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## UNVEILING THE POWERHOUSE: A REVIEW OF A VITAL ROLES OF DRUG REGULATORY AFFAIRS

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### ABSTRACT

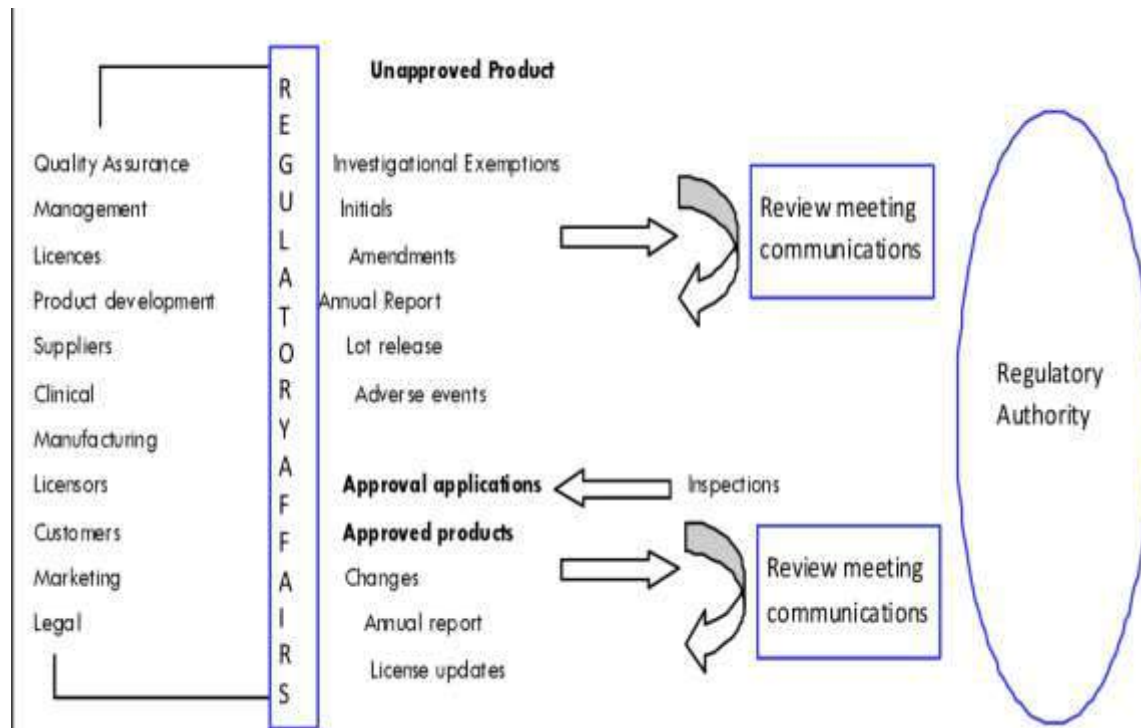
*The role of regulatory affairs in the pharmaceutical industry is crucial because the sector is expanding quickly and requires specialists in this field to meet the demands of modern industries competing on a global scale. A regulatory affairs professional serves as a liaison between the pharmaceutical industry and international government authorities. The regulatory affairs specialist works to protect human health by guaranteeing the effectiveness, safety, and appropriateness of pharmaceuticals, as well as the correctness and appropriateness of product information. Professionals in regulatory affairs (RA) are essential to the pharmaceutical industry because they care about the healthcare product lifecycle, offer operational, tactical, and strategic guidance, and support in adhering to regulations to hasten the development and distribution of safe and effective healthcare products to people all over the world. Regulatory affairs is responsible for creating and carrying out a regulatory strategy to guarantee that the combined efforts of the drug development team produce a product that is approved by international regulators while also setting the company apart from its competitors in some way.*

**KEYWORDS:** Regulatory, Registration, Harmonization, Purity, Safety.

### INTRODUCTION

Government affairs or Regulatory affairs (RA), is a profession in regulated industries like pharmaceuticals and medical devices<sup>(1)</sup>. The core of the RA profession is gathering, analyzing, and disseminating information about the advantages and disadvantages of medical products to regulatory bodies, the general public, and other stakeholders worldwide<sup>(2)</sup>. In regulated sectors like banking, energy, medical devices, and pharmaceuticals, regulatory affairs (RA), also known as government affairs, is a vocation. Within the healthcare industries (pharmaceuticals, medical devices, biologics, and functional foods), the term "Regulatory Affairs" also has a very specific meaning. Most businesses, whether they are large multinational pharmaceutical corporations or small, cutting-edge biotechnology companies, have specialized departments of

Regulatory Affairs professionals<sup>(3-6)</sup>. Today's pharmaceutical industry is methodical, well-organized, and compliant with international regulatory standards for the production of biological and chemical drugs for human and veterinary use, medical equipment, cosmetics, and traditional herbal products. Strict GMPs are being adhered to for blood and its derivatives, and controlled manufacturing is being implemented for traditional herbal medicines, cosmetics, food, and dietary products things that were not the case a century ago. Every regulatory system had to deal with specific situations, which is how the current, tightly controlled regulatory framework came to be. This has led to the methodical production and marketing of medications that are high-quality, safe, and effective. The complexity of local laws has increased along with industry growth, necessitating the need for regulatory specialists<sup>(4)</sup>.



**Figure 1: Spectrum of Regulatory Affairs.**

### WHAT IS REGULATORY AFFAIRS ?

Reaching a commercially significant goal within a drug development organization requires a special combination of science and management. Touches everything relating to drugs from the earliest non-clinical studies, through development, into routine manufacture and marketing, can add significant impact for both drug companies and patients<sup>(7)</sup>. Governments established the new field of regulatory affairs to safeguard public health by regulating the efficacy and safety of goods in a variety of categories, such as pharmaceuticals, veterinary medications, medical devices, pesticides, agrochemicals, cosmetics, and complementary and alternative therapies. The businesses that produce and market these goods have an obligation to guarantee that the general public receives high-quality goods for their health and well-being. Nowadays, the majority of businesses have specialized departments with regulatory affairs specialists<sup>(8)</sup>. In addition to contributing to the creation of product marketing concepts, the regulatory affairs division is typically in charge of approving packaging and advertising prior to their commercial use. All of the company's export markets' regulatory requirements must be known to their regulatory affairs departments.

### WHY IS REGULATORY AFFAIRS NEEDED ?

Drug development and commercialization are heavily regulated; the road to drug registration (Marketing Approval) is well-meaning but occasionally difficult to navigate. Everything is always changing.

### PARAMETER OF REGULATORY AFFAIRS

- Plan of Development = Design
- Coordination involves writing, reviewing, and supervising;
- construction involves assembling and managing submissions;
- testing determines where the weaknesses are. Drug regulations
- national laws (such as the US CFR and UK's Medicines Act)
- regional laws (EC directives)
- National and regional guidelines
- international guidelines (ICH) are just a few examples<sup>9</sup>.

### IMPORTANTS OF DRUG REGULATORY AFFAIRS

A product's ability to reach the market faster is a critical parameter in the current global competitive environment, and the company's success depends on this. Thus, maintaining appropriate control over its regulatory affairs operations is crucial for the business's financial success. In the current competitive landscape, a product's and consequently the business's success depends on how quickly it can reach the market. This makes the company's ability to properly handle its regulatory affairs operations crucial from an economic standpoint. Insufficient data reporting could impede a prompt and favorable assessment of a marketing application<sup>(10)</sup>. The development of a new medication may have required many millions of euros, dollars, or pounds, and even a three-month wait for it to reach the market carries significant financial implications. Throughout the course of the



product's life, a competent regulatory affairs professional will coordinate scientific endeavor with regulatory requirements with a "right first time" approach, thereby optimizing the cost-effective use of company resources<sup>(11)</sup>.

### SCOPE OF DRUG REGULATORY AFFAIRS IN INDUSTRY

Professionals in regulatory affairs work in government regulatory agencies, the private sector, and academia. The diverse spectrum of regulatory experts encompasses the following fields:

- Medicinal Products
- Health care gadgets
- Biotechnology
- biologics In vitro diagnostics
- Nutritional Items.
- Cosmetic products.

### ROLES OF DRUG REGULATORY AFFAIRS

- The pharmaceutical industry's Regulatory Affairs (RA) department is in charge of securing approval for new pharmaceutical medicines or drugs and overseeing the approval maintenance process for as long or as long as desired<sup>(12)</sup>
- Regulatory affairs experts offer technology and strategic guidance to quality control from the outset of product development. Research and development, the production division, and other departments all make substantial financial and scientific contributions to the development of a Development program and the business<sup>(13)</sup>.

- Stay up to date with international laws, regulations, and customer practices.
- Verify that the product offered by a company complies with the current regulations.
- Keep abreast of a company's product line.
- Oversee the examination of audit reports and oversee compliance, regulatory, and client inspections.
- The job of a regulatory affairs professional is to stay up to date with the constantly evolving laws in every area where a company wants to Supply its product with guidance on the legal and scientific limitations and specifications, as well as gather and assess the scientific Data that their colleagues and research are producing<sup>(14)</sup>.
- Regulations are legally binding instructions issued by an agency that specify how to interpret and abide by the law; infractions of regulations frequently result in the FDA website's "issued warning letter" sections, which is advantageous to the pharmaceutical industry.
- Preserve the authorized application and documentation of registration fees paid in response to DMF (Drug Master File) and other Records<sup>(15)</sup>.
- A regulatory affairs professional assistance company that prevents issues brought about by improperly maintained records and unsuitable scientific reasoning, or Data presentation is subpar.
- A proficient Regulatory Affairs specialist will possess "correct first time" methodologies and will significantly and significantly contribute to Balancing scientific advancement with regulatory requirements over the course of a product's life to optimize cost-effectiveness<sup>(16)</sup>.



Figure 2: Role of Regulatory Affairs In Different Departments.



- Preclinical Research: studies in toxicology and pharmacology.
- Clinical trails include writing papers, obtaining evidence, and interpreting math.
- In the manufacturing process, numerous measures are implemented to guarantee that the products are effective and hygienic.
- Quality Control: Examining substances for potency, safety, purity, and quality.
- Quality Assurance: - comprises tasks like record processing, auditing, complaints, defeat audits, and auditing<sup>(17)</sup>.

### Regulatory Affairs In Product Management:

A RA professional's primary responsibility extends beyond product registration; they provide top-level strategic and technical advice to businesses. Their involvement starts with the product's development and continues through its creation, promotion, and after-marketing plans. Their guidance at every turn, concerning legal and technical requirements, saves businesses a great deal of time and money when creating and promoting their products. The World Trade Organization's trade regulations between nations and the World Health Organization's guidelines on health matters are followed by those countries without their own regulations<sup>(18)</sup>.

### Regulatory Affairs In Clinical Trials :

The Regulatory Affairs (RA) professional serves as the company's main point of contact with international regulatory bodies, including the US Food and Drug Administration (USFDA) and the Center for Devices and Radiological Health, the United Kingdom<sup>175</sup> (UKMCA), the Therapeutic Goods Administration, the European Medicines Agency of Australia, the Organization for Economic Collaboration and Development (OECD), and Health Canada. Additionally, he provides the other company departments with communication and interpretation of the seemingly never-ending maze of laws, regulations, and guidelines. The RA staff creates plans to get around obstacles and submits clinical trial results to regulatory agencies for prompt clearance, which shortens the time it takes for new compounds to be approved. Fundamentally, the role of a RA professional is to assist in gathering, analyzing, and communicating information regarding risks and benefits<sup>(19)</sup>.

### Regulatory Affairs In Research And Development:

The regulatory affairs staff collaborates closely with marketing and research and development to create cutting-edge products that shorten time to market by utilizing recent advancements in technology and regulations. Smaller time to market improvements translate into substantial material increases in revenue and profit for the company, since new products are anticipated to significantly boost revenue and profitability. Using flexible clinical trial techniques, getting regulatory authority approval quickly, and avoiding process pitfalls can speed up the creation of new products and cut down on expensive mistakes and delays.

### Working of Regulatory Affairs Information

The regulatory department serves as a hub for both incoming and outgoing information and acts as the company's or sponsor's interface with the outside world. To effectively implement regulations and achieve success in objective public measures (like approvals) as well as internal ones (like reward and recognition),

### Gathering Information

Every piece of information must be ethically sound documentation. Information can be gathered from any chance to see, hear, or speak with a regulator, an expert in drug development with more experience, a colleague, or a declared adversary. Reviewing published sources of information, both governmental and commercial, shouldn't be necessary<sup>(20)</sup>.

### Communicating Information

Non-critical information is the easiest to exchange and communicate. Reaching the appropriate audience without boring them to the point where they lose interest in the valuable information is the primary challenge with such data. The majority of businesses use email for internal regulatory information updates or news updates. One idea is to use well-known Web pages as models to create something lighthearted and approachable. Critical information is the kind of information that is challenging to convey. This could refer to any information that is crucial to a project's success or failure, such as crucial FDA feedback. In order for us to completely comprehend the information and its implications, the first thing to do is meticulously document it. Next, consider those people who combine that need to know<sup>(15)</sup>.

## RESPONSIBILITY OF DRUG REGULATORY AFFAIRS

It is the responsibility of the regulatory affairs specialist to stay up to date with the constantly evolving laws in every area where the business plans to sell its goods. They also offer guidance. On the limitations and requirements imposed by law and science, and Gather, compile, and assess the scientific information that their Colleagues in development and research are producing<sup>(16)</sup>.

They handle all of the ensuing negotiations required to keep marketing, as well as presenting registration documents to regulatory bodies. Approval for the aforementioned products. They provide tactical And technical guidance at the pinnacle of their organizations, From the very beginning of a product's development, Providing a significant contribution in terms of both commerce and Scientifically to a development program's success and The entire business<sup>(17)</sup>.

A new pharmaceutical product can take up to 15 years to develop and market, and there are numerous issues that can come up during the scientific development process and as a result of a Shifting regulatory landscape<sup>(18)</sup>.





Professionals in regulatory affairs (RA) assist the business in avoiding issues brought on by improperly maintained records, erroneous scientific theories, or Data presentation is subpar. In the majority of product categories where Regulatory mandates are enforced, limitations are also Based on the assertions that the product may make In advertising or on labels<sup>(19)</sup>.

List of responsibilities of RA Department:

- Stay informed about global laws, regulations, and consumer behavior.
- Stay current with a company's line of products.
- Verify that a company's products adhere to the laws as they stand at the moment.
- Create a regulatory strategy for each and every regulatory submission that is necessary for contract projects, international projects, and/or domestic projects.
- The responsibility of the regulatory affairs specialist is to maintain of the constantly evolving laws in every area where The company wants to sell its goods. They also offer guidance.Regarding the limitations and requirements imposed by law and science, and Gather, compile, and assess the scientific information that their Colleagues in research and development are producing<sup>(21)</sup>.
- Organize, compile, and evaluate all pertinent paperwork (such as a dossier), then deliver it to the appropriate authorities in a predetermined amount of time. Conjugation with the institution.
- Maintain approved applications and the record of Registration fees paid against submission of DMF's and other Documents.
- Professionals in regulatory affairs assist the business in avoiding issues brought on by improperly maintained documentation, inappropriate scientific reasoning, or subpar presentation of Data. In the majority of product categories where legal specifications are enforced, limitations are likewise put on the claims.Which can be created for the product either in the labeling Marketing.
- Oversee the review of audit reports and oversee customer, regulatory, and compliance inspections<sup>(22)</sup>.
- Provide R&D, Pilot Plant, ADI, and RA Team members with training regarding the most recent regulatory requirements.

## CONCLUSION

Many in the regulatory affairs profession think that the New Approach to regulation will eventually be used for all medical products since it is the most effective way to bring new medical advancements to market in a timely manner while maintaining a suitable level of safety. The department that is least affected by acquisitions, mergers, and recessions is regulatory affairs, which is continuously changing and expanding. The number of Regulatory Affairs departments in businesses is increasing. Some businesses also decide to outsource or outtask regulatory affairs to outside service providers due to the fluctuating resources required to meet regulatory requirements. In the current

competitive landscape, a product's and thus the business's success depends on how quickly it can reach the market.

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# STATUS OF PERSONS WITH DISABILITY IN INDIA: AN ANALYSIS

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## ABSTRACT

Persons with disabilities are among the most marginalized and overlooked groups worldwide, with limited opportunities for social and economic progress (as noted by Amartya Sen and James D. Wolfensohn in 2014). It's important to recognize that individuals with disabilities are not a homogenous entity; rather, they encompass a diverse range of disability types, each with its unique challenges and requirements for specialized care and support, as pointed out by (Leni Chaudhuri in 2006). India, in particular, has a substantial population of individuals with disabilities. According to the 2011 Census of India, this demographic accounted for approximately 26.8 million people, constituting 2.21 percent of the country's total population. In this backdrop the present study has objectives are to know the growth rate of disabled population in across the states in India; to study the educational status of persons with disability in different states in India; to examine the work participation rate of disabled population in across the states in India and lastly, to offer policy suggestions for upliftment of the disabled persons in india. The study is based on purely secondary data. the data collected from different sources like Census of India 2011 and <https://disabilityaffairs.gov.in>. the study has also used simple statistical tools such as percentage, decadal growth rate and rank for the analyses. the study observes significant variations in the trends of the disabled population growth in different states of India. The overall data reflects the combined figures for both literate and illiterate disabled individuals and mirrors the gender and urban-rural disparities observed in the subgroups. the disparity in literacy rates between disabled and non-disabled populations in different states and union territories. the study found that the disabled males have a significantly higher work participation rate compared to disabled females, regardless of whether they live in rural or urban areas. Rural areas have a slightly higher work participation rate among disabled individuals than urban areas. The study suggested that to develop and implement gender-sensitive policies and programs to address the gender disparities in disability rates in India level; To focus on inclusive education programs to reduce illiteracy rates among disabled individuals, with a particular emphasis on rural areas in India and to promote inclusive employment opportunities, especially for disabled females, to reduce gender disparities in workforce participation.

**KEYWORDS:** Disability, Educational Attainment, Growth Rate, Districts, States.

## 1. INTRODUCTION

The most marginalized and neglected groups of people worldwide are not just persons with disabilities. The prospects for social and economic advancement are completely denied to persons with disabilities (Amartya Sen and James D. Wolfensohn 2014). To this disadvantaged group of the population, fundamental services including employment, education, and health care are denied. On the other hand, people with disabilities are not a homogeneous group; there are various types of disabilities, each of which has its own challenges and needs distinct care and assistance (Leni Chaudhuri, 2006). India has a significant population of people with disabilities. According to the 2011 Census of India, there were around 26.8 million people with disabilities, accounting for 2.21 percent of the total population of the country. However, disability rights activists and organizations argue that the actual number may be higher due to underreporting.

In terms of the status of people with disabilities, India has made significant progress in recent years in terms of legislation and policy measures. The Rights of Persons with Disabilities Act, 2016 replaced the earlier Persons with Disabilities Act, 1995, and provides a more comprehensive framework for protecting the rights and promoting the welfare of people with disabilities.

However, there are still significant challenges that people with disabilities face in India, such as lack of access to education, employment, healthcare, and social services. Many public spaces and buildings are not accessible, and the attitudes and beliefs of society towards disability can be mark out and discriminatory. The present study focused on examine the status of disabled population in india by across the states, in terms growth of the disabled population, status of educational and working of disabled population in india.



## 2. OBJECTIVES OF THE STUDY

1. To know the growth rate of disabled population in across the states in india.
2. To study the educational status of persons with disability in different states in india.
3. To examine the work participation rate of disabled population in across the states in India.
4. 4.To offer policy suggestions for upliftment of the disabled persons in india.

## 3. METHODOLOGY OF THE STUDY

The study is based on purely secondary data. The data collected from different sources like census of india 2011 and <https://disabilityaffairs.gov.in>. the study also used simple statistical tools such as percentage, decadal growth rate and rank for the analyses. With this backdrop to know the status of disabled population by across the states in india. In terms of decadal changes in disabled population, educational status and work participation of disabled population in India.

## 4.RESULT AND DISCUSSION

The data reveals in the table no 1 the distribution of the disabled population in India in 2011, categorized by gender and in terms of the total population. Among males, the percentage of disabled individuals is 2.41 percent, and this translates to approximately 1.5 crore (15 million) disabled males in India. This is out of a total male population of 62.32 crores (623.2 million). Among females, the percentage of disabled persons is slightly lower at 2.01 percent, which corresponds to approximately 1.18 crore (11.8 million) disabled females in India. This is out of a total female population of 58.76 crores (587.6 million). When considering the total population, the overall percentage of disabled persons is 2.21 percent. This equates to around 2.68 crores (26.8 million) disabled individuals in India out of a total population of 121.08 crores (1.21 billion).

**Table no 1: Distribution of Disabled Population and Total Population by Gender in India (2011)**

Gender	Disabled Persons (percent)	India (Crore)	
		Disabled Persons	Total Population
Male	2.41	1.5	62.32
Female	2.01	1.18	58.76
<b>Total</b>	<b>2.21</b>	<b>2.68</b>	<b>121.08</b>

Source: Census 2011

The data reveals in the table no.2. the percentage of the disabled population across social groups and between genders in India in 2011. By Social Groups, the highest percentage of disabled individuals was found among SCs at 2.45 percent, followed by non-SC/ST groups at 2.18 percent, and STs at 2.05 percent and The overall percentage of disabled individuals in India was 2.21 percent.By Gender Distribution, among all social groups, males had a slightly higher prevalence of disability compared to females. Within the SC social group has reported at 2.68 percent of males and 2.2 percent of females were disabled. Similarly, in

STs, 2.18 percent of males and 1.92 percent of females had disabilities and in non-SC/ST groups, 2.37 percent of males and 1.98 percent of females were disabled.

Overall, the study found that there is an importance of recognizing and addressing these disparities when addressing the needs and rights of disabled persons in various social groups and gender categories. Efforts should be made to ensure equitable access to support and resources for all disabled persons, taking into account these variations.

**Table no.2: Percentage of disabled population by social group in India (2011)**

Social Groups	India		
	Male	Female	Overall
SC	2.68	2.2	2.45
ST	2.18	1.92	2.05
Non-SC/ST	2.37	1.98	2.18
<b>Total</b>	<b>2.41</b>	<b>2.01</b>	<b>2.21</b>

Source: Census 2011

The table no, 3 provides the percentage of decadal growth rates for the disabled population and the total population in India. By going gender, the decadal growth rate for disabled males stands

at 18.88 percent, exceeding the growth rate of the total male population, which is 17.09 percent. On the other hand, for females, the growth rate among the disabled population is



significantly higher at 27.13 percent, compared to 18.33 percent for the entire female population. Finally, the overall higher decadal growth rate among disabled persons (22.38 percent) compared to the general population (17.69 percent).

By Area, in rural areas, the decadal growth rate for the disabled population is 13.69 percent, slightly exceeding the growth rate of the total rural population at 12.25 percent. Similarly, in urban areas, the decadal growth rate for the disabled population is notably higher at 48.21 percent compared to 31.8 percent for the

total urban population and the overall decadal growth rate for the disabled population is 22.38 percent, which exceeds the total population growth rate of 17.69 percent.

Overall, the decadal growth rate for the disabled population is higher than that of the total population in both urban and rural areas. Additionally, it's worth noting that the growth rate for disabled females significantly beats that of disabled males and the total population for their respective genders.

**Table no 3: Percentage of decadal growth rate in disabled population and total population in India (2001-2011)**

Gender/Area	Total Disabled Population India	Total Population India
Male	18.88	17.09
Female	27.13	18.33
<b>Total</b>	<b>22.38</b>	<b>17.69</b>
Rural	13.69	12.25
Urban	48.21	31.8
<b>Total</b>	<b>22.38</b>	<b>17.69</b>

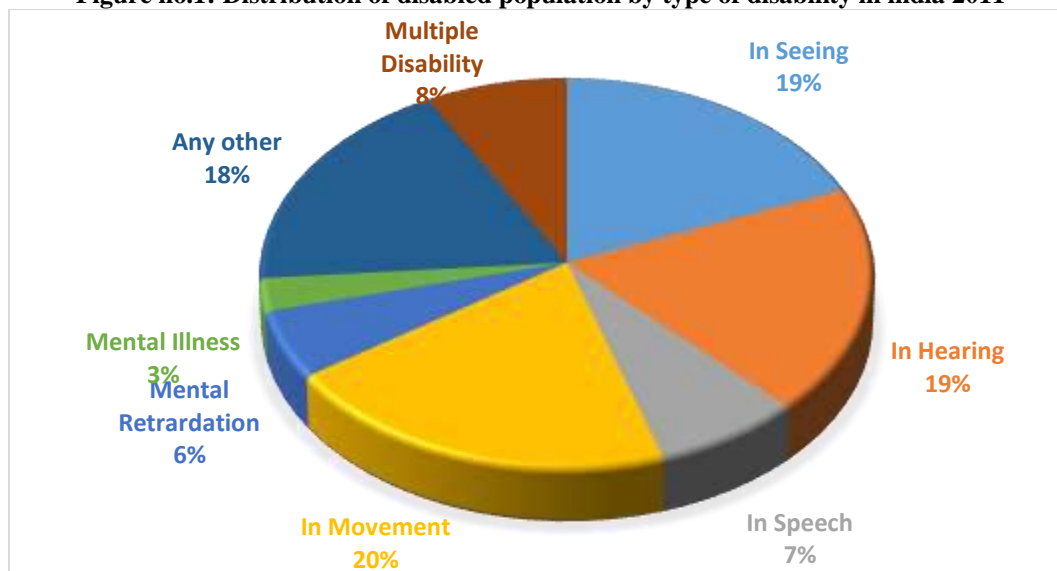
Source: Census 2011

The figure 1 provides the distribution of the disabled population in India in 2011 based on different types of disabilities. The highest percentage of disability is in Movement at 20.28 percent. This indicates that a significant portion of the disabled population in India in 2011 had mobility-related disabilities. Followed by, the second-highest percentage is in Hearing at 18.91 percent, In Seeing comes in third, with 18.77 percent of the disabled population experiencing visual impairments. Any other disability type has a relatively high percentage at 18.38 percent. Multiple Disability is the next highest category at 7.89 percent, In Speech disabilities are 7.45 percent, showing that a smaller portion of the disabled population had speech-related disabilities. Mental

Retardation accounts for 5.62 percent of the disabled population, indicating a relatively lower prevalence. But The lowest percentage is for Mental Illness at 2.70 percent, suggesting that this type of disability had the lowest prevalence among the disabled population.

Overall, the study found that the in Movement had the highest percentage of disabled persons, while Mental Illness had the lowest. Understanding the distribution of these disabilities is crucial for tailoring support and services to the specific needs of each group.

**Figure no.1: Distribution of disabled population by type of disability in india 2011**



Source: Census 2011



The data presented in the table 4 shows the distribution of the Differently Abled disabled population in India in 2011, categorized by type of disability and gender. The highest percentage of disability overall is in Movement at 55.90 percent. Followed by, Mental Retardation follows at 55.90 percent, Any other and Multiple Disability are both above 50 percent, with Any other at 55.36 percent and Multiple Disability at 54.93 percent, Mental Illness is just below 50 percent at 49.00 percent, In

Hearing and in Seeing have similar percentages at 52.80 percent and 52.43 percent, respectively. But, In Speech has the lowest percentage overall at 56.19 percent. The study observed that the in Movement had the highest prevalence of disability among both males and the overall population. But, In Speech had the lowest prevalence among males, females, and the overall population. These gender-wise differences highlight variations in the distribution of disability types in India in 2011.

