to curriculum implementation and student learning. Recognizing that students are unique individuals with varying learning styles and capacities, catering to their specific needs is achievable when the school and its staff, particularly the principal, are adaptable. Huzefa (2020) agreed, stating that flexible curriculum implementation is an indicator of an effective and challenging curriculum that allows educators to support students in fulfilling their particular requirements and facilitating the development of life skills.

**Recognize Student Effort and Achievement.** Another significant finding from this study was the significance of rewarding students' efforts and accomplishments. Celebrating students' accomplishments can help keep pupils motivated and committed to continuing effort and hard work. Celebrations are not just a form of encouragement; they also encourage students to stay on track and motivated in their studies. When kids are reassured and supported by parents and role models who recognize their accomplishment, they are more likely to work hard to achieve their personal goals. Recognizing pupils for other attributes such as effort, improvement, and cooperation can boost self-esteem, provide a sense of success, and promote respect among peers (Olinger, 2018).

### **Insights Gained From Experiences as 21<sup>st</sup> Century Leaders**

Failure and defeat do not matter as long as you have something to learn out of it. In this study, the informants have learned; (1) technology, new bread and butter in education, (2) learned to be resilient, (3) learned to be proactive, and (4) learned to be innovative and adaptable.

**Technology; New Bread and Butter of Education.** As clear as it is, technology has already surpassed the most crucial component of today's educational requirements. It serves as the foundation for students' modern development and advancement. Reading C., (2008), for example, explored the efficacy of ICT in generating a productive teaching-learning environment by categorizing and engaging learners based on behavior, emotion, and cognitive engagement in his study. This is why, in order to keep up with 21st century education approaches, an increasing number of schools are upgrading. As a result, school leaders are also putting pressure on themselves to get acquainted with and, if feasible, understand emerging trends in educational technology.

**Resiliency is an Important Keys.** Being resilient is



really important in this world when the only constant is change. Resilience refers to the ability to tolerate or recover swiftly from adversity and is more usually associated with a positive outlook. Being resilient does not mean avoiding problems and hardship; rather, it means learning how to face and deal with them. Adopting a positive, resilient mindset helps leaders keep their cool while seeking the best answers to issues. This, in turn, increases others' trust in you as a leader. This study reveals that resiliency is a key realization for school leaders, allowing them to overcome challenging circumstances and implement activities that resulted in gains. Similarly, research shows that resilience permits. This study demonstrates that resiliency is one of the important realizations of school leadership which allowed them to face difficult challenges and implement actions that led to improvements. Similar studies also demonstrate that resilience enables the positive transformation of schools (Day & Quing, 2015; Pinskaya et al., 2019; Shirley et al., 2020).

**Learned to be Proactive.** School administrators learnt to be proactive. This means they were able to move ahead of time to deal with anticipated issues and prepare steps before the situation even arose. The proactive principal is supposed to anticipate problems in the educational setting. Simply said, it is how companies plan for potential future challenges. Furthermore, Fidan and Balci (2016) claimed that principal proactivity is one of the primary predictors of school effectiveness in complicated and anarchic situations. Individuals' proactive behaviors in dealing with opportunities and difficulties in the organization's internal and external contexts have therefore become a major determinant of organizational effectiveness (Crant, 2000; Russell & Russell, 1992; Frese & Fay, 2001).

**Learned to Be Innovative and Adaptive.** Another significant lesson gained by school leaders was to develop new ways to experiment with fresh ideas in their different roles. They also learned to adapt to new situations and can modify specific conditions to make them more usable. Being adaptable is essential for a school leader to manage the innovative and changing situations that arise in this ever-changing environment. According to Huwaidi (2004), creative and adaptable education management has become necessary in order to keep up with the process of evolution in the educational sphere.

## IMPLICATIONS OF THE STUDY

Based on the findings, the following implications are offered.

Although everyone can see school leaders enjoy good experiences as a leader of 21<sup>st</sup> century, they should be valued by the department of education by giving appreciation gestures in which they will feel their

value in the education of the country. The provision of incentives and resources of materials necessary for them to perform their duties properly are just some of the steps in motivating good performance from the school leaders.

There must be a support system for school leaders especially in ensuring students' learning. The training schedules should also be planned thoroughly because it is no longer effective if done at the same time, it will just make them confused as to what they should do first. The department's time and resources will only be wasted if the proper scheduling of trainings and seminars is not taken into account.

Even though school leaders already know from the very beginning that problems arising from conflicts with staff are inevitable in their field of work, they must not be left to deal with it alone. This study suggests that school heads must continuously undergo trainings and refresher courses in effectively handling conflicts and diversity in the school, especially with his staff.

The realizations of the school leaders are proof of their strong commitment and dedication to their profession. Therefore, it is appropriate to honor their sacrifices and give emphasis to their contribution to the overall good of the school. Conducting a forum at the end of every academic year will allow systematic processing of the learnings gained by each school head. Their views based from their experiences will serve as input to each other for them to better perform their duties and responsibilities.

Since This study only focused on the lived experiences of public-school leaders of Pantukan South District, results of this study were not meant to be generalized but rather to bridge future researches. It is interesting to conduct future research that investigates the same phenomenon among private elementary schools to see if there is any differences and similarities in their experiences.

## CONCLUSION

This study focuses on the experiences, problems, coping techniques, and lessons learned of school leaders as 21<sup>st</sup>-century leaders. It is common known that school leaders face numerous challenges and tasks as a result of the digital transformation brought about by the twenty-first century. It is already a tremendous load for school directors to source the essential cash in order to patch the budget's inadequacy and dealing with their own emotions only to secure and preserve harmonious relationships among their personnel; changes in educational system produced by evolution in the twenty-first century added, anyone can really tell how hard the challenges they faced just to ensure the wellbeing of the students, school staff, stakeholders, and the school as a whole. They will undoubtedly appreciate having a buddy, a support system in the accomplishment of these chores. Because their job appears to be limitless, technical support should always be available. If there are enough resources and supplies, the department can ensure that school leaders



are more motivated to complete their obligations.

It is obvious that school administrators in the Department of Education work more than eight hours a day, if required, just to complete their tasks. They are even willing to spend money out of their own pockets to complete school tasks. They deserve all the help they can receive from DepEd, and more. The hard effort and strong devotion of the school leaders were highlighted in this study by how many changes the world may go through and how many changes our educational system would go through.

## REFERENCES

1. Adarlo, G., & Jackson, L. (2017). *For Whom Is K-12 Education: A Critical Look into Twenty-First Century Education Policy and Curriculum in the Philippines*. In: Choo.S., Sawch, D., Villanueva, A., Vinz, R. (eds) *Educating for the 21<sup>st</sup> Century*. Springer, Singapore. [https://doi.org/10.1007/978-981-10-1673-8\\_11](https://doi.org/10.1007/978-981-10-1673-8_11)
2. Allen, C. (2016). *Exponential leadership: A new framework for 21st century leadership success (Order No. 10131850)*. Available from ProQuest Central. (1810421934). <https://www.proquest.com/dissertations-theses/exponential-leadership-new-framework-21st-century/docview/1810421934/se-2?accountid=31259>
3. Altunay, E. (2017). *Okul yoneticilerinin gorusleri dogrutusunda egitim finansmani politikari: sorunlar, nedenler ve cozumler*. *Bartin Universitesi Egitim Fakultesi Dergisi*, 680-689. <https://doi.org/10.14686/buefad.304498>
4. Braun, V., & Clarke, V. (2014). *Using thematic analysis in psychology*. *Qualitative Research in Psychology*, 3(2), 77-101.
5. Brezicja, K., Bergmark, U., & Mitra, D. L. (2015). *One size does not fit all: Differentiating Leadership to support teachers in school reform*. *Educational Administration Quarterly*, 51(1), 96-132.
6. Cabilix, M. & Sequete, F. & Capilitan, D. (2015). *A review on the issues in the Implementation of K-12 Science Curriculum: A Baseline Study*. 10.13140/RG.2.2.10755.30249. Retrieved November 16, 2022 from <https://www.researchgate.net/publication/308019509>
7. Cheung, A.C., & Man Wong, P. (2012). *Factors affecting the implementation of curriculum reform in Hong Kong: Key findings from a large-scale survey study*. *International Journal of Educational Management*, 26(1), 39-54.
8. Day, C., Harris, A., Hadfield, M., Tolley, H., & Beresford, J. (2000). *Leading Schools in times of change*. Buckingham: Open University Press.
9. Drescher, G. (2017). *Delegation outcomes: Perceptions of Leaders and followers satisfaction*. *Journal of Managerial Psychology*, 32(1), 2-15.
10. Drucker, P. (2006). *Peter F. Drucker on executive leadership and effectiveness*. *The Leader of the Future* 2, 1.
11. Helitzer, D., Graeber, D., Lanoue, M., & Newbill, S. (2015). *Don't step on the tiger's tail: A mixed method study of the relationship between adult impact of childhood adversity and use of coping strategies*. *Community Mental Health Journal*, 51(7), 768-774. [doi:http://dx.doi.org/10.1007/s10597-014-9815-7](http://dx.doi.org/10.1007/s10597-014-9815-7)
12. Ibrahim, A. M. M., & Al-Mashhadany, A. (2012). *Roles of the Educational Leaders in Inducing Change in Public Schools: Al Ain as a Case Study*. *International Journal of Arts & Sciences*, 5(5), 455-476. Retrieved from <https://search.proquest.com/docview/1355855354?accountid=37714>
13. Lingard, B (2018). *The Australian Curriculum: a critical interrogation of why, what and where to?* *Curriculum Perspectives*, 38(1), 55-65.
14. Lupinacci, J. J. (2017). *Addressing 21st Century challenges in education: An ecocritical conceptual framework toward an ecotistical leadership in education*. *Impacting Education: Journal on Transforming Professional Practice*, 2(1).
15. Neubauer, B. E., Witkop, C. T., & Varpio, L. (2019). *How phenomenology can help us learn from the experiences of others*. *Perspectives on medical education*, 8(2), 90-97..
16. Ng, S. W., & Pun, S. H. (2013). *How school principals position themselves in times of education reform in China*. *Procedia-Social and Behavioral Sciences*, 89, 54-58.
17. Philips, L. (2018). *You want me to do what? How Iowa's secondary school principals are adjusting to their new roles in light of the Teacher Leadership Initiative*. Iowa State University, ProQuest Dissertations Publishing. 2018. 10792501. Retrieved January 12, 2023 from <https://goo.gl/ocG6Xc>.
18. Prandini, M., Vervoort Isler, P., & Barthelmess, P. (2012). *Responsible management education for 21st century leadership*. *Central European Business Review*, 1(2), 16-22. *Preparing for the future: challenges and opportunities for management and leadership skills*. *British dental journal*, 214(1), E2-E2
19. Richardson, J. W., Watts, D. S., Hollis, E., & McLeod, S. (2016). *Are Changing School needs Reflected in Principal job ads?* *NASSP Bulletin*, 100(1), 71-92.
20. Somech, A. & Drach-Zahavy, A. (2012) *Coping with work-family conflict: The Reciprocal and additive contributions of personal coping and organizational family-friendly support*, *Work & Stress*, 26:1, 68-90, DOI: 10.1080/12678373.2012.660361
21. Taboh, J., (2015). *Lack of materials hinders student success*. Retrieved January 13, 2023 from <https://www.theodysseyonline.com/lack-of-material>
22. Tyler, D. E. (2016). *Communication behaviors of principals at high performing Title I elementary schools in Virginia* School leaders, communication, and transformative efforts. *Creighton Journal of Interdisciplinary Leadership*, 2(20), 2-16. <https://doi.org/10.17062/cjil.v2i2.51>
23. West, D. L., Peck, C. M., Reitzug, U.C., & Crane, E.a. (2014). *Accountability, autonomy and stress: Principal responses to superintendent change in a large US urban school district*. *School LeDERSHIP & management*, 34(4), 372-391. doi:10.1080/13632434.2014.928683
24. Xiao, Y., Cooke, F.L., (2012). *Work-life balance in China? Social policy, employer strategy and individual coping mechanisms*. *Asia Pacific Journal of Human Resources* Volume 50, Issue 1. Retrieved February 17, 2023 from <https://onlinelibrary.wiley.com/doi/10.1111.j.1744-7941.2011.00005.x>





# IMPLEMENTATION OF TRINKET MODEL –WHICH ASSIST WOMEN OR GIRL AGAINST VIOLENCE IN THE SOCIETY FURTHER HELPS CONCERNED ONE TO CARRY OUT PROPER ACTION AND COUNTER TO THE ISSUE

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## ABSTRACT

*Now in recent times the crime against women and girl are being rapidly increasing. The women or girl child has to undergo deep trouble on various situations viz. it may be physical, verbal or using social networking. The women or girl do not have a proper way to express their emotions or to react to the problem.*

*This manuscript specifically addresses the issues related to women and girl harassment in the society by implementing trinket model which is equipped with digital devices and for a women or girl it acts like a shell and protects women or a girl from harassment.*

**KEYWORDS:** Save our Souls(SoS), Global Positioning System (GPS), Database(DB), Area Zone Notification(AZN), Area Zone Module(AZM), Short Message Services(SMS).

## 1. INTRODUCTION

Now in recent times the crime against women is being rapidly increasing. However, harassment does not have to be done face-to-face and can even affect those who work remotely. It can be verbal, written, bodily provocation (sexual or aggressive) or even done through looks or gestures and other hostile or unwanted acts. The following are the statistics about the crime against women:

- Globally, an estimated 736 million women—almost one in three—have been subjected to physical and/or sexual intimate partner violence, non-partner sexual violence, or both at least once in their life (30 per cent of women aged 15 and older). This figure does not include sexual harassment. The rates of depression, anxiety disorders, unplanned pregnancies, sexually transmitted infections and HIV are higher in women who have experienced violence compared to women who have not, as well as many other health problems that can last even after the violence has ended. [1]
- Most violence against women is perpetrated by current or former husbands or intimate partners. More than 640 million women aged 15 and older have been subjected to intimate partner violence (26 per cent of women aged 15 and older). [1]
- Of those who have been in a relationship, almost one in four adolescent girls aged 15–19 (24 per cent) have experienced physical and/or sexual violence from an intimate partner or husband. Sixteen per cent of young women aged 15 to 24 experienced this violence in the past 12 months. [1]
- In 2018, an estimated one in seven women had experienced physical and/or sexual violence from an intimate partner or husband in the past 12 months (13 per cent of women aged 15–49). [1]
- Globally, violence against women disproportionately affects low- and lower-middle-income countries and regions. Thirty-seven per cent of women aged 15 to 49 living in countries classified by the Sustainable Development Goals as “least developed” have been subject to physical and/or sexual intimate partner violence in their life. Twenty-two per cent of women living in “least developed countries” have been subjected to intimate partner violence in the past 12 months—substantially higher than the world average of 13 per cent. [1]
- Globally 81,000 women and girls were killed in 2020, around 47,000 of them (58 per cent) died at the hands of an intimate partner or a family member, which equals to a woman or girl being killed every 11 minutes in their home. In 58 per cent of all killings perpetrated by intimate partners or other family members, the victim was a woman or girl. [1]

By this much of stats and data we are sure that the crime rate against women is quite high, to track down the crime rate this paper will be helpful to the society.





## 2. RELATED WORK

### APPS IN ANDROID MOBILES:

There are several personal safety apps for women available on Android as well as in IOS. Here below are some examples:

- Noon light: A unique app that lets you deal with potential threats as well as actual threats. [2]
- SHEROES: An app exclusively for women. [2]
  - (1) SOS Alert [2]
  - (2) Microsoft Family Safety [2]
  - (3) Personal Safety [2]
  - (4) Guardians [2]
  - (5) Women Safety [2]
  - (6) Sekura [2]

As of now many apps have been made in android as well as in IOS which are now been put to use; but this ornamental alarm is to pass information quickly, by having SOS button outside (in ornaments: necklace, bracelet, watches, keychains) it will also be easy to use and it will also be unrecognizable by others as well as will be covered with some wallet so it will not be pressed without the knowledge of the women.

### • VOICE RECOGNISABLE AI:

There are also several AI's which will recognize the voice of the victim and will send the corresponding message to family and the friends and which may also send messages or calls when it is not required to do so this may also result in filing false complaints in police stations. So, this AI will sort out these problems to by only when the SOS button is pressed cautiously and also has a closed inside wallet so it will not be pressed in absence of the person's mind so no misperception will be there while transmitting the messages. [3]

### ■ ADVANCED ARTIFICIAL INTELLIGENCE SECURITY SYSTEMS:

The system is being used in the basis of AI detecting the emotions of the person (example; Anger, Fear) after detecting the emotions of the person the AI will send a message to the relatives of the person and this may also be sent when she may be angry or afraid of some other thing. So by sticking to this idea the messages can be sent without the acknowledgement of the person and this may lead to a troublesome Situation. So by using this trinket model we can avoid ambiguity of the system. [4]

## 3. METHODOLOGY AND EQUIPMENTS

Creating an ornamental alarm system with an SOS button to send emails to the victim's relations when a woman is being harassed is a new idea which consists of both hardware and software. The following are the material required to build up the trinket model:

(i) **Ornamental SOS Button:** Design an ornamental SOS button that the woman can carry as a wearable accessory, like a pendant, bracelet, or keychain. The button will be kept inside a wallet which will be attached to the trinket device. It will also be accessible and discreet to use during emergencies.

### (ii) Microcontroller or Single Board System:

Include a microcontroller or a single board System (e.g.; Arduino). This microcontroller will process the input from the SOS button and manage the communication with the WhatsApp, email and the SMS.

(iii) **SOS Button Trigger:** During emergency situations by pressing SOS button one can activate microcontroller to execute the programmed instructions.

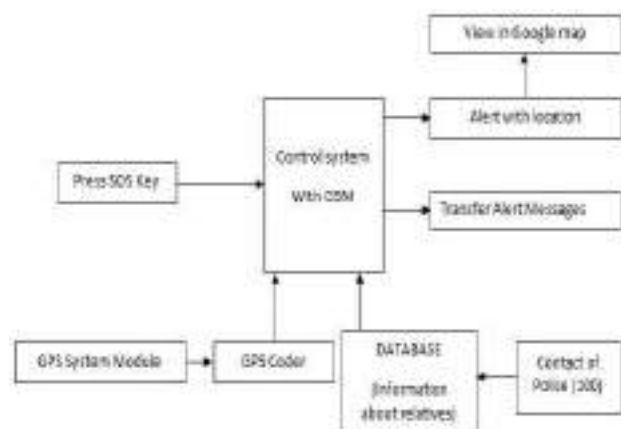
(iv) **Internet Connectivity:** The connection can be established by using the cellular data and mobile network to enable the communication.

(v) **API's:** Different built in API's can be used to transmit the messages. The mode of transmission may be in the form of email, WhatsApp or SMS.

(vi) **Power Source:** CMOS battery can be used as a power supply for the system

## 4. TRINKET MODEL OVERVIEW

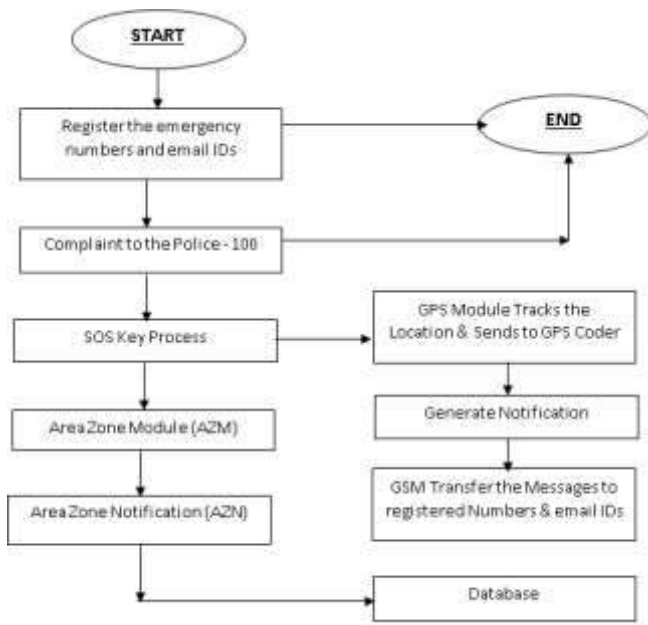
The following diagram depicts the overview of functioning of Trinket Model



**Fig 1: OVERVIEW OF TRINKET MODEL**

## 5. SYSTEM FLOW

The following diagram Describes internal functioning of the microcontroller.



**Fig 2: Detailed System Flow**

## 6. CONCLUSION

The implementation of Trinket model in the ornaments will surely help the women or girl who is gravely in need. Further the system helps to police force, relatives and friends to take relentless inspiration and the guidance provided during this research.

My sincere thanks to **Mr. Praveen Kumar Murigeppa Jigajinni**, Master In-charge, a guide, Mentor and great motivator, who critically reviewed my paper and helped in solving each and every problem, occurred during implementation of this research paper.

proper action and react to the issue promptly. Meanwhile the offender will not be aware that he/she is in trace.

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## 8. REFERENCES

1. <https://www.unwomen.org/en/what-we-do/ending-violence-against-women/facts-and-figures>
2. <https://www.hongkiat.com/blog/android-personal-safety-women-apps/>
3. <https://en.unesco.org/EQUALS/voice-assistants>
4. <https://mitsloan.mit.edu/ideas-made-to-matter/emotion-ai-explained>



# AN EVALUATION OF LEADERSHIP IN THE PERFORMANCE OF GOVERNMENT-OWNED HOSPITALS IN SIERRA LEONE. A CASE STUDY OF MAKENI GOVERNMENT HOSPITAL

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## ABSTRACT

*Leadership plays a crucial role in healthcare facilities to ensure proper health service delivery. This research was undertaken to assess leadership in the performance of government-owned hospitals in Sierra Leone, with a focus on Makeni Government Hospital.*

*A stratified and purposeful sampling strategy was employed in the investigation. For this study, we selected employees from Makeni Government Hospital to participate as respondents. A sample of 100 respondents were carefully chosen from the hospital. The study collected data from both primary and secondary sources. Interviews and a structured questionnaire were used to gather the primary data. We conducted both quantitative and qualitative data analysis. We used descriptive statistics, regression, and Pearson correlation to analyze the quantitative data and presented the findings in tables, pie charts, and bar charts.*

*This study found that the hospital leadership possesses the necessary skills and competencies, with a predominant transformational leadership style that effectively contributes to proper health service delivery. The results also reveal a weak positive correlation between leadership styles, health service delivery, health workers' commitment to work, and hospital performance. These findings suggest that an effective and efficient leadership style can improve hospital performance.*

**KEYWORDS:** leadership, government-owned hospitals, leaders, performance, leadership styles.

## 1.0 INTRODUCTION

Effective leadership in government-owned hospitals is crucial for maintaining order and ensuring precise adherence to procedures and processes. Hospital administrators, nurses, and doctors play significant roles in the healthcare industry. Therefore, the hospital must prioritize the leadership styles adopted within its walls. The healthcare system is a vital component of any nation's development, as it involves maintaining and improving the health of its people. (Dinata, Bachri, and Rahmawati, 2019).

Effective leadership is crucial in all aspects of the healthcare system. It involves guiding individuals within healthcare facilities, ensuring the prevention of premature death and ill health, and promoting good health. To achieve desired results in the healthcare system, leaders must possess indispensable qualities such as effective communication, problem-solving skills, and a result-oriented approach. Leadership styles are a blend of responsibilities and actions that motivate people toward achieving target goals. Utilizing different leadership styles is a key leadership skill (Al-Hashimi, and Al-

Hashimi, 2020). However, many people misinterpret the necessary skills for effective leadership, particularly in managing a department or an entire hospital setting.

However, hospitals, in general, are innovative and continually progressing concerning medical technology and scientific medicines worldwide (Fahlevi, 2020). Given the aforementioned statement, hospitals must adopt modern machines and medicines swiftly to mitigate adverse patient effects (Alloubani, Almatari, and Almuthtar, 2014). Hospitals are there to make sure they treat patients in the appropriate approach for the patient's satisfaction. Therefore, the hospital management and staff need to be competent enough to get a substantive performance culture. The conditions of some government hospitals in Sierra Leone are still not satisfactory. It is an indication that these hospitals are still not operating appropriately. Health services of both government and private hospitals have not been friendly to less privileged patients. Moreover, in any organization, leadership has a great function to play to get the required result. The leader and the type of leadership styles. A



leader should be able to set a clear vision of the organization and share that vision with its team members.

Makeni Government hospital is conveniently located near several towns and villages. In that way, obtaining medical services and moving medical supplies and equipment are both simple processes. Government-owned hospitals in Sierra Leone are the country's main sources of healthcare, hence they bear the burden of providing care to the general public. Consequently, Public hospitals are required to provide patients with good quality service at the most affordable cost. Just like any other organization, these hospitals cannot function well without proper leadership to ensure proper health service delivery. Leaders in public hospitals exhibit numerous leadership styles (ALFadhah., and Elamir., 2019). Leaders in public hospitals must exhibit proper leadership competencies.

Moreover, the Ministry of Health and Sanitation (MoHS) has the responsibility of providing and supervising medical services in the public health sector. This is to enable the nation's population to achieve and maintain sound health at an affordable cost. At the time of the study, the country has a total of around 80 hospitals, both public and private, according to the Common Wealth Network-Sierra Leone (2020). Among the public sector, there are 21 district hospitals and three tertiary hospitals. Additionally, private and mission hospitals are also available (Johnson et al., 2021). Primary healthcare services are delivered countrywide through peripheral health units (PHUs), which are staffed by trained community health workers (CHWs) to support the operations of public hospitals. The Ministry of Health is responsible for setting policies, procedures, and processes to ensure efficient and effective leadership in public health facilities. The District Health Management Team (DHMT) oversees the implementation of these policies and is headed by the District Medical Officer (DMO). The DMO oversees the public health activities in the district. To ensure effective and efficient operation of healthcare facilities, the medical superintendents work with a matron and hospital secretary to manage the hospitals on a daily basis (Ministry of Health and Sanitation in 2016).

### Research Objectives

1. To evaluate the leadership at Makeni Government Hospital.
2. To identify the predominant leadership styles adopted at Makeni Government Hospital.
3. To decide the effectiveness of the leadership styles in achieving the objectives of Makeni Government Hospital.

## 2.0 LITERATURE REVIEW

### Leadership

A good number of studies have developed a concept of leadership that emphasizes the features of leaders (Mkheimer, 2018; Sfantou D, Laliotis A, Patelarou A, et al., 2017). It is a way of influencing the behaviors of individuals using different

approaches to attain desired goals. Kesting, Ulhøi, Song, et al. (2016) state that leadership involves inducing individual attitudes, behaviors, and interactions of group members to achieve desired goals. On this background, leaders are bent on influencing those they lead and inspiring them to do the requisite thing with shared vision and goals.

Mkheimer (2018) highlighted various definitions of leadership in his research and highlighted the lack of consensus regarding the definition, components, and characteristics of leadership. It is the practice of collective management in which members require the joint participation of subordinates to achieve organizational goals (Sfantou, Laliotis, Patelarou et al., 2017).

In an ever-changing and dynamic global economy, people are the most competitive asset within an organization. Leaders can have a valuable impact on their followers if they are efficient and well-managed. Leadership has to do with the commitment of all organization components to achieve the required goals; it is an interactive process of followers accepting an individual to meet set goals (Silva, 2016). Leadership is becoming more and more important in all areas and has a significant impact on the growth of organizations. Like many other concepts, the concept of leadership has yet to find a final consensus. There are many elements and functions related to the concept. To be called a leader, you must exhibit some of these factors and characteristics, as they are considered key influencers within the organization (Northhouse, 2016).

However, differences between leadership concepts and leadership positions not only represent significant disagreements among leading researchers but also lead to differing understandings of leadership outcomes. Anyone can assume leadership roles within the organization, contingent on the organizational requirements, time, and situation. In order to be a successful leader, there are various characteristics you should possess for an efficient result. As a leader, you need to be flexible to perform well in different situations (Khan, Khan, Qureshi et al., 2015). Organization changes; thus, a leader who is not dynamic may tend to have overwhelming challenges along the leadership process.

Leadership is a process that entails the leader to be visionary, committed, motivated, influential, and flexible to both the followers and the organizational environment, with a clear focus to achieve set goals with team members. Leaders must be able to inspire people, not just lead or control them. Leaders must be able to reach out and connect with people beyond the "formal level" (Malik and Azmat, 2019). For one to be called a leader, they must be accepted, if not by all, but by the majority of those they are leading. They act as key players in reaching the set goals of the group. Different opinions of leadership in the government health sector see leaders portray servant leadership, transformational, and situational leadership.

Leadership goes beyond being just the figurehead, it is about collaboration with team members to get the needed result. Leaders play a key role in the organization that is deemed necessary to be replicated by the followers. A good leader embraces and consistently demonstrates a wide range of





leadership qualities as the foundation of how they work to get the job done. They understand that it is a process of accomplishing a task or reaching a set goal and working with people to get there (Plecas, Squires, Garis, 2018). A good leader exhibits good leadership qualities throughout the leadership process. A good leader has discipline, vision, honesty, confidence, humor, passion, integrity, courage, confidence, inspires others, empathy, problem-solving skill, empowers others, is creative and innovative, has decision-making abilities, effectively communicate, and is a team builder (Hiregoudar and Vani, 2018).

### Behaviors and Skills of a Good Leader

Plecas, D., Squires, C., and Garis, L. (2018) highlighted the behavior and skills of a good leader. According to them, a leader should possess the following behaviors: care for followers, be a good listener and communicator, be results-focused, visionary, innovative, and courageous, and should be collaborative.

The skills they must exhibit are coaching, mentoring and evaluating, problem-solving and decision-making, strategic thinking, personal organization, resource, and financial management.

Leadership in the government health sector should adhere to these key competencies of leadership discussed above and as well embrace the leadership qualities in the healthcare sector, which are: visions that are inspiring for the seamless operation at all levels in the organization, clear objectives for everyone in the organization; facilitating high levels of health workers engagement and supportive people management; quality improvement; innovation that is within in the practice of workers; and effective working with team members (Mohamed, Elshamy, El adawy, et al., 2022; West, Lyubovnikova, Eckert and Denis, 2014). Collective leadership in the healthcare sector considerably positively impacts the organization's performance (Dickinson, Ham, Snelling, et al., 2013; West et al., 2014).

### Leadership Styles

Leadership styles are defined as a leader's pattern of behaviors they demonstrate within the organization to ensure they influence those they lead for the maximization of their desired goals. A leader uses a style or style to see how it will impact the organization positively.

The body of research on this concept is expanding, and studies have emphasized different leadership philosophies. However, it must be recognized that not every circumstance can be handled by a single leadership style. A leader can blend one or more leadership styles as necessary, depending on the occasion, the individual's needs, and the organization's needs, to persuade individuals to work toward the organization's objectives. The secret to a leader's success is thus choosing the appropriate style for the circumstance and timing. These styles are as follows:

**Autocratic leadership Style:** Lewin (1935) introduced this concept (Costa, Padua, Moreira, 2023). Typically, autocratic leaders' decision-making is based on their beliefs and judgments, and most times, they do not take the advice of their followers

(Cherry, 2019). Such leaders always want their followers to function to their expectations (Al Khajeh, 2018). These leaders are always bent on getting absolute group control in an authoritarian perspective at all times. This type of leadership could be essential when there is a crisis or an emergency, where the workforce is similar, and where the leader is knowledgeable, transparent, and understands the people they lead (Armstrong, 2012). Nonetheless, in some situations, it is applicable to be autocratic. It is important in a crisis that needs apt actions to be taken (Bhargavi and Yaseen, 2016).

In autocratic or which is sometimes called authoritarian or directing style of leadership, the leader has the majority of the power and leaves followers with little or no power to decide on their own. Individuals who lead this way seek absolute obedience from those under their leadership. They do not seek input from others, and the leader makes judgments as they want.

**Democratic leadership Style:** Smolović Jones, S., Smolović Jones, O., Winchester., et al. (2016) describe democratic leadership style based on the assumption that people are trustworthy, result-oriented, and responsible for their actions, thereby creating teamwork, high performance, and job satisfaction. In democratic leadership, members are always involved in decision-making (Cherry, 2019). On the contrary, it is suggested that depending on the contribution of employees or subordinates, subordinates could make bad decisions (Nwochoka and Iheriohanma, 2015). Often referred to as participatory leadership style, this leadership style can be divided into democratic, consensual, and consultative styles. This leadership style involves subordinates in decision-making. Before making a decision, a mentor leader solicits input from the group, while a consensus leader waits to consult the group before making choices. The consensus of the members is necessary for the decision to be considered final. Subordinates have the final decision-making power in a democratic system.

**Laissez-Faire Leadership style:** often, the laissez-faire leadership style increases anarchy in the organization because each person sees himself as his or her leader (Monzani, 2015). Laissez-faire leadership, often referred to as liberal leadership, gives complete decision-making authority to subordinates. Associates have complete freedom to make their own decisions, while leaders leave subordinates free to act independently and make critical judgments (Coyle Shapiro, 2013). Laissez-Faire management may be harmful if employees are not effectively managing their time or if they lack the motivation to do their jobs well. Some renowned researchers have suggested this to increase job satisfaction and improve employee performance.

Several well-known researchers have suggested that a laissez-faire style has led to improved job satisfaction and more desired and desired employee performance, but could very well be detrimental if employees do not manage their time effectively or perhaps in the case he is not motivated to do their job effectively (Martin, 2013). The basis of this type of leadership is the principle that employees know their job and it is best to leave them alone (Skogstad, A., Aasland, M. S., Nielsen, M. B, et al., 2015). However, Alan (2013) points out that if performance is



monitored by the leader and made recommendations to employees regularly, a laissez-faire management style can be effective. This approach minimizes the leader's involvement in decision-making, and people are free to choose. Team members enjoy complete autonomy by being allowed to choose and pursue their own goals. Under this leadership, employees often develop independence, and leaders rarely offer help unless specifically asked.

**Transformational leadership style:** transformational leaders can get trust from those they lead and serve as an embodiment of a good leader (Sadeghi and Pihie, 2012). Visionary, proactive, and creative are qualities that distinguish transformational leaders. Through interactions with others, this leadership style, which is founded on the individual's principles, is demonstrated (Steinwart and Ziegler, 2014). Followers are motivated to achieve long-term and short-term goals and self-interest-driven ambitions. Also, the transformational leader promotes staff members in a creative work environment (Moriano, Molero, Topa, and Mangin, 2014). This type of leadership model is of great importance in the healthcare system. It institutes team spirit and respect, gives confidence among healthcare workers, promotes commitment to work as a result of a shared vision, increases staff morale, and brings job satisfaction, productivity, and overall performance. An environment that is convenient to work in will give followers motivation to work effectively and makes the organization get the desired result. Charisma, inspirational drive, intellectual stimulation, and personal attention are the four qualities of transformative leadership (Onorato, 2013). While this leadership style has been hailed as having highly effective strategic elements, there have been suggestions that it should be combined with a transactional approach (Giltinane, 2013). Therefore, the ability to communicate complex problems and abstract concepts in a way that team members can understand is a requirement for leaders (Orazi, Turrini, and Valotti, 2013).

**The transactional leadership style:** according to Birasnav (2014), the transactional leadership style does not encourage creativity; rather, it ensures that employees understand their responsibilities while removing roadblocks to the desired goals. The leaders urge or encourage their subordinates toward predetermined goals by making clear the expectations for each role and task. The capacity of the leader to offer rewards like status and money is crucial to transactional leadership (McCleskey, 2014). According to Purwanto, Asbari, and Budi (2019), this leadership style involves a consistent exchange relationship between the leader and followers with rewards and punishment. While facing resistance, improving workplace performance is crucial and typically takes a collaborative effort rather than the power of a leader, which is characteristic of the transactional model (Malik et al., 2014). This leadership style greatly ensures the organization achieves its goals (Saravo, Netzel, and Kiesewetter, 2017). It has a positive correlation with the success of the organization. In simple terms, it is a system of rewards and punishments between leaders and those they lead.

### Leadership in Government-owned Healthcare Facilities

A leader inspires others to achieve goals (Northouse, 2016). The administration of government hospitals is similar to that of other organizations. The focus is on serving the people. If we can pinpoint exactly what it is, we may be able to replicate it in government-owned hospital administration. As a good leader, it means you should possess some specific leadership qualities and demonstrate the right leadership style (Doherty, Couper, Campbell, et al., 2013). Leaders in government owned-hospitals must ensure they master the theories and skills of leadership for an efficient and effective health service delivery. Healthcare leaders use different leadership styles to influence the behaviors of employees. They evaluate the style they think is appropriate for the organization based on their beliefs, values, and performance. They also bring in the experience they get from the organizational culture and norms that best suit their leadership style (Sfantou et al., 2017; Thusini and Mingay, 2019).

A transformational leader can transform an organization by instilling values necessary to replicate for the betterment of employees and the organization. In a research conducted in 2021 with 27 Sierra Leonean doctors to know how effective leadership is, transformational and relational theories were perceived by participants as a leadership model. However, the contingent theory was also emphasized (Johnson et al., 2021).

Studies have shown that leadership has a significant impact on the performance of healthcare organizations. Leaders in these hospitals must ensure that they develop guidelines that they should endeavor to follow to maximize the performance of their organizations (Mafora, 2020). The modern leadership approach by leaders will ensure they meet their targets, depending if they are provided with the necessary resources to lead; one of the greatest resources in any organization is the human resource (people), and the leaders must treat them fairly.

Leadership is one factor that predicts whether an employee will stay or resign from a company (Ali, 2014). All team members must communicate openly and collaborate to follow the organization's policies. Collective leadership is required to ensure patients and other service users receive quality healthcare. Formal and informal leaders act collectively to get the organization's desired result (Mohamed, A.E., Elshamy, A.E., El adawy F.H., 2022).