**Table no.4: Distribution of disabled population by type of disability in India 2011**

Type of Disability	India	
	Male	Female
In Seeing	52.43	47.57
In Hearing	52.80	47.20
In Speech	56.19	43.81
In Movement	61.99	38.01
Mental Retardation	57.83	42.17
Mental Illness	57.51	42.49
Any other	55.36	44.64
Multiple Disability	54.93	45.07
<b>Total</b>	<b>55.90</b>	<b>44.10</b>

**Source:** Census 2011

Table no-5: provides the distribution of the disabled population in India in 2011, categorized by type of disability and the area of residence. In Rural Areas: The highest percentage of disability in rural areas is in Movement at 74.23 percent, followed by, Mental Retardation is the second-highest at 68.12 percent. Mental Illness" follows closely at 68.60 percent. In Seeing, In Hearing, and in Speech have similar percentages in rural areas, ranging from 65.24 percent to 69.60 percent. Any other and Multiple Disability are both above 65 percent, with Any other at 66.83 percent and Multiple Disability at 74.85 percent. Similarly, In Urban Areas; The highest percentage of disability in urban areas is "In Movement at 25.77 percent. followed by, Mental Retardation is the second-highest at 31.88 percent, "Any other and Mental Illness have similar percentages in urban areas, both above 30 percent, with "Any other" at 33.17 percent and Mental Illness at 31.40 percent. In Seeing, In Hearing, and in Speech have similar percentages in urban areas, ranging from 30.40 percent to

33.11 percent. "Multiple Disability" has the lowest percentage in urban areas at 25.15 percent. Overall, the highest percentage of disability overall is in Movement at 69.49 percent. Mental Retardation follows at 68.12 percent. Mental Illness is just below 68 percent, at 68.60 percent. In Seeing, In Hearing, and in Speech have similar percentages, ranging from 65.24 percent to 69.60 percent. Any other and Multiple Disability are both above 65 percent, with Any other at 66.83 percent and Multiple Disability at 74.85 percent.

Overall, the study found that the in Movement had the highest prevalence of disability in both rural and urban areas, and overall. But, Multiple Disability had the lowest prevalence in urban areas, and in Speech had the lowest prevalence overall. These differences between rural and urban areas highlight variations in the distribution of disability types in India in 2011, with certain types of disabilities more prevalent in rural areas.

**Table no-5: Distribution of Differently Abled population by type of disability in india 2011**

Type of Disability	India	
	Rural	Urban
In Seeing	69.60	30.40
In Hearing	66.89	33.11
In Speech	65.24	34.76
In Movement	74.23	25.77
Mental Retrardation	68.12	31.88
Mental Illness	68.60	31.40
Any other	66.83	33.17
Multiple Disability	74.85	25.15
<b>Total</b>	<b>69.49</b>	<b>30.51</b>

**Source:** Census 2011

Figure 2 shows the share of the disabled population in India in 2011, categorized by age group. The age group with the highest

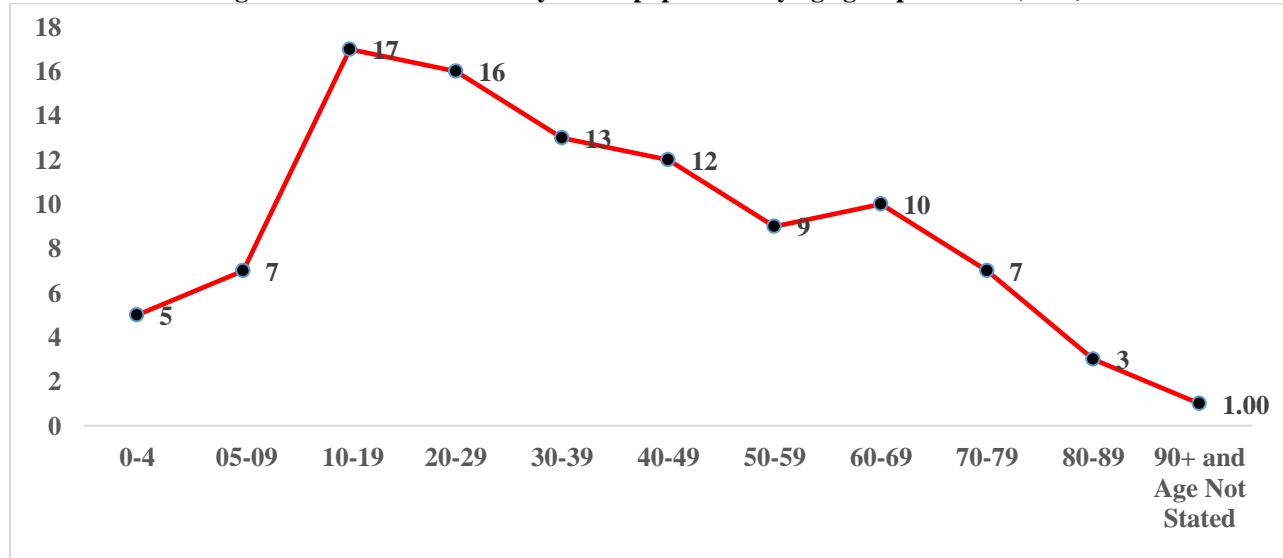
share of the disabled population is 10-19, accounting for 17 percent of the total disabled population. This suggests a higher



prevalence of disabilities among children and teenagers in this age group. Followed by, the age groups 20-29 and 30-39 follow closely, with 16 percent and 13 percent of the total disabled population, respectively. The age group "0-4" represents 5 percent of the disabled population, reflecting that even very

young children are affected by disabilities. The combined percentage for "90+" and "Age Not Stated" is 1.00 percent, which indicates a relatively lower percentage of disabled persons in these categories.

**Figure-2: Share of Differently Aabled population by age group in India (2011)**



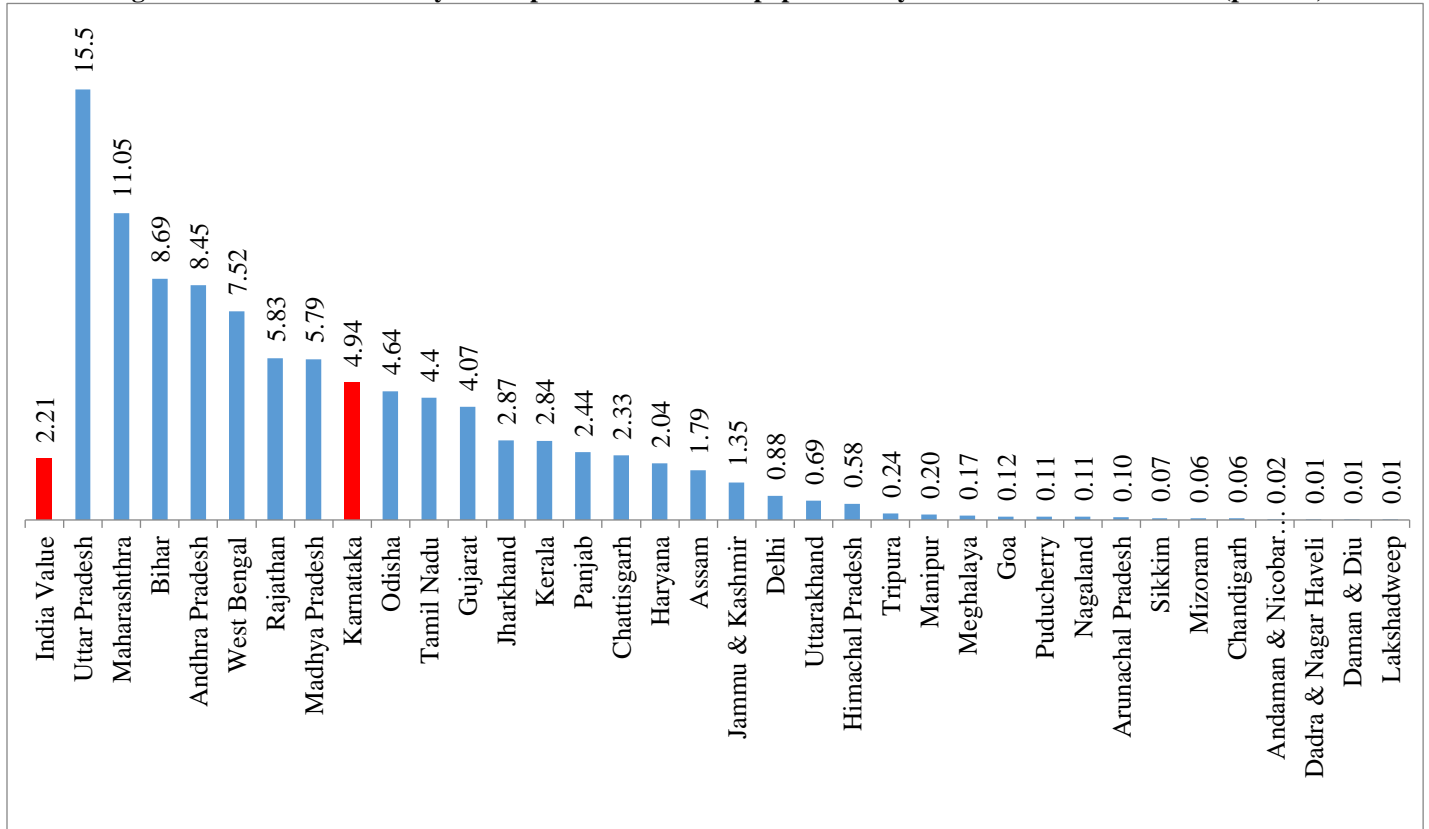
**Source:** Census 2011

The figure 3 provides information on the share of disabled population in various states and union territories in India. The overall share of disabled population in India is 2.21 percent. It can be seen that the states of Uttar Pradesh, Maharashtra, Bihar, and West Bengal have relatively high shares of disabled population, ranging from 7.52 percent to 15.5 percent. On the other hand, the union territories and small states such as Lakshadweep, Daman & Diu, Dadra & Nagar Haveli, and Andaman & Nicobar Islands have the lowest shares of disabled population, ranging from 0.01 percent to 0.02 percent.

It is important to note that the share of disabled population in a state or union territory can be influenced by several factors such as the size of the population, level of development, accessibility to healthcare, and education. Therefore, further analysis is required to understand the factors contributing to the differences in the share of disabled population across states and union territories in India.



**Figure-3: Share of Differently Aabled persons to the total population by across states in India 2011 (percent)**



Source: Census 2011

The data presented in the table 6 the growth rates of the disabled population in different states/union territories of India, Goa has the highest total growth rate of disabled population i.e. 109.61 percent, followed by Maharashtra (88.80 percent) and Manipur (90.69 percent) positive growth rates, it indicating an increase in the disabled population, but the least were found in Tamil Nadu (-28.16 percent), Arunachal Pradesh (-19.75 percent), and Daman & Diu (-30.75 percent) experienced negative growth rates, indicating a decrease in the disabled population.

Similarly, in Andhra Pradesh has the highest rural growth rate of disabled population (44.04percent), followed by Jharkhand (71.25percent) and Manipur (72.04percent) compare to the other states such as, Chandigarh (-79.11percent), Daman & Diu (-58.67percent), and Lakshadweep (-59.96percent) had the lowest rural growth rates, suggesting a decline in the disabled population in rural areas. Going by urban disabled population growth rate, in Goa has the highest urban growth rate i.e. 155.77percent,

followed by Andhra Pradesh (139.57percent) and Maharashtra (136.20percent). Tamil Nadu (-19.97percent), Arunachal Pradesh (-24.46percent), and Bihar (45.86percent) had relatively lower urban growth rates.

while the total population growth rate for India is 17.69 percent, the growth rate for the disabled population is slightly higher at 22.38 percent. Similarly, the urban growth rate for the disabled population (48.21 percent) is higher than the overall urban population growth rate (31.80 percent).

Comparing the growth rates across states and union territories, the study observes significant variations in the trends of the disabled population growth in different regions of India. Some states, like Goa and Maharashtra, experienced high growth rates in both total and urban populations, while others had negative growth rates. The growth rates in rural areas also varied among the states, with some showing positive growth and others indicating a decline.



**Table no-6: Growth rate of Differently Aabled Population in India by states (2011)**

States/UT	Total Growth Rate	Rural Growth Rate	Urban Growth Rate
Andaman & Nicobar Islands	-5.63	-3.97	-9.87
Andhra Pradesh	66.05	44.04	139.57
Arunachal Pradesh	-19.75	-18.75	-24.46
Assam	-9.47	-11.25	3.89
Bihar	23.49	20.91	45.86
Chandigarh	-4.78	-79.11	4.09
Chattisgarh	48.83	44.42	69.18
Dadra & Nagar Haveli	-18.63	-40.17	71.76
Daman & Diu	-30.75	-58.67	9.91
Delhi	-0.43	-54.47	2.84
Goa	109.61	70.84	155.77
Gujarat	4.48	-20.70	60.02
Haryana	20.07	5.26	63.74
Himachal Pradesh	-0.41	-1.44	13.02
Jammu & Kashmir	19.32	19.26	19.53
Jharkhand	71.73	71.25	73.39
Karnataka	40.78	19.90	90.16
Kerala	-11.50	-35.95	62.89
Lakshadweep	-3.75	-59.96	76.92
Madhya Pradesh	10.18	4.27	28.19
Maharashthra	88.80	63.29	136.20
Manipur	90.69	72.04	143.35
Meghalaya	53.86	65.20	11.35
Mizoram	-5.32	-10.98	3.37
Nagaland	11.82	0.12	104.16
Odisha	21.84	21.65	23.00
Panjab	16.75	10.90	20.18
Puducherry	54.07	44.88	75.48
Rajathan	10.74	9.90	13.85
Sikkim	-10.70	-14.60	29.62
Tamil Nadu	-28.16	-34.21	-19.97
Tripura	9.17	-7.91	91.36
Uttar Pradesh	20.39	17.03	32.55
Uttarakhand	-4.88	-13.39	28.13
West Bengal	35.65	1.08	34.28
<b>Total disabled Population</b>	<b>22.38</b>	<b>13.69</b>	<b>48.21</b>
<b>Total Population</b>	<b>17.69</b>	<b>12.25</b>	<b>31.80</b>

Source: Census 2011



Table 7 presents the share of the disabled population in India by literacy level during 2011. By gender, Among the literate disabled population, there is a significant gender disparity, with 63.95 percent being male and 36.05 percent female. This indicates a higher percentage of literate disabled males. In contrast, among the illiterate disabled population, the gender disparity reverses, with 46.24 percent being male and 53.76 percent female. A higher proportion of illiterate disabled individuals are females.

By residence, there is a substantial urban-rural divide in terms of disability and literacy. In rural areas, 62.32 percent of the disabled population is literate, while in urban areas, it's 37.68 percent. This indicates that a higher proportion of literate disabled individuals resides in rural areas. Similarly, in rural areas, a significant

majority of the disabled population, 78.1 percent, is illiterate, while in urban areas, the illiteracy rate is much lower at 21.9 percent. This highlights the pronounced disparity in literacy levels between rural and urban areas. The overall data reflects the combined figures for both literate and illiterate disabled individuals and mirrors the gender and urban-rural disparities observed in the subgroups.

These disparities emphasize the need for targeted efforts to address gender-based discrepancies in disability and literacy, as well as the importance of improving educational accessibility in rural regions to ensure equal opportunities for all disabled individuals, regardless of their gender or place of residence.

**Table no-7: Share of Differently Abled population by literacy rate in India 2011 (percent)**

Literacy Level	Gender/Area	India
Literate	Male	63.95
	Female	36.05
	<b>Total</b>	<b>100</b>
	Rural	62.32
	Urban	37.68
	<b>Total</b>	<b>100</b>
Illiterate	Male	46.24
	Female	53.76
	<b>Total</b>	<b>100</b>
	Rural	78.1
	Urban	21.9
	<b>Total</b>	<b>100</b>

Source: Census 2011

Table 8 presents the share of educational status among the disabled population in India in 2011, categorized by residence for each type of disability, rural areas generally exhibit a higher percentage of literate disabled persons in comparison to urban areas. Notably, In Movement stands out with the highest literacy rate among all disability types, reaching 71.06 percent in rural areas. Mental Illness also displays a relatively high literacy rate, accounting for 66.19 percent in rural areas. In contrast, urban areas typically report a higher illiteracy rate for all disability types when compared to rural areas. The majority of illiterate disabled

individuals reside in urban areas. In Speech and Mental Illness record the highest illiteracy rates among all types of disabilities, with roughly equal distributions between rural and urban areas. The overall data combines figures for both literate and illiterate disabled persons, highlighting the urban-rural disparities observed in the subcategories. It reveals that 63.95 percent of the literate disabled population is in rural areas, while 36.05 percent are in urban areas. Conversely, 46.24 percent of the illiterate disabled population is in rural areas, while 53.76 percent are in urban areas.

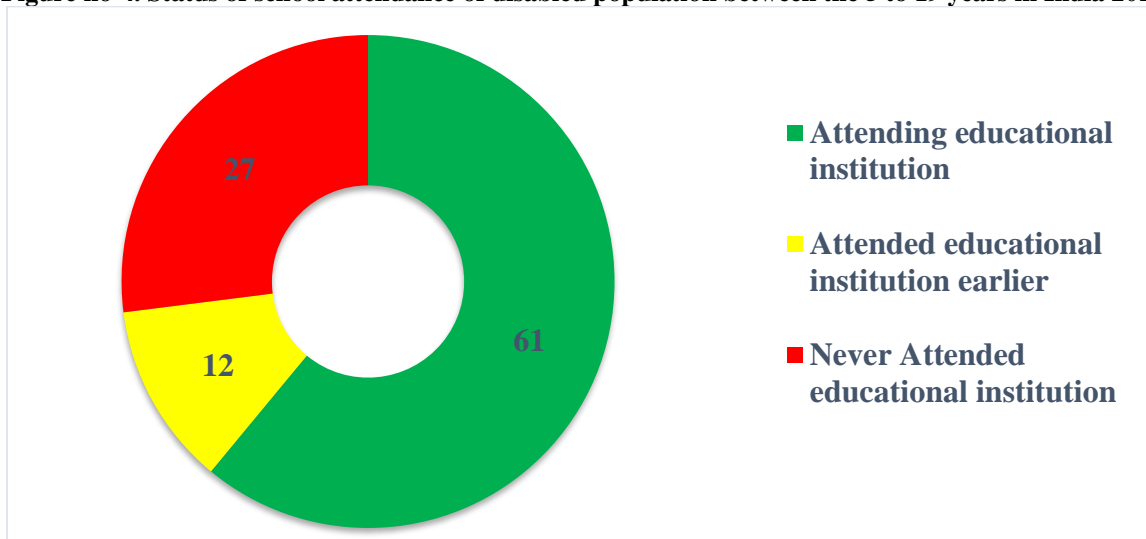
**TableNo-8: Share of Educational status of type of disability by residence in India 2011 (percent)**

Type of Disability	India			
	Literate		Illiterate	
	Rural	Urban	Rural	Urban
In Seeing	61.98	38.02	41.77	58.23
In Hearing	60.66	39.34	42.41	57.59
In Speech	60.6	39.4	50.02	49.98
In Movement	71.06	28.94	48.28	51.72
Mental Retardation	63.34	36.66	53.95	46.05
Mental Illness	66.19	33.81	49.25	50.75
Any other	61.55	38.45	46.07	53.93
Multiple Disability	66.86	33.14	48.98	51.02
<b>Total</b>	<b>63.95</b>	<b>36.05</b>	<b>46.24</b>	<b>53.76</b>

Source: Census 2011

The data reveals in the figure no 4 shows the status of school attendance of disabled population between the 5 to 19 years in india A significant majority, 61 percent, were attending school, which is a positive indicator of access to education for this age group among the disabled population. Concern, the 12 percent figure suggests that a portion of disabled individuals in this age

group may have discontinued their education for various reasons. However, the 27 percent who have never attended an educational institution should be a focus for educational and policy interventions to ensure inclusive education for all, regardless of disability.

**Figure no-4. Status of school attendance of disabled population between the 5 to 19 years in India 2011**

Source: Census 2011

The data provided table no 9 the percentage of literacy rate among disabled persons compared to the percentage of literacy rate in the general population. In Kerala leads with the highest literacy rate among disabled persons at 70.79 percent, which is only slightly lower than the general population's literacy rate of 93.91 percent. Goa follows closely with a literacy rate of 70.31 percent among disabled individuals, compared to the general population's literacy rate of 87.4 percent. Chandigarh boasts a literacy rate of 67.66 percent among disabled persons, higher than the general population's literacy rate of 86.43 percent.

Similarly, In Arunachal Pradesh has the lowest literacy rate among disabled persons at 38.75 percent, which is significantly lower than the general population's literacy rate of 66.95 percent.

Rajasthan also has a low literacy rate among disabled individuals at 40.16 percent, compared to the general population's literacy rate of 67.06 percent. Jammu & Kashmir: Jammu & Kashmir reports a literacy rate of 41.8 percent among disabled persons, lower than the general population's literacy rate of 68.74 percent. The national average literacy rate among disabled individuals in India is 54.52 percent, while the general population's literacy rate is 74.04 percent.

States like Kerala, Goa, and Chandigarh perform well in terms of literacy rates among disabled persons, approaching or even greater the general population's literacy rates. This indicates a strong commitment to inclusive education and accessible resources in these regions. But, in contrast, states like Arunachal



Pradesh, Rajasthan, and Jammu & Kashmir have significantly lower literacy rates among disabled individuals compared to the general population. This suggests a need for targeted efforts to improve access to education and literacy programs for disabled individuals in these areas.

Overall, the data highlights the disparity in literacy rates between disabled and non-disabled populations in different states and union territories. Ensuring equal access to education and literacy programs for disabled individuals is essential to bridge this gap and promote social inclusion and empowerment.

**Table no-9: Distribution of literacy rate among Differently Aabled persons and total population literacy rate by across the states in India 2011**

Rank	States/UT's	Percentage of Literacy rate of total disabled persons	Percentage of literacy rate of general population
1	Kerala	70.79	93.91
2	Goa	70.31	87.40
3	Chandigarh	67.66	86.43
4	Maharashtra	67.64	82.91
5	Tripura	66.37	87.75
6	Lakshadweep	66.25	92.28
7	Andaman & Nicobar Islands	65.45	86.27
8	Delhi	65.32	86.34
9	Puducherry	63.09	86.55
10	Gujarat	62.84	79.31
11	Daman & Diu	62.02	87.07
12	Mizoram	61.92	91.58
13	Tamil Nadu	60.66	80.33
14	Karnataka	59.45	75.60
15	Manipur	58.64	79.85
16	West Bengal	57.34	77.08
17	Punjab	56.62	76.68
18	Himachal Pradesh	55.97	83.78
19	Uttarakhand	55.59	79.63
20	Haryana	54.51	76.64
21	Odisha	53.17	73.45
22	Madhya Pradesh	52.54	70.63
23	Uttar Pradesh	52.12	69.72
24	Dadra & Nagar Haveli	50.76	77.65
25	Chhattisgarh	48.53	71.04
26	Andhra Pradesh	48.33	67.66
27	Assam	48.25	73.18
28	Meghalaya	47.71	75.48
29	Bihar	47.30	63.82
30	Jharkhand	46.93	67.63
31	Sikkim	45.51	82.20
32	Nagaland	43.55	80.11
33	Jammu & Kashmir	41.80	68.74
34	Rajasthan	40.16	67.06
35	Arunachal Pradesh	38.75	66.95
	<b>India</b>	<b>54.52</b>	<b>74.04</b>

Source: Census 2011

The data reveals in the figure 5 shows the percentage of disabled children aged 5-19 who are not attending an educational institution in various states and union territories in India. In Nagaland stands out with the highest percentage of disabled children not accessing education, at 39 percent. This number highlights a substantial accessibility gap for disabled children in

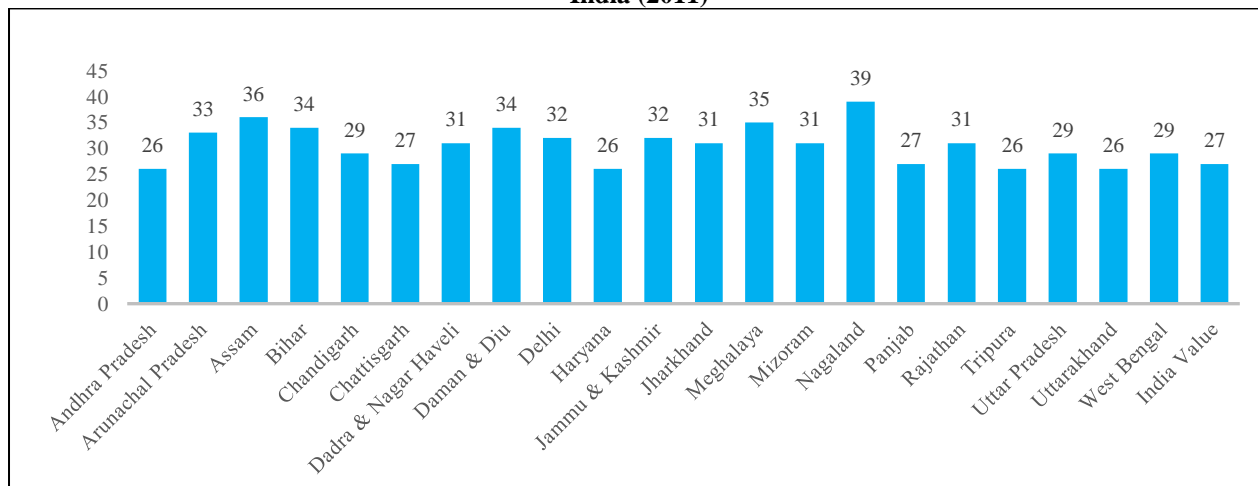
Nagaland. Several other regions also exhibit above-average rates, including Arunachal Pradesh (33 percent), Assam (36 percent), Bihar (34 percent), Daman & Diu (34 percent), and Meghalaya (35 percent). These percentages surpass the national average of 27 percent, underscoring the need for targeted efforts to improve educational access for disabled children in these areas. On the



other hand, some states such as Andhra Pradesh, Haryana, Tripura, and Uttarakhand report lower percentages (26 percent) than the national average. This suggests relatively better access to education for disabled children in these regions. By the States from different regions of India, including the North-East, North, East, and West, have both higher and lower percentages of disabled children not attending school.

Overall, the study found that there is a need for targeted policies and interventions to ensure that disabled children have equal access to education across all states and union territories. This may involve improving infrastructure, providing special education services, and raising awareness about the importance of inclusive education.

**Figure no-5: Proportion of Differently Abled children (5-19) not joining educational institution by across the states in India (2011)**



Source: Census 2011

The data presented in the table no 10 shows the share of work participation rate of disabled population in india during 2011. By gender, among disabled males, the work participation rate is notably higher than that of disabled females in both rural and urban areas. In rural areas, 47.18 percent of disabled males are workers, while in urban areas, it's 47.20 percent. In contrast, only 25.43 percent of disabled females in rural areas and 16.09 percent in urban areas are workers. In the overall data, the pattern holds, with a significantly higher work participation rate among disabled males (47.19 percent) compared to disabled females (22.59 percent).

Work Participation Rate by Residence, in both rural and urban areas, a higher proportion of disabled individuals are non-

workers. However, the work participation rate is slightly higher in rural areas than in urban areas. In rural areas, 37.58 percent of disabled individuals are workers, while in urban areas, it's 33.51 percent.