Leadership is embedded in different levels of the organizational structure of the hospital. Traditionally, most of the senior leadership roles in hospitals are occupied by medical doctors. In Sierra Leone, for example, the health sector is being managed by MoHS. The Ministry is led by a Minister and Deputy Minister(s). The Ministry is divided into two - the professional division and the administrative division. The key head of the professional division is the Chief Medical Officer (CMO) and is assisted by Directors and other staff alike. The administrative division is led by a Permanent Secretary (PS), assisted by Directors and other relevant staff. Across the 14 health districts in Sierra Leone, each district has a District Health Management Team (DHMT) led by District Medical Officer (DMO). DHMT,



as an extension of MoHS, manages the health sector's activities at the district level. Each district government hospital has a Medical Superintendent responsible for overseeing the hospital's activities (Ministry of Health and Sanitation Sierra Leone, 2016).

Leadership in government healthcare facilities are faced with numerous challenges, ranging from financial challenge, technological, political, poor infrastructure, inadequate trained and qualified human resource, and organizational culture, to name but a few. However, amidst all of these challenges, public healthcare facilities must operate efficiently and cost-effectively to meet the needs of most people and in tandem with government policies and procedures.

### Leadership and Performance Relationship

Undoubtedly, it is believed that an organization's leadership significantly affects workers' productivity, job satisfaction, and engagement at work. Leadership performance in government hospitals is the overall contributions or impacts leaders create towards the attainment of the hospital goals. It is to be noted that, leadership performance can be rated positively or negatively. Some researchers argue that adopting an effective leadership style can help leaders motivate their employees and increase their competitiveness (Bhargavi and Yaseen, 2016). Leadership styles are unique in their ways, with distinctive behaviors of every leader. However, the organization's performance will increase when a leader chooses an effective leadership style. Effective leadership is viewed as a potent tool for managing growth and long-term competitive advantage (Al Khajeh, 2018). The leadership style helps the organization achieve its current goals more effectively by aligning performance with valuable rewards and ensuring employees have the resources to get the job done.

Generating results in today's ever-changing and increasingly competitive world requires adopting leadership styles that have been studied in the past (Haque, Faizan, Zehra., et al., 2015). Now, leaders must simultaneously become agents of

change, sharpen their focus, maintain their inner focus, and enable individuals and organizations to thrive (Jyoti, and Bhau, 2015).

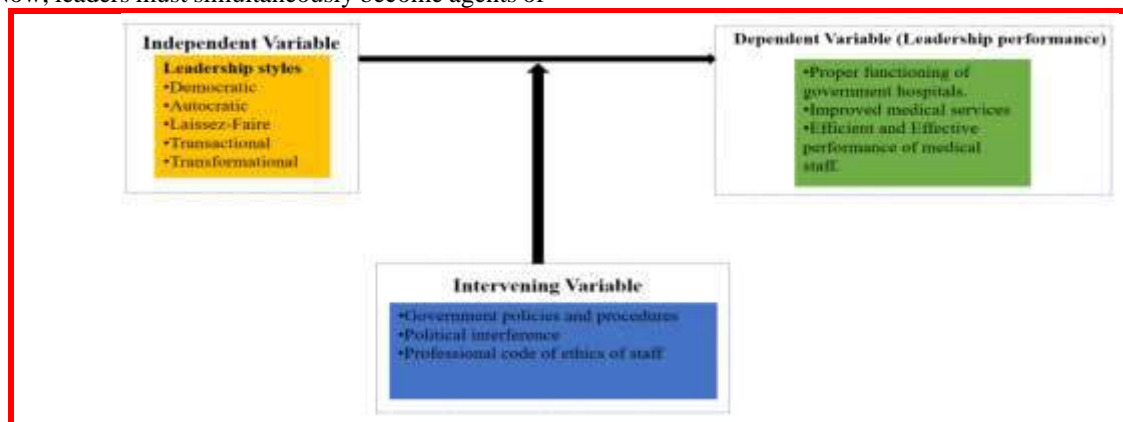
Leadership is associated with organizational performance consistently and powerfully. It refers to the activities carried out by those responsible for management in the aspect of the sound making of decisions, giving direction, and overseeing those they lead using official procedures. Leadership is, therefore, fundamental to the management process that deals with the steps of organizational performance evaluation and is critical in influencing and managing people and other resources. Elhajj (2013) found that the question of choice of government leaders, their preparation, and development has been a challenge most countries undergo, and still these challenges are yet to be resolved. Leadership tends to affect individual performance and organizational performance significantly. Any organization that uses the right leadership styles in the needed circumstance, along with other elements of its operations, has a much better chance of achieving its requisite result.

The type of leadership style used in the organization can greatly impact the organizational culture. It can affect organizational performance (Haque, Faizan, Zehra., et al., 2015; Klein, Cooke, and Wallis, 2013).

Notably, leadership is the lifeblood of any organization, and its significance cannot be underestimated. Leadership criteria are also necessary and the main factor in differentiating between productive and underperforming organizations. (Arif, 2018; Habes, Mohamed, Salloum, Alghizzawi, et al. 2019).

### Conceptual Framework

The conceptual framework in Figure 1 below describes the development of the topic under study. It was designed to display the study's variables and how they interact with one another. There are independent, dependent, and intervening variables in the conceptual framework.



**Figure 1: Conceptual Framework**

The conceptual diagram above represents the different leadership styles and their impacts on achieving the set goals of the organization. The selection and implementation of a well-organized leadership style (either democratic, autocratic, laissez-

faire, transactional, or transformational) in an organization have a direct link to the performance of that organization. All things being equal (i.e., no political interference, favorable government policies and procedures, and a well-practiced professional code



of ethics), when a leader selects the right leadership styles and implements them well, government-owned hospitals will function well, and their overall performance and medical service will relatively improve.

### Research Key Assumptions

The study has the following key assumptions:

A 1: There is a significant correlation between adopted leadership styles and health service delivery at Makeni Government Hospital.

A 2: There is a significant relationship concerning leadership styles and health workers' commitment to work at Makeni Government Hospital.

A 3: Efficient and effective leadership can boost the organization's overall performance.

## 3.0 METHODOLOGY

### Research Design

Research design is the overall plan to combine the many study components logically and cohesively, assuring you will successfully solve the research problem. It serves as a guide for data collection, measurement, and analysis (Thakur, 2021). The researcher employed both qualitative and quantitative methods to collect data. The study design was a "case study"- to make careful and thorough analyses of the entity, which serves as the base for the study. The design is significant because it examines a single entity in-depth.

### Data Collection

Data collection is the process of acquiring and analyzing information on relevant variables in a predetermined, methodical way so that one can respond to specified research questions, test hypotheses, and assess results (Kabir, 2016). A total of 100 questionnaires were prepared and administered for the study. For the essence of this study, the researcher used primary and secondary data sources.

The interview questions were semi-structured, in-depth interviews purposely designed to get in-depth information from respondents relevant to the topic. The whole interview process was flexible to get to the depth of the topic. The average duration of the interview was between 5 to 10 minutes, and the time and environment of the interview were based on the interviewee's discretion. The duration of the whole research was from January 2023 to May 2023.

The sample size is selecting how many replicates to include in a statistical sample (Kaur, 2017). A sample size of 100

respondents (Approximately 30% of the target population) was purposefully drawn for the quantitative study to get in-depth responses from most respondents. A total of 8 respondents from the different units of the hospital (doctors, nurses, administrators, and supports staff) were interviewed for the qualitative data based on their experience in the hospital. The stratified sampling technique was used in conducting the research (that is, the researcher decided to get a representation of all the units in the hospital –nurses, doctors, administrators, and supports staff). Also, the researcher used the purposive sampling technique to obtain precise or in-depth data on the topic purposively.

### Data Analysis

An empirical analysis of the data was conducted in this study. The first stage of the analysis involves presenting data in the form of charts and tables. The essence of such is to answer the research questions (objectives) and inform the outcome of the regression results. The regression analysis using SPSS version 20 was employed to establish facts between two or more variables, especially for the third assumption made in this study.

In this study, to establish the effect of effectiveness and efficiency of leadership style on the overall performance of the Makeni Government Hospital the regression model is, therefore, specified thus;

$$\text{Performance} = \beta_0 + \beta_1 \text{Leadership Style} + \beta_2 \text{Control Variables} + \epsilon \quad (3.1)$$

Where,  $\beta$ -s. are the estimation parameters and  $\epsilon$  is the error term normally distributed with a mean one and a constant variance.

Controlled variables are Health service delivery at Makeni Government Hospital, Health Workers' Commitment, age, gender, service duration, and education level.

## 4.0 RESULTS AND DISCUSSION

### Demographic Analysis

It presents the demographic characteristics of the respondents (it covers variables like the sex of respondents, their age, the highest level of education attained, and years of staff experience). Four (4) basic respondents' information was collected through questionnaires administered (n=100).





Table 1: Demographic Analysis

Variables		Frequency	Percentage (%)
Gender	Female	62	62
	Male	38	38
	<b>Total</b>		<b>100</b>
Age	18-25 Years	21	21
	26-35 Years	40	40
	36-45 Years	20	20
	Above 46 Years	19	19
	<b>Total</b>	<b>100</b>	<b>100</b>
Level of Education	Secondary School Certificate	20	20
	Bachelor's Degree	11	11
	Postgraduate's Degree	4	4
	Tertiary Certificate/Diploma	65	65
	<b>Total</b>	<b>100</b>	<b>100</b>
Years of Experience	1-10Years	61	61
	11-20 Years	17	17
	21-30 Years	15	15
	Above 31Years	7	7
	<b>Total</b>	<b>100</b>	<b>100</b>

Source: Field Survey (2023)

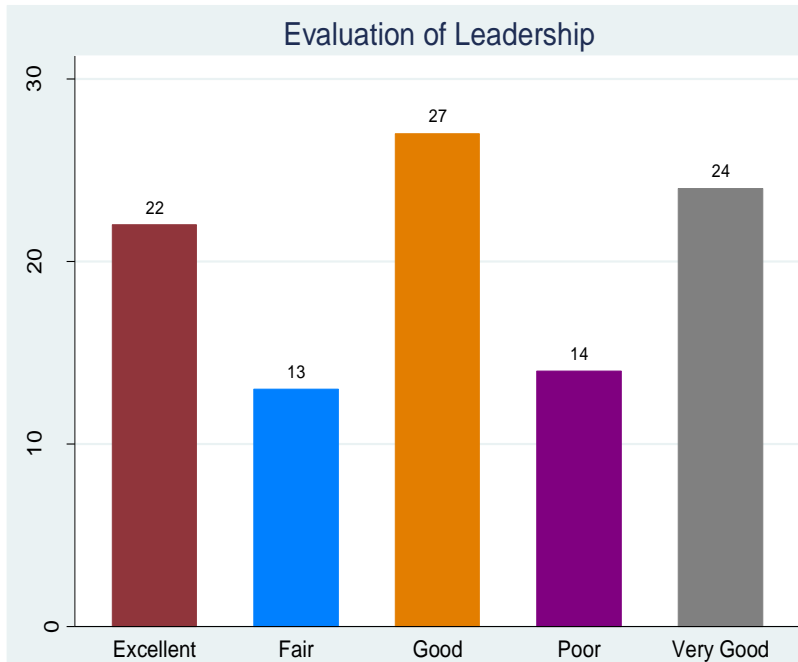
Table 1 above shows the gender characteristics of respondents at Makeni Government Hospital. Results showed that most respondents, 62 (62%), were female, and 38 (38%) were male. The result indicated more female staff than male staff at the hospital.

Moreover, the age of respondents was also included in the questionnaire administered. Among the respondents, 21(21%) were 18-25 years of age, 40(40%) were between 26-35 years, 20(20%) were between 36-45 years, and 19 (19%) were above 46 years of age. This age distribution indicated more young staff at Makeni Government Hospital than aged staff.

The third demographic characteristic is the educational level of respondents. The educational level of every respondent

was attained, and the results showed that 20 (20%) of respondents had secondary school certificates, 65 (65%) had tertiary certificates/diplomas, 11 (11%) had bachelor's degrees, and 4 (4%) had a postgraduate's degree.

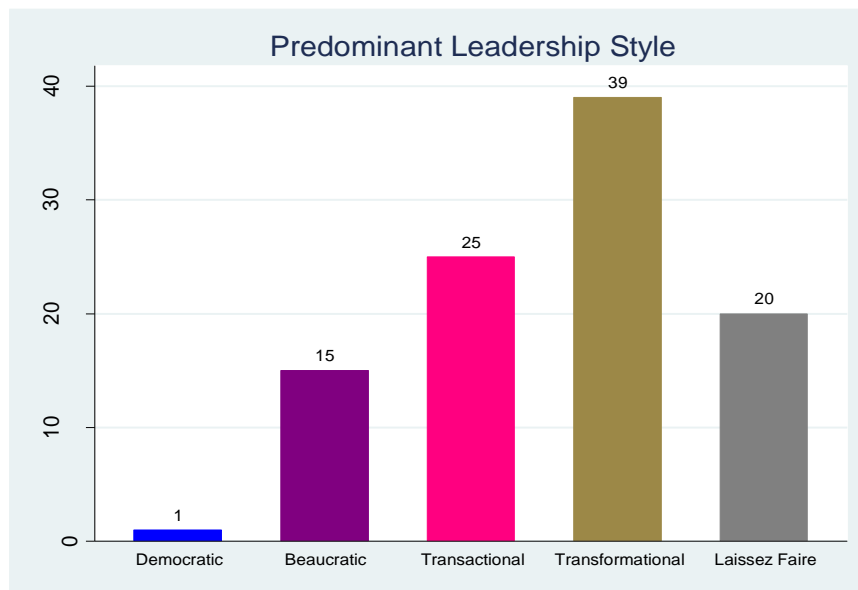
Years of experience are the final characteristic in the demographic information of respondents. All the respondents had some considerable years of experience, and the result of the analysis clearly showed that 61(61%) had 1-10 years of experience as a staff, 17(17%) had 11-20 years of substantial experience, 15(15%) had 21-30 years of experience as a staff, and 7(7%) had long-standing experience of over 31 years of experience.



**Figure 2: Evaluation of Leadership**

Respondents evaluated leadership based on their opinion. According to the result, 14 (14%) opined that the leadership is poor, 13 (13%) ascertained that the leadership is fair, 27 (27%) opined that the leadership was good, 24 (24%) opined that the

leadership was very good, and 22 (22%) opined that the leadership was excellent. Based on this result, it is evident that the leadership was performing well.



**Figure 3: Predominant Leadership Styles Adopted at Makeni Government Hospital**

According to the result, 15 (15%) responded that a bureaucratic leadership style was adopted at the hospital, 1(1%) opined that a democratic leadership style was adopted at the hospital, 20 (20%) responded that laissez-faire leadership style was adopted at the hospital, 39 (39%) responded that transformational leadership

was the predominant leadership style adopted among others, 25 (25%) responded that transactional leadership was adopted at the hospital. Thus, the major leadership style adopted at the Makeni Government Hospital was transformational.

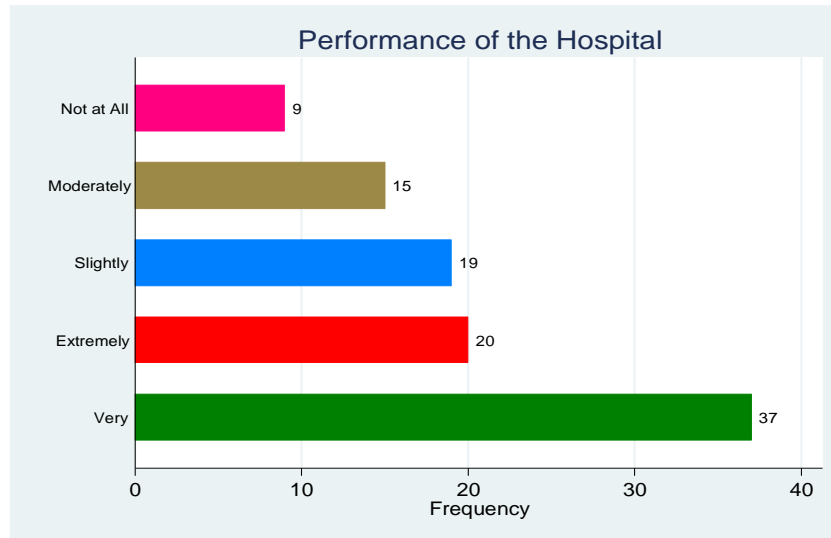


Figure 4: Effectiveness of the Leadership Styles

According to the result, 20(20%) rated the performance as extremely effective, 37 (37%) rated it very effective, 15 (15%) rated it moderately effective, 19(19%) rated it slightly effective, 9 (9%) rated it not at all effective. The result showed that the leadership style effectively achieved the objectives of Makeni Government Hospital.

**Justification of the Assumptions**

**Correlation Model**

Karl Pearson's correlation coefficient was used to determine the association, strength, and nature between these variables; Table 2 below provides a detailed analysis. As indicated in Table 3 below, the study computed the association between the variables using Karl Pearson's coefficient of correlation (r).

Table 2: Justification of Assumptions using Correlation Coefficient

Variables	Leadership styles	Health workers commitment	Health service delivery at Makeni Government Hospital	Performance
Leadership styles	1	0.257** (0.010)	0.416** (0.000)	0.372** (0.000)
Health workers commitment	0.257** (0.010)	1	0.209* (0.037)	0.166 (0.098)
Health service delivery at Makeni Government Hospital	0.416** (0.000)	0.209* (0.037)	1	0.201* (0.045)
Performance	0.372** (0.000)	0.166 (0.098)	0.201* (0.045)	1

Source: Field Survey (2023). Legends: p\*\*<0.01, p\*<0.05 P - Values in ( )

Table 2 above displays the correlation index, which provides insight into the relationship between the variables. The correlation coefficients for leadership styles and health service delivery, leadership styles and health workers' commitment, and leadership styles and leadership performance are 0.416, 0.257, and 0.372, respectively. These results indicate a weak positive association between all variables being examined.

The research shows a significant correlation between leadership styles and health service delivery, health workers' commitment, and leadership performance. The statistical analysis indicates that these correlations are significant at a 1% level, with P values less than 0.01. Specifically, the P values for health service delivery and leadership performance are 0.000, and the P value for health workers' commitment is 0.010.



### Regression Model

The ANOVA is employed to establish the causal relationship between the efficiency and effectiveness of leadership style and the overall performance of the Makeni Government Hospital. However, other variables were controlled

for in the model (Health service delivery at Makeni Government Hospital, Health Workers' Commitment, age, gender, duration of service, and educational level).

*Table 3: Justification of Assumption using regression*

Variables	Coefficient	Standard Error	t - Value	P - Value
Leadership Style	0.371	0.111	3.334	0.001
Health service delivery at Makeni Government Hospital	0.035	0.123	0.283	0.778
Health Workers Commitment	0.060	0.099	0.604	0.547
Age	0.119	0.100	1.186	0.239
Gender	-0.191	0.216	-0.886	0.378
Service Duration	-0.329	0.137	-2.402	0.018
Education Level	0.029	0.124	0.237	0.813
Constant	2.279	0.827	2.755	0.007
R – Squared	0.452			
F – Statistic	3.382			
F – Probability	0.003			

Source: Field Survey (2023).

Table 4 above shows that leadership style has a regression coefficient and probability value of 0.371 and 0.001, respectively. Also, one of the control variables, the duration of service of workers at the Makeni Government Hospital, has a coefficient of -0.329 and a probability value of 0.018. The R – Squared value is 0.452 and an F – Statistic of 3.382 and a probability value of 0.003 - This shows that 45.2% of the variation in the performance of Makeni Government Hospital is explained by leadership and other variables. While the F-statistic depicts that, overall, the model is well-fitted.

### Discussion

Quality health service delivery is an essential aspect of all healthcare facilities. Poor health service delivery adds to more disease burden in our communities and considerably affects the global economy (WHO, World Bank Group, OECD, 2018).

There are four objectives in this research, to evaluate the leadership at Makeni Government Hospital, to identify the predominant leadership styles at Makeni Government Hospital, to find out the factors influencing the adoption of the leadership styles at Makeni Government Hospital, to decide the effectiveness of such styles in achieving the objectives of Makeni Government Hospital. The assumptions were justified using Pearson's correlation and regression coefficient through ANOVA.

Respondents evaluated the leadership of the hospital to be satisfactory. The result indicated that the majority, 27 (27%), opined that the leadership was good. However, some challenges

are still encountered in the leadership process, including the organization's structure, human resources, nature of the work, competencies of leaders, regulations and programs, sociocultural problems, and economic problems (Mosadeghrad, Arab., 2017).

The leadership style(s) adopted by a leader influences the organization. In this research, the predominant leadership style adopted in Makeni Government Hospital was transformational. This accounts for most of the respondents, 39(39%). This finding aligned with other studies; Alfadhalah and Elamir (2019), Alqahtani, Nahar, Almosa, (2021). As mentioned earlier, these studies also found that the predominant leadership style was transformational. This leadership style helps improve the performance of an individual and the organization.

The adoption of leadership styles is contingent on different factors. Respondents were asked to ascertain the factors influencing the adoption of leadership styles. The majority 37 (37%), strongly agreed that political interference, the economic situation of the hospital, social characteristics of staff, technological advancement, and the hospital's culture are factors influencing the adoption of leadership styles at Makeni Government Hospital. This finding was in relation to Hoover (2020); Nsingwane (2016); Othman, Lawrence, and Mohamed (2012). Based on these findings, the researcher ascertained that these factors significantly influence an organization's adoption of leadership styles.

Effective leadership is an integral part of the drive of an organization to achieve its objectives. Here, the effectiveness of the leadership styles in achieving the hospital's objectives is





synonymous with the good performance of Makeni Government Hospital. According to the result of this variable, 37 (37%) rated it 'very,' which means the performance of the hospital with regards to proper health service delivery was very good. This finding was in line with other studies like Ali and Islam (2020); and Win (2016). These studies above found that leadership styles have a significant influence on the performance of the organization.

The following assumptions were made in this research: A1 - there is a significant correlation between adopted leadership styles and health service delivery at Makeni Government Hospital; A 2 - there is a significant relationship with regards to leadership styles and health workers' commitment to work at Makeni Government Hospital; A 3 - efficient and effective leadership style can boost the overall performance of the organization. Karl Pearson's correlation coefficient ( $r$ ) was used to determine these variables' association, strength, and nature.

The correlation coefficient for the relationship between adopted leadership style and health service delivery at Makeni Government Hospital is 0.416 and statistically significant at a 1% level (0.000). This means that there is a weak positive association between the variables. That is, a prudent leadership style adopted by the management goes in the same direction with an improvement in the delivery of health care services at the Makeni Government Hospital and vice versa. Thus, the assumption of a statistically significant relationship between the leadership style adopted and health service delivery at the Makeni government hospital holds.

The assumption of a positive relationship between leadership style and health workers' commitment to work at the Makeni Government Hospital also holds since it has a correlation coefficient and probability value of 0.257 and 0.010, respectively. This signifies that a good leadership style goes hand in hand with the commitment of the Makeni government hospital staff to work.

The third assumption in the study states that an effective and efficient leadership style can affect the overall performance of Makeni Government Hospital. A correlation coefficient is first employed to inform the regression analysis; the result of the correlation coefficient shows that both variables, that is, effective and efficient leadership style and overall performance of Makeni Government Hospital moves in the same direction with a low magnitude of 0.372. This is because it has a correlation coefficient of 0.372 and is statistically significant at a 1% level (0.000).

Moreover, the regression coefficient of the leadership style variable in the regression model was examined to determine if an effective and efficient leadership style can improve the overall performance of the Makeni Government Hospital. The leadership style variable has a regression coefficient of 0.371 and is statistically significant at a 1% level (0.001). Thus, the assumption of an effective and efficient leadership style can boost the overall performance of Makeni Government Hospital is satisfied. The result specifically implies that if a unit improves the effectiveness of leadership style, the overall performance of Makeni Government Hospital will improve by 0.371 units.

## Conclusion

The establishment of Makeni Government Hospital in Makeni City, Sierra Leone, has significantly helped in the health service delivery issues faced by patients seeking medical care hitherto in other parts of the country and elsewhere. Sierra Leone is a developing nation, and its healthcare system is constrained by numerous daunting challenges that are affecting the performance of its public healthcare facilities; these challenges range from technological and medicinal advancement, finance, healthcare policies, corruption, staff attitude to work, patients behaviors, infrastructure, to name but a few. It is to be noted that these challenges require a good leader to handle these ever-growing challenges. The health sector of any country has a considerable impact on its economy. Thus, it must be managed well by competent and industrious leaders who are ready to maximize productivity at all levels of the health sector.

Leadership as a process and its activities will clearly show the type of leadership style involved in the holistic leadership process. The leadership process in the healthcare setting is dynamic, and leadership theories influence it. Not a single leadership style is fit to lead a healthcare organization, as it involves different styles to achieve its goals efficiently and effectively. On this background, respondents in Makeni Government Hospital deemed it necessary to select different leadership styles at the hospital. However, most respondents opined that the transformational leadership style is the predominant leadership style adopted at the hospital. The hospital should bend on training leaders in the hospital to be more transformational, among other leadership styles. COVID-19 spurred more leaders in healthcare settings to be more transformational.

Leadership is a key component in hospital management which requires the most effective leadership model to boost the hospital's performance. From the study findings, the respondents confirmed that leadership in Makeni Government Hospital is effective. Effective leadership is key in substantial health service delivery. Effective leadership for hospital performance towards proper health service delivery is contingent on factors such as open communication in the organizational structure, leadership skills of the leader, patients' satisfaction, etc.

## Recommendations

From the research findings, leaders in the hospital should continue to improve their leadership skills and be dynamic to embrace contemporary global leadership processes and procedures. This will substantially contribute to the performance of the hospital.

Furthermore, it is recommended that the management at Makeni Government Hospital should continue adopting the transformational leadership style as it is efficient and most staff are carried along with it. Proper health delivery at the hospital also depends mainly on adopting this leadership style as it helps staff be innovative and prompt in saving lives. However, other leadership styles must also be adopted where the circumstances permit them to do so.



Moreover, different factors are responsible for adopting these leadership styles at the hospital. It is deemed necessary for leaders at Makeni Government Hospital to develop a positive attitude and swiftly be ready to embrace whatever impact for the smooth running of the hospital. Leaders in the Hospital have a critical duty to perform to foster the performance of proper health service delivery. The hospital's overall performance depends on how effective and efficient leaders at Makeni Government Hospital adopt these leadership styles. From the findings, respondents of the study ascertained that the adopted leadership styles are essential for the hospital's actual performance in attaining its objectives. On this background, every staff of the hospital should continue to abide by the policies and procedures being established at the hospital for an effective and efficient health service delivery.

Through the Ministry of Health and Sanitation, the government should ensure they provide the necessary advanced technological machines and medicines for the smooth running of government hospitals, as this will foster development in the health sector and ease some burden off the leadership of government-owned hospitals in Sierra Leone. When leaders in the health sector are provided with the right resources and policies, it will accelerate sustainable performance in government health service facilities.

### Limitations and Future Directions

It is to be noted that this research is not a representation of all the government-owned hospitals in Sierra Leone. Other research could produce the same, similar, or contradictory results to this already researched. There are other areas the researcher is interested in, but because of the unavailability of finance and limited time, the researcher had to limit the scope of the study. On this view, it is recommended that further research should expand the sample size of the study for a generalized finding of similar research. This would give a representative result of the research alike.

### REFERENCES

1. Al Khajeh, E.H. (2018). *Impact of Leadership Styles on Organizational Performance. Journal of Human Resources Management Research. Vol. 2018 (2018) ISSN:2166-0018, Article ID 687849, DOI:10.5171/2018.687849.*
2. Alan, M. (2013). *Leadership Styles. (On-line: http://www.ofd.ncsu.edu/wp-content /leadership). Retrieved March 10, 2023.*
3. ALFadhlah, T. and Elamir H (2019). *Exploring leadership styles in Government hospitals in Kuwait. Leadership in Health Services. Vol.32. No.3. Emerald Publishing Limited.*
4. Al-Hashimi, N. M., and Al-Hashimi, M. (2020). *A Systematic Review on Medical Leadership in Hospital Setting. New York, NY: Springer International Publishing. 661–669.*
5. Ali, K. (2014). *"The effects of leader-member exchange and employee wellbeing towards employee turnover intention", Doctoral dissertation, Deakin University http://dro.deakin.edu.au/eserv/DU:30067291/ali-effectsofleader-2014A.pdf [Google Scholar]*
6. Alie, K.S.; and Islam, M. (2020). *Dimensions of Leadership Style for Organizational Performance: A Conceptual Study. International Journal of Management, Accounting, and Economics, 7(1), 30-40.*
7. Alloubani, A.M.; Almatari, M.; Almkhtar, M.M. (2014). *Review: Effects of Leadership Styles on Quality of Services in Healthcare. European Scientific Journal. Vol.10. ISSN:1857-7881*
8. Arif, S. (2018). *"Transformational Leadership and Organizational Performance: The Mediating Role of Organizational Innovation." SEISENSE Journal of Management 1(3): 201–19.*
9. Armstrong, M. (2012). *Armstrong's Handbook of Management and Leadership: Developing Effective People Skills for Better Leadership and Management (3rd Ed.). London: Kogan Page.*
10. Bhargavi, S., & Yaseen, A. (2016). *Leadership Styles and Organizational Performance. Strategic Management Quarterly, 4, 87-117.*
11. Birasnav, M. (2014). *Knowledge Management and Organizational Performance in the Service Industry: The Role of Transformational Leadership beyond the Effects of Transactional Leadership. Journal of Business Research. 67(8):1622-1629. DOI:10.1016/j.jburs.2013.09.006*
12. Cherry, K. (2019). *Autocratic Leadership. Retrieved from https://www.verywellmind.com/what-is-autocratic-leadership-2795314*
13. *Commonwealth Network Sierra Leone (2020). Find Health and Medical expertise in Sierra Leone.https://www.common*
14. Costa J., Mariana, P., and Moreira A.C., (2023). *Leadership Styles and Innovation Management: What is the Role of Human Capital? Administrative Sciences 13:47. https://doi.org/10.3390/admsci13020047*
15. Coyle-Shapiro & J (2013). *The impact of a TQM intervention on teamwork: A longitudinal assessment. Team Performance Management: An International Journal*
16. Dickinson, H., Ham, C., Snelling, I., & Spurgeon, P. (2013). *Are we there yet? Models of medical leadership and their effectiveness: an exploratory study. Birmingham, England: NIHR Service Delivery and Organisation Programme.*
17. Dinata, M. F., Bachri, A. A., and Rahmawati, R. (2019). *Analysis of the effect of leadership style on job satisfaction with organizational commitment as an intervening variable study on general administration staff and finance of Islamic hospital banjarmasin. JWM (Journal Wawasan Management) 6, 152–167.*
18. Doherty, J. 2014. *Improving Public Hospitals through Effective Clinical Leadership: Lessons from South Africa. Retrieved from https://www.wits.ac.za/media/.../Clinical%20leadership%20report%20V4.pdf*
19. Doherty, J.; Couper, I.; Campbell, D.; Walker, J. (2013) *Transforming rural systems through clinical academic leadership: lessons from South Africa. Rural and Remote Health 2013;13: https://doi.org/10.22605/RRH2618*
20. Elhadj, S.A.(2013). *Importance of Leadership in Administration. Conference paper. Duquesne University. DOI: 10.13140/RG.2.1.2588.1120*
21. Fahlevi, M. (2020). *"Mobile applications for health management in Indonesia," in Proceedings of 2020*



- International Conference on Information Management and Technology, (ICIMTech) (Bandung: IEEE). doi: 10.1109/ICIMTech50083.2020.9211243*
22. Giltinane C. L. (2013). *Leadership styles and theories. Nursing standard (Royal College of Nursing (Great Britain): 1987), 27(41), 35–39.*  
<https://doi.org/10.7748/ns2013.06.27.41.35.e7565>
  23. Habes, Mohamed, Salloum, S. A.; Alghizzawi, M.; Mhamdi, C. (2019). *The Relation between Social Media and Students' Academic Performance in Jordan: YouTube Perspective. In International Conference on Advanced Intelligent Systems and Informatics, Springer, 382-92*
  24. Haque, A. U., Faizan, R., Zehra, N., Baloch, A., Nadda, V., & Riaz, F. (2015). *Leading Leadership Style to Motivate Cultural-Oriented Female Employees in IT Sector of Developing Country: IT Sectors' Responses from Pakistan. International Journal of Academic Research in Business and Social Sciences, 5, 280-302.*
  25. Hiregoudar, S.; Vani, G. (2018). *Qualities of Good Leadership for Effective Organization. International Journal of Research and Scientific Innovation (IJRSI). Volume V. ISSN 2321-2705*
  26. <https://allafrica.com/download/resource/main/main/idatcs/00010797:daf2fae771c79dec3c21da5d5cd7e366.pdf>
  27. <https://hermanlaw.com/practices/hospital/hospital-sex-abuse/>
  28. [https://www.fmprc.gov.cn/mfa\\_eng/zxxx\\_662805/202212/t0221231\\_10999475.html](https://www.fmprc.gov.cn/mfa_eng/zxxx_662805/202212/t0221231_10999475.html)
  29. Islam, M., (2020). *Data Analysis: Types, Process, Methods, Techniques and Tools. International Journal on Data Science and Technology. Vol. 6, No. 1, 2020, pp. 10-15. doi: 10.11648/j.ijdst.20200601.12*
  30. Johnson, O.; Sahr, F.; Begg, K.; Sevdalis, N; Kelly, A.H. (2021). *To bend without breaking: a qualitative study on leadership by doctors in Sierra Leone. Health Policy and Planning. Vol. 36, No. 10. DOI: https://doi.org/10.1093/heapol/czab076*
  31. Jyoti, J., & Bhau, S. (2015). *Impact of Transformational Leadership on Job Performance: Mediating Role of Leader-Member Exchange and Relational Identification. SAGE Open, 5, 1-13.*
  32. Kesting, P.; Ulhøi, J. P., Song, L. J., & Niu, H. (2016). *The impact of leadership styles on innovation- a review. Journal of Innovation Management. Doi10.24840/2183-0606 003.004 0004*
  33. Khan, M. S., Khan, I., Qureshi, Q. A., Ismail, H. M., Rauf, H., Latif, A. & Tahir, M. (2015). *The Styles of Leadership: A Critical Review. Public Policy and Administrative Research. 5(3), 87-92.*
  34. Klein, A. S., Cooke, R. A., & Wallis, J. (2013). *The Impact of Leadership Styles on Organizational Culture and Firm Effectiveness: An Empirical Study. Journal of Management & Organization, 19, 241-254.*  
<https://doi.org/10.1017/jmo.2013.34>
  35. Mafora, P.P. (2020). *Leadership at Public Hospitals. University of South Africa*
  36. Malik, M.A.; Azmat S. (2019). *Leader and Leadership: Historical Development of the Terms and Critical Review of Literature. Annals of the University of Craiova for Journalism, Communication and Management. Volume 5, 16-32. ISSN 2501-3513*
  37. Martin & S.L. (2013). *Directive versus empowering leadership: A field experiment comparing impacts on task proficiency and proactivity. Academy of Management Journal. Vol. 56 (5) pp. 1372-1395*
  38. McCleskey, J.A. (2014). *Situational, Transformational, and Transactional Leadership and Leadership Development. Journal of Business Studies Quarterly. Vol.5. ISSN2152-1034*
  39. Ministry of Health and Sanitation Government of Sierra Leone (2016). *Human Resources for Health Country Profile. Hrhprofile16.pdf*
  40. Mkheimer, I. (2018) *"The impact of leadership styles on business success: A case study on SMEs in Amman," Arabian Journal of Business and Management Review, Vol. 8, No. 2, pp 1-10*
  41. Mohamed, A.E.; Elshamy, A.E.; El adawy F.H.; Mahfouz, L.M.; Shata, M.; Mustafa, M.; Abdelmotaleb, A.A.; Elsayed, H.; Salim, A.H. (2022). *"Leadership & Governance How to Improve Hospitals Management?" Medicine Updates Faculty of Medicine.MUJ Journals. Doi:10.21608/muj.2022.113246.1084*
  42. Monzani & L. (2015). *The moderator role of followers' personality traits in the relations between leadership styles, two types of task performance and work result satisfaction. European Journal of Work and Organizational Psychology. Vol. 24(3) pp. 444-461*
  43. Moriano, J. A., Molero, F., Topa, G., & Lévy Mangin, J.-P. (2014). *The influence of transformational leadership and organizational identification on intrapreneurship. International Entrepreneurship and Management Journal, 10(1), 103–119. https://doi.org/10.1007/s11365-011-0196-x*
  44. Northouse, P. (2016). *Leadership Theory and Practice. Thousand Oaks, CA: Sage.*
  45. Nwokocha, I., & Iheriohanma, E. B. J. (2015). *Nexus between Leadership Styles, Employee Retention and Performance in Organizations. European Scientific Journal, 11, 186-209.*
  46. Onorato, M. (2013). *Transformational Leadership Style in the Educational Sector: An Empirical Study of Corporate Managers and Educational Leaders. Academy of Educational Leadership Journal, Volume 17.*
  47. Orazi, D.C.; Turrini, A.; Valotti, G. (2013). *Public Sector Leadership: New Perspective for Research and Practice. International Review of Administrative Sciences. DOI: 10.1177/0020852313489945.*
  48. Plecas, D.; Squires, C.; Garis, L. (2018). *The Essentials of Leadership in Government: Understanding the Basics: Second Edition. University of the Fraser Valley, School of Criminology and Criminal Justice/ Center for Public Safety & Criminal Justice Research.*
  49. Purwanto, A., Asbari, M., & Budi Santoso, P. (2019). *Influence of Transformational and Transactional Leadership Style toward Food Safety Management System ISO 22000: 2018 Performance of Food Industry in Pati Central Java. Journal of Business Innovation, 7, 180-185.*
  50. Sadeghi, A. and Pihie, Z.A.L. (2012) *Transformational Leadership and Its Predictive Effects on Leadership Effectiveness. International Journal of Business & Social Science, 3, 186-197.*
  51. Saravo, B., Netzel, J., & Kiesewetter, J. (2017). *The need for strong clinical leaders - Transformational and transactional leadership as a framework for resident leadership training. PloS one, 12(8), e0183019. https://doi.org/10.1371/journal.pone.0183019*



52. Sfantou D, Laliotis A, Patelarou A, Sifaki- Pistolla D, Matalliotakis M, Patelarou E. (2017). Importance of leadership style towards quality of care measures in healthcare settings: a systematic review. doi:10.3390/healthcare5040073
53. Silva. A. (2016). What is Leadership? *Journal of Business Studies Quarterly*, 8(1), 1-5.
54. Skogstad, A., Aasland, M. S., Nielsen, M. B., Hetland, J., Matthiesen, S. B., & Einarsen, S. (2014). The relative effects of constructive, laissez-faire, and tyrannical leadership on subordinate job satisfaction. *Zeitschrift für Psychologie*, 222(4), 221–232. <https://doi.org/10.1027/2151-2604/a000189>
55. Smolović Jones, S., Smolović Jones, O., Winchester, N., Grint, K. (2016) 'Putting the Discourse to Work: On Outlining a Praxis of Democratic Leadership Development,' *Management Learning* 47(4): 424–42.
56. Statistics Sierra Leone (2015). *Population and Housing Census. SUMMARY OF FINAL RESULTS: PLANNING A BETTER FUTURE.*
57. Steinwart, M.; Ziegler, J.A. (2014). Remembering Apple CEO Steve Jobs as a "Transformational Leader." *The Journal of Leadership Education*. 13(2):52-66. DOI: 10.12806/V13/12/RF3
58. Thakur, H.K. (2021). *Research Methodology in Social Sciences (A Short Manual)*. New Delhi: Corvette.
59. Thusini, S.; Mingay, J. (2019) Models of leadership and their implications for nursing practice. *Br J Nurse*. 2019; 28 (6):356–360. doi:10.12968/bjon.2019.28.6.356
60. West, M. A., Lyubovnikova, J., Eckert, R., & Denis, J.L. (2014) Collective leadership for cultures of high quality health care. *Journal of Organizational Effectiveness: People and Performance*, 1, 240 – 260
61. West, M.A., Eckert, R., Steward, K. and Pasmore, B. (2014) *Developing collective leadership for healthcare*. London: The King's Fund.
62. World Health Organization, Organization for Economic Co-operation and Development, and the World Bank (2018). *Delivering quality health services: a global imperative for Universal Health Coverage*, Geneva. License: CC BY-NC-SA 3.0 IGO.