Overall, the study found that the disabled males have a significantly higher work participation rate compared to disabled females, regardless of whether they live in rural or urban areas. Rural areas have a slightly higher work participation rate among disabled individuals than urban areas. And the gender disparities are reflected, with disabled males having a higher work participation rate and rural areas having a slightly higher rate compared to urban areas.

**Table no-10: Share of work participation rate of Differently Abled population by residence and gender in India (2011)**

Residence	Gender	India	
		Workers	Non-Worker
Rural	Persons	37.58	62.42
	Male	47.18	52.82
	Female	25.43	74.57
Urban	Persons	33.51	66.49
	Male	47.20	52.80
	Female	16.09	83.91
Total	Persons	36.34	63.66
	Male	47.19	52.81
	Female	22.59	77.41

Source: Census 2011



The table no 11 shows the percentage of workers among the disabled population by across the states in india. Top-Performing States such as Nagaland (51.92 percent) secures the top position indicating that more than half of its disabled population is engaged in employment. followed by Sikkim (49.04 percent) follows closely as the second-highest performer, Arunachal Pradesh (44.69 percent), Himachal Pradesh (44.37 percent) Manipur (43.69 percent) and Maharashtra (42.13 percent) with a high rate of employment among disabled individuals. Similarly, in Lower-Performing States such as Kerala (23.59 percent) and Lakshadweep (19.88 percent) have lower percentages of workers relative to the disabled population. Delhi (27.92 percent) and Goa (28.79 percent) also show relatively lower employment rates for disabled individuals. These regions may benefit from targeted

policies and initiatives aimed at increasing employment opportunities for disabled individuals.

Overall, national average stands at 36.34 percent, indicating that, on average, about one-third of the disabled population in India is employed. The study reveals significant variability in employment rates for disabled persons across Indian states and union territories. While some regions demonstrate higher inclusivity and employment rates, others have scope for improvement. Ensuring equitable opportunities for disabled individuals in the workforce should be a priority at both the regional and national levels to promote social inclusion and economic empowerment

**Table no-11: percentage of work status of Differently Abled population across the states in India 2011**

Rank	State/UTs	Percentage of workers against disabled population
1	Nagaland	51.92
2	Sikkim	49.04
3	Arunachal Pradesh	44.69
4	Himachal Pradesh	44.37
5	Manipur	43.69
6	Maharashtra	42.13
7	Madhya Pradesh	39.56
8	Andhra Pradesh	38.61
9	Chhattisgarh	38.54
10	Karnataka	38.05
11	Meghalaya	37.74
12	Jharkhand	37.68
13	Tamil Nadu	37.46
14	Bihar	37.12
15	Mizoram	36.27
16	Daman & Diu	35.25
17	Dadra & Nagar Haveli	35.19
18	Uttarakhand	35.02
19	Uttar Pradesh	34.79
20	Gujarat	34.79
21	Rajasthan	34.65
22	Odisha	34.32
23	West Bengal	33.98
24	Assam	33.91
25	Jammu & Kashmir	33.65
26	Tripura	33.61
27	Punjab	33.07
28	Andaman & Nicobar Islands	31.49
29	Chandigarh	31.37
30	Haryana	31.22
31	Puducherry	31.00
32	Goa	28.79
33	Delhi	27.92
34	Kerala	23.59
35	Lakshadweep	19.88
	<b>India</b>	<b>36.34</b>

Source: Census 2011





## 5. MAJOR FINDINGS OF THE STUDY

- The study observed that the in Movement had the highest prevalence of disability among both males and the overall population. But, In Speech had the lowest prevalence among males, females, and the overall population.
- The age group with the highest share of the disabled population is 10-19, accounting for 17 percent of the total disabled population. The combined percentage for "90+" and "Age Not Stated" is 1.00 percent, which indicates a relatively lower percentage of disabled persons in these categories.
- the study observes significant variations in the trends of the disabled population growth in different states of India.
- The overall data reflects the combined figures for both literate and illiterate disabled individuals and mirrors the gender and urban-rural disparities observed in the subgroups.
- However, the 27 percent who have never attended an educational institution should be a focus for educational and policy interventions to ensure inclusive education for all, regardless of disability
- Overall, the data highlights the disparity in literacy rates between disabled and non-disabled populations in different states and union territories.
- Overall, the study found that the disabled males have a significantly higher work participation rate compared to disabled females, regardless of whether they live in rural or urban areas. Rural areas have a slightly higher work participation rate among disabled individuals than urban areas.
- The study reveals significant variability in employment rates for disabled persons across Indian states and union territories. While some regions demonstrate higher inclusivity and employment rates, others have scope for improvement.

## 6. SUGGESTIONS

- To develop and implement gender-sensitive policies and programs to address the gender disparities in disability rates in India level.
- To adapt interventions to address the specific needs of different regions, considering variations in disability prevalence.
- To focus on inclusive education programs to reduce illiteracy rates among disabled individuals, with a particular emphasis on rural areas in India.
- To invest in improving infrastructure and accessibility to public spaces to enhance the quality of life for disabled persons in at the district of India level.
- To promote inclusive employment opportunities, especially for disabled females, to reduce gender disparities in workforce participation.

- To raise awareness about the rights and needs of disabled persons and advocate for their inclusion in all aspects of society.

## 7. CONCLUSION

The status of the disabled population in India emphasizes the need for a multifaceted and region-specific approach to address the various challenges and disparities they face. The Indian government, along with NGOs and civil society, should work together to develop comprehensive policies and initiatives that promote inclusive education, healthcare, and employment opportunities, while also taking into account the unique characteristics of different regions. Ultimately, the goal should be to create a more equitable and inclusive society where individuals with disabilities can fully participate and contribute to their communities.

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# ABDOMINAL WALL DEFECTS: GASTROSCHISIS, DEFINITION, EPIDEMIOLOGY, PATHOGENESIS, TYPES, DIAGNOSIS AND MANAGEMENT

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## SUMMARY

**Introduction:** Abdominal wall defects are common congenital anomalies, both gastroschisis and omphalocele conform to fetal developmental anomalies that favor multidisciplinary support before and after birth. Outcomes for newborns with gastroschisis usually depend on the distinctive features of the abdominal wall defect and underlying intestinal viability, whereas omphalocele outcomes are determined by the size of the defect and the presence of other related anomalies.

**Objective:** to detail current information related to the two fetal abdominal wall defects, especially gastroschisis definition, epidemiology, pathogenesis, types, diagnosis and management.

**Methodology:** a total of 48 articles were analyzed in this review, including review and original articles, as well as clinical cases, of which 36 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: fetal abdominal wall defects, gastroschisis, prenatal anomalies, surgery and prosthetic silo.



**Results:** The incidence of gastroschisis ranges from 0.4 to 3 per 10,000 births and shows an upward pattern, the incidence of omphalocele ranges from 1.5 to 3 per 10,000 births. About 10% of infants with gastroschisis have intestinal stenosis or atresia because of vascular insufficiency due to volvulus or compression of the vascular pedicle by a narrowing abdominal ring. Periconceptional genitourinary tract infections were significantly associated with gastroschisis (OR, 1.5; 95 % CI, 1.3 to 1.9). Other significant associations presented in various studies with gastroschisis pregnancies include smoking (odds ratio (OR), 2.86; 95 % CI, 2.22-3.66), history of pregestational or gestational diabetes (OR, 2.81; 95 % CI, 1.42-5.5), and use of antidepressant medications (OR, 4.4; 95 % CI, 1.38-11.8).

**Conclusions:** Abdominal wall defects are common congenital anomalies, both gastroschisis and omphalocele represent different embryological outcomes, which depend on accurate prenatal diagnosis and referral to a multidisciplinary fetal center. Gastroschisis is a congenital anomaly of the rudimentary umbilical ring, in which there is herniation of a variable portion of viscera through the defect, with no membrane or covering sac, and its prevalence has been steadily increasing. Gastroschisis is classified into simple and complex types. Prenatal ultrasound scans can diagnose gastroschisis as early as 12 weeks of gestation. Routine preterm delivery or elective cesarean section has not been shown to improve outcome. Surgical management after birth is aimed at reduction of the herniated viscera and closure of the abdominal wall. Survival rates are usually high; however, the prognosis depends on the state of the bowel at birth. Those affected with significant intestinal alteration at birth are at higher risk of premature death or later complications. Future fetal surgery could improve the outlook and management of the condition.

**KEY WORDS:** gastroschisis, abdominal wall defect, congenital.

## INTRODUCTION

Abdominal wall defects are common congenital anomalies, where gastroschisis and omphalocele are most commonly encountered. These two are the result of errors in the embryological development of the fetal abdominal wall, being unique disorders with different clinical sequelae. Gastroschisis usually appears alone with postnatal outcomes linked to the underlying integrity of the prolapsed bowel. In contrast, omphalocele is associated with other structural anomalies or genetic syndromes that contribute more to postnatal outcomes than the omphalocele disorder. These 2 pathologies present embryologic differences, however, both gastroschisis and omphalocele are fetal developmental anomalies that benefit from multidisciplinary support before and after birth. Gastroschisis and omphalocele have reported incidences approaching 1 in 4000 live births; however, the incidence of omphalocele presented on second trimester ultrasound is as high as 1 in 1100, which highlights the significant rate of intrauterine fetal death related to diagnosis and prenatal therapies that may someday change. In counterpoint, the incidence of gastroschisis has increased in recent years. Both omphalocele and gastroschisis are usually diagnosed prenatally, and each has a related spectrum of postnatal outcomes. Outcomes for infants with gastroschisis usually depend on the distinctive features of the abdominal wall defect and underlying intestinal viability, whereas omphalocele outcomes are determined by the size of the defect and the presence of other related anomalies. Both gastroschisis and omphalocele require multidisciplinary and translational approaches. Prenatal ultrasounds also predict the high probability of intestinal atresia. The timing and mode of delivery in mothers with gastroschisis fetuses is controversial(1-9).

## METHODOLOGY

A total of 48 articles were analyzed in this review, including review and original articles, as well as cases and clinical trials, of which 36 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: fetal abdominal wall defects, gastroschisis, prenatal anomalies, surgery and prosthetic silo. The choice of bibliography exposes elements related to the two fetal abdominal wall defects, especially gastroschisis definition, epidemiology, pathogenesis, types, diagnosis and management.

## DEVELOPMENT

### Definition

It is a congenital malformation characterized by a visceral hernia usually through a right-sided abdominal wall defect to an intact umbilical cord not covered by a membrane. About 10% of affected individuals with gastroschisis present intestinal stenosis or atresia resulting from vascular insufficiency caused by a volvulus or compression of the vascular pedicle by a narrowing abdominal ring(6,10,11).

Gastroschisis is thought to be caused by an interruption in the migration of the ventral lateral body folds in the early stages of embryonic development, which forms a paramedian line defect. Normally, the elongating intestine herniates out of the abdominal cavity around the sixth week of gestation and in the next four subsequent weeks, undergoes a process of midgut rotation with the return of the intestines to the abdomen. However, if the abdominal wall is not fully created, the intestine may herniate into the amniotic cavity. Gastroschisis is usually not associated with other anomalies unlike omphalocele. Postnatal outcomes are linked to the level of intestinal disruption and subsequent gastrointestinal complications. Complex gastroschisis is any related intestinal atresia, necrosis, perforation or volvulus; simple gastroschisis has no intestinal complications. Complex gastroschisis has a high mortality rate, prolonged hospital stays, increased infectious complications and a higher risk of intestinal failure compared to simple gastroschisis(1).



### Epidemiology

There are regional variations in the incidence of abdominal wall disorders and the relative proportions of gastroschisis and omphalocele; however, the incidence of gastroschisis is between 0.4 and 3 per 10,000 births and the incidence of omphalocele ranges between 1.5 and 3 per 10,000 births(11).

Gastroschisis disproportionately affects younger mothers, mostly in mothers under 20 years of age approximately 15.7 per 10,000 live births. Prevalence rates are higher in white and Hispanic compared to black mothers. Clinical studies show that genitourinary tract infections during the periconceptional period are significantly associated with gastroschisis (OR, 1.5; 95% CI, 1.3 to 1.9). Other literature points to significant associations of pregnancies with gastroschisis with smoking (odds ratio (OR), 2.86; 95 % CI, 2.22-3.66), history of pregestational or gestational diabetes (OR, 2.81; 95 % CI, 1.42-5.5) and using antidepressant medications (OR, 4.4; 95 % CI, 1.38-11.8)(12-15).

### Pathogenesis

There are multiple embryological hypotheses to clarify the pathogenesis of gastroschisis, such as altered differentiation of the embryonic mesenchyme due to teratogenic exposure, rupture of the amniotic membrane at the base of the umbilical cord, abnormal involution of the right umbilical vein leading to a defect in the viability of the surrounding mesenchyme, disruption of the omphalomesenteric artery leading to necrosis located in the abdominal wall at the base of the cord, abnormal folding of the embryo leading to a ventral body wall defect, failure of the yolk sac and associated yolk structures to attach to the umbilical stalk, resulting in a perforation in the abdominal wall separate from the umbilicus, and amniotic rupture in the flaccid zone of the

umbilical cord secondary to genetic predisposition or exogenous factors, such as: drugs, viruses, toxins or radiation(16-19).

In recent times, Lubinsky devised a binary vascular-thrombotic model for gastroschisis, in which normal involution of the umbilical vein makes a potential site for thrombosis adjacent to the umbilical ring. Subsequent thrombosis, related to factors that increase maternal estrogen, decreases the strength of the umbilical ring, forming a site for a probable hernia. This would explain the morphological findings and epidemiological risk factors. However, there is insufficient evidence that this is happening in humans, human evidence currently supports the theory that gastroschisis is not a defect of the abdominal wall, but an anomaly of the rudimentary umbilical ring, presenting in a separation of the fetal ectoderm from the epithelium of the amnion on the right side(6,20).

### Types

Gastroschisis is subdivided into simple and complex according to the condition of the intestine.

Simple gastroschisis: intestine is in good condition without intestinal complications.

Complex gastroschisis: related to congenital intestinal complications such as atresia, perforation, ischemia, necrosis or volvulus. Closed or closure gastroschisis belongs to a subset of complex gastroschisis, in which the abdominal wall defect closes around the prolapsed intestine, generating intestinal stenosis of exit and/or entrance, atresia, ischemia, necrosis or resorption. These intestinal complications are due to a mixture of exposure to digestive compounds in the amniotic fluid and ischemia due to mesenteric constriction in the defect(6,21).

**Figure 1. Gastroschisis.**



Source: The Authors.





### Diagnosis

It is performed prenatally more than 90% of the time. Recognition of free-floating intestines outside the abdominal cavity to the right of a normally inserted umbilical cord on prenatal ultrasound is diagnostic. Prenatal diagnosis is usually made in the second trimester, however it has been reported in the twelfth week of gestation. A diagnosis of gastroschisis made in the first trimester should be judged with caution and confirmed later in gestation, because normal visceral rotation may not end until the conclusion of the first trimester(22,23).

It is possible to diagnose gastroschisis through prenatal ultrasound at 12 weeks of gestation. When gastroschisis is suspected, the corresponding ultrasound features should be observed such as:

- Appearance of the eviscerated bowel, e.g., dilatation and/or thickening.
- Identification of the cord insertion site in relation to the defect.
- Identification of eviscerated organs.
- Absence of a covering membrane or sac.
- Identification of associated malformations(24,25).

### Prenatal Management

Following the diagnosis of gastroschisis, the multidisciplinary team consisting of a pediatric surgeon, a neonatologist, an obstetrician and a social worker should provide proper counseling and care. Prenatal ultrasound can serve to show reliable predictors of postnatal outcome and better prenatal counseling. There is literature that favors delivery at less than 37 weeks gestation for fetuses with gastroschisis to reduce fetal death and neonatal morbidity, however, preterm delivery is not without probable risks, primarily those related to physiologic immaturity and preterm delivery. Among the potential risks are respiratory morbidity, neurocognitive deficits, increased mortality, cholestasis and sepsis(1,6,26).

About 30 to 40% of pregnancies with gastroschisis show spontaneous preterm labor and delivery, compared to 6% of controls. Higher rates of preterm labor were related to elevated levels of proinflammatory cytokines in the amniotic fluid. Spontaneous preterm labor was associated with markedly affected bowel loops, intestinal occlusion and stained amniotic fluid, probably connected with repeated fetal vomiting of gastrointestinal contents into the amniotic fluid, increasing the number of inflammatory mediator mediators. The incidence of intrauterine fetal death (IUFD) in pregnancies complicated by gastroschisis is close to 5%(27-31).

### Postnatal Management

The herniated bowel should be protected by covering it with a warm gauze soaked in saline solution, placing it in a central location of the abdominal wall and covering it with a plastic lining

or a plastic bag to reduce heat and fluid evaporation. It is advisable to position the patient in the right lateral decubitus position so as not to cause vascular damage due to torsion of the mesenteric vascular pedicle. Systematic aggressive fluid resuscitation or excessive maintenance fluids should not be used. Fluid boluses are recommended when there is clinical evidence of metabolic acidosis and hypovolemia(6).

### Surgical Management

Among the objectives of surgical treatment of gastroschisis are:

- The closure of the abdominal wall defect.
- The reduction of the herniated viscera into the peritoneal cavity while avoiding direct trauma to the intestine and excessive intra-abdominal pressure.

While the condition of the exposed bowel and the level of abdominovisceral disproportion predict the type and timing of surgical intervention, it is prudent to consider other factors such as gestational maturity, weight and comorbidities of the infant. The surgical alternatives for closure are:

1. Primary reduction, either with immediate closure with suture or without suture.
2. Prosthetic silo placement, gradual visceral reduction followed by delayed closure with or without suture.

After birth, the unprotected intestine is exposed to mechanical injury, dehydration, infection and pressure necrosis. To avoid these complications, 2 postnatal preventive techniques have been used as standard for the management of gastroschisis. These are either by repositioning the prolapsed bowel and subsequent closure of the abdominal wall, or by temporarily covering the prolapsed bowel with a preformed silo bag that is fixed under the abdominal wall of the newborn, leading to a gradual repositioning of the prolapsed bowel and subsequent delayed closure; secondary closure is used only in cases where primary closure is not possible. Modifications of primary closure, such as sutureless repair of the abdominal defect, using the umbilical cord and adhesive drapes, have had similar results with better benefits, but have a higher risk of umbilical hernia(32).

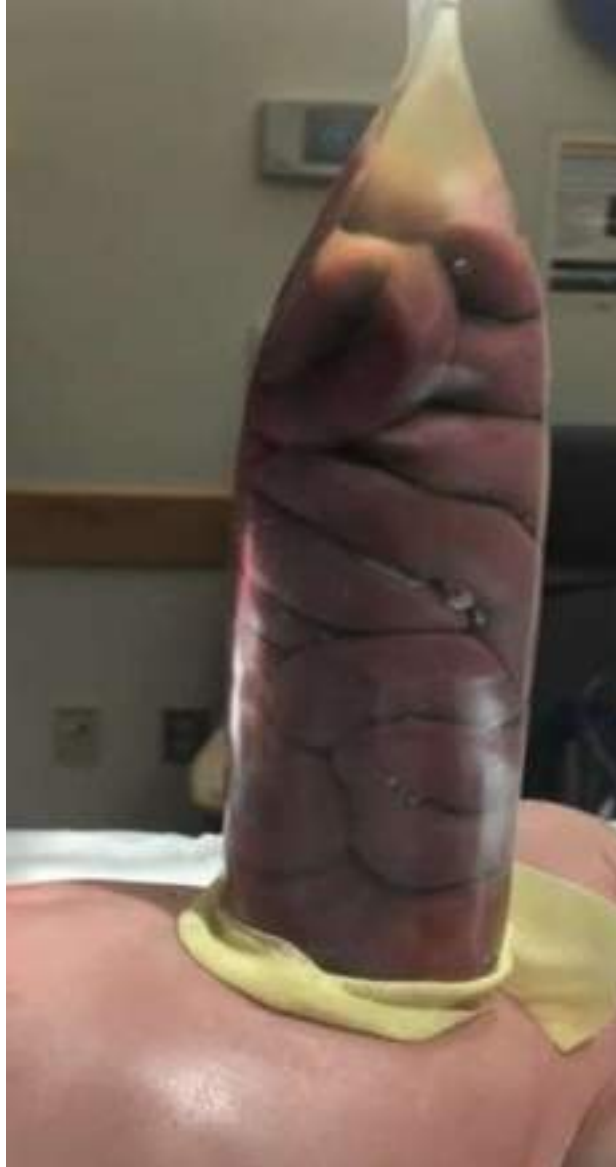
There is much controversy about the ideal surgical technique to practice and also about the best gestational age at delivery(33,34). There are some techniques for the treatment of gastroschisis such as:

- Open fetal coverage.
- Fetoscopic coverage.
- Open fetal repair.
- Open fetal ligation of the esophagus.
- Fetoscopic repair.
- EXIT procedures.
- Amnioinfusion and amnioexchange.

The most promising techniques for prenatal treatment of complex gastroschisis at the moment are amnioexchange and fetoscopic lining of the protruding bowel(32).



**Figure 2. Step reduction of gastroschisis. An image is shown with the intestinal loops placed in a silo.**



**Source:** Bhat V, Moront M, Bhandari V. Gastroschisis: A State-of-the-Art Review(6).

### **Post Surgical Management**

Usually infants present with some measure of adynamic ileus, intestinal dysmotility and nutrient malabsorption, requiring nasogastric decompression through a nasogastric tube and parenteral nutrition through a secure central venous catheter, which may be a peripherally inserted central catheter (PICC) or a tunneled catheter, Broviac Catheter. Feeding begins upon recovery of bowel function. The period for the start of feeding differs from one to two weeks, or even longer, according to the state of the bowel. Early initiation of trophic feeding can promote

peristalsis, prevent villous atrophy and decrease excessive bacterial growth. Feeding progresses slowly because feeding intolerance is common due to altered intestinal motility. Feeding expressed breast milk may help protect the infant from the development of necrotizing enterocolitis. Early oral stimulation is excellent for maintaining sucking and swallowing reflexes and preventing oral aversion. Infants with gastroschisis have abnormal esophageal motor function leading to delayed acquisition of oral feeding milestones and the possible requirement for chronic tube feeding(35,36).



**Figure 3. Stepwise reduction of gastroschisis. An image is shown with the intestinal loops reduced in the abdomen using a silo.**



**Source:** Bhat V, Moront M, Bhandari V. Gastroschisis: A State-of-the-Art Review(6).

### Prognosis

The prognosis of infants with gastroschisis varies as it is directly related to the state of the bowel at birth. About 25% of infants with simple gastroschisis and more than 70% of infants with complex gastroschisis will form posterior intestinal obstruction due to adhesions, anastomotic stricture or volvulus, theoretically necessitating several surgical interventions(6).

### CONCLUSIONS

Abdominal wall defects are common congenital anomalies, both gastroschisis and omphalocele represent different embryological outcomes, which depend on accurate prenatal diagnosis and referral to a multidisciplinary fetal center. Gastroschisis is a congenital anomaly in the rudimentary umbilical ring, in which there is herniation of a variable portion of viscera through the defect, with no covering membrane or sac, and its prevalence has been steadily increasing. Gastroschisis is classified into simple and complex types. Prenatal ultrasound scans can diagnose gastroschisis as early as 12 weeks of gestation. Routine preterm

delivery or elective cesarean section has not been shown to improve outcome. Surgical management after birth is aimed at reduction of the herniated viscera and closure of the abdominal wall. Survival rates are usually high; however, the prognosis depends on the state of the bowel at birth. Those affected with significant intestinal alteration at birth are at higher risk of premature death or later complications. Fetal surgery may improve the outlook and management of the condition in the future.

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# FACTORS AFFECTING VIOLENCE AGAINST WOMEN IN CABANATUAN CITY

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## ABSTRACT

*This study aimed to examine the factors affecting violence against women in Cabanatuan City, Philippines. The research questions focused on identifying common crimes/violence/abuse committed against women and exploring the factors influencing such violence. A descriptive research design was employed, gathering quantifiable information through data analysis. The study was conducted in selected barangays in Cabanatuan City, namely Sumacab Este, Bagong Sikat, and Bakero, which had a high number of reported cases of violence against women. The participants included barangay officials and barangay tanods.*

*The findings revealed numerous forms of violence and abuse against women, such as physical violence, sexual violence, economic abuse, emotional abuse, and psychological abuse. These forms of violence stem from gender-based inequality and power imbalances, resulting in significant physical, emotional, and psychological harm to women. The study also highlighted low levels of women's access to paid employment, indicating gender disparities in the workforce due to discrimination, limited job opportunities, unequal pay, and inadequate support for work-life balance. These inequalities hinder women's economic independence and overall empowerment, contributing to gender-based economic disparities. Additionally, the study identified limited access to education among women, emphasizing an educational gap that restricts personal and professional development, limits socio-economic opportunities, and perpetuates gender inequality.*

*The study accentuates the urgent need for interventions and policies to address violence against women and promote gender equality in Cabanatuan City. Efforts should focus on raising awareness about the various forms of violence, implementing measures to protect women, promoting economic opportunities for women, and ensuring equal access to education. By addressing these factors, the study aims to contribute to the creation of a safer and more equitable society for women in Cabanatuan City and beyond.*

**KEYWORDS:** Factors, Violence against women, Cabanatuan City, Abused against Women

## INTRODUCTION

Violence against women and their children affects the lives and well-being of millions of individuals worldwide.

As defined by the United Nation Declaration on the Elimination of Violence Against Women, violence against women includes physical, sexual and psychological violence occurring in the family, including battering, sexual abuse of female children in the household, dowry-related violence, marital rape, female genital mutilation and other traditional practices harmful to women, non-spousal violence and violence related to exploitation. It also includes physical, sexual and psychological violence occurring in family, including rape, sexual abuse, sexual harassment and intimidation at work, in educational institutions and elsewhere, trafficking in women, and forced prostitution (<http://www.un.org/documents/ga/res/48/a48r104.htm>).

Gender-based violence is being gradually acknowledge as a major public health concern and a transgression of human rights.

Around the world at least one woman in every three is battered, coerced into sex, or otherwise abused in her lifetime (Brown, 2022).

Violence against women is an alarming problem experience by many women around the world. It ranges from simple physical abuses to severe life destroying consequences such as emotional disorder and death. (Claus et.al, 2017)

Women encounters with different forms of violence and are varied and are due to multiple risk factors (Bailey, 2010).

The main objective of the study is to determine the common crimes/violence/abuse committed against women and What are the factors affecting violence against women?

With the result of this study, the researchers aimed to coordinate to other Local Government Officials to provide regular barangay-level Women Empowerment Orientations to each woman and children about their rights and protection guaranteed by the Anti-VAWC Laws. Likewise, the researchers also aimed to provide trainings and seminars to men regarding the anti-VAWC laws in order for them to be aware on the rights of women.

Accordingly, this study could also help women on how they could prevent to become victims of violence. Further, it may also help the Local Government Officials to develop Intervention Programs for women who suffered violence.

## STATEMENT OF THE PROBLEM

This study aimed to determine the Factors Affecting Violence Against Women in Cabanatuan City. The researchers frame the specific research questions:

1. What are the common crimes/violence/abuse committed against women?
2. What are the factors affecting violence against women?

## METHODOLOGY

The descriptive design was used in this research paper. A descriptive design aims to describe the nature of the situation, or it exists during the time of study. It determines the present, actual phenomenon of study. Further, descriptive research gathers quantifiable information that can be used for statistical inference on your target participants through data analysis.