# THE SEVERELY WASTED ELEMENTARY STUDENTS: A PHENOMENOLOGICAL STUDY

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## ABSTRACT

Children who do not consume enough of the essential nutrients in their diets are severely wasted. These people might not be able to do well in school. In Proculo Fuentes Sr. Elementary School, there are five students identified as severely wasted for the past three consecutive school years. A qualitative phenomenological study was conducted to explore the experiences, challenges, and the effects of malnutrition, and the recommendations that the five severely wasted elementary students. Using the In-depth Interview (IDI), the data were collected from students and it was revealed that malnutrition has affected the health of the participants which contributed to their low academic performance. They were already aware at a young age that their height and weight set apart from others. They still want to learn in school, despite everything. However, they found it challenging to study at school, particularly when it came to understanding lessons due to poor nutrition. They also recommended that their parents should cook nutritious food for their children and that the Joint School Feeding Program should be conducted. Therefore, the school, parents, and community need to work together to find a solution for the identified malnourished students.

**KEYWORDS:** Severely wasted elementary students, Malnutrition, In-depth interview (IDI), Qualitative-phenomenological, Proculo Fuentes Sr. Elementary School

## INTRODUCTION

Severely wasted children are those who do not get enough of the essential nutrients in their diets. They are those who may not be able to perform well in school (Nabarro et al. 2012). These are the kids who are malnourished. Ecker and Nene (2012) claim that malnutrition is a chronic condition that results from consuming too many or too few essential macro or micronutrients in comparison to a person's physiological and pathological needs. This condition is prevalent throughout the world's developing nations.

Studies from all over the world have demonstrated that young children who experience severe acute malnutrition have a poor cognitive function, poor academic achievement, and behavioral issues.

In Proculo Fuentes Sr. Elementary School, School Division of Davao De Oro where the researcher is currently teaching consistently implemented the school-based feeding program. The primary recipients of the program are the wasted and severely wasted pupils across elementary levels of basic education. Despite the continuous implementation of the School Feeding Program, the trend of severely wasted learners is increasing every school year. One of the root causes identified by the school is the lack of proper nutrition for these children.

Their parents could not also provide them with a proper diet due to the poverty situation. Most of these children have been observed that they have low performance academically.

Moreover, based on the school's data 18 pupils on average are wasted and 5 are severely wasted from the School Year 2017 - 2018 to School Year 2019 - 2020 on an average population of 245. I observed that these 5 severely wasted pupils are consistently on the list for consecutive three school years and do not perform well more specifically in their academics. Anent to it, I would like to validate my observation in terms of their experiences, challenges, effects of malnutrition and their recommendations to lessen the negative effects of malnutrition.

**Realities of Malnutrition.** A vital component of health and development is nutrition. Stronger immune systems, safer pregnancies and deliveries, a decreased risk of non-communicable illnesses (including diabetes and cardiovascular disease), and longer life spans are all associated with better nutrition. Kids that are healthy learn better. People who are well nourished are more productive and can open doors to progressively end the cycles of hunger and poverty (WHO, 2023). However, malnutrition, in every form, presents significant threats to human health. Today the world faces a double burden of malnutrition that includes both undernutrition



and overweight, especially in low- and middle-income countries. Malnutrition is one of the worst problems in the world. Let us explore the real score of this health issue to be Enlightened to cope and help mitigate its impact. According to the World Health Organization (2020), malnutrition occurs when the body lacks the vitamins, minerals, and other nutrients necessary to sustain healthy tissues and organ function. It affects persons who are either underfed or overfed. In the United States, dietary imbalances cause more malnutrition than nutritional deficiencies. Undernutrition occurs when not enough essential nutrients are consumed or when they are excreted more rapidly than they can be replaced. Globally in 2020, 149 million children under 5 were estimated to be stunted (too short for age), 45 million were estimated to be wasted (too thin for height), and 38.9 million were overweight or obese. Around 45% of deaths among children under 5 years of age are linked to undernutrition.

Based on the definitions provided by the World Health Organization (2010), as cited by Ghosh (2020) undernutrition can be one of two types: protein-energy malnutrition or micronutrient deficiency. Protein-energy malnutrition manifests early during the ages of 6 months–2 years, resulting from irregular or no breastfeeding, introduction to low-protein food, and different types of infections (FAO, 2004). It is measured by indicators such as wasting, stunting, being underweight, or obesity.

Children of all ages can suffer from malnutrition, but young children are the most susceptible. According to the World Health Organization, malnutrition poses the single greatest risk to public health worldwide. Malnutrition is thought to be the primary factor in the deaths of 3.1 million children worldwide each year and is the cause of long-term harm for millions more. Children who are malnourished are more susceptible to serious illnesses. Chronic malnutrition or stunting, which occurs when children are under weight for their age due to inadequate nutrition, care, or living condition, can have a devastating and long-lasting effect on a child's physical and mental development.

**Effects of Malnutrition on Children.** Every country in the world is affected by one or more forms of malnutrition. Combating malnutrition in all its forms is one of the greatest global health challenges. Women, infants, children, and adolescents are at particular risk of malnutrition. Optimizing nutrition early in life—including the 1000 days from conception to a child's second birthday—ensures the best possible start in life, with long-term benefits. Poverty amplifies the risk of and risks from, malnutrition. Poor people are more likely to be affected by different forms of malnutrition. Also, malnutrition increases healthcare costs, reduces productivity, and slows economic growth, which can perpetuate a cycle of poverty and ill health (WHO, 2021).

**Interventions for Malnourished Children.** UNICEF (2016) reported that across South Asia, government statistics indicate that less than five percent of severely wasted children are receiving appropriate care and treatment. This unacceptable situation stems from several reasons. First, there is a perception that the treatment of severe wasting is only relevant in an emergency or humanitarian contexts, while prevention is only applicable in stable or development settings. This is not true – every country in South Asia needs systems in place to both prevent and treat severe wasting in both crisis and stable settings. Second, families often do not realise that their severely wasted children need urgent medical assistance, and do not seek treatment until very late when the condition is more difficult to treat – if at all. Third, there is a belief among some medical professionals that children with severe wasting need to be treated in a hospital or health facility. In the past, hospital admission was the only option available. However, we now know that children can be safely treated in their homes and communities provided they have no medical complications.

## OBJECTIVES

This research aims to explore the experiences, challenges, effects, and the recommendations of the five severely wasted students at Proculo Fuentes Sr. Elementary School.

## METHOD

This study employed the qualitative phenomenological research design that was used in exploring the experience, challenges, effects and the recommendations of the five severely wasted students at Proculo Fuentes Sr. Elementary School. Qualitative research is a type of research that explores and provides deeper insights into real-world problems (Tenny et al., 2022). Phenomenology (Giorgi, 2012) is a qualitative research tool for describing how people respond to a particular phenomenon. Phenomenological research tries to put aside prejudices and preconceived notions about human perceptions, emotions, and reactions to a situation. It enables the researchers to look into the experiences, understandings, and emotions of others who have observed or lived through the phenomenon or circumstance of interest (McMillan & Schumacher 2010). The researcher used the in-depth interview (IDI) in gathering data from the five participants who were selected purposively. The sample size of the participants satisfied the requirement in the qualitative study using phenomenology (Creswell, 2007).

This study was conducted in Proculo Fuentes Sr. Elementary School. It is in Fuentes, Pantukan, Davao De Oro. Pantukan is a coastal municipality in the province of Davao de Oro. The municipality has a land area of 533.11 square kilometers or 205.83 square miles which constitutes 11.69% of Davao de Oro's total area. Its population as determined by the 2020 Census was 90,786. This municipality is politically subdivided into 13 barangays with a density of 170 inhabitants per square kilometer or 440 inhabitants per square mile. The municipality is primarily dependent on mining but agriculture thrives in



communities within its boundary. While small-scale mining operates in the town, a large mining operator has been granted a permit to explore gold in the area. Gold deposits in Barangay Kingking alone are estimated to be at 10.3 million ounces with copper deposits of 5.4 billion pounds. Nationwide Development Corporation (Nadecor) holds the Mineral Production Sharing Agreement (MPSA) for the Kingking mine site.

The researcher preferred to conduct the study in Proculo Fuentes Elementary School, Pantukan Davao de Oro. The data were collected from the identified severely wasted pupils and their parents. Proper orientation was given to each of the participants and made sure that personal views were set aside to avoid biases, assumptions, and expectations which would affect the results of the study. The selection of the participants was based on the school records that they have severely wasted pupils for three consecutive years. This was done to source comprehensive information that pertains to the concerns of the study.

Moreover, the researcher structured an interview guide with open-ended questions utilized during the interview. The research questions stipulated in the interview guide were validated by a group of experts identified by the dean of the graduate school. The said interview guide was utilized for the actual in-depth interviews. But before conducting the interview, a letter of permission was served first to the school principal to ask for his consent and to inform him about the research endeavor.

Before the data were analyzed, it was transcribed in a verbatim fashion for more comprehensible and organized output. To determine answers to the research questions, data interpretation followed.

A set of steps were followed in conducting the study. The researcher sought permission from the Division Superintendent of Davao de Oro through a letter conveying the reasons to conduct the study. Upon the approval of the superintendent, another letter was prepared for the principal of Proculo Fuentes Sr. Elementary School to allow her to conduct the study at the same time the parents of the five severely wasted students were also informed that their children were the participants of this study.

The data were collected through IDI which was the only method of gathering data from the participants to provide a more profound understanding of specific viewpoints. The said interview utilized the interview guide prepared by the researcher. A free-flowing discussion with the participants as well as a non-threatening environment was assured during the interview. The identified participants were informed personally ahead of time about the discussion so they would not be taken by surprise. Upon the conduct of the interview, it was ensured that health protocols were applied to maintain safety for both the researcher and the participants. After the data collection,

transcribing, analyzing through thematic analysis, coding, and interpreting the findings were done.

During the data collection period, the analysis also began. The newly collected data were reviewed, synthesized, and recorded to keep absolute, careful, and detailed records useful to the study. After gathering a sufficient amount of data through the conduct of IDI, thematic analysis is used to analyze further the results and to check the disparities and similarities of all responses gathered. This is the time wherein responses are categorized and organized into themes.

### **Trustworthiness and Credibility**

Addressing the trustworthiness of a study is always been one of the major concerns that most researchers are confronted with. There are a lot of questions that arise about the credibility of qualitative research which is always compared to quantitative research. To address this issue, the researcher employed significant viewpoints about the credibility and trustworthiness of the study by highlighting the following criteria by Shenton (2004) which were credibility, transferability, dependability, and confirmability.

**Credibility.** It involved establishing that the results of the research are believable from the perspectives of the participants (Burton, 2013). Hence, several useful data-gathering procedures and analyses were undertaken to ensure credible results. For generating rich information needed for the study, IDI was done by utilizing an interview guide containing open-ended questions. Responses of the participants underwent a thematic analyst's expertise to generate themes that served as the foundation and core ideas of the findings.

**Transferability.** Through illuminating key issues and seeking a greater understanding of the phenomenon being studied, useful information on the experiences of the severely wasted pupils was generated from the study. Other researchers used this study as the baseline for the investigation and exploration of relevant ideas about the challenges they encountered.

**Dependability.** Data gathered were coded in detail to ensure the dependability of the study. Through the help of an audio device which was supplemented by archival notes, everything was carefully done. Coding and transcribing responses were done in Bisaya or Filipino languages and were transcribed into English to make them comprehensible for the readers.

**Confirmability.** To be able to achieve confirmability, results from the study were substantiated by others specifically the parents of the severely wasted pupils, and not by my predisposition. To avoid biased results, the researcher's engagement in the processes was done. With this, confirmability is promoted and emphasized ensuring that the responses were coming from the direct experiences of the participants.



### Ethical Considerations

It was always emphasized that to achieve factual and desirable results in every study, ethical considerations were greatly considered. According to Gilbert (2008), whatever research undertaking was to be employed, the study must always have to be guided by the following ethical principles: informed consent, respect for privacy and confidentiality, and no harm and deception to research participants. To avoid ethical complications in the research process, the researcher made use of the informed consent form. Consent to administer the research was asked from the school head.

### FINDINGS AND DISCUSSION

The structured themes and the emerging therein were made as bases for broadening the discussion of the findings in this study. As each theme was linked to related literature and studies, a substantial discussion was made to find their alignment with the theme.

**Experiences of the Severely Wasted Pupils** The structured themes generated in this aspect are, (a) Considering Themselves Malnourished At An Early Age; (b) Having Difficulty Learning; (c) Having Desire To Learn In School, and (d) Having A Family With Low-income Status. Based on those themes, the experiences of the severely wasted pupils are coated with challenges and effects on their health and studies. It is a sad reality that at an early age they realized that they belonged to the severely wasted pupils. According to the World Health Organization (2011), malnutrition can occur in children of all ages, but young children are the most vulnerable. The first structured theme is supported by the following emerging themes: (a) Started Early being Severely Wasted; (b) Do Not Eat Healthy Foods, and (c) Body and Height Are Different From Other Learners. One of the reasons for their being severely wasted is that they do not eat healthy foods. Malnutrition occurs when the body lacks the vitamins, minerals, and other nutrients necessary to sustain healthy tissues and organ function. It affects persons who are either underfed or overfed (John Hopkins Medicine, n.d.).

Another experience that the severely wasted pupils realized is that they observed that their bodies and height are different from other pupils. According to Briet et al. (2003), the consequences of prolonged malnutrition are sequentially altered cellular metabolism, impaired function, and finally, loss of body tissues. Thus, the findings show that malnourished children are aware of the type of food they eat at a young age, which they feel is one of the contributing elements to their severely depleted physical looks. This awareness of the youngster must be handled quickly since it may have an impact on their education and personality.

The second structure theme emerged from the following sub-themes: (a) Having difficulty learning (b) Missing classes due to health reasons, and (c) Able to know how to read. The

participants' experiences of having difficulty learning could be attributed to having not eaten healthy food and due to the effects of being severely wasted at an early age as gleaned from the data in the first structured themes. Because of such circumstances, missing classes is another effect on their studies. Chinyoka (2014) as cited by Shabbir et al. (2019) found that malnutrition affects academic performance. The results of the study demonstrate that undernourished and hungry children are less capable to attend school and if attend they face problems in concentrating and learning, and also have no interest to take part in physical activities like sports events. However, despite the challenges faced by these pupils, they still have the opportunity to be able to know how to read. Clearly, the results show that hunger has a negative impact on students' academic performance.

To further revealed their experiences, let us explore the third structure theme of their experiences as severely wasted pupils which is the description of the informants learn in school. This is derived from the following emerging themes: (a) Listen to Teachers; (b) Finding Learning Easy; (c) Find Ways Know How To Read. These emerging themes show the positive side of being severely wasted pupils in terms of their experience in school as they study. These experiences could be affected by external factors. The severely wasted pupils still see the beauty of studying due to the help of their teachers, and parents, as they are also motivated by the fire of passion deep in their hearts to finish their studies amidst their situation. On the other hand, despite the difficulties that hungry children face, it is clear that they remain hopeful about their academics.

Lastly, economic status at home is one of the structured themes under the experiences of the severely wasted pupils which come from the following emerging themes: (a) Parents with unstable income; (b) Father or mother Being Sole breadwinner; (c) Financially hard-up after the parents' separation. These experiences are ultimately the reason why they became severely wasted. It was also revealed in the emerging themes that they have parents with an unstable income, the father being the sole breadwinner, financially hard-up after the parents' separation, and the mother sole breadwinner. Poverty amplifies the risk of and risks from, malnutrition. Poor people are more likely to be affected by different forms of malnutrition. Also, malnutrition increases healthcare costs, reduces productivity, and slows economic growth, which can perpetuate a cycle of poverty and ill health (WHO, 2021). According to Acheron and Acheron (2019) students are suffering from malnutrition, and its prevalence was high. The income of families was not sufficient to support the education of their children since other basic needs would be primarily their priority.

### Challenges encountered by the Severely Wasted in Learning at home and in school

Three themes were generated related to this area which are challenges encountered in learning at home, academic





challenges encountered, and problems related to health. Because of being severely wasted, they found it hard to learn even at home.

The first theme under this section focuses on the challenges encountered in learning at home. This theme emerged from the following sub-themes: (a) Nobody to guide learning; (b) Uninterested to learn at home; and (c) Many modules to answer. One of the reasons for having such experiences is that their parents could no longer guide them in the lessons because they are busy looking for livelihood. When no one could guide them at school especially when they have to answer many modules lead to a poor interest in learning at home. These experiences added to the clouded situation of the severely wasted pupils as they are trapped in their nutritional status

Aside from the challenges they experience in learning at home they also faced other challenges in their pursuit of academic achievement in school which is reflected in the second theme, the academic challenges encountered. This theme is also the product of combining the following emerging themes: (a) Problems with comprehension; (b) Experiencing difficulty in class; (c) Problems with Math subject. Another challenge that they faced as severely wasted pupils is that they are slow to learn in class.

Lastly, problems related to health status is another theme under the participants' experiences encountered in learning at home and in school. This theme comes from the following emerging themes: (a) Eating only a small amount of food, and (b) No vitamin intake. These severely wasted pupils have faced the challenge of not being provided with proper nutrition by their parents. One of the reasons could be due to poverty. Poverty is the number one cause of malnutrition in developing countries. Often, families living in poverty lack access to fresh fruits and vegetables. Many communities do not have full-service grocery stores that regularly stock fresh produce. Even if they do, fresh fruits and vegetables can be expensive. When fresh fruits and vegetables are out of reach for children, they can fill up on less expensive, less healthy foods (Global Childhood Report, 2018).

**Effects of poor nutrition on the performance of severely wasted pupils.** There is only one theme generated in this part which is the effect of poor nutrition. This is derived from the following emerging themes: Affecting Learning and Comprehension, Uninterested listening in Class, and Missing Some Classes. Generally, the direct effect of being severely wasted is having difficulty in learning as a by-product of poor comprehension. Chinyoka (2014) as cited by Shabbir et al. (2019) found that malnutrition affects academic performance. The results of the study demonstrate that undernourished and hungry children are less capable to attend school and if attend they face problems concentrating and learning, also have no interest to take part in physical activities like sports events. According to NesaPriya and Premraj (2017) children who are severely malnourished experience slow intellectual

development. Undernutrition also harms academic performance (Asmare et al. (2018). Therefore, poor nutrition has negative impact on the studies of the pupils.

### Implications for Practice

Based on the findings, the following implications for practice are offered.

**On Experiences of the Severely Wasted Pupils.** After being enlightened by the severely wasted pupils' dramatic experience, it is realized that malnutrition poses challenging effects on children's health and leads to poor academic performance. Hence, the school, parents, and the community should work hand in hand to provide a remedy for the identified malnourished children in school.

**On Challenges encountered by the Severely Wasted in Learning.** Difficulty in learning is the number challenge of severely wasted children. After providing them with a remedy for proper nutrition intake, academic remediation should also be done by the teachers with the support of their families.

**On Effects of poor nutrition on the performance of severely wasted pupils.** It is the primary role of the teachers to augment and bridge the learning gaps of the pupils. In the case of severely wasted learners, it is quite challenging for the teachers since their performance is affected by their poor nutrition. However, the teachers must be very patient and passionate in uplifting the morale of these learners. They must help them.

**On Recommendations to lessen the negative impact of poor nutrition on the severely wasted pupils.** Those recommendations are coming from the mind and hearts of the severely wasted pupils themselves. They are expressing a genuine call for help. Therefore, their recommendations should be provided by the school, their respective family, and any right individuals concerned. They must also be replicated in other schools with a similar case.

### CONCLUSION

The case of the five severely wasted pupils in Proculo Fuentes Sr. Elementary School shed light that their lived experiences are very challenging. At an early age, they have to realize that they are different from others in terms of height and body weight. Despite that, they still have the desire to learn in school. However, they found it hard to learn in school especially in lesson comprehension as affected by poor nutrition. Thus, they should be provided with good nutrition by their family and supported by the school in terms of the feeding program.

### REFERENCES

1. Asmare, B., et al. (2018). *Nutritional status and correlation with academic performance among primary school children, northwest Ethiopia. BMC Research Notes. Retrieved at:*



- <https://bmcrenotes.biomedcentral.com/articles/10.1186/s13104-018-3909-1>
2. Blatter, J. (2016). *Aligning methodologies to epistemologies and ontologies in Qualitative research: An ideal-typical approach*. [https://www.unilu.ch/fileadmin/fakultaeten/ksf/institute/polsem/Dok/Volltexten\\_zu\\_Publikationen/Blatter\\_Idealtypical\\_Qualliative\\_Methdologies.pdf](https://www.unilu.ch/fileadmin/fakultaeten/ksf/institute/polsem/Dok/Volltexten_zu_Publikationen/Blatter_Idealtypical_Qualliative_Methdologies.pdf)
  3. Creswel, J. et al. (2007). *Designing and conducting mixed methods research*. SAGE Publications.
  4. Lacour, M. & Tissington, LD. 2011. *Educational research and reviews*. *Academic Journal*, 7 (9): 522-527.
  5. McMillan, JH. & Schumacher, S. 2010. *Research in education*. New York: Harper Collins.
  6. Nabarro, D., Menon, P., Ruel, M. & Yosef, S. 2012. *Scaling Up Nutrition: A global movement to accelerate progress in reducing maternal and child under-nutrition*. Brief 9. In: J. Linn. (ed.).
  7. NesaPriya & Premraj (2017). *Effects of Malnutrition -A Social Work Perspective*. December 2021 *HuSS International Journal of Research in Humanities and Social Sciences* 7(ISSN2224). Retrieved at: [https://www.researchgate.net/publication/357269250\\_Effects\\_of\\_Malnutrition\\_A\\_Social\\_Work\\_Perspective](https://www.researchgate.net/publication/357269250_Effects_of_Malnutrition_A_Social_Work_Perspective)
  8. Polotiko News (2022). 33 Malnourished Kids To Benefit Under Davao de Oro's 'Adopt a Child Program' – LGU. April 22, 2022. Retrieved: <https://mindanao.politics.com.ph/33-malnourished-kids-to-benefit-under-davao-de-oros-adopt-a-child-program-lgu/>
  9. Rathus, SA. 2006. *Childhood: Voyages in development*. California: Thomson Wadsworth.
  10. Rusinga, O. & Moyo, S. 2012. *Determinants of child malnutrition in Changazi Ward in Chimanimani District, Zimbabwe*. *Journal of Emerging Trends in Educational Research and Policy Studies*. (JETERAPS). 3(3): 14-19.
  11. Save the Children. 2012. *A life free from hunger: Tackling malnutrition*. New York: United Nations.
  12. Shrestha, I. & Pathak, L. 2012. *A Review of the National Health Policy 1991*. Katmandu: Ministry of Health and Population.
  13. Snowman, J. & Biehler, R. 2011. *Psychology applied to teaching*. Boston: Houghton Mifflin.
  14. Stevens, G., Finucane, M., Paciorek, C., Flaxman, S., White, R., Donner, A. & Ezzati, M. 2012. *Trends in mild, moderate, and severe stunting and underweight, and progress towards MDG 1 in 141 developing countries: A systematic analysis of population-representative data*. *Lancet*, 380(7):824-834.
  15. UNICEF (2022). *Nutrition. Unlocking children's potential*. Retrieved at: <https://www.unicef.org/eap/what-we-do/nutrition>
  16. UNESCO. 2011. *EFA Global Monitoring Report 2011: The hidden crisis: Armed conflict*. Paris: UNESCO
  17. United Nations. 2012. *The Millennium Development Goals Report*. New York: United Nations.
  18. WHO (2023). *Explore a world of Health Data*. Retrieved at: [https://www.who.int/data/gho/data/themes/topics/sdg-target-2\\_2-malnutrition](https://www.who.int/data/gho/data/themes/topics/sdg-target-2_2-malnutrition)



# INFLUENCE OF STUDENT BEHAVIOR ON TEACHER MOTIVATION - A STUDY WITH REFERENCE TO TEACHERS OF SELECTED PRIMARY SCHOOLS IN MANGALORE

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## ABSTRACT

*The essence of human resource development is that education must play a significant and interventionist role in remedying imbalances in the socio-economic fabric of the country. Basic education has greatly contributed to the quality of human life, particularly regarding life expectancy, infant mortality, learning levels and nutrition status of children. Primary education is the foundation on which the development of every citizen and the nation is built on. Teacher plays a pivotal role in the education especially primary education. There is need to understand factors motivating teachers. This paper tries to investigate the role played by student behavior towards motivation of teachers in primary schools in Mangalore. Semi structured questionnaire was administered to the respondents and data was collected. Data so collected was analyzed using relevant statistical tools to arrive at conclusions. It was found that student behavior influences teacher motivation. Factors such as active, participative, and creative students inspire teachers while Poor academic performance also influence the teacher's motivation.*

**KEY WORDS:** *Teacher Motivation, Student Behaviour, Education, Primary School, Teacher Effectiveness*

## INTRODUCTION

In the words of the eminent French Sociologist, Emile Durkheim, "Education is the influence exercised by adult generation on those that are not yet ready for social life.... Education is the socialization of the younger generation... It is the means by which society prepares within the children the essential conditions for its very existence... Education creates a new being". Elementary education constitutes a very important part of the entire structure of the education system. It is the backbone of the educational pattern of a country. No pattern of education can ever be successful if it does not have a sound primary education system. In imparting education, the role of teachers assumes special significance. The quality of a nation depends upon the quality of its school and the quality of schools depend considerably on the quality of the teachers as well as on the interaction of collective internal and external forces that intervene in the fulfillment of the purpose of the schools. Teaching is influencing directed activity in which the teacher influences the minds of the students. It is a process of establishing interpersonal relationship between the teachers and the taught.

Teachers are effective when they can form desirable behaviour among the students. The formation of desirable behaviour in the student is closely linked to the motivation levels of the teacher as well as the teacher's attitude and behaviour

## TEACHER MOTIVATION:

Motivation refers to all phenomena, which are involved in the stimulation of action towards objectives. Motivation is necessary for performance. If the individual does not feel inclined to engage himself in the work behaviour, he will not put in adequate efforts to perform well. Unless the individual has the necessary abilities to do the work and perceive his role accurately and is provided with the required resources, mere motivation to do the job may not result in effective performance.

Teacher motivation is related to what makes the teachers happy, satisfied, dedicated, and committed so that they show their best performance in teaching their students. Teacher who inspires and motivate the students are included in the category of effective teachers.

The teacher has the responsibility to shape that destiny. He is an educational leader and decision maker who directly affects and indirectly influences the students. An inspiring teacher knows to tailor his knowledge to fit into the restrictions of time, syllabus frame, and the students learning level. All the inspiring teachers are great communicators.

An inspiring teacher always inculcates in his students positive thinking. For an inspiring teacher, teaching begins as a mission and then it becomes a lifelong obsession. An inspiring teacher makes his students genuinely feel good about himself and



guides him, which make a difference in and outside the classroom.

### STUDENT BEHAVIOUR

The behaviour of students plays a vital and important role in building a relationship between the students and the teachers. The teacher not only expect good behaviour from his or her students but he or she also feels that each student should behave in an appreciable way which would create strong links between students and teachers Data was collected from teacher respondents to study effect of components of student behaviour namely, discipline among the students, active and creative students, poor performance of students, and good student response and participation, on teacher motivation.

### NEED FOR THE STUDY

There is research work on influence of teacher motivation on student performance and behaviour but there is lack of adequate research on influence of student's behaviour on teachers' motivation. Therefore, there is need for research on influence of student behaviour on teacher motivation.

### OBJECTIVES OF THE STUDY

1. To study the effect of student behaviour on motivation of teachers in primary schools.
2. To investigate difference in impact of student behaviour on the teachers of primary schools.

### RESEARCH METHODOLOGY

The article is developed mainly on primary data collected through the questionnaire administered to the teachers of primary schools. Secondary sources such as books, journals, annual reports of Education Departments, and earlier research work in the related field were also referred. A semi-structured questionnaire was prepared for the teachers. Depending on the type of information to be collected, open-ended, multiple-

choice type questions, and Likert scale (1932) were included in the questionnaire. A five-point Likert scale was used in the questionnaire to ensure higher statistical variability among the survey responses. Government, Aided and Unaided primary schools were selected at random. Stratified sampling technique was used to choose 214 teachers from the selected schools. The data collected from the teacher respondents were evaluated and analysed with appropriate statistical tools to arrive at the conclusion. Data summarization and data association techniques such as mean, percentage, standard deviation, and percentage mean were used. The ANOVA test, Regression analysis were used to draw inferences from the data.

### SCOPE OF THE STUDY

The study is conducted in selected primary schools in Mangalore affiliated to the Karnataka state board. The Primary schools are basically categorized as a) Government school b) Aided school and c) Unaided schools. 214 teachers teaching in these schools are selected at random for the study. The study covers 42 schools (25percentage) of the total 168 primary schools in Mangalore.

### LIMITATION OF THE STUDY

1. The respondents being teachers of primary schools are engaged in teaching, administration and extracurricular activities, information given due to time constraint may be partially accurate or biased.
2. Sample size of 214 teachers may not be adequate to come to serious conclusions.
3. Survey was done in the primary schools in Mangalore, generalisation may not be arrived at based on the study.
4. As there is no standard scale to measure motivation, the five-point Likert's (1932) scale was used to analyse the satisfaction of the respondents.

### DATA ANALYSIS AND INTERPRETATION

The data collected from the respondents i.e., teachers are analyzed as:

**Table No. 1.1**  
**Teacher motivation due to discipline among students**

Type of schools	Discipline among students in the class makes class effective									
	Strongly disagree	Disagree	Uncertain	Agree	Strongly agree	Mean	S.D.	Percentage mean	ANOVA F value	p value
Govt. taluk	0 .0%	0 .0%	0 .0%	7 19.4%	29 80.6%	4.81	.401	96.11	1.766	.121 NS
Govt. city	0 .0%	0 .0%	0 .0%	13 43.3%	17 56.7%	4.57	.504	91.33		
Aided taluk	0 .0%	0 .0%	0 .0%	8 53.3%	7 46.7%	4.47	.516	89.33		
Aided City	0 .0%	0 .0%	0 .0%	12 29.3%	29 70.7%	4.71	.461	94.15		
Un-aided taluk	0 .0%	0 .0%	0 .0%	11 27.5%	29 72.5%	4.73	.452	94.50		
Un-aided city	0 .0%	0 .0%	1 1.9%	11 21.2%	40 76.9%	4.75	.480	95.00		
<b>Total</b>	0 .0%	0 .0%	1 .5%	62 29.0%	151 70.6%	4.70	.469	94.02		

Source: Survey Data





As seen in the table 1.1, teachers are highly motivated when the students are disciplined in the class (mean ± S.D. 4.70± 0.469 with percentage mean 94.02). The ANOVA test results shows no significant difference in teacher motivation between the

teachers of various schools in relation to above factor (F=1.766, p=0.121). This indicates discipline among students makes class effective and in turn it motivates teachers.

**Table No. 1.2**  
**Teacher motivation due to active and creative students**

Type of schools	Active and creative students make teaching effective									
	Strongly disagree	Disagree	Uncertain	Agree	Strongly agree	Mean	S.D.	Percentage mean	ANOVA F value	p value
Govt. taluk	0 .0%	0 .0%	0 .0%	15 41.7%	21 58.3%	4.58	.500	91.67	1.324	.255 NS
Govt. city	1 3.3%	0 .0%	1 3.3%	14 46.7%	14 46.7%	4.33	.844	86.67		
Aided taluk	0 .0%	0 .0%	0 .0%	5 33.3%	10 66.7%	4.67	.488	93.33		
Aided City	0 .0%	0 .0%	1 2.4%	15 36.6%	25 61.0%	4.59	.547	91.71		
Un-aided taluk	0 .0%	0 .0%	0 .0%	15 37.5%	25 62.5%	4.63	.490	92.50		
Un-aided city	1 1.9%	0 .0%	0 .0%	13 25.0%	38 73.1%	4.67	.678	93.46		
<b>Total</b>	2 .9%	0 .0%	2 .9%	77 36.0%	133 62.1%	4.58	.613	91.68		

Source: Survey Data

As seen in the table 1.2, the teachers are highly motivated with active and creative students in the class which makes teaching effective (mean ± S.D. 4.56 ± 0.613 with percentage mean 91.68). The ANOVA test results shows there is no significant difference in teacher motivation between the teachers of various

schools' relation to the above factor (F=1.324, p=0.255). This indicates that teachers working in various schools are motivated by active and creative students in the class which makes teaching effective.

**Table No. 1.3**  
**Teacher motivation due to poor performance of students**

Type of schools	Poor performance of students does not affect teaching effectiveness									
	Strongly disagree	Disagree	Uncertain	Agree	Strongly agree	Mean	S.D.	Percentage mean	ANOVA F value	p value
Govt. taluk	23 63.9%	3 8.3%	4 11.1%	4 11.1%	2 5.6%	1.86	1.313	37.22	6.149	p<0.001 HS
Govt. city	18 60.0%	1 3.3%	2 6.7%	9 30.0%	0 .0%	2.07	1.388	41.33		
Aided taluk	2 13.3%	0 .0%	2 13.3%	10 66.7%	1 6.7%	3.53	1.125	70.67		
Aided City	12 29.3%	4 9.8%	7 17.1%	14 34.1%	4 9.8%	2.85	1.424	57.07		
Un-aided taluk	14 35.0%	0 .0%	1 2.5%	22 55.0%	3 7.5%	3.00	1.519	60.00		
Un-aided city	14 26.9%	3 5.8%	8 15.4%	15 28.8%	12 23.1%	3.15	1.539	63.08		
<b>Total</b>	83 38.8%	11 5.1%	24 11.2%	74 34.6%	22 10.3%	2.72	1.515	54.49		

Source: Survey Data

As seen in the table 1.3, the teachers are moderately motivated as poor performance of students affects teaching effectiveness

(mean ± S.D. 2.72 ± 1.515 with percentage mean 54.49). The ANOVA test results shows a highly significant difference in the



teacher motivation between the teachers of various schools in relation to the above factor ( $F=6.149, p<0.001$ ). Comparatively, higher motivation was observed among the teachers of Aided taluk schools (percentage mean 70.67) while lower motivation was observed among the teachers of Government taluk schools (percentage mean 37.22). It is also observed that motivation of

teachers due to poor performance of the students on teaching effectiveness is very low in Government taluk schools (percentage mean 37.22) and Government city schools (percentage mean 41.33). It indicates that poor of the students affects motivation of teachers in various schools.