This study was conducted in selected barangays in Cabanatuan City, Nueva Ecija namely, Sumacab Este, Bagong Sikat, and Bakero . These barangays were selected based on the highest

number of reported cases on violence against women. The participants of this study are the Barangay officials including the Barangay Tanods.

## RESULTS AND DISCUSSION

### Common Crimes/violence Committed Against Women

Table 1. Common Crimes/violence Committed Against Women

A. Physical Violence: hitting, kicking, grabbing, slapping, hair pulling, biting,denying medical care or forcing alcohol and/or drug use, or using other physical force.
B. Sexual Violence: sexual harassment, rape, rape culture
C. Economic Abuse: withholding access to money, forbidding attendance at school or employment.
D. Emotional Abuse: name-calling or other verbal abuse, damaging a partner's relationship with the children; or not letting a partner see friends and family.
E. Psychological Abuse: threatening physical harm to self, partner or children; destruction of pets and property; or forcing isolation from friends, family, school and/or work.

As shown in Table 1, the common crimes/violence committed against women are physical, sexual economic, emotional and psychological violence or abuse.

#### A. Physical Violence

Physical violence encompasses to a variety of abusive actions that use physical force to hurt or threaten women. It covers behaviors like striking, kicking, grasping, slapping, pulling hair, biting, forbidding medical attention, pressuring someone to use drugs or alcohol, or engaging in any other type of physical violence. These violent acts can cause immediate bodily suffering, discomfort, and injury, but they can also have negative psychological and emotional repercussions that persist for a very long time. Physical abuse is a blatant breach of one's personal space and is frequently employed to exert dominance, intimidation, and control over women.

According to Silverman, Raj, et al. 2017, the various forms of physical violence mentioned represent direct acts of aggression that can cause immediate physical pain and injury. However, it is important to note that physical violence can also have lasting psychological and emotional effects on women, beyond the initial physical harm.

In the study of Trevillion, Kyle, et al. 2019, physical violence is often employed as a means to exert dominance, intimidation, and control over women. By violating their personal boundaries and inflicting harm upon them, the perpetrators aim to establish power and control within the relationship. This power dynamic is a key aspect of physical violence against women.

It is important to recognize that physical violence is a severe violation of a person's rights and well-being. It not only inflicts physical harm but also engenders fear, trauma, and a sense of powerlessness in victims. Addressing physical violence requires comprehensive efforts aimed at prevention, raising awareness, providing support to survivors, and holding perpetrators accountable.

#### B. Sexual Violence

Sexual violence refers to any form of non-consensual sexual behavior imposed on women. It includes acts such as sexual harassment, rape, and contributes to the perpetuation of rape culture. Sexual violence is a severe violation of a person's autonomy and bodily integrity. It can cause physical injuries, psychological trauma, and long-term emotional consequences for survivors. Sexual violence is often driven by power imbalances and reinforces a culture that normalizes and condones such actions, creating an environment of fear, shame, and inequality for women.

Sexual violence is characterized by engaging in sexual acts without the consent of the victim. This violation of consent is a fundamental breach of a person's autonomy and the right to make decisions about their own body. It emphasizes the importance of consent as a cornerstone of healthy sexual relationships. It encompasses a wide range of behaviors, including sexual harassment and rape. This highlights the continuum of non-consensual sexual behaviors that women may experience, from verbal and non-physical forms of harassment to the most extreme act of rape.

In the study of Decker, Michele R., et al. 2014, sexual violence can have profound and long-lasting effects on survivors. It can cause physical injuries, leading to immediate health consequences. Moreover, the psychological trauma resulting from sexual violence can be extensive, leading to a range of emotional and mental health challenges. Survivors may experience feelings of fear, shame, and a loss of trust in others.

Understanding the analysis sheds light on the gravity of sexual violence and its multifaceted impact on individuals and society. It emphasizes the importance of addressing power imbalances, promoting consent, challenging rape culture, and fostering gender equality to create a safe and supportive environment for all individuals. Comprehensive efforts, including education, awareness, policy changes, and support services, are necessary to prevent sexual violence and provide healing and justice for survivors.

#### C. Economic Abuse

Controlling or manipulating a woman's financial resources, restricting her access to funds, or preventing her from enrolling in school or finding job are all examples of economic abuse. By making women dependent on their abusers, this type of abuse aims to exert influence over them and control their behavior. Their capacity to make independent decisions, preserve financial security, and become self-sufficient is constrained by economic abuse. Women's vulnerability is maintained by being denied access to economic resources, which also restricts their alternatives for leaving violent situations.

Economic abuse is a form of power and control used to manipulate and exert influence over women. By controlling or limiting a woman's access to financial resources, education, or employment opportunities, abusers aim to maintain dominance and control over their partners. This control extends beyond financial matters and can significantly impact various aspects of a woman's life.



According to Stark, Evan, 2017, economic abuse creates dependency, making women reliant on their abusers for financial stability. By restricting access to funds, education, or employment, abusers limit a woman's ability to be self-sufficient and financially independent. This dependency can make it challenging for women to leave abusive situations or seek help, as they lack the means to support themselves and their children.

Further, in the study of Adams, Adrienne E., et al. 2008, economic abuse limits a woman's capacity to make independent decisions. When her financial resources are controlled or restricted, she may be unable to make choices regarding her own well-being, including decisions about healthcare, education, housing, and other essential needs. This further reinforces the power dynamics within the abusive relationship.

Economic abuse can serve as a barrier to leaving an abusive relationship. Without access to financial resources, women may feel trapped and unable to escape the abusive environment. This lack of economic autonomy limits their options and can create a cycle of dependence on the abuser, perpetuating the abuse.

#### D. Emotional Abuse

Emotional abuse describes actions that lower a woman's sense of self-worth, control her emotions, and manipulate her. Name-calling, verbal abuse, unrelenting criticism, tarnishing a partner's relationship with their children, isolating the woman from friends and family, and other strategies designed to reduce her sense of autonomy and self-worth are some examples. Women who experience emotional abuse may experience severe and protracted psychological impacts, including a decline in self-esteem, anxiety, sadness, and feelings of helplessness.

Emotional abuse is characterized by actions that aim to lower a woman's sense of self-worth. This includes name-calling, verbal abuse, unrelenting criticism, and other tactics that undermine her confidence and self-esteem. By repeatedly belittling and demeaning the woman, the abuser seeks to exert control over her emotions and diminish her value.

Moreover, emotional abuse involves manipulating a woman's emotions and thoughts to control her behavior. Tactics such as tarnishing her relationship with children, isolating her from friends and family, and imposing strict rules and restrictions are employed to assert dominance and maintain power over her. These manipulative behaviors erode her autonomy and independence.

Further, emotional abuse can have severe and protracted psychological impacts on women. The constant undermining of self-worth and the erosion of confidence can lead to a decline in self-esteem. Women who experience emotional abuse may suffer from anxiety, sadness, depression, and feelings of helplessness. The psychological trauma can persist long after the abusive relationship ends.

In the study of Dowgwillo, Emily A., et al. 2019, emotional abuse is rooted in power and control dynamics within relationships. The abuser seeks to exert control over the woman's emotions, thoughts, and actions to maintain dominance. By eroding her self-worth and autonomy, the abuser establishes a power imbalance that perpetuates the cycle of abuse.

#### E. Psychological Abuse

Techniques used in psychological abuse include those intended to cause psychological discomfort, fear, and intimidation in women. It may involve making physical threats against the woman, her partner, or their kids, destroying their pets and other people's property, or isolating them from their friends, families, coworkers, and other social groups. Psychological abuse fosters a culture of ongoing stress and anxiety by using fear to control and manipulate women. It frequently causes their sense of self-worth, mental health, and general quality of life to decline.

Psychological abuse encompasses a range of techniques intended to cause psychological discomfort, fear, and intimidation in women. This can include making physical threats against the woman, her partner, or their children, as well as engaging in acts of property destruction. By using these tactics, abusers seek to assert control and instill fear in their victims.

In addition, psychological abuse often involves isolating women from their support networks, including friends, family, coworkers, and social groups. By limiting their social connections, abusers' further control and manipulate their victims. This isolation can lead to a sense of helplessness, dependency, and increased vulnerability to further abuse.

Further, in the study of Tjaden, Patricia, 2019, psychological abuse creates an ongoing atmosphere of fear, stress, and anxiety. Abusers use fear as a means of control, manipulating women's emotions and behavior to maintain power over them. The constant threat of harm or destruction contributes to a heightened state of psychological distress.

It was also revealed in the study of Peters, Kristina, et al. 2018, psychological abuse has a profound impact on a woman's sense of self-worth, mental health, and overall quality of life. Continuous exposure to psychological abuse erodes self-esteem, self-confidence, and self-belief. Women may experience depression, anxiety, post-traumatic stress disorder (PTSD), and other mental health issues as a result of the abuse.

Overall, these forms of violence and abuse against women are deeply concerning and reflect a broader pattern of gender-based inequality and power imbalances. They have significant physical, emotional, and psychological consequences for women, often causing long-term trauma and hindering their ability to lead safe, healthy, and fulfilling lives. Addressing and combating these issues require comprehensive efforts, including education, awareness, supportive resources, legal protections, and societal change to create an environment where women can live free from violence and oppression.



Factors Affecting Violence Against Women

Table 2. Factors Affecting Violence Against Women

Indicators	WM
1. Lower levels of Education	3.50
2. A history of exposure to child maltreatment	3.27
3. Witnessing family violence	3.41
4. Harmful use of alcohol	3.45
5. Harmful masculine behaviors-including having multiple partners or attitudes that condone violence	3.41
6. Marital discord and dissatisfaction	3.31
7. Male controlling behaviors towards their partners	3.37
8. Anti-social personality disorder	3.47
9. Low levels of women’s access to paid employment	3.52
10. Weak legal sanctions for sexual abuse	3.39

Table 2 presents the list of factors that have been identified as contributing to violence against women.

As can be deduced from the table, the indicators that obtained the highest weighted mean are: Low levels of women’s access to paid employment (3.52) and Low levels of education (3.50).

Low levels of women’s access to paid employment are the top indicator among the factors that contribute to violence against women. It can be implied that; limited access to employment for women can contribute to their economic dependence on others, which can increase their vulnerability to violence.

In the study of Vyas et. al.,2018, poverty or low household socioeconomic status has been consistently found to be associated with high rates of partner violence against women in low- and middle-income countries and in high income settings.

Likewise, the findings agree with the study of Aziz et. al.,2018 stating therein that some other risk factors for physical and domestic violence are women’s lack of financial autonomy and low socioeconomic status. He discussed further in his study that the magnitude and nature of domestic violence against women. He found that women in the lower income directly become economically dependent on their partners, which in turn limits their negotiating power and their ability to diminish physical violence.

On the other hand, the second top indicator that contribute to violence against women is the: Low levels of education. It can be noted that women with low levels of education is more vulnerable to become victims of violence.

In a study conducted in Siberia, it was determined that women with a lower level of education were more likely to experience physical or sexual violence. Further, findings from a study conducted in various regions of India indicated that a higher level of education decreased the possibility of women experiencing violence and sexual abuse from this intimate partners (Tekmanli, 2021).

CONCLUSION

Based on the findings, the following conclusions were drawn:

1. The various forms of violence and abuse against women, including physical violence, sexual violence, economic abuse, emotional abuse, and psychological abuse, are deeply troubling manifestations of gender-based inequality and power imbalances. These acts have far-reaching consequences, causing significant physical, emotional, and psychological harm to women.
2. The low levels of women's access to paid employment indicate a significant gender disparity in the workforce, where women may face barriers such as discrimination,

limited job opportunities, unequal pay, and lack of support for work-life balance. This inequality not only affects women's economic independence but also hinders their overall empowerment and contributes to gender-based economic disparities. Additionally, the low levels of education among women highlight a significant educational gap. Limited access to education can restrict women's personal and professional development, limit their opportunities for socio-economic advancement, and perpetuate gender inequality in society.

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# DYNAMICS OF MICROCIRCULATORY CHANGES IN THE RETINA OF PATIENTS WITH CHRONIC KIDNEY DISEASE AFTER KIDNEY TRANSPLANTATION

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## ABSTRACT

**Objective:** This study aimed to assess microvascular changes in the retina over time in patients with chronic kidney disease (CKD) following kidney transplantation.

**Methods:** A total sample of 54 CKD patients (108 eyes) was prospectively observed for 2 years to evaluate the dynamics of microvascular parameters. Two study groups were formed: Group 1 comprised 36 patients (72 eyes) who underwent kidney transplantation, and Group 2 comprised 18 patients (36 eyes) receiving hemodialysis and conservative treatment. Patients were examined before the operation, within 2 months post-operation (early postoperative period), and at 12 months post-operation (late postoperative period).

**Results:** Optical coherence tomography angiography (OCTA) results demonstrated that retinal parameters, including area, perimeter, and circularity index of the foveal avascular zone (FAZ), showed recovery over the 12-month observation period after kidney transplantation, indicating a positive trend in the macular region. Similar trends were observed for overall vessel density, perfusion, and choroidal vascularity index (CVI) parameters. Statistical analysis revealed significant differences ( $p < 0.05$ ) between the groups in terms of FAZ area and CVI.

**Conclusion:** The primary microvascular changes in the retinas of patients with end-stage CKD involve reduced vessel density and perfusion volume in the superficial capillary layer.

**KEYWORDS:** chronic kidney disease; kidney transplantation; microvascular changes; optical coherence tomography angiography (OCT-A).

## INTRODUCTION

According to recent foreign and domestic literature [4,6,14,16], structural changes in the visual organ are observed in all patients with chronic kidney disease (CKD). Visual disorders are one of the main factors determining the quality of life in patients with various somatic diseases, a significant portion of which is represented by kidney pathology [10,15]. The presence of numerous pathogenetic factors in the development of retinopathy in chronic kidney diseases confirms the potential effectiveness of compensating for kidney insufficiency through methods such as hemodialysis and organ transplantation in correcting visual impairments in this patient population [4,6,7].

Developing uremia in patients can lead to various changes in the visual organ. Visual function disorders contribute significantly to the reduction in the quality of life of CKD patients [1,2,7,8]. Given the reversibility of angioretinopathy and optic neuropathy in CKD, ensuring the stability of unaffected retinal neurons and preventing their death becomes crucial for maximizing visual function preservation for the patient [9,10]. In this context, monitoring the dynamics of functional indicators of the visual organ in CKD patients undergoing hemodialysis or kidney transplantation using

specific ophthalmological research methods becomes particularly relevant.

The eye is the only organ where changes in microvessels can be visualized. In a normal state, the retina has an internal mechanism for self-regulating blood flow, responding to various physiological changes to maintain homeostasis. Both retinal and kidney tissues are supplied with blood by small vessels with low resistance, sensitive to fluctuations in arterial pressure and perfusion. Similar vascularization in both organs leads to similar complications. The methods used allow for a quantitative assessment of the diameter of retinal vessels, and these measurements are characterized by accuracy and reproducibility [12,13]. In chronic kidney insufficiency, signs of capillary insufficiency are observed in the retina, manifested by an increased ratio of the vessel wall diameter to the lumen diameter and capillary rarefaction due to endothelial dysfunction and systemic inflammation. These changes become key factors in increased cardiovascular risk. Reduction in retinal and choroidal thickness and a decrease in macular volume, even in the early stages of chronic kidney insufficiency, are signs of systemic microvessel damage and a reflection of the pathological process in the kidneys [9,10,11,13,14].



In light of the above, the aim of this study was to assess the microvascular changes in the retina over time in patients with CKD after kidney transplantation.

**MATERIALS AND METHODS**

**Research Organization:** The study was conducted at the Republican Specialized Scientific-Practical Medical Center for Microsurgery of the Eye from 2018 to 2022. The research was part of a dissertation on the topic: "Clinical Aspects of Diagnosis and Treatment of Visual Organ Changes in Chronic Kidney Disease." The study involved a comprehensive in-depth ophthalmological examination of patients with end-stage chronic kidney disease (CKD) regularly observed and undergoing hemodialysis at nephrology and urology centers or private clinics in Tashkent. Additionally, patients who underwent surgical treatment (kidney transplantation) at the Republican Specialized Scientific-Practical Medical Center of Surgery named after Academician V.V. Vakhidov were included.

**Selection Criteria and Patient Characteristics**

**Inclusion Criteria**

presence of end-stage CKD confirmed by laboratory results based on the classification proposed by the National Kidney Foundation's Kidney Disease Outcomes Quality Initiative (2002) using glomerular filtration rate data;  
 informed consent from the patient to participate in the study;  
 hemodialysis or kidney transplantation as a treatment method.

**Exclusion Criteria**

Diabetes Mellitus;  
 ophthalmological conditions hindering retinal visualization and OCT examination (mature or complete cataracts, phthisis bulbi, uveitis, vitreoretinal interface pathology);  
 glaucoma;  
 unsuccessful kidney transplant outcome within a 2-year observation period after the operation;  
 death within a 2-year observation period in CKD patients undergoing hemodialysis;  
 refractive anomalies, such as myopia less than -4.0D or hypermetropia more than +3.0D.  
 Based on the selection criteria, a total sample of 54 CKD patients (108 eyes) was formed. The distribution of patients by gender was 30 (55.6%) males and 24 (44.4%) females. The age of patients ranged from 20 to 45 years, with an average of 27.4±6.7 years.

The development of CKD in patients was attributed to chronic glomerulonephritis in 77.8% of cases, chronic pyelonephritis in 12.9% of cases, and polycystic kidney disease and other forms of kidney developmental anomalies in 9.3% of cases. All patients had a history of receiving hemodialysis for a duration of 1 to 3 years.

**Study Design:** The research had a prospective nature with the observation of dynamic indicators in patients over a 2-year period. Two study groups were formed:

Group 1, consisting of 36 patients (72 eyes) who underwent kidney transplantation.

Group 2, consisting of 18 patients (36 eyes) receiving hemodialysis and conservative treatment.

Patient examination was conducted before the operation, within 2 months after the operation (early postoperative period), and at 12 months after the operation (late postoperative period).

**RESEARCH METHODS**

All patients underwent a standard ophthalmological examination, including visual acuity measurement, keratorefractometry, biomicroscopy, ophthalmoscopy, OCT, and OCT angiography (OCT-A). Optical coherence tomography (OCT) of the retina and OCT-A were used to assess structural and microvascular changes in the retinas of patients with end-stage CKD. The study was conducted using the DRI OCT Triton device (Topcon).

**Statistical Analysis:** Standard methods of variational statistics were employed for statistical processing using Microsoft Office 2018.

**RESULTS**

OCTA parameters evaluated included the foveal avascular zone (FAZ) perimeter and area, FAZ circularity index, overall vessel density and perfusion, and choroidal vascularity index (CVI).

Analysis of baseline indicators did not reveal statistically significant differences ( $p < 0.05$ ) in the parameters of the study groups, indicating homogeneity and representativeness of the groups with regard to the severity of structural and microvascular changes in the retina (Table 1).

**Table 1**  
**Baseline OCT-A Indicators in Patients of the Studied Groups**

Indicators	Группа 1	Группа 2	Reference values
	M±m	M±m	M±m
FAZ area, mm <sup>2</sup>	0,26±0,06	0,25±0,05	0,16±0,04
FAZ perimeter, mm	2,3±0,12	2,28±0,14	1,82±0,23
FAZ circularity index	0,64±0,06	0,65±0,05	0,81±0,06
Total vessel density VD, mm	13,68±1,64	13,73±1,53	18,2±1,4
Total perfusion density PD, %	32,4±4,6	33,5±5,4	42,1±3,2
Choroidal vascularization index CVI	64,6±3,2	65,1±2,6	70,2±3,4

\*- statistically significant compared to the indicators of group 2 at  $p < 0.05$

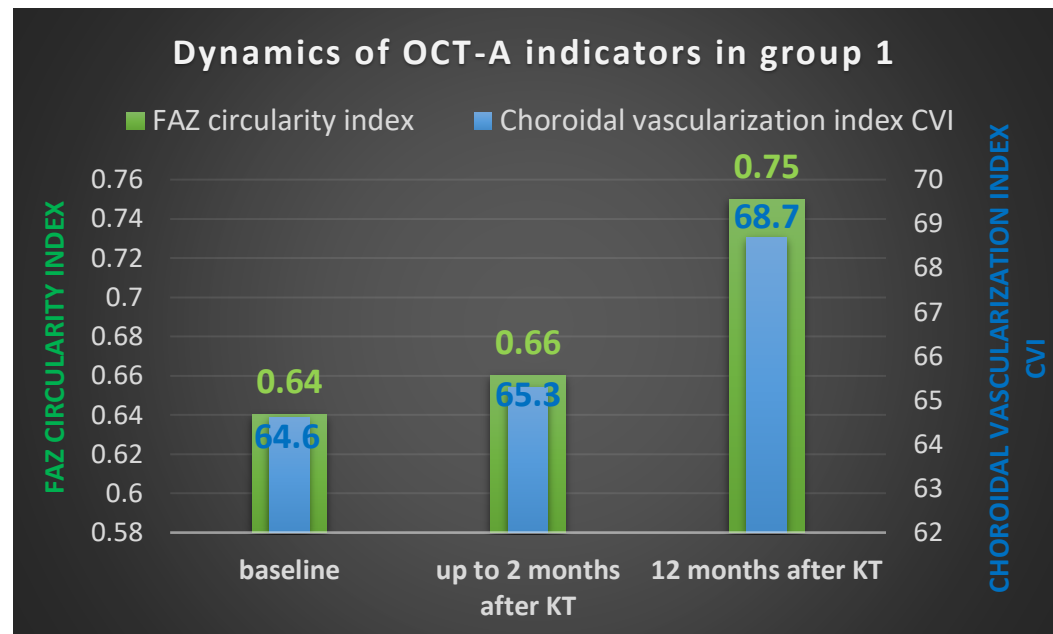
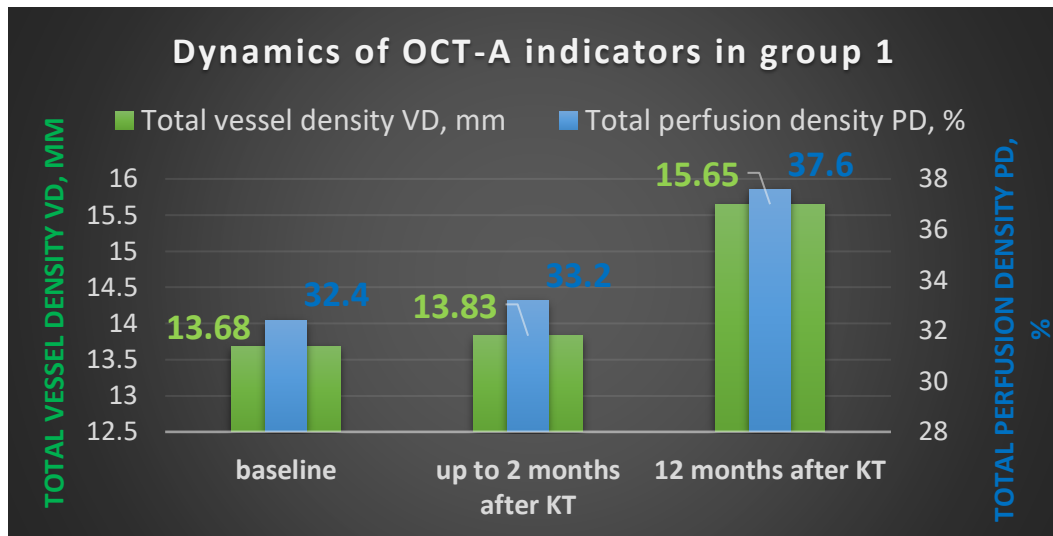
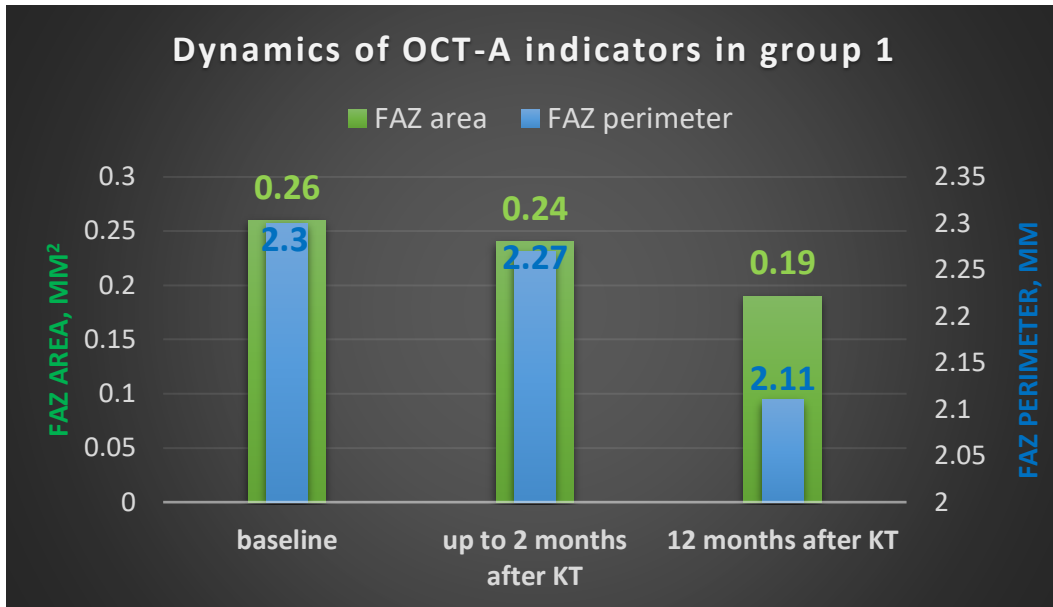


Figure 1. Dynamics of OCT-A indicators in patients of the main group after kidney transplantation.

The dynamics of OCTA parameters showed that after kidney transplantation (KT), there was a restoration of average values for FAZ area, perimeter, and circularity index over the 12-

month observation period, reflecting a positive trend in the macular region. A similar trend was observed in terms of overall vessel density, perfusion, and CVI (fig. 1).