**Table No. 1.4**  
**Teacher motivation due to good student response and participation**

Type of schools	Good response and participation of students enhances interest in teaching									
	Strongly disagree	Disagree	Uncertain	Agree	Strongly agree	Mean	S.D.	Percentage mean	ANOVA F value	p value
Govt. taluk	0 .0%	0 .0%	1 2.8%	9 25.0%	26 72.2%	4.69	.525	93.89	2.169	.059 NS
Govt. city	0 .0%	0 .0%	0 .0%	16 53.3%	14 46.7%	4.47	.507	89.33		
Aided taluk	0 .0%	0 .0%	0 .0%	4 26.7%	11 73.3%	4.73	.458	94.67		
Aided City	0 .0%	0 .0%	1 2.4%	16 39.0%	24 58.5%	4.56	.550	91.22		
Un-aided taluk	0 .0%	0 .0%	0 .0%	8 20.0%	32 80.0%	4.80	.405	96.00		
Un-aided city	0 .0%	0 .0%	0 .0%	15 28.8%	37 71.2%	4.71	.457	94.23		
<b>Total</b>	0 .0%	0 .0%	2 .9%	68 31.8%	144 67.3%	4.66	.493	93.27		

Source: Survey Data

As seen in the table 1.4, the teachers are highly motivated with good response and participation of students which enhances interest in teaching (mean  $\pm$  S.D.  $4.66 \pm 0.493$  with percentage mean 93.27). The ANOVA test results shows no significant difference in teacher motivation between the teachers of various

schools in relation to the above factor ( $F=2.169$  and  $p=0.059$ ). It indicates that teachers working in various schools are motivated with good response and participation of students which enhances interest in teaching.

**Table No. 1.5**  
**Regression Analysis to evaluate significant component of student behaviour on Teacher Motivation Coefficients<sup>a</sup>**

Model		Unstandardised Coefficients		Standardised Coefficients	t	p
		B	Std. Error	Beta		
3	(Constant)	.606	.070		8.721	$p<0.001$
	Poor performance of students does not affect teaching effectiveness.	.248	.005	.734	54.092	$p<0.001$
	Active and creative students help in making teaching effective	.320	.013	.383	24.218	$p<0.001$
	Good response and participation of students enhances interest in teaching	.305	.016	.293	18.630	$p<0.001$

a: Dependent variable: Motivation due to Student behaviour

Model	R	R Square	ANOVA F value	p value
3	.981	.962	340.654	$p<0.001$

Backward Regression analysis was performed to evaluate the significant components of student behaviour which leads to motivation among the teachers (as seen in table 1.5). All the

components of student behaviour have a significant impact on teacher motivation with R square 96.2 percent. Among the components, poor performance of students ( $\beta=.734$ ), has



greater impact on teacher motivation followed by the factors of presence of active and creative students in the classroom ( $\beta=.383$ ), and good response and participation of students enhances interest in teaching ( $\beta=.293$ ).

## FINDINGS

The components of student behaviour, namely, discipline among students, active and creative students, and good response and participation of students highly motivates the teachers. Teachers are moderately motivated when the performance of the students is poor which adversely affect teaching effectiveness. Due to the poor performance of the students, the motivation of the Government school teachers is low (percentage mean 39.28).

## CONCLUSION

In order to play pivotal role in reforming education at all levels, teachers should be inspired by creative idealism and take pride in their profession. The teacher must have abiding love for the children under his care. A teacher must be aware of the individual differences in terms of intelligence, emotional quotients, and capacity to respond to emergency academic situations and must attune his teaching to meet the varied requirements of subjects. Teachers motivate students towards academic performance but at the same time student's active participation and response in the class motivates teachers. At the same time student's poor performance adversely affects teachers' effective

## REFERENCES

1. Amalo, S. P. (2018). *Teacher's behaviour towards students' motivation practice*. SHS Web of Conferences, 1-6.
2. Hakim Ali, M. H. (2021). *Head Teachers' Ethical Leadership Behaviours and Teachers'*. Pakistan Social Sciences Review, 263-277.
3. Kashif Ali Shah, N. A. (2021). *IMPACT OF TEACHERS' BEHAVIOR ON THE MOTIVATION OF STUDENTS AT HIGH SCHOOL LEVEL: EMPIRICAL STUDY OF DISTRICT HYDERABAD, SINDH, PAKISTAN*. European Journal of Social Sciences Studies, 116-128.
4. Maria Mifsud. (2011). *The Relationship of Teachers' and Students' Motivation in ELT in Malta: A Mixed Methods Study*. University of Nottingham.
5. Muhammad Idris, S. a. (2021). *Influence of Teachers' Behavior on Students Academic Achievement at Secondary Level*. Ilkogretim Online - Elementary Education Online, 1208-1224.



# QUANTITATIVE AND QUALITATIVE ANALYSIS OF STEVIOL GLYCOSIDE IN STEVIA BY VARIOUS ANALYTICAL METHODS: A REVIEW

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## ABSTRACT

*Stevia rebaudiana*, a perennial herb in the family Asteraceae, is a popular natural sweetener with sensory and functional attributes that outperform those of conventional high-potency sweeteners. *Stevia rebaudiana* leaves contain sweet glycosides that have biological effects. The various glycosides included in extracts must be measured since, in addition to the major glycosides, they may also contribute to activity. The isocratic HPLC method was validated for the identification of dulcoside A, steviolbioside, rebaudioside C, and rebaudioside B. The development and validation of the HPTLC technique for the simultaneous measurement of three steviol glycosides in *Stevia rebaudiana* leaves—steviolbioside, stevioside, and rebaudioside-A—also employed the ICH (International Conferences on Harmonisation) guidelines.

Near-infrared reflectance spectroscopy (NIRS) was used to assess the steviol glycosides (SGs) content (w/w) dry basis in *Stevia rebaudiana* leaves using high-pressure liquid chromatography (HPLC) as the reference technique. The noncariogenic and caloric sweeteners known as steviol-glycosides, which are present in the leaves of *Stevia rebaudiana*, may have had positive effects on human health.

Despite the fact that steviol-glycosides are generally regarded to be safe, investigations on animals have shown that the aglycone steviol can have negative consequences. 2D NMR methods and ultra-high performance liquid chromatography with electrospray ionisation mass spectrometry (UHPLC-MS) were used to discover steviol glycosides. The steviol glycosides were then quantified by NMR using anthracene as an internal standard.

**KEYWORDS:** *Steviol Glycoside, HPLC, HPTLC, Stevioside.*

## INTRODUCTION

*Stevia rebaudiana* is a little perennial with sessile, oppositely oriented leaves that can reach heights of 65 to 80 cm. A semi-humid subtropical plant, it is simple to cultivate in a kitchen garden. A Japanese collaboration established for the goal of commercializing stevioside and stevia extracts gave stevioside, the main sweetener found in the leaf and stem tissues of stevia, its first serious consideration as a sugar alternative in the early 1970s. *Stevia* leaves are a key source of natural sweetener for the expanding food market because they offer sensory and functional qualities that are superior to many other high-potency sweeteners. Flavonoids, alkaloids, chlorophylls, xanthophylls, hydroxycinnamic acids, oligosaccharides, free sugars, amino acids, lipids, and trace elements are all present in the dry extract of stevia leaves. One of the stevia glycosides, stevioside, is around 300 times sweeter than saccharose and has potential health benefits.

Sweetener extracts from *S. rebaudiana* have been associated to anti-hypertensive, anti-hyperglycemic, and anti-human rotavirus

action, among other benefits to human health. Liquid chromatography was used in combination with UV, MS, and ELS detection to analyze the sweet stevia glycosides; steviol being the prevalent aglycone backbone (Cacciola et al., 2011). Stevioside, one of the stevia glycosides, is nearly 300 times sweeter than saccharose and may be especially beneficial for those with diabetes, obesity, heart disease, and dental cavities. Fruit custard, jam, chikki, basen ladu, wheat ladu, biscuit, grape juice, bun, tea, and milk shake all included stevia. It was discovered to have a larger amount of the anti-nutritional component oxalic acid, which may impair calcium, iron, and other nutrient bioavailability.

The sweet taste sensation is produced by glycosides such as dulcoside A, rebaudiosides A-E, steviolbioside, and stevioside. The tastiest species, *S. rebaudiana* Bertoni, has all eight entkaurene glycosides, including stevioside. It also includes stigmasterol,  $\beta$ -sitosterol, and campesterol, as well as steviol, a plant-derived enzymatic hydroxylation product. Other compounds with no sweet flavour can also be detected in *Stevia*





species, and some of them may even be harsh. Stevia contains two types of seeds: black and tan. Black seeds have better viability and germination potential, but tan seeds are nonviable since they are formed without fertilisation<sup>[1,2,3,4,5,6,7]</sup>.

## EXTRACTION METHOD

*S. rebaudiana* (Bertoni) leaves were ground and filtrated through a filter screen (ca.380m), then dried in an oven at 80°C until the weight remained constant. In an extraction container, five grammes of the powder were combined with extraction solvent. Samples were warmed for 5 minutes in a constant temperature water bath before being homogenized using High Speed Shear Homogenization. An FA25 system was used for extraction. The ethanol concentration was changed from 0% to 100%, the extraction period from 2 to 12 minutes, and the solid-to-liquid ratio from 1:10 to 1:30. Following the extraction, the mixture was vacuum filtered using medium-speed filter paper, and the filtrate was collected. The extraction solution was filtered through a 0.22 m membrane and the amounts of STV and RA were determined using HPLC. All extraction procedures were carried out three times.

The best conditions for SE extraction were 50% ethanol concentration, a solid-liquid ratio of 1:1, a 60-minute extraction period, a temperature of 60°C, and a one-time extraction.<sup>[8,10]</sup>

## CHEMICAL COMPOSITION

Steviobioside, dulcosides A through E, and stevioside were discovered among the eight Stevia glucosides discovered. The leaves also included three esters of lupeol, the triterpene amyirin acetate, and the sterols stigmasterol, sitosterol, and campesterol.

Jhanol, austroinulin, 6-O-acetylaustroinulin, and 7-O-acetylaustroinulin, stevioside, and rebaudioside A have all been derived from stevia flowers. Six flavonoid glycosides, including apigenin-4'-O-glucoside, luteolin-7-O-glucoside, kaempferol-3-O-rhamnoside, quercetin, quercetin-3-O-glucoside, quercetin-3-O-arabinoside, and 5,7,3'-trihydroxy-3, 6,4'-d-galactopyranoside, have been extracted from aqueous Centaureidin, a trimethoxy flavone. The essential oil included the sesquiterpenes - caryophyllene, trans--farnesene, humulene, candinene, caryophyllene oxide, and nerolidol, as well as the monoterpenes linalool, Terpinen-4-ol, and terpineol.

Two glucosyltransferases (GTases I and IIB) acting on steviol and steviol-glycosides were identified from *S. rebaudiana* I extracts. GTase IIA, a distinct transferase, was shown to be acting on steviol. Purified GTase I (subunit Mr 24,600) catalysed the glucose transfer from UDP-glucose to steviol and steviolmonoside (steviol-13-O-glucopyranoside), but not to other steviol-Glycosides. GTase IIB (subunit Mr 30,700) demonstrated broad substrate specificity by acting on steviol, steviolmonoside, steviolbioside (13-O--sophorosyl-Steviol), and stevioside.

Rebaudiosides A and C are the major stevioside components. Furthermore, the diterpene steviol (ent-13-hydroxykaur-16-en-19-oic acid) glycosides dulcoside A have different organoleptic properties.<sup>[5,6,7]</sup>

## USES<sup>[20]</sup>

### ANTI-DIABETIC PROPERTIES

Because stevia leaf extract has the capacity to promote insulin action on cell membrane, which in turn boosts insulin production and stabilises blood sugar level, it can reduce plasma glucose level and greatly improve glucose tolerance. For diabetic patients, stevia leaf is utilised as an additional dietary ingredient in the form of dried or powdered leaf, which boosts natural sweetness and revitalises the pancreatic glands. Stevioside improves insulin production in response to glucose, but it has little impact on fasting insulinemia.

### BLOOD PRESSURE REGULATION.

Stevia is a cardiac tonic that controls heart rate, blood pressure, and other cardiopulmonary processes. Human systolic and diastolic blood pressure is decreased by stevia leaf extract dissolved in hot water. Regular consumption of the non-caloric sweeteners found in *S. rebaudiana* leaves (steviolglycosides) lowers blood cholesterol levels (Atteh et al. 2008), improves cell regeneration and blood coagulation, inhibits the growth of cancer cells, and strengthens blood vessels (Barriocanal et al. 2008), all of which have positive effects on human health. They reduce blood pressure by relaxing the arteries.

### ANTI-OBESITY PROPERTY.

The natural sweetener ent-kaurene diterpene glycosides (stevioside and rebaudiosides), which is present in stevia leaves, has 300 times more sweetness than sucrose and has no calories. Stevia thus prevents persons from losing as much weight.

### RENAL FUNCTION

Stevioside from the leaves of *S. rebaudiana* was examined by Melis (1992) for its impact on renal function. It operates as a typical systemic vasodilator, causing hypotension, diuresis, and natriuresis. In polycystic kidney disease, steviol and its analogue are utilised.

### OTHER USES

Antibacterial and antifungal activities are present in stevia. Tea made from stevia leaves can calm troubled stomachs. Foods are sweetened with the stevia leaf. Additionally, it contains anti-mutagenic, anti-proliferative, and antioxidant qualities.

### ANALYTICAL METHODS

#### HPLC :

The primary drug, any reaction impurities, all possible synthetic intermediates, and any degradates are separated, quantified, and quantified using HPLC. It is the most precise analytical approach



for quantitative and qualitative pharmacological product analysis. It has high resolution, quick analysis, greater mobile phase pressure, regulated flow rate, small sample size, moderate analytical conditions, and facile fractionation. The sample is injected at high pressure through a porous column, and the separation mechanism is based on solute adsorption on the stationary phase based on its affinity for the stationary phase<sup>[11,12]</sup>.

### HPLC OF STEVIA

The study used commercial samples containing varying concentrations of steviol glycosides, dried leaves of *S. rebaudiana* Bertoni from Paraguay, and dried at room temperature to a moisture level of 5% to 6%, as determined by a halogen lamp moisture balance model XM-120T (Cobos, Barcelona, Spain) at 105 °C. When the moisture loss was less than 0.1% in 180 seconds, the samples were regarded to have attained a constant mass<sup>[11]</sup>.

### HPLC CONDITION

An Agilent 100 HPLC system with a UV-vis detector tuned to 210 nm was used for liquid chromatography under isocratic conditions. Separation was performed on a Luna C18(2). At a constant flow rate of 1 mL/min, the mobile phase was composed of acetonitrile and (10mmol/l) sodium phosphate buffer (32:68). Clarity software, version 2.7.3.498 (2009), was used to conduct the chromatographic analysis. The injection volume of the sample was 20 L.

### STEVIA REBAUDINIA EXTRACT

The leaves of two *S. rebaudiana* varieties, Morita and Criolla II, were harvested and dried in the dark in Mexico. To make the extracts, 0.5 g of powdered leaves were weighed and extracted three times in 30 minutes with water at 100°C. To separate the aqueous phases of the leaves, the extracts were centrifuged for 10 minutes (2500g, 10°C). Before HPLC analysis, the aqueous phases were transferred to a 25mL volumetric flask and filtered through a 0.45 m membrane filter. (Wöelwer-Rieck et al., 2010)<sup>[12]</sup>.

### ACCURACY

The triple recovery experiment with spiked samples produced an excellent recovery rate of 92.2-104.4%. Although no studies have been conducted to compare the accuracy of measuring minority glycosides using the same method, the recovery rates for dulcoside A, rebaudioside C, rebaudioside B, and steviolbioside are comparable to rebaudioside A (93-108%)(Chester et al., 2012; Jaworska et al., 2012; Wöelwer-Rieck et al., 2010) or stevioside (95.7-106%)(Chester et al., 2012; Ni et al., 2007; Wöelwer-Rieck et al., 2010)<sup>[11,12]</sup>.

### INTRADAY PRECISION

HPLC was used to analyse three glycoside concentrations, with RSD values ranging from 2.13 to 7.98%. The retention time was also used to assess intraday accuracy. The average retention time

for rebaudioside C was 9.5 minutes, 10.28 minutes for dulcoside A, 20.73 minutes for rebaudioside B, and 22.29 minutes for steviolbioside.

### INTERDAY PRECISION

There was intermediate or interday precision, with a 2.5% RSD for retention duration and a 9% RSD for peak area. Peak area RSD is slightly larger than for rebaudioside A and stevioside, however RSD 10% is often regarded enough. The circumstances given allow the identification of rebaudioside D, stevioside, and rebaudioside A(Tada et al., 2013)<sup>[11]</sup>.

### CONCLUSION

The proposed HPLC method simplifies the quantification of primary steviol glycosides while preserving good selectivity, sensitivity, and accuracy. The following extraction conditions are recommended: Bake for 30 minutes at 100°C without agitating or crushing the leaves. Clarification of the extracts through micro and ultrafiltration allows a suitable percentage of the main steviol glycosides to be eliminated. In a quick and simple procedure, the proposed technique is adequate for demonstrating that the main steviol glycosides (stevioside and rebaudioside A) are safer for health and have a smaller environmental impact than previous approaches published in the literature.

### HPTLC

HPTLC has been shown to give good separation, qualitative and quantitative analysis of a variety of substances, including herbal and botanical nutritional supplements, nutraceuticals, conventional western medications, traditional Chinese medicines, and Ayurvedic (Indian) medicines. It outperforms other analytical techniques in terms of total cost and analysis time, and features include the ability to analyse multi-component crude samples, the application of a large number of samples and a series of standards using the spray-on technique, the choice of solvents for HPTLC development, the processing of standards and samples identically on the same plate, different and universal selective detection methods, and in situ spectra recording in seq. Furthermore, HPTLC can assist to limit the danger of harmful organic wastewater exposure and greatly reduce disposal issues, hence lowering environmental pollution.<sup>[13]</sup>

### Isolation of steviol glycosides

*S. rebaudiana* air dried leaf powder (1 kilogramme) was extracted for 12 hours at room temperature with MeOH-H<sub>2</sub>O 80:20 (v/v). The percolations were dried and separated using hexane, chloroform, ethyl acetate, and butanol. All fractions were dried with anhydrous Na<sub>2</sub>SO<sub>4</sub> and concentrated under reduced pressure at 50±5 °C to produce extracts in hexane (30.0 g), chloroform (10.0 g), ethyl acetate (10.5 g), and butanol (150.2 g). Butanol extract (150.2 g) was column chromatographed over silica gel using a gradient elution of CHCl<sub>3</sub>:MeOH with increasing proportions of MeOH (05%, 10%, 15%, 20%) in chloroform to yield four fractions (i-iv). Fraction (iii) was re-



chromatographed over silica gel using gradient elution of 5- 20% MeOH in chloroform to yield pure steviolbioside (100 mg) having m.p.188–192° C, Fraction (iv) was re-chromatographed on silica gel using gradient elution of 5-30% MeOH in chloroform, producing pure stevioside (8 g) with a melting point of 196-198° C and rebaudioside-A (400mg) with a melting point of 242-244° C. (Jaitak V and Gupta AP et al., 2008)<sup>[14]</sup>

### HPTLC procedure

A Camag HPTLC system was utilised to analyse a 0.20mm layer thickness pre-coated silica gel HPTLC 60 F254 plate. For 30 minutes at room temperature and 50±5% relative humidity, ADC was pre-saturated with 20 ml mobile phase ethyl acetate-ethanol-water (80:20:12, v/v/v). Samples and standards were applied to the plate as 6mm broad bands with an automated TLC sampler (ATS4) under a N<sub>2</sub> gas flow, 10mm from the bottom, 10mm from the side, 6mm of plate space between two bands, and application speed of 150 nm/s.

TLC plates were then dried in an air current using an air dryer in a wooden room with proper ventilation. Spraying acetic anhydride:sulphuric acid:ethanol (01:01:10, v/v/v) on bands was followed by heating on Camag HPTLC plate heater at 110° C for 2 minutes.

The plate was quantitatively analysed after 20 minutes in reflection-absorption mode at 510 nm, slit width 6mm x 0.3mm, scanning speed 20mm/s, and data resolution 100\_m/step. The thin-layer chromatograms were photographed and preserved with the help of a Camag video documentation system and the Reprostar 3.(Jaitak V and Gupta AP et al., 2008)<sup>[14]</sup>.

### SENSITIVITY

The sensitivity of the technique was assessed using LOD and LOQ. The standard solutions were detected in the ranges of 1-6\_g/spot for stevioside, and 0.5-3\_g/spot for rebaudioside-A (n = 6) with a correlation value of 0.998-0.999. The detection and quantification limits were calculated using the calibration curve and experimentally confirmed in compliance with ICH guidelines. (Jaitak V and Gupta AP et al., 2008)<sup>[14]</sup>.

### SPECIFICITY

The specificity of the procedure was evaluated by evaluating the standard and sample solutions. The bands of steviolbioside, stevioside, and rebaudioside-A in the samples were validated by comparing the RF values and overlaid spectra of the spotted bands with standards<sup>[14]</sup>.

### ACCURACY

The recovery test was used to assess the analytical procedure's accuracy. This entailed adding known amounts of the reference standard components from stock solution to one of the pre-analyzed samples. The known standards were diluted on the basis of the proportion of three glycosides contained in the pre-analyzed sample. There were three concentration levels examined

(low, medium, and high). Samples were produced in triplicate at each level and analysed using the previously described process. The degree of accuracy was given as a percentage (observed concentration/theoretical concentration x 100).

### CONCLUSION OF HPTLC

In this work, an HPTLC technique was devised to quantify steviolbioside, stevioside, and rebaudioside-A in the leaves of *S. rebaudiana* plants, which are typically used as sugar substitutes. In comparison to existing analytical approaches, the method is straightforward, cost effective, environmentally friendly, and easily adaptable for simultaneous screening and quantitative measurement of steviol glycosides. Within the defined parameters, the approach was verified and shown to be selective, linear, repeatable, and accurate. The approach will be appropriate for quality control of steviol glycoside synthesis in *S. rebaudiana* leaves.

### UHPLC-MS CHEMICALS

Stevioside, rebaudioside A, steviolbioside and steviol their purity was higher than 98%. Ammonium acetate, ammonium formate and dichloromethane. Methanol and acetonitrile LC-MS grade. Water

### EXTRACTION AND PURIFICATION BY SPE

Two hundred grams of dried *Stevia* leaves (105 °C, 2 h) were finely grinded into a fine powder and passed through a 500m (35 mesh) filter. To optimize the extraction conditions, the powder was divided into different quantities and sonicated with 20 ml of methanol for 10 min. The mixture was centrifuged at 1500g for 5min and the supernatant transferred into a 25ml flask. The volume obtained for every extract was set up by methanol, diluted with methanol, and centrifuged at 4000g for 1min. The alcoholic extract was diluted with water (2 ml), loaded on a 3 ml HLB Oasis 100mg SPE cartridge pre-activated with methanol (3 ml) and then washed with water (5 ml).

The steviol-glycosides were eluted from the cartridge using 3ml of 70% methanol in water and the volume then adjusted to 10 ml by methanol. The solution obtained was serially diluted and centrifuged at 4000g for 1 minute before introducing 2:1 into the UHPLC-MS. After sonicating 1 g of dry *Truvia*® powder with 15 ml of water for 10 minutes, the volume was increased to 20 ml by water. Diluting the solution, filtering it through a 0.22µm filter, and injecting 2:1 into the UHPLC-MS system.( Gardana C and Scaglianti M et al., 2010)<sup>[17]</sup>

### SPECIFICITY

Co-chromatography using an authentic standard validated the peak identities of SV, Ra, Sb, and ST, while molecular weight analysis indicated Rc, Du, and ST-glycosides.



Following the ions corresponding to [M+Cl35] and [M+Cl37], quantitative analysis of steviol-glycosides was done.

### PRECISION

The assay's intra- and inter-day precision was validated by analysing spiked samples three times in five days. UHPLC-MS(MS) validated peak purity and identification. The precision was validated by calculating the standard deviations of the quantities and the retention duration.

### ROBUSTNESS AND TOUGHNESS

Several chromatographic settings, including flow rate of  $\pm 0.1$  ml min<sup>-1</sup>, column temperature of  $\pm 3^\circ$  C, organic strength and pH  $\pm 10\%$ , cone voltage of  $\pm 2$  eV, and capillary voltage of  $\pm 0.2$  kV, were used to assess robustness. The Wilcoxon test was used to analyse the data, with a significant threshold of  $p > 0.05$  considered. ( Gardana C and Scaglianti M et al., 2010)<sup>[17]</sup>.

### QUANTITATIVE ANALYSIS OF STEVIOL GLYCOSIDES

The quantitative analysis of steviol-glycosides by UHPLC-MS was carried out using a chromatographic system coupled to a Quattromicro triple quadrupole mass spectrometer. The analyses were carried out in gradient mode by a 1.8m c18 hss column maintained AT 80°C and the flow-rate was 0.5 ml min<sup>-1</sup>. The eluents were 2mmol/l ammonium acetate pH 6.5, 0.1% CH<sub>2</sub>Cl<sub>2</sub> in CH<sub>3</sub>CN, and the gradient was as follows: 40% B for 1.5 min, from 40 to 65% B in 10 s, 65% B for 30 s, from 60 to 85% B in 10 s and then 85% B for 1.5 min. Routine analyses were carried out in single ion reaction (SIR) mode monitoring the ions with (m/z) corresponding to [M+Cl35] and [M+Cl37]. The capillary voltage was set to 3.0 kV while the cone voltage was specific for each compound. The source temperature was 130 degrees Celsius, while the desolvating temperature was 380 degrees Celsius.

We have (m/z) 551 and 553 for steviolmonoglucosides, (m/z) 677 and 679 for steviolbiosides, and (m/z) 823 for steviolbiosides. (m/z) 839 and 841 for stevioside, (m/z) 985 and 987 for rebaudioside C, and (m/z) 1001 and 1003 for rebaudioside A. ( Gardana C and Scaglianti M et al., 2010)<sup>[17]</sup>.

### QUANTITATIVE ANALYSIS OF STEVIOLS

The chromatographic system consisted of a UHPLC-MS equipped with a triple quadrupole mass spectrometer mod. Quattromicro. A 1.8m HSS C18 column was used for separation at a flow-rate of 0.6 ml min<sup>-1</sup>. The column was maintained at 60 °C and the isocratic separation was performed using a solution containing 5mmol/l ammonium acetate pH 6:CH<sub>3</sub>CN. The mass spectrometer operated in negative SIR mode monitoring the ions with (m/z) 317, with a dwell time of 0.1 s. The capillary voltage was 2.7 kV and the cone voltage was 36. The source and desolvating temperature was 120 and 350 °C, respectively. (

Gardana C and Scaglianti M et al., 2010)<sup>[17]</sup>.

### SENSITIVITY

The calibration curve was linear in the range of 0.05–10 µg ml<sup>-1</sup> for SV, 0.1–10 µg ml<sup>-1</sup> for Ra, 0.025–10 µg ml<sup>-1</sup> for Sb, and 5–100 ng ml<sup>-1</sup> for ST. The LLOD for SV, Ra, Sb and ST was 15, 50, 10 and 1 ng ml<sup>-1</sup>, respectively.

### PRECISION

The intra- and inter-day precision (n = 5) was determined by analysing the spiked samples in triplicate; the repeatability for SV-glycosides and ST was found to be in the range of 1.8-3.5% and less than 4.2%, respectively. In terms of inter-day precision, the %RSD ranges from 2.2 to 3.8%, with ST-glycosides and ST showing lower than 5.7%, respectively. The retention time %RSD was less than 0.5%. Linearity was investigated for SV and Ra in the range of 40-180 µg dry leaves<sup>[17]</sup>.

### NMR

#### CARBON NMR SPECTROSCOPY

Carbon NMR spectroscopy has recently been applied to investigations of human cerebral metabolism. Studies of glucose and amino acid metabolism have been performed on normal subjects using both direct carbon NMR<sup>15</sup> and proton detection of the carbon nucleus. These dynamic NMR spectroscopic methods have allowed measurement of glucose transport, oxidation of glucose, glutamate turnover, and glutamine synthesis in the human brain. NMR spectroscopy can demonstrate alterations in cerebral metabolism in epileptogenic regions of the human brain, but further studies are needed to correlate these findings with MRI, quantitative relaxation and volumetric MRI studies, histological and molecular studies of human tissue, and clinical outcomes of the subjects studied. NMR spectroscopy will undoubtedly play an important role in both the diagnosis of subjects with focal epilepsy who are surgical candidates and in increasing our understanding of the pathophysiology of human epilepsy.<sup>[18]</sup>

#### PREPARATION OF THE SAMPLE

SR-1 through SR-8 samples were carefully weighed, dissolved in 700 µL of NMR solvent, and vortexed for 1 minute. Freeze-dried liquid extracts (SR-9 to SR-15). The resultant powder was carefully weighed and dissolved in the NMR solvent in ten milligrams. The NMR solvent was insoluble in sample SR-15, thus it had to be dissolved in deuterium oxide. To remove insoluble elements, samples SR-9 and SR-10 were centrifuged at 10000 rpm for 5 minutes. The resultant solutions were transported in 600 µL sections to the NMR tubes. (Pieri V and Belancic A et al., 2011)<sup>[19]</sup>

#### QUANTITATIVE ANALYSIS BY NMR

Preliminary research was carried out to determine the best solvent for NMR analysis of steviol glycosides in pure *S. rebaudiana* extracts (SR-1 to SR-8). Deuterium oxide, DMSO-d<sub>6</sub>, methanol-





d4, acetonitrile-d<sub>3</sub> deuterium oxide (80:20), and pyridine-d<sub>5</sub> were among the solvents or solvent mixes that allowed complete dissolution of the samples. The acquired <sup>1</sup>H NMR spectra were distinguished by three separate groupings of signals, which corresponded to the backbone protons of the steviol glycosides, non-anomeric protons of the sugar moieties, and anomeric protons in combination with the olefinic protons at C-17. Pyridine-d<sub>5</sub> separated important anomeric resonances fairly well, and since most NMR literature data of steviol glycosides has been recorded using pyridine-d<sub>5</sub>, direct comparison of <sup>13</sup>C resonances for analyte identification purposes was possible. (Pieri V and Belancic A et al., 2011)<sup>[19]</sup>

### MASS SPECTROSCOPY

Mass spectrometry (MS) is usually recognized as an instrumental technique for separation of electrically charged species in the gas phase. The ion source is where the charged species (ions) are created. In some circumstances, the ion source further facilitates the transport of solid-Analytes that are in the gas phase or liquid phase. The mass analyzer is then filled with the gas-phase ions.

The mass Analyzer sorts the ions—in space or time—according to the mass to charge ratios (m/z). The separated ions are detected by an ion detector in the space or time domain. Mass spectra are created by processing the electrical signals the ion detector produces. In fact, mass spectra can be viewed as histograms, which provide information on the number of ions at different m/z values. The original molecules, their fragments, or other species created during the ionisation process may match the detected ions. MS enables direct identification of molecules based on the mass-to-charge ratio as well as fragmentation patterns. As a result, it serves as a qualitative analytical method with high selectivity.<sup>[15,16]</sup>

### LCMS

#### SAMPLE, STANDARDS AND REAGENTS

Leaves from different varieties of *Stevia rebaudiana* cultivated in the South of Spain in laboratory (7 varieties named from LAB1 to LAB7), greenhouse (7 varieties from GH1 to GH7) and field (7 varieties from FIELD1 to FIELD7) were provided by Vitrosur Lab.S.L.U. (Los Palacios y Villafranca, Sevilla, Spain). Sixty days after the plant was transplanted, samples were taken from it. In order to assess how the sampling procedure affected the amount of steviol glycosides, samples of leaves and branches from the types grown in the field were also taken. Extra Synthèse (Genay, France) provided the following compounds: stevioside, rebaudioside A, B, C, and D, steviolbioside, rubusoside, and dulcoside A. All of the chemicals were analytical-grade or better. (Molina CM and Medina VS et al., 2016)<sup>[16]</sup>.

### APPARATUS AND INSTRUMENTS

A Jet Stream Technology-equipped 6460 Triple Quad LC-MS detector on an Agilent Technologies 1200 Series LC system. The extracts were analysed using an electrospray ion source, also from

Agilent. Deionized water with 0.1% formic acid (A) and methanol with 0.1% formic acid (B) were the mobile phases utilised in the separation along with a Mediterranean Sea C18 analytical column (5 m, 15 0.46 cm) from Teknokroma. The gradient went as follows: 60% B at the beginning, 100% B after 15 minutes, and 100% B for another 5 minutes.

To balance the column between analyses, a post-run of 5 minutes was programmed. The injection volume was 10 L, and the flow rate was constant at 0.7 mL/min. The temperature in the column was set to 40 °C.

In the triple quadrupole MS, colliding gas was made of high-purity nitrogen (99.999%). The chemicals were identified using ESI-MS/MS in SRM mode. The nebulizer gas temperature was set at 325 °C, and the sheath gas flow and temperature were both set at 12 mL/min and 350 °C, respectively. The nebulizer was configured for negative ionisation with the nozzle voltage at 1000 V, capillary voltage at 6000 V, and pressure at 45 psi. The dwell duration was 50 ms. (Molina CM and Medina VS et al., 2016)<sup>[16]</sup>.

### Extraction step

By macerating *Stevia* leaves or branches for two hours with 25 mL of an ethanol-water (35:65 v/v) solution as the extractant, steviol glycosides were extracted. Re-extraction of the solid residue was done in order to ensure quantitative extraction, and the concentration was less than 1% of the initial extract. (Molina CM and Medina VS et al., 2016)

### CONCLUSION

A perennial herb in the Asteraceae family known as *stevia rebaudiana* is prized for its sweetness and steviol glycosides (SGs). The secondary metabolites, or SGs, in *stevia* are what give it its sweetness.

The SG biosynthesis pathway in the leaves is responsible for their production. The bulk of the genes in this pathway that code for enzymes have been cloned.

The product's defining characteristic is *stevia*. Stevioside and rebaudioside A are among of the major metabolites of several SGs. Stevioside can also be produced by enzymes and microbiological organisms, according to research. These have no discernible negative effects when taken and are non-mutagenic, non-toxic, antibacterial, and non-mutagenic.

A validated analytical technique guarantees that the results it produces are accurate, trustworthy, and consistent. Therefore, these techniques are necessary to guarantee that items of the highest quality are placed onto the market.

The quantitative analysis of steviol glycosides in *S. rebaudiana* leaves collected from various locations was found to be repeatable using these methods, and they will act as a quality



control indicator to watch over the commercial production of stevioside and its related molecules throughout various stages of its processing.

## REFERENCES

1. Yadav SK and Guleria P, "Steviol Glycosides from Stevia: Biosynthesis Pathway Review and their Application in Foods and Medicine." 2012, 52, 988-998.
2. Goyal SK and Goyal RK, "Stevia (*Stevia rebaudiana*) a bio-sweetener: a review." *Int J Food Sci Nutr.* 2010, 61(1), 1-10.
3. Yadav AK and Singh S, "A review on the improvement of stevia [*Stevia rebaudiana* (Bertoni)]." *Can. J. Plant Sci.* 2011, 91, 1-27.
4. Gupta E and Purwar S, "Nutritional and therapeutic values of *Stevia rebaudiana*: A Review." *J. Med. Plants Res.* 2013, 7(46), 3343-3353.
5. Muanda FN and Soulamani R, "Study on chemical composition and biological activities of essential oil and extracts from *Stevia rebaudiana* Bertoni leaves." 2011, 44(9), 1865-1872.
6. Lemus MR and Vega GA, "Stevia rebaudiana Bertoni, source of a high-potency natural sweetener: A comprehensive review on the biochemical, nutritional and functional aspects." 2012, 132(3), 1121-1132.
7. Savita SM and Sheela K, "Stevia rebaudiana—A functional component for food industry." *J. Hum. Ecol.* 2004, 15(4), 261-264.
8. Castro MR and Díaz ME, "Membrane separation processes for the extraction and purification of steviol glycosides: an overview." 2020, 1-23.
9. Narula P and Pal B, "A comprehensive review of method development by HPLC." *Wor. J. of Pharm. Res.* 2021, 10(6), 1839-1858.
10. Xu S and Wang G, "Extraction of steviol glycosides from *Stevia rebaudiana* (Bertoni) leaves by high-speed shear homogenization extraction." *J. of Food Process. and Preser.* 2019, 43(12), 1-12.
11. Aranda GI and Moguel OY, "Validation of HPLC-UV method for determination of minor glycosides contained in *Stevia rebaudiana* Bertoni leaves." *Biomed. Chromatogr.* 2015, 29(5), 733-738.
12. Lorenzo C and Serrano DJ, "Fast methodology of analysing major steviol glycosides from *Stevia rebaudiana* leaves." 2014, 157, 518-523.
13. Rashmin P and Mrunali P, "HPTLC method development and validation: strategy to minimize methodological failures." *J. of food and drug anal.* 2012, 20(4), 794-804
14. Jaitak V and Gupta AP, "Validated high-performance thin-layer chromatography method for steviol glycosides in *Stevia rebaudiana*." *J. of pharm. and bio. Anal.* 2008, 47(4-5), 790-794.
15. Urban PL, "Quantitative mass spectrometry: an overview. *Philosophical Transactions of the Royal Society A: Mathematical, Physical and Engineering Sciences.*" 2016, 374(2079).
16. Molina CM and Medina VS, "Development and application of a quantitative method based on LC-QqQ MS/MS for determination of steviol glycosides in *Stevia* leaves." 2016, 154, 263-269.
17. Gardana C and Scaglianti M, "Evaluation of steviol and its glycosides in *Stevia rebaudiana* leaves and commercial sweetener by ultra-high-performance liquid chromatography-mass spectrometry." *J. of chromate. A.* 2010, 1217(9), 1463-1470.
18. Novotny EJ, "Overview-the role of NMR spectroscopy in epilepsy. *Magnetic resonance imaging.*" 1995, 13(8), 1171-1173.
19. Pieri V and Belancic A, "Identification and quantification of major steviol glycosides in *Stevia rebaudiana* purified extracts by 1H NMR spectroscopy." *J. of agri. and food chem.* 2011, 59(9), 4378-4384.
20. Chatsudhipong V, Muanprasat C (2009). *Stevioside and related compounds: therapeutic benefits beyond sweetness. Pharmacol. Ther.* 121:41-54.