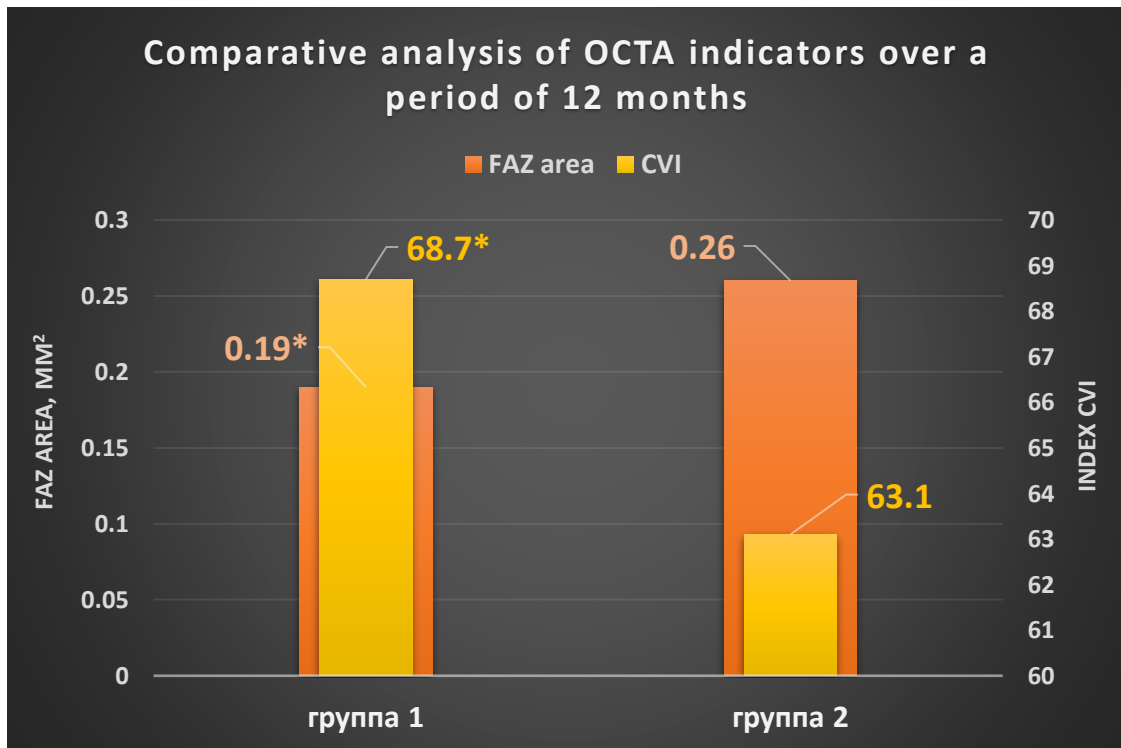


Figure 2. Comparative analysis of key OCT-A indicators in patients from the studied groups after 12 months of observation. (\* - differences compared to the indicators of group 2 are statistically significant at  $p < 0.05$ )

Figure 2 graphs present the results of a comparative analysis of key OCT-A parameters in the study groups during the 12-month postoperative observation period. A positive dynamic pattern of key parameters in Group 1 was evident when comparing OCT-A parameters such as FAZ area and CVI. In this case, statistically significant differences ( $p < 0.05$ ) between the parameters in the study groups were also identified.

The research results indicate a significant reduction in the density of outer retinal vessels after hemodialysis. However, the vessel density in the superficial capillary layer (SCL), deep capillary layer (DCL), and choriocapillaris layer did not show significant changes.

## DISCUSSION

The microvascular network with a lumen diameter of less than 300  $\mu\text{m}$  regulates blood supply to tissues and maintains peripheral resistance. Structural and functional disturbances in this network contribute to the development and progression of chronic kidney disease (CKD). Researchers are interested in non-invasive diagnostic possibilities, visualization of retinal and choroidal vessels, and quantitative determination of perfusion volume [1,3,4,7].

The study based on OCT-A allowed us to hypothesize that the reduction in the thickness of the ganglion cell layer and nerve fibers in CKD may be associated with impaired retinal microcirculation and capillary density, affecting perfusion volume. Our research results confirm previously published data

[2,4,6,14], which indicated that the level of capillary density in the retina may serve as a prognostic indicator of CKD and may also predict the severity of this condition. This study also underscores the importance of early diagnosis of retinal microcirculation disorders in patients, as it may be a significant risk factor for more severe kidney damage. Similar correlations between the degree and frequency of macular microvascular changes and glomerular filtration rate (GFR) have been noted by other researchers, who found that narrower retinal arterioles and lower fractal dimension of retinal vessels correlate with lower GFR. It has also been demonstrated that narrowing of retinal arterioles is associated with advanced stages of chronic kidney disease (CKD) [6,8].

Most previous studies [2,5,7,11] utilized fundus photography, allowing for the quantitative assessment of only the diameter of large vessels in the retina. In our OCTA-based study, we were able to conduct a more detailed analysis of retinal capillaries and identify a connection between changes in retinal microcirculation and kidney function. We found that GFR levels correlate with impaired retinal perfusion.

These results can be explained by differences in the architecture of vascular structures in the retina. Deep capillary layers of the retina (DCL) are surrounded by a large number of pericytes, while arterioles in the superficial capillary layers (SCL) are freer from such surrounding tissue. Apoptosis (programmed cell death) of pericytes, known to play a crucial role in the





development of diabetic retinopathy (DR), occurs as CKD progresses, accompanied by increased levels of endothelin-1 and activation of the renin-angiotensin-aldosterone system (RAAS). This can lead to arteriolar constriction and thinning of the vascular intima in response to inflammatory cytokines and growth factors during CKD progression [3,8,9,12].

Our study has also expanded on previous findings, showing that patients with CKD experience a decrease in capillary density in both SCL and DCL. Including patients with more advanced forms of CKD, high proteinuria, and serious kidney function impairments in our study explains pronounced perfusion disturbances and a greater number of sparse capillaries in the retina. All these factors collectively lead to serious microcirculation impairments in CKD.

It is worth noting that our data also demonstrated a correlation between decreased vessel density, increased area and perimeter of foveal avascular zone (FAZ) non-perfusion areas, and the degree of retinopathy, emphasizing the importance of this marker in patients with CKD. Our results also confirm conclusions drawn based on multiple regression analysis, showing that CKD is independently associated with reduced capillary density in both SCL and DCL. The decrease in capillary density is a consequence of capillary rarefaction, which we were able to visualize using OCTA. The degree of capillary rarefaction in the retina of CKD patients varies and depends on various factors. Our results highlight the importance of early diagnosis and monitoring of microcirculation disorders in CKD patients.

## CONCLUSION

The main structural changes in the retina and choroid in patients with end-stage CKD is accompanied by a reduction in vessel density and perfusion volume in the superficial capillary layer. These changes become more pronounced with the progression of CKD and are associated with impaired kidney function. The study results showed that kidney transplantation with full compensation of kidney function leads to partial improvement in the condition of the retina, stabilizing the microcirculation.

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# KNOWLEDGE OR LAW: WHAT DRIVES PUBLIC HEALTH PRECAUTIONS

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## ABSTRACT

*In this study, we explore how individual awareness and legal mandates influence public health precautions. Through a comprehensive survey of 100 participants and statistical analysis, we examine the factors driving adherence to health precautions. Participants in this study were asked to complete a self-prepared questionnaire to assess their attitudes, behaviours, and perceptions concerning health risks, legal obligations, and personal motivations. Results indicate that personal influences, such as trust in respected individuals, social pressure, and awareness, influence behaviour, with legal consequences playing a significant role. Based on a study of road accidents in Kerala, the analysis extends to real-life consequences. To ensure widespread compliance with the law, it is imperative not only to raise awareness, but also to enforce stringent laws. The paper concludes by making recommendations for enhancing public awareness campaigns, rigorous law enforcement, community engagement, improved communication channels, as well as continuous assessment of public health policies. Overall, the findings of this study provide valuable insights for designing effective health policies and interventions, taking into account the complex dynamics between legal requirements and awareness of health issues.*

**KEYWORDS:** *Public health, health precautions, legal compliance, chi-square test.*

## INTRODUCTION

Public health is a field in which awareness and legal mandates interact intricately to impact individual behaviour and societal outcomes. It is important to understand the dynamics of why people adhere to health precautions, whether as a result of personal awareness or legal obligations, in order to design effective health policies and interventions. The study explores the subtle nuances of public attitudes, and the motivations that influence individuals to adopt health precautions. As this research unravels the complex network of factors influencing behaviour, it aims to shed light on the crucial question: are people motivated by genuine awareness, or are they primarily influenced by legal requirements? A detailed analysis and comprehensive surveys are used in this paper to understand the underlying motivations for public health practices in order to provide valuable information into the formulations of targeted public health policies and campaigns.

## PARTICIPANTS AND METHODS

The study was conducted in a random sample comprising 100 individuals from the general public, ensuring a diverse representation by including both genders and various age groups. The study method employed was a survey using self-prepared questionnaire designed to explore participant's attitudes and behaviours related to health precautions, awareness, and laws. The questionnaire included questions addressing participants' awareness of health risks, understanding of implemented laws, and their motivations for following health precautions. Questions were carefully crafted to indirectly gauge the subject's inclinations towards public health due to awareness or legal obligations. The software program SPSS was used to analyse the primary data. Methodology of statistics Chi-square analysis was done. This quantitative research technique allowed us to systematically

examine the textual data, identifying recurring themes, patterns and nuances in participant's responses. Subjective and objective type of questions were included to ensure the accuracy of the response. Responses were coded into categories related to awareness, legal mandates, and motivations, enabling a detailed analysing of the study group's perspectives. Participants were informed about the study purpose and provided their consent before the survey. All responses were anonymized and kept confidential to ensure their privacy. Additionally, data from Kerala government's official websites and newspapers also used for the analysis.

## LIMITATIONS

While the random sampling method enhances the study's external validity, the sample size of 100 participants might limit the generalizability of the findings to larger populations. The reliance of self-reported data might introduce subjectivity in the interpretation of responses.

## Questionnaire adapted

1. Have you ever adapted a health precaution because someone you know respect or admire follows it?
2. Have you ever felt social pressure to follow a health precaution?
3. Have you ever changed a health-related behaviour after learning about the experiences of others?
4. Do you believe that observing others following health precautions encourages you to do the same?
5. Do you think people in our community are generally aware of the severity of health risks associated with not following precautions?
6. Have you ever taken a health precaution more seriously after hearing about severe consequences in the news or from others?



7. Do you trust the accuracy of health-related information you find online or in the media?
8. Have you ever doubted the authenticity of health information you encountered?
9. Do you believe that legal consequences are necessary to ensure people follow health mandates?
10. Have you ever refrained from a risky health behaviour due to fear of legal consequences?
11. Have you ever discussed health laws or regulations with others in your community?
12. Have you ever changed a health-related behaviour after seeing it portrayed in a TV show, movie, or documentary?
13. Do you think media representation of health-related issues influence public behaviour?
14. During a public health crisis, do you believe stricter enforcement of health-related laws is necessary?
15. Have you personally complied with health mandates more rigorously during a crisis situation?

## RESULT AND ANALYSIS

**Table 1: Responses of Participants**

Q. No	No. of people responded as “yes”	No. of people responded as “no”
1	26	74
2	71	29
3	49	51
4	20	80
5	79	21
6	58	42
7	43	57
8	21	79
9	85	15
10	86	14
11	47	53
12	45	55
13	63	37
14	88	12
15	75	25

**Table 2: Analysis using Chi-Square Test**

Qs no.	Null hypothesis	Alternative hypothesis	P value	Null hypothesis acceptance status
1	There is no association between adapting a health precaution and whether someone they know or respect follows it.	There is an association between adapting a health precaution and whether someone they know or respect follows it.	.000	null hypothesis is rejected
2	there is no association between feeling social pressure to follow a health precaution	there is association between feeling social pressure to follow a health precaution	.000	null hypothesis is rejected
3	there is no association between learning about the experiences of others and changes in one’s health related behaviour	there is association between learning about the experiences of others and changes in one’s health related behaviour	.841	null hypothesis is accepted
4	there is no association between observing others following health precautions and an individual’s sticking to health precautions.	there is association between observing others following health precautions and an individual’s sticking to health precautions	.000	null hypothesis is rejected
5	people in our community are not generally aware of the severity of health risks associated with not following precautions	people in our community are generally aware of the severity of health risks associated with not following precautions	.000	null hypothesis is rejected



6	there is no association between hearing about severe consequences in the news or from others and individuals taking a health precaution.	there is association between hearing about severe consequences in the news or from others and individuals taking a health precaution.	.110	null hypothesis is accepted
7	there is no difference in the level of trust in the accuracy of health-related information in online and media.	there is no difference in the level of trust in the accuracy of health-related information in online and media.	.162	null hypothesis is accepted
8	There is no significant association between encountering health information and doubting its authenticity.	there is significant association between encountering health information and doubting its authenticity.	.000	null hypothesis is rejected
9	there is no association between legal consequences believing in the need for legal consequences and making sure people obey by health regulations.	there is association between legal consequences believing in the need for legal consequences and making sure people obey by health regulations.	.000	null hypothesis is rejected.
10	there is no association between refraining from a risky health behaviour and the fear of legal consequences	there is association between refraining from a risky health behaviour and the fear of legal consequences	.000	null hypothesis is rejected
11	there is no association between people talking about health legislation or regulations and their neighbourhood.	there is association between people talking about health legislation or regulations and their neighbourhood.	.549	null hypothesis is accepted
12	there is no association between people's changed health-related behaviours and their exposure to portrayals in documentaries, TV series, and movies.	there is association between people's changed health-related behaviours and their exposure to portrayals in documentaries, TV series, and movies	.317	null hypothesis is accepted
13	there is no association between believing that media representation of health-related issues influences public behaviour.	there is association between believing that media representation of health-related issues influences public behaviour.	.009	null hypothesis is rejected
14	there is no association between believing stricter enforcement of health-related laws and being in a public health crisis.	there is association between believing stricter enforcement of health-related laws and being in a public health crisis.	.000	null hypothesis is rejected
15	there is no association between crisis situation and people's individual compliance to health mandates.	there is association between crisis situation and people's individual compliance to health mandates.	.000	null hypothesis is rejected

## DISCUSSION

### Findings of the analysis

- A person is more likely to adhere to health precautions if someone they trust or respect does so.
- Health precautions are often followed in response to social pressure
- Understanding the experiences of others does not significantly influence changes in health-related behaviour.
- Observing others follow health precautions may influence an individual's compliance.



- Most community members are aware of the risks associated with failing to follow health precautions.
- Individuals are not significantly influenced to take health precautions by hearing about severe consequences.
- There is a similar level of trust in the accuracy of health-related information provided by online and media sources.
- When encountering health information online or in the media, there is a tendency to doubt its authenticity.
- The belief that legal consequences are necessary is associated with a higher level of compliance with health regulations.
- Individuals refrain from engaging in risky health behaviours due to a fear of legal consequences.

**Table 3: statistical data of road accidents in Kerala from 2018 to 2022 due to not following health precautions**

Cause of accident	2018 <sup>1</sup>	2019 <sup>2</sup>	2020 <sup>3</sup>	2021 <sup>4</sup>	2022 <sup>5</sup>
Mobile talking	-	20	13	12	99
Drunken driving	157	110	76	77	166
Over speeding	29775	-	-	-	-
Jumping red light	105	-	-	-	-
Driving on wrong side	1455	-	-	-	-

When analyse table 2, there is a significant role for traffic rule violation in contributing to road accidents. Even though they know the effects, people are not bothered about it and their life. When the covid was its peak, public were hesitant to wear masks and keep social distancing which compelled the government to make the laws stricter by increasing the fine amount to 2000<sup>6</sup>. Total number of cases registered against non-wearing of mask as on 15/03/2022 is 38295836<sup>7</sup>. It is said by the Kerala police department that after increasing the fine, people started to wear mask and there was considerable decrease in the covid cases<sup>8</sup>.

### CONCLUSION

These findings provide valuable insights into the complex interaction between awareness, legal requirements, and public compliance with health precautions. It is true that some individuals are influenced by the experiences of others or media portrayals, but a significant portion of the population requires external pressures, such as legal consequences or social pressure, in order to comply with health regulations. As indicated in the study, merely raising awareness might not be sufficient to ensure widespread adherence to health precautions, as stringent laws and societal expectations are equally crucial to shaping public behaviour. Furthermore, the analysis of road accidents in Kerala emphasizes the real-life consequences of not following health precautions. People often neglect safety measures in spite of being aware of the risks, resulting in a number of accidents and, in the context of the COVID-19 pandemic, contributing to the spread of the disease.

### RECOMMENDATIONS

**Enhancing Public Awareness Campaigns:** Although legal consequences are critical, there is also a need for continuous and targeted public awareness campaigns. To create a sense of personal relevance, these campaigns should emphasize educating the general public about the serious health risks associated with non-compliance by using real-life examples and testimonials.

**Stricter Enforcement of Health Mandates:** According to the study, stricter enforcement of health-related laws, especially during public health crises, can have a positive effect on public behaviour. Individuals who violate health regulations should be deterred from doing so by law enforcement agencies who enforce these laws consistently and clearly.

**Community engagement and peer influence:** community leaders, influencers and respected individual should participate in awareness campaigns which can leverage social influence to encourage adherence to health mandates.

**Improved communication channels:** efforts should be made to provide reliable and verified information through official channels.

**Education and empathy:** public education initiatives should emphasize on empathy, and make them understand that the potential consequences of their actions are not only on themselves but on people surrounding them also.

**Regular assessment and evaluation:** public health policies and interventions should be monitored continuously based on the changing behaviour of the public. Regular assessments can ensure that the rules and policies remain effective and valid according to the need of public.

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# ENUMERATE A LIST OF INTEGER ELEMENTS OF A VECTOR USING *enumerate\_elements\_of\_vector\_for()* PROCEDURE AND ENUMERATION OF LIST OF INTEGER ELEMENTS USING *enumerate\_elements\_of\_vector\_while()* PROCEDURE AND EXAMINING THE TIME COMPLEXITY AND CALCULATING THE SPACE COMPLEXITY OF THE FUNCTIONS OR ALGORITHMS. - A CASE STUDY

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## ABSTRACT

*In computer science effectiveness of algorithm is exclusively depend on time factor for the execution of included statements within the block of code. Further the amount of memory it is being used for storing data also matters in calculating the space complexity of the program.*

*The 'enumerate\_elements\_of\_vector\_for()' procedure employs a 'for' loop to iteratively access and count elements within the vector, while the 'enumerate\_elements\_of\_vector\_while()' procedure employs a 'while' loop for the same purpose. Our case study investigates their respective efficiency, taking into account time complexity and space complexity as key metrics.*

*This manuscript specifically examines the time complexity and calculating the space complexity of the for and while functions. By shedding light on the nuances of time and space complexity in the context of enumeration, this case study strives to elucidate best practices for optimizing code and enhancing the overall efficiency of data processing algorithms..*

**KEYWORDS:** *enumerate\_elements\_of\_vector\_for (EVF), Runtime Complexity (rc), Big  $O(n)$ , enumerate\_elements\_of\_vector\_while() (EVW), Big Theta  $\Theta(n)$ , Big Omega  $\Omega(n)$*

## 1. INTRODUCTION

A 'for' loop is used for iterating over a sequence, that is a list, a tuple, a dictionary, a set or a string. This is less like the 'for' keyword in other languages, and works more like an iterator method as found in object-oriented programming languages. With the 'for' loop we can execute a set of statements, once for each item in a list, tuple, set etc.[1]

With the 'while' loop we can execute a set of statements as long as a condition is true. And when the condition becomes false, the line immediately after the loop in the program is executed. It requires relevant variables to be ready.[4]

## 2. RELATED WORK

All computer languages in the world support sequencing, selection and iteration methods. The syntax and semantics of a language differs because of construction of a compiler or an interpreter is of varied structure.

The construction of a compiler includes the control structures which makes a structured programming language. The 'for' and 'while' are alternative methodologies for any iteration. It is experienced by the programmers that the 'for' loop is far easier than 'while' loop

## 3. METHODOLOGY

To conduct the efficiency comparison, the code generates a dataset in the form of a list named L1. EVF employs a 'for' loop to iteratively go through each element in the list.

A counter variable named v\_count is incremented for each element in the list, effectively enumerating the elements. The time taken for enumeration using the 'for' loop is measured by recording the start and end times.

Similar to the 'for' loop method, a 'while' loop is used for enumeration in EVW.

A counter variable, v\_count, is incremented during each iteration of the 'while' loop until the end of the list is reached. The time taken for enumeration using the 'while' loop is measured.

The code provides a comparison of the two enumeration methods by evaluating the time taken for each method and the resulting length of the list after enumeration. Comparing these metrics allows you to make an informed decision about the efficiency and performance of 'for' and 'while' loops in this specific context



enumerate\_elements\_of\_vector\_for()and  
 enumerate\_elements\_of\_vector\_while().

After running the driver code, the code outputs the length of the list and the time taken for enumeration for both 'for' and 'while' loop methods.

The results allow you to draw conclusions regarding the relative efficiency of these two enumeration methods.

#### ALGORITHM ENUMERATE A LIST OF INTEGER ELEMENTS OF A VECTOR USING FOR LOOP (EVF)

- STEP 01: START
- STEP 02: INITIALIZE AN EMPTY LIST L1 TO STORE ELEMENTS
- STEP 03: USING A 'FOR' LOOP, POPULATE THE LIST L1 WITH NUMBERS
- STEP 04: INITIALIZE A COUNTER VARIABLE V\_COUNT TO KEEP TRACK OF THE NUMBER OF ELEMENTS.
- STEP 05: RECORD THE START TIME OF THE ENUMERATION PROCESS.
- STEP 06: IN FOR LOOP ADD 1 TO V\_COUNT EACH ITERATION
- STEP 07: RECORD THE END TIME OF THE ENUMERATION PROCESS.
- STEP 08: DISPLAY THE LENGTH OF L1
- STEP 09: DISPLAY THE TOTAL TIME TAKEN FOR ENUMERATION
- STEP 10: STOP

#### PYTHON PROGRAM TO ENUMERATE A LIST OF INTEGER ELEMENTS OF A VECTOR USING FOR LOOP (EVF)

```
L1=[]
for i in range(1,100):
    L1.append(i)
v_count=0
start = time.time()
for i in L1:
    v_count=v_count+1
end = time.time()
print("Length of L1 using For Loop=",v_count)
print("Total Time For Enumeration Using 'For' Loop: ",end - start)
```

#### ALGORITHM TO ENUMERATE A LIST OF INTEGER ELEMENTS OF A VECTOR USING WHILE LOOP (EVW)

- STEP 01: START
- STEP 02: INITIALIZE AN EMPTY LIST L1 TO STORE ELEMENTS
- STEP 03: USING A LOOP, POPULATE THE LIST L1 WITH NUMBERS

STEP 04: INITIALIZE A COUNTER VARIABLE V\_COUNT TO KEEP TRACK OF THE NUMBER OF ELEMENTS.

STEP 05: INITIALIZE A VARIABLE ELE WITH THE NUMBER OF ELEMENTS USING IN BUILT FUNCTION

STEP 06: RECORD THE START TIME OF THE ENUMERATION PROCESS.

STEP 07: IN WHILE LOOP ADD 1 TO V\_COUNT EACH ITERATION WHILE i IS LESS THAN ELE

STEP 08: RECORD THE END TIME OF THE ENUMERATION PROCESS.

STEP 09: DISPLAY THE LENGTH OF L1

STEP 10: DISPLAY THE TOTAL TIME TAKEN FOR ENUMERATION

STEP 11: STOP

#### PYTHON PROGRAM TO ENUMERATE A LIST OF INTEGER ELEMENTS OF A VECTOR USING WHILE LOOP (EVW)

```
L1=[]
for i in range(1,100):
    L1.append(i)
ele=len(L1)
i=0
v_count=0
start = time.time()
while(i<ele):
    v_count=v_count+1
    i=i+1
end = time.time()
print("Length of L1 using 'While' Loop=",v_count)
print("Total Time For Enumeration Using 'While' Loop: ",end - start)
```

#### 4. COMPLEXITY OF ALGORITHM

In computer science, analysis of algorithms is a very crucial part. It is important to find the most efficient algorithm for solving a problem. It is possible to have many algorithms to solve a problem, but the challenge here is to choose the most efficient one. [2]

There are multiple ways to design an algorithm, or considering which one to implement in an application. When thinking through this, it's crucial to consider the algorithm's **time complexity** and **space complexity**. [3]

#### 5. SPACE COMPLEXITY

The space complexity of an algorithm is the amount of space (or memory) taken by the algorithm to run as a function of its input length, n. Space complexity includes both auxiliary space and space used by the input.[3]



Auxiliary space is the temporary or extra space used by the algorithm while it is being executed. Space complexity of an algorithm is commonly expressed using **Big O(n)** notation.[3]

The Space complexity is ignored in this research paper, since the space complexity of particular problem is not considered so important.

**6. TIME COMPLEXITY**

The time complexity of an algorithm is the amount of time taken by the algorithm to complete its process as a function of its input length, n. The time complexity of an algorithm is commonly expressed using asymptotic notations:[3]

- Big O - O(n)**
- Big Theta - Θ(n)**
- Big Omega - Ω(n)**

It's valuable for a programmer to learn how to compare performances of different algorithms and choose the best time-space complexity to solve a particular problem in the most efficient way possible. [3]

**Big O** notation is used in Computer Science to portrait the performance or complexity of an algorithm.

**Big O** specifically defines the worst-case scenario of an algorithm, and can be used to describe the execution time required or the space used (e.g. in memory or on disk) by an algorithm. here O stands for order of growth.

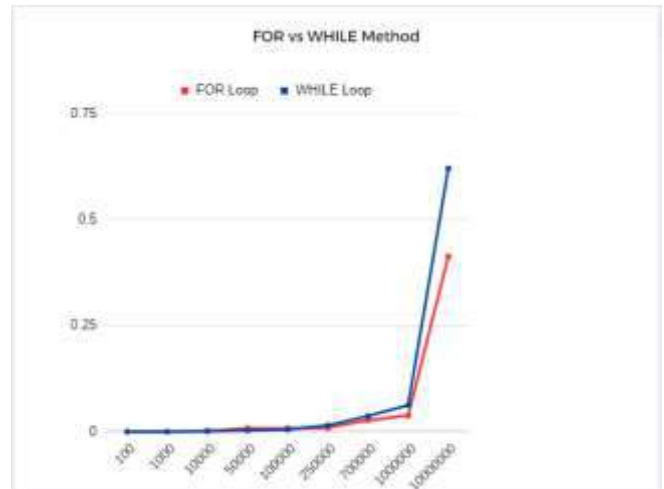
**Big Theta(Θ)** is used to represent the average case scenario of an algorithm and can be used to describe the execution time required or the space used (e.g. in memory or on disk) by an algorithm.

**Big Omega (Ω)** is used to represent the best case scenario of an algorithm and can be used to describe the execution time required or the space used (e.g. in memory or on disk) by an algorithm.

These three methods are the most common and very popular methods of design and analysis of an algorithm which are used for finding the efficiency of the program.

**7. RUNTIME COMPLEXITY OF ENUMERATION OF A VECTOR**

No. of Elements	Using EVF	Using EVW
100	0	0
1000	0	0
10000	0.00199461	0.000994205
50000	0.00794816	0.002991438
100000	0.007977724	0.004986525
250000	0.008976698	0.014961004
700000	0.026955366	0.0369828892
1000000	0.03824217	0.062833071
10000000	0.412894726	0.620584965



*Graphical Representation of Runtime complexity of both the methods*

**8. 'WHILE' LOOP METHOD – rc**

In the EVW the program enumerate the list of integers, the time complexity of the algorithm for worst case is denoted as:

**Big O(n)**

**9. 'FOR' LOOP METHOD – rc**

The time complexity of the EVF is calculated as

**Big O(n)**

**10. CONCLUSION**

The EVF has the greater efficiency for counting when comparing EVW for large number of elements while EVW is more efficient for less number of elements. Further it is also observed that generating integers and storing in a list is one time process and it is time consuming but once the list is prepared the performance of EVF is much higher than the EVW. In addition to this it is also observed that the execution of expression also depends on the hardware configuration. The space complexity for the EVF and EVW is identical.

**11. ACKNOWLEDGEMENT**

Apart from the efforts of me, the success of any work or project depends largely on the encouragement and guidelines of many others. I take this opportunity to express my gratitude to the people who have been instrumental in the successful completion of this research paper.

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I express my sincere thanks to the academicians **The Vice Principal Wg Cdr Deepti Upadhyaya, Sainik School Amaravathinagar**, for constant encouragement and the guidance provided during this research.



I express my earnest thanks to the academician The **Administrative Officer Lt Col Deepu, Sainik School Amaravathinagar**, for constant reassurance 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.

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# REVERSE A GIVEN VECTOR USING LINEAR APPROACH *rev\_vect()* function AND REVERSE A VECTOR USING *vect\_slice()* method. EXAMINING AND COMPARING THE EFFICIENCY OF ALGORITHM OF REVERSING VECTOR USING SLICING *vect\_slice()* function WITH REVERSING VECTOR USING LINEAR APPROACH *rev\_vect()* function - A CASE STUDY

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## ABSTRACT

In computer science, design analysis of algorithms is a very significant part. It is crucial to find the most efficient algorithm for solving a problem. There can be many algorithms to solve a problem, but the challenge here is to choose the most efficient one. There are multiple ways to design an algorithm, or taking into account which one to implement while solving critical applications in day to day life. When thinking about this, it is crucial to consider the algorithm's time complexity and space complexity.

This manuscript specifically examines the execution of reversing a vector using *rev\_vect()* function with *vect\_slice()*. Further comparing with the linear or sequential approach of reversing a vector with slicing methodology by calculating the time complexity of both the algorithms. In addition space complexity is also examined. The purpose is to provide efficient algorithm to reverse a vector.

**KEYWORDS:** Linear Approach (*la*), Vector Slice (*vs*), Reverse Vector (*rv*), Runtime Complexity (*rc*), Big  $O(n)$ , Big  $\Theta(n)$ , Big  $\Omega(n)$ , Generalised approach (*ga*).

## 1. INTRODUCTION

A vector, in programming, is a type of array that is one dimensional. A vector is often represented as a 1-dimensional array of numbers, referred to as components and is displayed either in column form or row form. Vector is a logical element in programming languages that are used for storing data. Vector plays a crucial role in storing the data.

In modern programming libraries this name "vector" has come to generally mean a variable sized sequence of values. Vectors are the same as dynamic arrays with the ability to resize itself automatically when an element is inserted or deleted.

## 2. RELATED WORK

Many mathematics research scholars have done extensive research and have changed the way we reverse a number. There are many methods discovered by many programmers but this is one of the efficient methods where time consumption is very less.

## 3. METHODOLOGY

Slicing is the extraction of a part of a string, list, or tuple. It enables users to access the specific range of elements by mentioning their indices. Syntax: Object [start:stop:step] "Start" specifies the starting index of a slice. "Stop" specifies the ending element of a slice. It is simple to execute. First import the

time module and use the function. Then get the input from the user in vector i.e, in list form. Assign values  $m=0$  and  $n=len(l1)-1$  then use assignment operator and assign  $k=l1[m]$ ,  $l1[m]=l1[n]$  and  $l1[n]=k$ . Increase the value of  $m$  by 1 and decrease the value of  $n$ . Then using slicing method that is  $l1[::-1]$  finish the code.

## ALGORITHM

- STEP 01: START
- STEP 02: IMPORT TIME
- STEP 03: GET INPUT OF LIST l1
- STEP 04: ASSIGN M=0 AND N=LEN(L1)-1
- STEP 05: START TIME FOR *rev\_vect()*
- STEP 06: WHILE M<N REPEAT STEPS 6 TO 8
- STEP 07: ASSIGN K=L1[M] AND L1[M]=L1[N]
- STEP 08: SET VALUE OF L1[N]=K
- STEP 09: INCREASE THE VALUE OF M AND REDUCE THE VALUE OF N BY 1
- STEP 10: END TIME FOR *vect\_slice()*
- STEP 11: START TIME FOR *vect\_slice()*
- STEP 12: USE  $l1[::-1]$
- STEP 13: END TIME FOR *vect\_slice()*





## PYTHON PROGRAM TO REVERSE A VECTOR AND FINDING THE EFFICIENCY OF THE CODE.

```
import time
def rev_vect(l1):
    m=0
    n=len(l1)-1
    start=time.time()
    while m<n:
        k=l1[m]
        l1[m]=l1[n]
        l1[n]=k
        m+=1
        n-=1
    end=time.time()
    print("Time taken for completion of execution by method 1:",(end-start)*10**3)
    return l1
def vect_slice(l1):
    start=time.time()
    l1[::-1]
    end=time.time()
    print("Time taken for completion of execution by method 2:",(end-start)*10**3)
    return l1
def main():
    l1=eval(input("Enter a list:"))
    a=rev_vect(l1)
    print("The reversed list method 1:",a)
    l=vect_slice(l1)
    print("The reversed list method 2:",l)
main()
```

### 4. COMPLEXITY OF ALGORITHM

In computer science, analysis of algorithms is a very crucial part. It is important to find the most efficient algorithm for solving a problem. It is possible to have many algorithms to solve a problem, but the challenge here is to choose the most efficient one.[2]

There are multiple ways to design an algorithm, or considering which one to implement in an application. When thinking through this, it's crucial to consider the algorithm's **time complexity** and **space complexity**. [3]

### 5. SPACE COMPLEXITY

The space complexity of an algorithm is the amount of space (or memory) taken by the algorithm to run as a function of its input length, n. Space complexity includes both auxiliary space and space used by the input. [3]

Auxiliary space is the temporary or extra space used by the algorithm while it is being executed. Space complexity of an algorithm is commonly expressed using **Big (O(n))** notation. [3]

The Space complexity is ignored in this research paper, since the space complexity of particular problem is not considered so important.

### 6. TIME COMPLEXITY

The time complexity of an algorithm is the amount of time taken by the algorithm to complete its process as a function of its input length, n. The time complexity of an algorithm is commonly expressed using asymptotic notations: [3]

**Big O - O(n)**

**Big Theta - Θ(n)**

**Big Omega - Ω(n)**

It's valuable for a programmer to learn how to compare performances of different algorithms and choose the best time-space complexity to solve a particular problem in the most efficient way possible. [3]

**Big O** notation is used in Computer Science to portrait the performance or complexity of an algorithm.

**Big O** specifically defines the worst-case scenario of an algorithm, and can be used to describe the execution time required or the space used (e.g. in memory or on disk) by an algorithm. here O stands for order of growth.

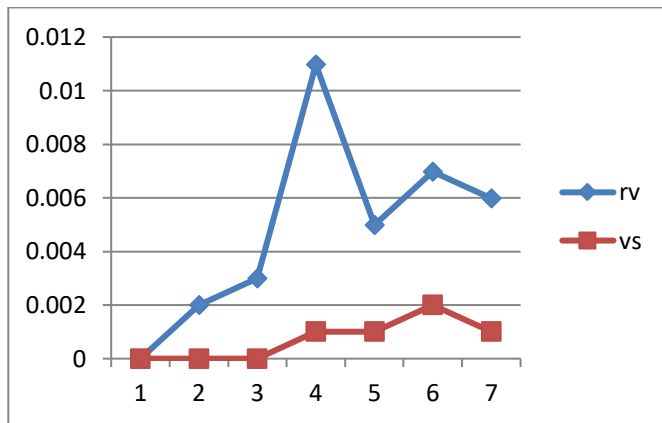
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These three methods are the most common and very popular methods of design and analysis of an algorithm which are used for finding the efficiency of the program.

### 7. RUNTIME COMPLEXITY OF REVERSING A VECTOR

Input	rv	vs
1000	0.0	0.0
6000	0.001994609	0.0
50001	0.002992391	0.0
76789	0.010969877	0.001000642
83567	0.004987955	0.000997066
98765	0.006981372	0.001996994
100000	0.005983829	0.000998020



**Graphical Representation of Runtime complexity of both the methods**

constant encouragement and the guidance provided during this research.

My sincere thanks to **Mr.Praveen Kumar MurigeppaJigajinni**, 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.

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**8.GENERALISED APPROACH - rc**

In the normal approach the program reverses the vector. The time complexity of the algorithm for worst case is denoted as:

**Big (O(n))**

**9.LUCAS METHOD (LMM) - rc**

The time complexity of the reversing a vector is calculated as

**Big (O(14))**

**10. CONCLUSION**

The Linear method and slice method have the greater efficiency for reversing a vector when comparing with general approach. Further it is also observed that reversing a vectors and storing in a file is one time process and it is time consuming but once the file is prepared the performance of the code is much higher than the normal approach. In addition to this it is also observed that the execution of expression also depends on the hardware configuration.

**11.ACKNOWLEDGEMENT**

Apart from the efforts of me, the success of any work or project depends largely on the encouragement and guidelines of many others. I take this opportunity to express my gratitude to the people who have been instrumental in the successful completion of this research paper.

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I express my deep sense of gratitude to the luminary **The Principal Capt. (IN) K MANIKANDAN, Sainik School Amaravathinagar** who has been continuously motivating and extending their helping hand to us.

I express my sincere thanks to the academician **The Vice Principal Wing Commander DEEPTI UPPADHAYAY and Administrative officer Lieutenant colonel DEEPU** for



# CHECKING ARMSTRONG NUMBER USING FUNCTION *check\_arm()* FUNCTION USING SEQUENTIAL SEARCH METHODOLOGY AND *check\_rand\_arm()* FUNCTION FURTHER COMPARISON BETWEEN BOTH THE FUNCTIONALITIES BY EVALUATING THE TIME COMPLEXITY OF THE FUNCTIONS - A CASE STUDY

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## ABSTRACT

The time complexity of an algorithm is the amount of time taken by the algorithm to complete the execution of function of its input length,  $n$ . The time complexity of an algorithm is denoted by using asymptotic notations.

This manuscript specifically examines the efficiency of functions *check\_arm()* and *check\_rand\_arm()*, these methodologies are used to find an Armstrong number in a vector. The efficiency of these two functions are calculated and assessed by using time complexity of functions. Further the space complexity also calculated, since both algorithm uses same space as per the input function. The endeavour of this paper is to express the better algorithm with respect to time.

**KEYWORDS:** *check\_arm(ca)* *check\_rand\_arm(cra)*, Random number ( $rn$ ), Runtime Complexity ( $rc$ ), Big  $O(n)$ , Big  $\Theta(n)$ , Big  $\Omega(n)$ , Generalised approach ( $ga$ )

## 1. INTRODUCTION

Armstrong number is the number in any given number base, which forms the total of the same number, when each of its digits is raised to the power of the number of digits in the number. It is of special interest to new programmers and those learning a new programming language because of the way the number behaves in a given number base. For example, using a simple number 153 and the decimal system, we see there are 3 digits in it. If we do a simple mathematical operation of raising each of its digits to the power of 3, and then totalling the sum obtained, we get 153. That is 1 to the power of 3, 5 to the power of 3, 3 to the power of three is 1 125 27 and sum is 153. This can also be represented as  $1^3 + 5^3 + 3^3 = 153$ . The number 153 is an example of the Armstrong number which also has a unique property that one can use any number system. Thus if the number obtained totals to or equals the original number when each of the digits is raised to the power of the number of digits in the number and added to obtain a number, in any given number system, such a number is called an Armstrong number.

## 2. RELATED WORK

In number theory, an Armstrong number in a given number base  $b$  is a number that is the sum of its own digits each raised to the power of the number of digits. To put it simply, if I have a 3-digit number then each of the digits is raised to the power of three and added to obtain a number.

## 3. METHODOLOGY

There are different Python programs associated with finding an Armstrong number. You can check whether a given number is

an Armstrong number or not. Alternatively, you can find all the Armstrong numbers within a specified range of numbers. We will go with both these approaches related to the identification of Armstrong numbers, in Python.

The methodology I have used to check Armstrong number is function *check\_arm()* and *check\_random\_arm()*.

The various programming languages have the capability to generate Armstrong number ( $ln$ ) and store it in a file (permanently on secondary storage device). During the course of research, it was decided to use Python programming language due to its large collection of library modules and the availability of online support.

## ALGORITHM FOR CHECKING ARMSTRONG NUMBER

**STEP 1: The number of digits in num is found out**

**STEP 2: The individual digits are obtained by performing  $num \bmod 10$ , where the mod is the remainder module.**

**STEP 3: The digit is raised to the power of the number of digits and stored.**



- STEP 4:** Then the number is divided by 10 to obtain the second digit.
- STEP 5:** Steps 2, 3 and 4 are repeated until the value of num is greater than 0
- STEP 6:** Once num is less than 0, end the while loop
- STEP 7:** Check if the sum obtained is same as the original number
- STEP 8:** If yes, then the number is an Armstrong number.

**PYTHON PROGRAM TO CHECK THE ARMSTRONG NUMBER AND STORING IN SECONDARY STORAGE DEVICE IN THE FORM OF TEXT FILE.**

```
num = int(input("Enter a number: "))
sum = 0
n1 = len(str(num))
temp = num
while temp > 0:
    digit = temp % 10
    sum += digit ** n1
    temp //= 10
if num == sum:
    print(num,"is an Armstrong number")
else:
    print(num,"is not an Armstrong number")
```

**ALGORITHM TO FIND A ARMSTRONG NUMBER IN A TEXT FILE**

- 1.Convert the input number into a string usingstr(num).
2. Find the length of the string using len(num\_str) and store it inn.
3. Initialize a variable sum to zero.
4. Iterate through each digit in the string using a for loop, and convert each digit back to an integer using int(digit).
5. Raise each digit to the power of n using int(digit)\*\*n, and add the result to sum.
6. After the loop is complete, check whether sum is equal to num.
7. If sum is equal to num, return True (the input number is an Armstrong number).
8. If sum is not equal to num, return False (the input number is not an Armstrong number).

**PYTHON PROGRAM TO CHECK ARNSTRONG NUMBER**

```
def is_armstrong(num):
    num_str = str(num)
    n = len(num_str)
    sum = 0
```

```
for digit in num_str:
    sum += int(digit)**n
if sum == num:
    return True
else:
    return False
num=153
print(is_armstrong(num))
```

**4. COMPLEXITY OF ALGORITHM**

In computer science, analysis of algorithms is a very crucial part. It is important to find the most efficient algorithm for solving a problem. It is possible to have many algorithms to solve a problem, but the challenge here is to choose the most efficient one.[2]

There are multiple ways to design an algorithm, or considering which one to implement in an application. When thinking through this, it's crucial to consider the algorithm's **time complexity** and **space complexity**. [3]

**5. SPACE COMPLEXITY**

The space complexity of an algorithm is the amount of space (or memory) taken by the algorithm to run as a function of its input length, n. Space complexity includes both auxiliary space and space used by the input. [3]

Auxiliary space is the temporary or extra space used by the algorithm while it is being executed. Space complexity of an algorithm is commonly expressed using **Big (O(n))** notation. [3]

The Space complexity is ignored in this research paper, since the space complexity of particular problem is not considered so important.

**6. TIME COMPLEXITY**

The time complexity of an algorithm is the amount of time taken by the algorithm to complete its process as a function of its input length, n. The time complexity of an algorithm is commonly expressed using asymptotic notations: [3]

- Big O - O(n)**
- Big Theta - Θ(n)**
- Big Omega - Ω(n)**

It's valuable for a programmer to learn how to compare performances of different algorithms and choose the best time-space complexity to solve a particular problem in the most efficient way possible. [3]

**Big O** notation is used in Computer Science to portrait the performance or complexity of an algorithm.

**Big O** specifically defines the worst-case scenario of an algorithm, and can be used to describe the execution time required or the space used (e.g. in memory or on disk) by an algorithm. here O stands for order of growth.

**Big Theta(Θ)** is used to represent the average case scenario of an algorithm and can be used to describe the execution time



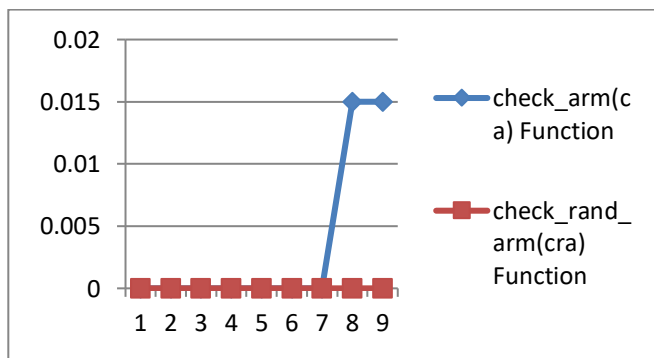
required or the space used (e.g. in memory or on disk) by an algorithm.

**Big Omega ( $\Omega$ )** is used to represent the best case scenario of an algorithm and can be used to describe the execution time required or the space used (e.g. in memory or on disk) by an algorithm.

These three methods are the most common and very popular methods of design and analysis of an algorithm which are used for finding the efficiency of the program.

### 7. RUNTIME COMPLEXITY OF CHECKING ARMSTRONG NUMBER

Input (No of Digits)	check_arm(ca) Function	check_rand_arm(cra) Function
3	0.0	0.0
4	0.0	0.0
5	0.0	0.0
6	0.0	0.0
7	0.0	0.0
8	0.0	0.0
9	0.0	0.0
10	0.015	0.0
11	0.015	0.0



*Graphical Representation of Runtime complexity of both the methods*

### 8. GENERALISED APPROACH - rc

In the normal approach the program checks for the given number prime or not. The time complexity of the algorithm for worst case is denoted as:

$$\text{Big } (O(n))$$

### 9. LUCAS METHOD (LMM) - rc

The time complexity of the LUCAS Method is calculated as

$$\text{Big } (O(14))$$

### 10. CONCLUSION

The Lucas mathematical methodology has the greater efficiency for checking prime when comparing with general approach. Further it is also observed that generating prime series and storing in a file is one time process and it is time consuming but once the file is prepared the performance of the code is much higher than the normal approach. In addition to this it is also

observed that the execution of expression also depends on the hardware configuration.

### 11. ACKNOWLEDGEMENT

Apart from the efforts of me, the success of any work or project depends largely on the encouragement and guidelines of many others. I take this opportunity to express my gratitude to the people who have been instrumental in the successful completion of this research paper.

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- <https://www.freecodecamp.org/news/time-complexity-of-algorithms/>
- <https://www.educative.io/edpresso/time-complexity-vs-space-complexity>





# CONCATENATION OF TWO OR MORE VECTORS USING *concat\_vect()* FUNCTION A LINEAR METHOD AND CONCATENATION OF TWO OR MORE VECTORS USING *concat\_assign\_vect()* FUNCTION USING SIMPLIFIED ASSIGNMENT OPERATION. FURTHER ASSESSING THE TIME COMPLEXITY OF BOTH ALGORITHMIC FUNCTIONS - A CASE STUDY

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## ABSTRACT

*Design and analysis of algorithm is one of the core component of implementation of any software. Its a very pivotal part. It is important to plan and design the most efficient algorithm for solving a problem. There are various means of algorithms to solve a problem, but the challenge here is to choose the most effectual and well organised algorithm.*

*This manuscript indeed describes the concatenation of list of elements using a linear method called *concat\_vect()* function and concatenates two or more vectors, further the same functionality is being executed by using *concat\_assign\_vect()* function simplified assignment operation, in addition to it the time complexity of the function is being calculated to examine the performance of both the algorithms. The purpose is to provide efficient algorithm for concatenation of more than one vector.*

**KEYWORDS:** *Simplified Assignment operations(sa), concatenation of vector (cv), linear method(lm), Runtime Complexity (rc), Big  $OO(n)$ , Big Theta $\Theta(n)$ , Big Omega $\Omega(n)$ , Generalised approach (ga)*

## 1. INTRODUCTION

A List is an ordered data structure with elements separated by comma and enclosed within square brackets. The operation of joining string end to end. A list is one of the most common data structures used, not just in Python but in programming in general. It is an ordered and mutable Python container. To create a list, the elements are placed inside square brackets ([]) and each element is separated by a comma

## 2. RELATED WORK

The most conventional method to perform the list concatenation, the use of “+” operator can easily add the whole of one list behind the other list and hence perform the concatenation.

List comprehension can also accomplish this task of list concatenation. In this case, a new list is created, but this method is a one-liner alternative to the loop method discussed above.

## 3. METHODOLOGY

*concat\_assign\_vect()* function utilizes the *input\_vector\_elements()* function twice to get two lists, L1 and L2, from user input. After obtaining both lists, it concatenates them into a new list L3 using the + operator and then prints the concatenated list.

*concat\_vect()* function collects two lists, L1 and L2, from the user using the *input\_vector\_elements()*

function. However, instead of using the + operator for concatenation, it uses a for loop to iterate through the elements in L2 and appends each element to L1. It then prints L1 after each element is appended. This function essentially prints the intermediate state of the L1 list as elements from L2 are added to it.

### ALGORITHM FOR *concat\_assign\_vect()* and *concat\_vect()*

**STEP 01: START**

**STEP 02: ASK THE USER TO INPUT THE NUMBER OF ELEMENTS, N.**

**STEP 03: INITIALIZE AN EMPTY LIST, L1.**

**STEP 04: Use A For Loop To Iterate From 0 To N-1.**

**STEP 05: INSIDE THE LOOP, ASK THE USER TO INPUT AN ELEMENT, ELE.**

**STEP 06: APPEND THE ELEMENT ELE TO THE LIST L1.**

**STEP 07: RETURN THE LIST L1 CONTAINING THE INPUT ELEMENTS.**

**STEP08: DEFINE THE**

**CONCAT\_ASSIGN\_VECT()FUNCTION**

**STEP09: CALL THE INPUT\_VECTOR\_ELEMENTS FUNCTIONS TWICE TO GET TWO LISTS,L1 AND L2, FROM USERS.**



STEP 10: CONCATENATE THE TWO LISTS USING THE + OPERATOR AND STORE THE RESULT IN A NEW LIST, L3.

STEP 11: PRINT THE CONCATENATED LIST, L3.

STEP 12: DEFINE THE CONCAT\_VECT() FUNCTION

STEP13: CALL THE INPUT

VECTOR\_ELEMENT()FUNCTION TWICE TO GET TWO LISTS, L1 AND L2, FROM THE USER.

STEP 14: INITIALIZE A LOOP TO ITERATE THROUGH ELEMENTS IN L2.

STEP 15: INSIDE THE LOOP,TAKE AN ELEMENT, X, FROM L2.

STEP 16: APPEND THIS ELEMENT TO THE LIST L1.

STEP 17: APPEND THIS ELEMENT TO THE LIST L1.

STEP 18: PRINT THE UPDATED LIST L1 AFTER ADDING EACH ELEMENT FROM L2.

STEP 19:STOP

PYTHON PROGRAM FOR concat\_vect()  
 AND concat\_assign\_vect():

```
import time
import random
def concat_assign_vect():
    L1=[]
    L2=[]
    for i in range(0,100):
        L1.append(random.randint(0, i))
    for i in range(0,100):
        L2.append(random.randint(0, i))

    start = time.time()
    L3=L1+L2
    end = time.time()
    print("Total Time For Enumeration Using Assign Vector is : ",end - start)
    print(L3)

def concat_vect():
    L1=[]
    L2=[]
    for i in range(0,100):
        L1.append(random.randint(0, i))
    for i in range(0,100):
        L2.append(random.randint(0, i))
    start = time.time()
    for x in L2:
        L1.append(x)
        print(L1)
    end = time.time()
    print("Total Time For Enumeration Using CONCAT VECTOR is : ",end - start)
```

```
concat_assign_vect()
concat_vect()
```

#### 4. COMPLEXITY OF ALGORITHM

In computer science, analysis of algorithms is a very crucial part. It is important to find the most efficient algorithm for solving a problem. It is possible to have many algorithms to solve a problem, but the challenge here is to choose the most efficient one.[2]

There are multiple ways to design an algorithm, or considering which one to implement in an application. When thinking through this, it's crucial to consider the algorithm's **time complexity** and **space complexity**. [3]

#### 5. SPACE COMPLEXITY

The space complexity of an algorithm is the amount of space (or memory) taken by the algorithm to run as a function of its input length, n. Space complexity includes both auxiliary space and space used by the input. [3]

Auxiliary space is the temporary or extra space used by the algorithm while it is being executed. Space complexity of an algorithm is commonly expressed using **Big O(n)** notation. [3]

The Space complexity is ignored in this research paper, since the space complexity of particular problem is not considered so important.

#### 6. TIME COMPLEXITY

The time complexity of an algorithm is the amount of time taken by the algorithm to complete its process as a function of its input length, n. The time complexity of an algorithm is commonly expressed using asymptotic notations: [3]

**Big O - O(n)**

**Big Theta - Θ(n)**

**Big Omega - Ω(n)**

It's valuable for a programmer to learn how to compare performances of different algorithms and choose the best time-space complexity to solve a particular problem in the most efficient way possible.[3]

**Big O** notation is used in Computer Science to portrait the performance or complexity of an algorithm.

**Big O** specifically defines the worst-case scenario of an algorithm, and can be used to describe the execution time required or the space used (e.g. in memory or on disk) by an algorithm. here O stands for order of growth.

**Big Theta(Θ)** is used to represent the average case scenario of an algorithm and can be used to describe the execution time required or the space used (e.g. in memory or on disk) by an algorithm.

**Big Omega (Ω)**is used to represent the best case scenario of an algorithm and can be used to describe the execution time required or the space used (e.g. in memory or on disk) by an algorithm.

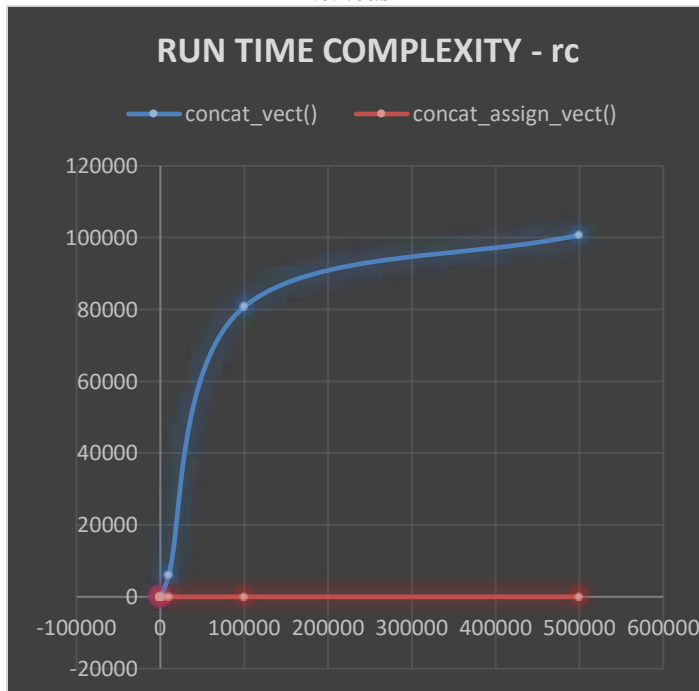


These three methods are the most common and very popular methods of design and analysis of an algorithm which are used for finding the efficiency of the program.

**7. RUNTIME COMPLEXITY**

Input	concat_vect()	concat_assign_vect()
5	0.015622138	0.0
10	0.031253814	0.0
100	1.890174627	0.0
500	40.86535811	0.0
1000	87.53732275	0.0
10000	6073.405734	0.0
100000	80735.405734	0.0
500000	100735.40573	0.0

*Graphical Representation of Runtime complexity of both the methods*



**8.GENERALISED APPROACH - rc**

In the normal approach the program checks for the given number prime or not. The time complexity of the algorithm for worst case is denoted as:

**Big (O(n))**

**9.concat\_vect() METHOD (LMM) - rc**

The time complexity of the **concat\_vect()** Method is calculated as

**Big (O(n))**

**10. CONCLUSION**

The **concat\_vect()** mathematical methodology has the greater efficiency for checking prime when comparing with general approach. Further it is also observed that generating prime series and storing in a file is one time process and it is time consuming but once the file is prepared the performance of the code is much

higher than the normal approach. In addition to this it is also observed that the execution of expression also depends on the hardware configuration.

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**12. REFERENCES**

1. [https://en.wikipedia.org/wiki/Concat\\_vect\(\)\\_number](https://en.wikipedia.org/wiki/Concat_vect()_number)
2. <https://www.freecodecamp.org/news/time-complexity-of-algorithms/>
3. <https://www.educative.io/edpresso/time-complexity-vs-space-complexity>



# IMPLEMENTATION OF `randomize_traverse()` MATHEMATICAL MODEL TO CHECK THE OCCURANCE OF GIVEN NUMBER IN A VECTOR. FURTHER COMPARISON BETWEEN `randomize_traverse()` AND STANDARD `linear_search()` FUNCTION. - A CASE STUDY

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## ABSTRACT

*In computer science efficiency of a particular software is determined by the two factors and they are, the amount of memory that is being used to store the data and the amount of time used for processing. These two parameters are used in calculating the space complexity and time complexity of the program.*

*This manuscript specifically examines the execution of checking the given number exists in a vector or not, if it exists how many times the number occurred by using `randomize_traverse()` and further comparing with the standard searching methodology `linear_search()` function. The purpose is to provide a alternative methodology for counting the occurrence of a given number in a vector.*

**KEYWORDS:** *linear search(ls), randomize traverse(rt), Runtime Complexity (rc), Big  $O(n)$ , Big  $\Theta(n)$ , Big  $\Omega(n)$ , Generalised approach (ga)*

## 1. INTRODUCTION

Searching means locating a particular element in a collection of elements. Searching allows you to find if a particular element is present in the list or not. You can use searching to count the number of occurrences of a specific element in a list. This is beneficial when you need to determine how many times a particular value appears in the list.

The uses of searching the occurrence of a element in vector is: Counting the occurrences can be helpful in removing duplicate elements from a list and when working with data, counting occurrences can be helpful for summarizing and understanding the distribution of values. It allows you to see how often each value appears and identify outliers.

## 2. RELATED WORK

Linear search and binary search are two common searching algorithms used in computer science to find the position of a target value within a list or array. Linear search is a simple algorithm that sequentially checks each element of a list until it finds a match with the target value. It starts from the first element and compares it with the target value. If the values are equal, the search is complete. If there is no match, it moves to the next element until the end of the list is reached. Linear search has a time complexity of  $O(n)$ , where  $n$  is the number of elements in the list.

Binary search is a more efficient algorithm for searching elements in a sorted list or array. It compares the target value with the middle element of the list. If they match, the search is complete. If the target value is greater than the middle element, the search continues in the right half of the list. Otherwise, it continues in the left half. This process is repeated by dividing

the list in half until the target value is found or the list is exhausted. Binary search has a time complexity of  $O(\log n)$ , where  $n$  is the number of elements in the list.

## 3. METHODOLOGY

The `randomize_traverse(rt)` and `linear_search(ls)` method is used for checking the occurrence of a number in a vector, the `randomize_traverse(rt)` will generate numbers and store it in a list and with the help of this list it will check the occurrence of a number in a vector.

Further to check the efficiency of `randomize_traverse` approach with the `linear_search` methodology of checking the occurrence of a number in a vector and examining the length of the input.

### ALGORITHM FOR `randomize_traverse()` MATHEMATICAL MODEL TO CHECK THE OCCURANCE OF GIVEN NUMBER IN A VECTOR

```
STEP 01: START
STEP 02: IMPORT RANDOM
STEP 03: ENTER A LIST
STEP 04: ENTER THE SEARCHING KEY
STEP 05: COUNT=0
STEP 06: GENERATE RANDOM NUMBERS IN A LIST
a
STEP 07:FOR I IN RANGE(0,LEN(l1))
STEP 08: IF SK==l1[a[i]]:
STEP 09: COUNT+=COUNT
STEP 10: PRINT COUNT
STEP 11: STOP
```



## PYTHON PROGRAM TO CHECK THE OCCURRANCE OF A NUMBER IN A VECTOR USING randomize traverse(rt).

```
import random
L1=eval(input("enter a list"))
sk=int(input("enter the search number:"))
count=0
a=random.sample(range(0,len(L1)),len(L1))
for i in range(0,len(L1)):
    if sk==L1[a[i]]:
        count=count+1
print(count)
```

## ALGORITHM FOR linear search(ls) MATHEMATICAL MODEL TO CHECK THE OCCURRANCE OF GIVEN NUMBER IN A VECTOR

- STEP 01: START
- STEP 02: ENTER A LIST
- STEP 03: ENTER THE SEARCHING KEY
- STEP 04: COUNT=0
- STEP 05: FOR I IN L1:
- STEP 06: IF I==SK:
- STEP 07: COUNT=COUNT+1
- STEP 08: PRINT (COUNT)
- STEP 09: STOP

## PYTHON PROGRAM TO CHECK THE OCCURRANCE OF A NUMBER IN A VECTOR USING linear search(ls).

```
L1=eval(input("enter a list"))
sk=int(input("enter the search number:"))
count=0
for i in L1:
    if i==sk:
        count=count+1
print("no of numbers:",count)
```

## 4. COMPLEXITY OF ALGORITHM

In computer science, analysis of algorithms is a very crucial part. It is important to find the most efficient algorithm for solving a problem. It is possible to have many algorithms to solve a problem, but the challenge here is to choose the most efficient one.[1]

There are multiple ways to design an algorithm, or considering which one to implement in an application. When thinking through this, it's crucial to consider the algorithm's **time complexity** and **space complexity**. [2]

## 5. SPACE COMPLEXITY

The space complexity of an algorithm is the amount of space (or memory) taken by the algorithm to run as a function of its input length, n. Space complexity includes both auxiliary space and space used by the input. [2]

Auxiliary space is the temporary or extra space used by the algorithm while it is being executed. Space complexity of an algorithm is commonly expressed using **Big (O(n))** notation. [2]

The Space complexity is ignored in this research paper, since the space complexity of particular problem is not considered so important.

## 6. TIME COMPLEXITY

The time complexity of an algorithm is the amount of time taken by the algorithm to complete its process as a function of its input length, n. The time complexity of an algorithm is commonly expressed using asymptotic notations: [2]

- Big O -  $O(n)$
- Big Theta -  $\Theta(n)$
- Big Omega -  $\Omega(n)$

It's valuable for a programmer to learn how to compare performances of different algorithms and choose the best time-space complexity to solve a particular problem in the most efficient way possible. [2]

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These three methods are the most common and very popular methods of design and analysis of an algorithm which are used for finding the efficiency of the program.

## 7. RUNTIME COMPLEXITY OF CHECKING A randomize\_traverse

Input	Linear search	Randomize traverse
100	0.0	0.0
1000	0.0	0.0
10000	0.0	0.015637874
50000	0.009718418	0.010993957
100000	0.008007764	0.020989698
200000	0.021995544	0.052467088
300000	0.026982545	0.078321424
400000	0.041989564	0.095634537
500000	0.060964345	0.125586376

Graphical Representation of Runtime complexity of both the methods





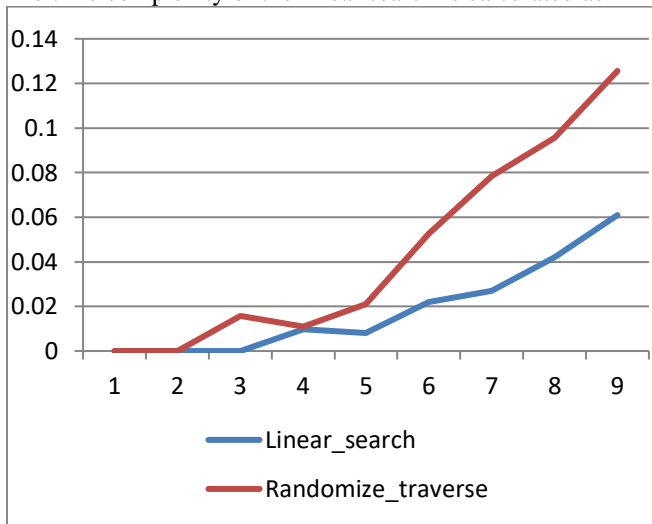
### 8.RANDOMIZE TRAVERSE-rc

In the randomize traverse approach the program checks for the occurrence of a number in a vector. The time complexity of the algorithm for any value of n is denoted as;

**Big (O(n))**

### 9.LINEAR SEARCH-rc

The time complexity of the linear search is calculated as



**Big (O(14))**

### 10. CONCLUSION

The Linear search has the greater efficiency for checking occurrence of a number in a vector when comparing with randomize traverse. The linear search proves to be very efficient as it uses the iterative process to check each and every element of the list in order. This proves to be very efficient while dealing with very huge numbers like in zillions.

### 11.ACKNOWLEDGEMENT

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2. <https://www.educative.io/edpresso/time-complexity-vs-space-complexity>



# THE INFLUENCE OF TEACHERS' KNOWLEDGE, ADAPTABILITY, ATTITUDES, AND SELF-EFFICACY ON OUTCOMES-BASED EDUCATION PRACTICES: A REGRESSION ANALYSIS

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## ABSTRACT

*It is widely agreed that factors from the teachers significantly influence the practices of Outcomes-Based Education. As OBE is gaining popularity as a new paradigm of education in most of the higher education institutions subjected a teacher's response to its actual implementation. The study employed descriptive and correlational research design in analyzing the factors and utilized multiple linear regression to analyze its influence on the extent of OBE practices. Results showed that level of knowledge on OBE and the level of adaptability greatly influenced the extent of OBE practices. Teachers who better understand the curriculum are better able to adapt their strategies to meet the needs of diverse students and are equipped with skills relevant to the attainment of student's outcome. Teachers who are willing to try new teaching strategies and adjust their instruction based on student feedback may be more successful in implementing OBE practices than those who are more resistant to change. Significantly, Alignment is a positive predictor of the respondents' perceived extent of OBE practices. The knowledge on the constructive alignment helps teachers to facilitate students' achievement of outcomes and experiences while being certain of the alignment of all learning experiences to the curriculum. Furthermore, attitude towards OBE and the level of self-efficacy showed a great influence in the extent of OBE practices. The certain degree of agreement depicts the recognition of effectiveness of OBE in strengthening education. As teachers viewed OBE to be effective, they see the value of it in their teaching practices. On the other hand, the higher beliefs of teachers in their capacity to teach depicts a strong will to implement OBE into practice. Acceptance, instructional strategies, and classroom management are all positive predictors of the respondents' perceived extents on OBE practices. However, feelings is a negative predictor which mean that even if teachers possess a negative attitude towards OBE, it does not affect their teaching practices following OBE*

**KEYWORDS:** *knowledge, outcomes-based education, adaptability, attitudes, self- efficacy, practice*

## INTRODUCTION

It is widely agreed that factors from the teachers significantly influence the practices of Outcomes-Based Education. As OBE is gaining popularity as a new paradigm of education in most of the higher education institutions subjected a teacher's response to its actual implementation. It is believed that teacher's role in any curricular reform is crucial. Hence, their knowledge, adaptability, attitudes, and self-efficacy may influence the practices relevant to the implementation of this curriculum. Teacher's response to the ever- changing education is dependent on his or her understanding of the curriculum, their flexibility to adopt to changes, their positive views and their capacity to teach amidst the changing conditions.

Philippine higher education institutions were mandated by CHED to respond to the aims of raising educational standards in producing marketable graduates that can work elsewhere in the ASEAN region through the implementation of Outcomes-Based Education policy to enhance quality assurance. This policy is envisioned to align the practices of the higher education institution to well -defined mission, vision, and outcomes. Thus, requires the Institution to shift their approaches from teacher centered to a more student-centered

education.

Considerable research proves the importance of teacher's role in the implementation of outcomes-based education (Killen, 2000; Butler, 2004; De Guzman et.al, 2017). Literature suggest that the success of OBE depends largely on "how" and "how much" it was valued by educators in their teaching practices. Thus, the way educators understand, interpret, viewed, and respond to it makes up a good implementation. Though outcome-based education has been observed to be successful in other countries and even in the Philippines, the question that lingers this research is how it was being sustained. A qualitative inquiry of Dagdag and Cardona (2018) among 22 Higher Education Institutions in the Province of Isabela revealed that although most of the faculty members are knowledgeable in OBE, ideal practices were not implemented. Hence, suggested much effort is needed to sustain the implementation.

Teacher's knowledge on OBE is one of the indicators of sustainability. Hence, their positive reception through gaining awareness and understanding of the curriculum indicates a greater extent of practice. As mentioned by Laguardor and Dotong (2014), a higher level of understanding, provides a



greater possibility to contribute to the realization of the OBE curriculum. This only means that it is crucial for an effective delivery of learning experiences that are aligned with the students' achievable outcomes. Teachers who are knowledgeable of OBE can design assessments that accurately measure the learning outcomes, which helps to ensure that students are meeting the expected competencies and skills. Moreover, in any changes, it is important that teachers had an ability to conform and adjust to an inherently changing circumstance. This indicates that their adaptability to changes is pivotal. Loughland and Alonzo (2019) asserted that more adaptable teachers tend to adjust the teaching to conform with the curriculum. This supports the assertion of Collie and Martin (2016) that the work of teachers implicates any changes and reforms. Hence, they are expected to respond effectively and proactively manage the adjustments to translate these into instructional practices.

Consequently, attitudes towards OBE also play a critical role in the successful practice of this curriculum. Teachers who have positive attitudes towards OBE are more likely to implement the approach effectively, as they are motivated to achieve the desired outcomes. Conversely, negative attitudes towards OBE may lead to resistance or lack of motivation, which can hinder the implementation of the approach. Alimyar (2020) emphasized that attitudes are considered factors that impacted the lecturers to implement OBE in classrooms. This is supported by the results of the study of Ortega and Dela Cruz (2016) that demonstrated the positive attitude of faculty towards OBE implementation. Literature suggest that teachers view on the curriculum replicates a certain degree of agreement to a curricular reform. Thus, proves that attitudes may impede or support the practices of the curriculum. On the other hand, self-efficacy, is an essential factor that influences the extent of OBE practices. Teacher who possesses a high degree of self-efficacy tends to persist challenges and setbacks in the implementation of OBE. According to Klassenet,al (2010) teachers that demonstrate high self-efficacy possessed effective teaching strategies and mechanism to cope successfully with tasks, obligations and challenges related to his or her role in the school.

Although research had been conducted to determine the extent of OBE practices and implementation, variations in the findings call for this research to be pursued. As OBE becomes the mandated curriculum, it would be imperative to examine how factors from the teachers influence the OBE practices. Thus, this research study will provide a comprehensive grasp on the implementation of OBE in the perspective of the key players of curriculum, the teachers. Specifically, this study tried to:

1. Find out the influence of the extent of knowledge and extent of adaptability on OBE of the respondents on the perceived extent of OBE practices; and
2. Examine the influence of the attitudes towards OBE and self-efficacy in teaching of the respondents on the perceived extent of OBE practices.

## METHODOLOGY

This study employed a descriptive and correlational research design. The methods were utilized to collect data using a research survey questionnaire where quantitative analysis would be used to examine the influence of extent of knowledge, adaptability, attitudes, and self-efficacy to the extent of OBE practices. To further analyze the data in this study, this study employed a multiple Linear Regression to determine if the teacher's level of knowledge on OBE, adaptability, attitudes towards OBE and self-efficacy can predict the extent of OBE Practices. Multiple Linear Regression was used when two or more independent variables are examined if it can predict the dependent variable. This will allow establishing the causal relationship among variables.

This study was conducted in University of Southern Mindanao-Kidapawan City Campus, an extension campus of the University of Southern Mindanao Located at the Municipality of Kabacan, Cotabato. The campus is an external campus of USM that has three colleges namely, College of Education, Arts and Sciences, College of Engineering and College of Technology. Moreover, the 104 faculty members were carried out as respondents through random sampling. They were faculty members that comprise the three colleges of the campus. The researcher obtained authorization and approval from the President of the University where the respondents are employed. Likewise, the researcher submitted a letter to the chancellor for the conduct of the study. After securing a letter, the researcher scheduled the dates for the survey administration. The administration of the instruments was conducted through Google forms sent to their individual emails. Moreover, permission from the respondents were obtained before the conduct of the study.

The researcher utilized survey questionnaire in gathering the data. The first part of the questionnaire is adopted from the study of Nguyen and Pham (2021) with Cronbach Alpha value of  $\alpha = 0.85$ . The questionnaire consists of 20 items that would inquire or ascertain the level of understanding on OBE. The second part of the questionnaire determined the extent of adaptability of the respondents. The questionnaire is consisted of 25 items with five different dimensions: (1) Active Learning, (2) Creative Application, (3) Emotional Management, (4) Situational Adaptation and (5) Opinion Flexibility. The instrument was adopted from the instrument developed by Samale (2016) based on the Measure of Adaptive Performance (MAP) instrument by Lillard et al. (2012) and the Individual Adaptability Theory (I-ADAPT) instrument by Ployhart and Bliese (2006). The instrument used contains a reliability with the Alpha (Cronbach Alpha value) of  $\alpha = 0.87$ . The third part of the questionnaire was adopted from Ortega and Ortega-Delacruz (2016) that determined the attitudes of the respondents toward OBE. However, few modifications were made to suit to the needs of the study. The questionnaire is consisted of 20 items that would measure their viewpoint and degree of agreement towards the implementation of OBE based on beliefs, feelings, readiness, and acceptance. The fourth part of the questionnaire inquired the self-efficacy of faculty. The instrument was adopted from Tschannen-Moran and Hoy (2001). It is consisted of 12 items to measure their



beliefs on their ability towards teaching. Specific items are based on the dimensions of student engagement (item 1-4), instructional strategies (5-9) and Classroom Management (10-12). Last part of the questionnaire was aimed to determine the extent OBE practices in the campus. The instrument was adopted from Bansig and Iringan (2019) for practices in Instructional Design and Tungran and Anatalan (2021) with for items on Instructional Assessment and Instructional Strategies. This consisted of 20 items divided into three categories namely instructional design, instructional strategies and instructional activities.

## RESULTS AND DISCUSSIONS

### The Influence of the Extent of Knowledge and Extent of Adaptability on OBE of the Respondents on the Perceived Extent of OBE Practices

Table 1 shows the result of multiple linear regression analysis that was performed to determine the influence of the extent of knowledge and extent of adaptability on OBE of the

respondents on the perceived extent of OBE practices. It is shown in Table 1 that the model is significant,  $R^2 = 0.726$ , Adjusted  $R^2 = 0.703$ ,  $F = 31.45$ ,  $p < 0.01$ , which indicates that teacher respondents who perceive great extent on OBE practices have higher extent of knowledge and adaptability. This implies that teachers who better understand the curriculum are better able to adapt their strategies to meet the needs of diverse students and are equipped with skills relevant to the attainment of student's outcome. Further, it implies that because of their higher level of understanding they can better contribute to the realization of OBE curriculum. This could be a result of the trainings and seminars conducted by the University to ensure that faculty members are fully aware of this new paradigm. This corroborates with the claim of Tsai et.al. (2014) that when OBE is clear to the teachers who serve as fundamental implementers, it would result in a better and purposeful implementation. Additionally, teachers who are more adaptable may be better able to implement OBE practices in their classrooms, as OBE requires teachers to be flexible and responsive to the needs of their students.

**Table 1. Influence of the Extent of Knowledge and Extent of Adaptability on OBE of the Respondents on the Perceived Extent of OBE Practices**

MODEL	UNSTANDARDIZED COEFFICIENTS		STANDARDIZED COEFFICIENTS	t	Sig
	B	Std. Error	Beta		
1 (Constant)	.946	.480			.052
Advantages	.12	.049	.018	1.972	.802
Components	-.109	.083	-.087	.252	.189
Alignment	.473	.043	.691	-1.323	.000
Active Learning	.082	.047	.113	11.029	.087
Situational Adaptation	.004	.035	.007	1.728	.908
Emotional Management	-0.47	.037	-.073	.116	.209
Creative Application	.265	.070	.240	-1.265	.000
Opinion Flexibility	-.21	0.70	-.016	-.296	.768

$R^2 = 0.726$ , Adj  $R^2 = 0.703$ ,  $F = 31.45$ ,  $p < 0.01$

Teachers who are willing to try new teaching strategies and adjust their instruction based on student feedback may be more successful in implementing OBE practices than those who are more resistant to change. The fact that OBE is a 21st century approach to education subjected the teacher flexibility to be innovative and creative to suit the needs of the learners. Iloanya (2019) asserted that the implementation of OBE as new curriculum requires teachers to be prepared for innovation of their teaching. This is similar with Donina (2021) whose findings illustrate the adaptive practices that teachers do as they interact with changes. Teachers who are adaptable are more creative in their teaching and more adaptable to conform with the changes. The coefficient of determination  $R^2 = 0.726$  means that about 72.60% of the variance in the teacher respondent's perceived extent of OBE practices was explained or accounted for by respondents' level of knowledge and level of adaptability on OBE.

Alignment is a positive predictor of the respondents' perceived extent of OBE practices. This means that knowledge on the constructive alignment helps teachers to facilitate students' achievement of outcomes and experiences while being certain

of the alignment of all learning experiences to the curriculum. McCann (2016) asserted that the knowledge of teachers on the appropriate alignment of teaching, learning and assessment better provides a structure to facilitate deeper the learning of the students. This also conforms with Mimirinis (2007) that understanding of faculty on constructive alignment creates a positive implication to the quality learning in Higher Education. This is similar with the claim of Jaiswal (2019) that the knowledge on constructive alignment foster better learning process in boosting student's accomplishment of intended outcomes.

### The Influence of the Attitudes towards OBE and Extent of Self-efficacy of the Respondents on the Perceived Extent of OBE Practices

Table 2 shows that multiple linear regression analysis was performed to examine the influence of the attitudes towards OBE and self-efficacy in teaching of the respondents on the perceived extent of OBE practices. Results show that the model is significant,  $R^2 = 0.855$ , Adjusted  $R^2 = 0.703$ ,  $F = 80.74$ ,  $p < 0.01$ , which indicates that teacher respondents who perceive great extent on OBE practices awfully agree towards OBE and





efficacious in teaching. This implies that teacher's positive attitude towards OBE and their higher capacity in teaching influences how teachers demonstrated OBE in their teaching practices. It further implies that the certain degree of agreement depicts the recognition of effectiveness of OBE in strengthening education. As teachers viewed OBE to be effective, they see the value of it in their teaching practices. This conforms with Alimyar (2020) whose finding emphasized that attitudes influence the lecturers to implement OBE in classrooms. This is supported by Mercado and Lagto (2018) who asserted that an attitude of agreement with the policy, guidelines and standards foster greater extent of practices. On

the other hand, the higher beliefs of teachers in their capacity to teach depicts a strong will to implement OBE into practice. Ross et.al (2001) asserted that teachers with high self-efficacy can produce superior achievement, as they have the tendency to translate their behavior into instructional practices. This corroborated with the claim of Richards (2008) that teacher's high belief can posit better classroom practices. Significantly, according to Klassen et.al (2010) teachers that demonstrate high self-efficacy possessed effective teaching strategies and mechanism to cope successfully with tasks, obligations and challenges related to his or her role in the school.

**Table 1. Influence of the Attitudes towards OBE and Extent of Self-efficacy of the Respondents on the Perceived Extent of OBE Practices**

MODEL	UNSTANDARDIZED COEFFICIENTS		STANDARDIZED COEFFICIENTS	t	Sig
	B	Std. Error	Beta		
1 (Constant)	-.832	.523		-1.591	.115
Belief	.37	.051	.043	.716	.476
Feeling	-.159	-.159	-.198	-3.585	.001
Readiness	.169	.169	.064	1.298	.197
Acceptance	.436	.436	.225	4.137	.000
Student Engagement	.040	.040	.038	.490	.626
Instructional Strategies	-0.495	.495	.686	8.002	.000
Classroom Management	.148	.148	.216	3.115	.002

$R^2 = 0.855$ ,  $Adj R^2 = 0.703$ ,  $F = 80.74$ ,  $p < 0.01$

The coefficient of determination  $R^2 = 0.855$  means that about 85.50% of the variance in the teacher respondent's perceived extent of OBE practices was explained or accounted for by respondents to their attitude and self-efficacy on OBE. Acceptance, instructional strategies, and classroom management are all positive predictors of the respondents' perceived extents on OBE practices. This indicates that attitude of teachers toward OBE is generally derived from their level of acceptance to the curriculum. This further denotes that teacher who fully accepted the curriculum as a new guiding principle in education, fosters a better engagement in teaching practices aligned with OBE. The fact that OBE is a mandated curriculum subjected the teacher's response of acceptance to the curriculum. This conforms to the study of Peskova et al (2019) whose finding yields a similar result that acceptance influences the way curriculum is fostered in classrooms. This coincides with Duan (2019) that many universities across China demonstrated a higher acceptance and recognition on OBE and this is reflected on their innovative and efficient ways of teaching. Significantly, self-efficacy in instructional strategies and classroom management influence the extent of OBE Practice. This implies that teacher's confidence to utilize instructional strategies and classroom management are more likely to believe in their ability to effectively implement OBE practices in teaching. According to Catalano et.al (2019) teachers with higher self-efficacy tend to use innovative and engaging strategies to align with the curriculum being implemented. This is similar to the claim of Alvarez-Nunez

(2012) that a strong predictor of implementation is teacher's self-efficacy. Teachers with high self-efficacy tend to put much effort into their teaching, established a desired goal and gained enthusiasm in work.

On the contrary, feeling is a negative predictor to the extent of OBE practices which means that feeling does not influence the extent of OBE practices. This contradicts with Giessen-Hood (2014) whose finding revealed that feelings to OBE reflects the principles that are valued by teachers and transmitted to their teaching practices. However, findings coincide with Troudi and Alwan (2010) among teachers of UAE who experienced curricular changes. Their findings revealed that teachers feeling do not influence their teaching practices because feelings will just evolve through time and as they become more attached with the curriculum, they became more familiar with it.

### CONCLUSION

Based on the multiple linear regression analysis conducted, it is evident that the extent of knowledge and adaptability of teachers significantly influenced their perceived extent of OBE practices. Teachers who possess a higher extent of knowledge and adaptability on OBE practices are better equipped to meet the diverse needs of their students and implement OBE effectively in their classrooms. The findings also suggest that constructive alignment is a positive predictor of the perceived extent of OBE practices, which implies that teachers who understand the alignment of teaching, learning, and assessment





are more likely to facilitate their students' achievement of intended outcomes. These findings underscore the importance of training and development programs for teachers to enhance their knowledge and skills related to OBE and constructive alignment.

Moreover, the results of the analysis concluded that attitudes and self-efficacy demonstrated by the teachers significantly influence the extent of OBE practices. This suggests that teacher's recognition of the effectiveness of OBE and their belief in their teaching capacity are important factors in promoting OBE practices. Consequently, the study found that acceptance, instructional strategies, and classroom management are positive predictors of the respondents' perceived extent of OBE practices. This indicates that teacher's acceptance of the curriculum, utilization of effective teaching strategies, and classroom management skills are crucial in fostering a better engagement in teaching practices aligned with OBE. On the other hand, feelings were found to be a negative predictor of the extent of OBE practices. This indicates that even if teachers possess a negative attitude toward OBE, it does not affect their practices in OBE.

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# A STUDY ON THE GROWTH AND EMERGENCE OF NEO BANK IN INDIA

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## ABSTRACT

*Neo bank which operates on the digital platform and gained more significance in the financial technology segment. It is the bank which do not have any corporeal presence. It provide a seamless online banking experience to the customers. The current study is based on the secondary data available from various sources to analyze the role of neo bank in India.*

**KEYWORDS:** *Neo bank, Financial technology, Digital platform*

## INTRODUCTION

Banking business is changing rapidly and banking products and services are built on disruptive technology and reach the customer according to their convenience, transparency, pricing and customer services. All the banking services provided to the consumer can be accessed by a non-banking service provider through its innovative technology and banking models. Under the new business model banking services are delivered through internet or electronic channels and these non-banking service providers are called neo-banks. It exists indemnly online without any physical branches and success of neo banks are adoption by millennials, micro small and medium enterprises and those having sporadic income and earnings, embracement of innovative technologies and rising consumerism. It functions mainly through a mobile application.

Neo bank is a digital bank without physical branches, all the transactions done online without any specific location. It is considered as a fintech firm providing digitized and mobile first financial payment solutions, money transfers, money lending and so on. It does not have a bank license of its own, but rely on bank partners to offer bank licensed services. It is more customer centric and provides customized services to their customers backed up by technology.

In this era of modernisation in the banking sector through digital means, neo banks are essential and an alternative to cost effective model. The establishment of neo banks in India is a difficult process, due to strict RBI guidelines. RBI allow neo bank to operate in Indian banking environment in 2019.

### Neo Bank in India: Scope of opportunities

The first Neo bank in India Finin was founded in 2019 by Suman Gandham and Sudheer Maram which offer financial services such as instant saving accounts and debit cards. There are 27 Neo banks in India ,8 of the 27 neo banks offer their customers with unique payments options such as virtual debit card, split payment etc.

Neo banking in India has significant growth as MSMEs in the country can avail their service on a large scale. At present there are 4 main neo banks in India which have received sizable

funding from India and global banks view India as an engine of growth.

### Significance of Neo bank

The Neo bank is cheaper, faster and can integrate the financial portfolio in a single platform and provide solution to the customer very fastly compared to the traditional banking. It provide various financial services like opening account, payment and money transfer, loans and other services. It is more easy and convenient to handle a mobile application and helps in various decision making. It provide fluidity which make customer comfortable in executing digital transactions. It offers more interest to their customers and offers real time service to its customers.

### Structure and regulatory framework of Neo Bank in India

Neo banks operates through Application programming Interface and has been divided in to 3 major parts

- Core infrastructure: Payment gateway connected with their partner banks
- B2B/B2C Modules: This modules are used for transactions and provide various financial services
- customer: It includes B2B customers.

In India RBI is not providing license to virtual banks, hence it is outsourcing its banking activities to licensed bank. To overcome these limitations licensed banks are starting neo banks. If license has been provided by RBI, it can work as a stand alone bank with transparency and more cost effective..

## LITERATURE REVIEW

**Yashraj Dokania (2020)** in his study on neo Bank-Revolution in Indian Banking sector-A critical analysis emphasizes on the working aspect of neo banking in India and focuses on the regulation of the neo-banking and their reorganization in the Indian Banking Sector. The study put a light about the comparative study of working of Neo banking in India and in other countries.



**Tinesh Bhasin(2020)** in his study on “what do neo-banks offer and should you try to analyses the new concept to ease the banking services with the help of Artificial intelligence and IT. They emphasis more on the services they offer, mode of offering services to the customer.

**Ashish C Plus and Vel Murugan RamaSwamy(2021)** in their study on the growth and operational mechanism of neo banks in India focus more on growth and operation of neo bank. It emphasis more on increased use of internet and smartphones will add to the market potential of neo banks in India. The study concluded that lack of awareness about neo bank will reduce the growth and its aggressive promotional strategies.

**OBJECTIVE OF THE STUDY**

1. To study the growth of neo bank in India
2. To analyze how neo banks overcome the shortcomings of traditional banks.
3. To fill the gap of traditional banks with the help of technology.

**RESEARCH METHODOLOGY**

Descriptive research using quantitative and qualitative aspects from various sources of secondary data collected from journal and website.

**ANALYSIS AND INTERPRETATION**

**1.Business growth of neo banks in India and Globally**

**Table :1**

**Business growth of Neo Banks(in \$Billion)**

Year	India	Global Business
2019	0.09	19.3
2020	0.12	22.4
2021	0.25	47.89

The above table shows the business growth of neo banks between 2019 and 2021 in India as well as in global market In India the volume of neo bank business growth in terms of billion in 2019 is\$ 0.09 and it rise to \$0.25 in 2021.The Volume of global business growth of neobank which stood at \$19.3 in 2019 to \$47.39 in 2021.There was a substantial high growth rate of neobank in India and well as in global market business.

**2.Business of traditional and Neo bank in India**

**Table :2**

**Business of Traditional bank and Neo bank in India**

Year	Traditional Bank	Neo Bank
2019	2163	1936
2020	1986	2102
2021	1842	3526

The above table reveals that the volume of traditional bank business in India stood at 2163 billion during 2019 reduced to 1842 to 2021 which shows a negative growth, The volume of neobank business stood at 1936 billion during 2019 and increased to 3526 in 2021 which showed a positive growth.

**SUGGESTIONS**

The neo bank will attract more customers and is cost coffective. It is a convenient platform for all the customers .When

compared to traditional bank neo bank provide more services to their customers and fee and other transaction charges is very less. It concentrates more on corporate customers and starts its business towards retail customers. The majority of the customers is not aware of the services provided by neobanks. Various promotional strategies have been implemented to promote the growth of neo banks.

**CONCLUSION**

Neo banks become the new face of the Indian Banking system. It will bridge the gap between traditional bank and modern bank. It provide more services based on the requirement of the customers. It ensure seamless services and will have hazle free transactions. The increased use of internet and AI will attract more customers to neo bank and increased the Market potential in India.

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# AIDP BEFORE AND AFTER COVID-19 IN ALGERIA: SHORT COHORT STUDY

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## ABSTRACT

*Acute inflammatory demyelinating polyradiculoneuropathy is an immune-mediated polyneuropathy (AIDP) that manifests in the form of an acute, ascending, areflexic, progressive and symmetrical paralysis.*

*The primary infection usually from the respiratory or gastrointestinal tract and can be bacterial or viral, and during the pandemic SARS -COV2 and COVID-19 vaccine may also lead to it*

*Life-threatening complications can occur as a result of Acute inflammatory demyelinating polyradiculoneuropathy Syndrome, such as: Severe Autonomic Cardiovascular Dysfunction and respiratory distress.*

*We will report cases who were admitted to the ICU at Lamine Debaghine hospital between 2018 and 2023 presenting major complications and their evolution under ICU ward assistance.*

**CATEGORY:** Resuscitation and Anesthesia, Emergency Medicine

**KEYWORDS:** Acute inflammatory demyelinating polyradiculoneuropathy syndrome, dysautonomia, ICU, AIDP, Guillain-Barre.

## INTRODUCTION

acute inflammatory demyelinating polyradiculoneuropathy is an acute inflammatory and immune-mediated peripheral nervous disease (1).it is the most common cause of acute flaccid paralysis (1–2 per 100,000 person-year) (2)

Due to an Infection with organism contain amino acid that mimic peripheral nerve myelin, causing Edema and inflammation of affected nerves. The Immune system fails to distinguish between foreign proteins and nerve protein, as a result, we have a Demyelination of peripheral nerves lakes or absence of the transmission of nerve impulses and Flaccid paralysis with muscle denervation and atrophy.

The primary infection usually from the respiratory or gastrointestinal tract and can be bacterial or viral (1,2,9), the most notable implicated pathogen is Campylobacter jejuni, with other recognized causes Mycoplasma pneumoniae, Haemophilus influenzae and EpsteinBarr virus (1,9)

around a third of diagnosed patients develop autonomic dysfunctions represented by sinus tachycardia, cardiac arrhythmias, labile blood pressure, orthostatic hypotension, increased sweating, respiratory distress, as well as bladder and gastrointestinal dysfunction.

About 20–30% of patients require mechanical ventilation during the course of the illness (2)

The percentage of mortality is about 5% of affected patients, despite current therapies and advancement in intensive care (7)

## MATERIALS AND METHODS

It is a retrospective study analyzing case-series of patients before COVID-19 and after COVID-19 that were registered in the intensive care unit in “Lamine Debaghine” university hospital center, Bab El Oued from 2018 to October 2023

## DATA COLLECTION

We undertook a retrospective review of all patients with a diagnosis of AIDP who were admitted to the ICU at Lamine Debaghine hospital between 2018 and 2023.

We registered gender, age, patient medical comorbidities, year of admission.

Respiratory or gastrointestinal infections preceding the onset of symptoms and the temporal evolution of weakness were recorded.

The notion of vaccination and COVID-19 infection were registered

The primary reason for ICU admission, presence of bulbar and autonomic dysfunction (cardiac arrhythmias including sinus tachycardia, labile blood pressure, or gastrointestinal dysmotility), the need for mechanic ventilation and duration of mechanic ventilation, performance of tracheostomy was documented.

All treatments received were noted.

Records were carefully scrutinized for all ICU complications, including hyponatremia hyperglycemia requiring persistent treatment





Major morbidity was defined as: serious infection (pneumonia, sepsis), deep vein thrombosis or pulmonary embolism, severe arrhythmia (brady- or tachyarrhythmias requiring acute intervention, including cardiac arrest), complications of tracheostomy, ileus with or without bowel perforation and respiratory distress.

## STATISTICAL ANALYZES

All analyses and figures were done with IBM SPSS version 25. Data outcomes are presented descriptively.

## RESULTS

There were 16 cases on 1860 admissions (0.8%) during the past 4 years. 4 cases (25%) were female. 56.3% of the cases are regular smokers.

The mean age is about 54 years old. 18.5% were aged between 3-21 year, 12.8% aged between 22-43 years, 31.3% aged between 44-60-year, 25% were aged between 61-74 years and 12.5 more than 74-year-old.

9 cases were reported during the SARS-COV2 pandemic (56.2%). Only 18.8% of the cases were vaccinated against COVID-19.

About 56.3% reported the notion of COVID-19 infection, were tested positive, or had a flu syndrome after being with someone that was tested positive for COVID-19.

For the causes of admission (fig 3): 50% were admitted for a cardiac dysautonomia. 6.3% of the cases were admitted for a respiratory distress. 12.5% were admitted for bulbar dysfunction. 12.5% were admitted for absence of swallowing reflex. 6.3% were admitted for absence of coughing reflex. 6.3% were admitted for the rapid evolution of the illness (less than 72 hours).

68.8% received IV IG. 12.5% went under plasmapheresis. 62.5% received a complete dose. 56.3% received a full cure.

During hospitalization, 56.3% presented an abolition of swallowing reflex, 37.5% presented an abolition of coughing reflex. 43.3% had blood pressure fluctuations. 56.3% presented a cardiac dysautonomia. 50% presented a hyponatremia.

Only 31.3% presented hyperglycemia. And 37.5% complicated with a sepsis. 18.8% presented a respiratory distress during hospitalization.

1 case of 4 (25%) of COVID-19 AIDP presented as a complication of another infection during hospitalization, for 12.5% of the cases that were not linked to COVID-19 infection. (fig 1)

25% of cases with COVID-19 infection complicated with hyperglycemia, versus 6.2% for the cases with no COVID-19 infection.

25% of cases with COVID-19 infection complicated with blood pressure fluctuations. On the other hand, 18.8% for none COVID-19 for the COVID-19 free patients.

Losing coughing reflex was twice more frequent in the cases with COVID-19 infection, 25% versus 12.5%.

Arrhythmias were described in 37.5% of cases with coronavirus, for 18.8% of none infected people.

Losing swallowing reflex was reported in 31.2% of COVID-19 infected cases and 25% of COVID-19 free cases.

For the habit of smoking (fig 2)

6.2% of cases that smoke complicated with hyperglycemia, versus 25% for the cases with no Tabasco issues.

31.2% of cases with smoking habit complicated with blood pressure fluctuations. On the other hand, 12.5% for the Tabasco free cases.

Losing coughing was reported in both categories, 18.8% of the cases.

Arrhythmias were described in 37.5% of cases with smoking issues, for 18.8% of none smokers.

Losing swallowing reflex was more frequent with cases with smoking habit (31.2%) than none smokers (25%)

25% of the cases needed intubation. 18.3% died during hospitalization. 56.3% had sequelae lesions.

66.66% of sequelae lesions were reported in AIDP patients with COVID-19.

## DISCUSSION

Many cases of AIDP and COVID-19 have been reported during the pandemic. In analogy to other viruses, belonging or not to the coronavirus family, neurologic complications in COVID-19 are emerging as the most noticeable aftermath secondary to an abnormal immune-mediated response causing secondary neurological involvement (10). Demyelinating disorders have been previously reported in conjunction with COVID-19, and are also currently considered reflecting a COVID-19 cytokine storm. Amongst the cytokines/chemokines implicated in the COVID-19 cytokine storm, tumor necrosis factor  $\alpha$ , interleukin-1 $\beta$  (IL-1 $\beta$ ), IL-6, IL-17 and interferon- $\gamma$  have been shown to hold a pivotal role also in GBSs propagation. (12)

The observed AIDP's incidence in SARS-CoV-2-infected patients 0.048% ( $\approx 5/100,000$ ) exceeds the corresponding average rate of AIDP's in the general population (1-2/100,000). Epidemiological study during the COVID-19 pandemic in the UK reported an incidence of 0.016 (11.12). Comparing to the period before COVID-19 noticed an abnormal increase in the number of patients admitted with AIDP, with higher prevalence amongst old adults (mean age 54-year-old) than before pandemic (mean age 44) (13). It is important to underscore that





an association between the 2 pathologies, with a new form of presentation, is increasingly being observed.

Previous systematic reviews of AIDP's cases in the context of COVID-19 have shown that COVID-19 manifestations consistently precede AIDP's symptoms and support the hypothesis of a post-infectious aetiology (14).

A male preponderance was noted, as with non-SARS-CoV-2-associated.

Clinical presentation, course, response to treatment, and outcome are similar in SARS-CoV-2-associated AIDP and None associated AIDP. (15)

AIDP induced dysautonomia includes blood pressure fluctuations, diaphoresis, dysregulation, and life-threatening cardiac arrhythmias from bradycardia to asystole occur in 7-34% (16). We found that in infected patients it occurs in 37.5% of the cases, which is a bit higher .it suggests that COVID-19 infected patients have a higher risk of cardiac dysregulation.

Hypertension occurs in 60%–70% of patients with AIDP and marked fluctuations in the blood pressure is an indicator of poor prognosis. (17).

Literature reported paroxysmal blood pressure in 24% (18). That's seemingly the same with our infected sample.

However, the studied samples show that the infected cases are more exposed to a quick evolution of symptoms than smoking patients.

Moreover, cases of coronavirus seem to evolve more aggressively than none infected cases.

The result in our study remains divergent at some points compared to others (12) such as : mean age, evolution....

### LIMIT OF THE STUDY

The studies analyzed are case reports or case series with small samples, and are therefore considered presenting a high risk of bias.

It is possible that some COVID-19 symptoms could be attributed to a AIDP since both diseases affect the respiratory system.

Details of complications were extracted from medical records, and the analysis of patient outcome was based on available patient follow-up examinations. Retrospective grading of clinical outcome and especially timing of functional improvement can only be considered estimates.

### CONCLUSION

Acute inflammatory demyelinating polyneuropathy has shown an increasing number during the corona pandemic, with a signification of severity compared to campylobacter jejuni. Although, the exact mechanism of its gravity remains a mystery.

The heterogeneity of our result compared to reviewed cases, can lead us to the hypothesis of an ethnic predisposition (as the predominance of severe corona cases in Italy during the pandemic).

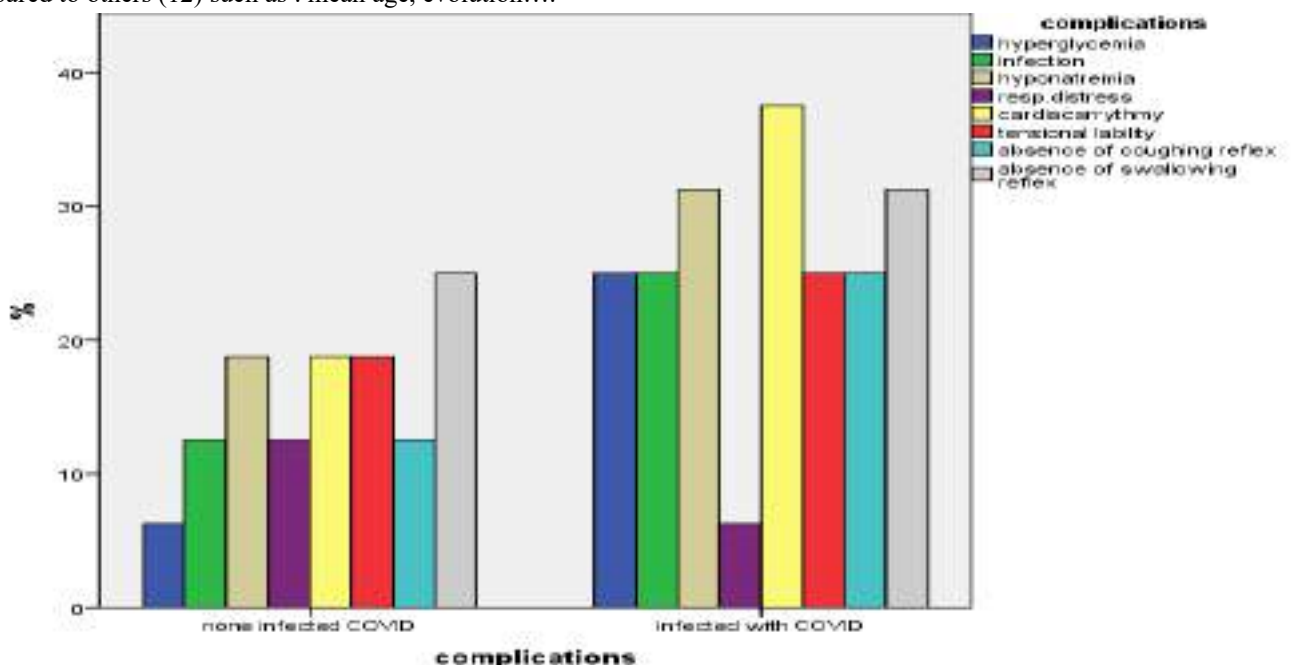


Fig 1: Complications during AIDP reported to infection with COVID-1

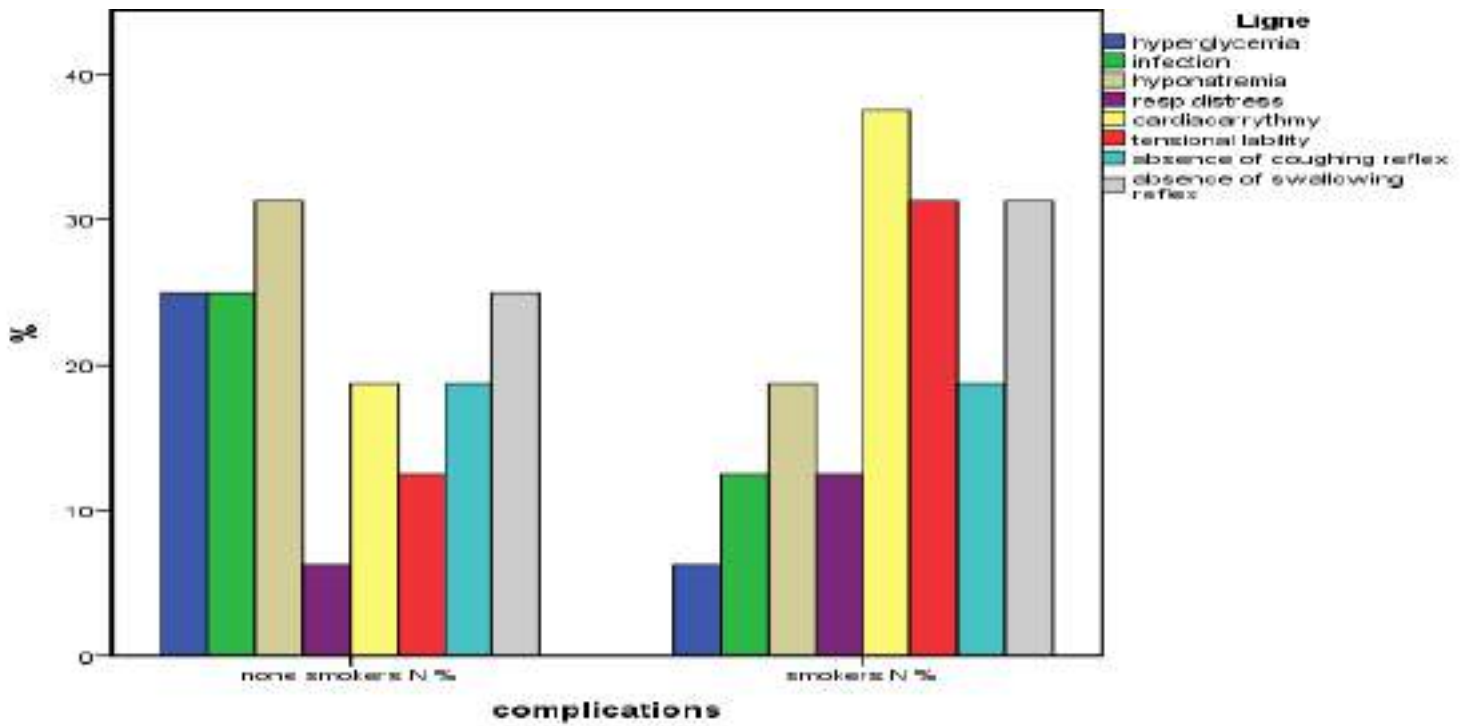


Fig 2: Complications during AIDP reported to Smoking Habit

criteria of admission in icu

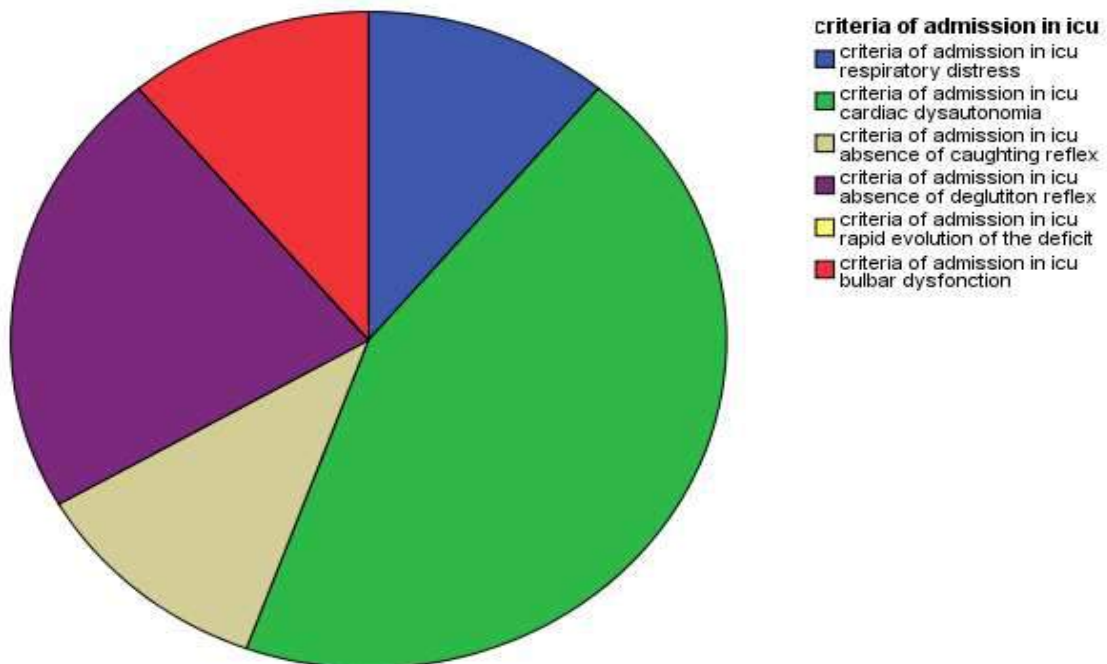


Fig 3 : Criteria of Admission to I.C.U

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# REHABILITATION OF RADICAL PERSONS AND THE ESSENCE OF REHABILITATION PROCESSES

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## ANNOTATION

*This article discusses the pressing issues of rehabilitation and reintegration into society of people involved in the ranks of some pseudo-religious groups, as well as important tasks posed to psychologists, Islamic studies and religious scholars. At the same time, some aspects are described that need to be paid attention to when educating people who are influenced by destructive ideas.*

**KEYWORDS:** *ideological threats, subversive groups, rehabilitation, humanitarian operations, alienation, globalization, theology, slogans, mentality, psychosocial support, bigotry, respect for national and religious values.*

Today, the issue of re-adapting individuals who have joined the ranks of various disruptive currents into society is becoming more important. In particular, in the process of rehabilitation of a person who joins the ranks of extremist and terrorist groups, the correct instructions given to him by an experienced and potential consultant are of great importance. This situation will not be an exaggeration to say that this is an important indicator of the global world today. The reason is, religious globalization is characterized, first of all, by a change in consciousness. [1-24].

At this point, it is natural to ask the question of what is rehabilitation, what is the essence of rehabilitation processes. Rehabilitation is derived from the Latin word "rehabilitatio" ("rehabilitation"), "re" means "again", "again", "back" and "habilitatio" means "recovery", "ability". In short, it is used in the sense of "restoration", "recovery".

Currently, the concept of rehabilitation is used in a number of areas. Including psychology, pedagogy, economics, politics, music, health, nature, physical education, etc. Among them, legal rehabilitation, medical rehabilitation, and social rehabilitation are widely used among representatives of such disciplines and fields. Since the re-education of radical individuals includes a large process and systematic stages, the services of the representatives of the three areas listed above are observed.

1. Legal rehabilitation. The term "rehabilitation" was originally used by representatives of the legal field. Historically, this concept was used in the Middle Ages as a policy of "restoring former rights" and "pardoning" prisoners. This word was first used by the French jurist (jurist) Bleyonianus. It is used in the sense of restoring the former rights of prisoners who were pardoned and released [2-17].

Currently, "legal rehabilitation" is used in the sense of restoration of social, political and civil rights of citizens in a judicial or administrative procedure and vindication of their name and position.

Article 3 of the Law of the Republic of Uzbekistan "On the Prevention of Offenses" provides for the provision of legal, social,

psychological, medical, pedagogic and other types of assistance to the victim of an offense, to persons with antisocial behavior, who are inclined to commit offenses, and to persons who have committed offenses highlighted. It is also defined as a set of measures aimed at instilling in them the norms and rules of behavior accepted in society [3].

2. Medical rehabilitation. The term rehabilitation is also widely used in the field of medicine, and it is considered a set of medical, pedagogical and social measures aimed at full or partial recovery of patients and people who have lost their ability to work [4-364].

In the rehabilitation and reintegration into society of those affected by extremist ideas, timely medical assistance is important. Reasonably fit prisoners receive information and advice from specialists and trainers. Due to the help aimed at the treatment of their medical illness, the mindset of the individuals with a radical view changes and the state of socialization accelerates.

3. Social rehabilitation. Social rehabilitation is a set of measures implemented by state, public and non-governmental organizations aimed at protecting the social rights of citizens. The process of social rehabilitation is a process of interaction between a person and society, which on the one hand is a way to transfer social experience to a person and include it in the system of social relations, and on the other hand includes a process of personal changes [5].

The role of social rehabilitation is incomparable in the rehabilitation of persons involved in extremist and terrorist activities and their family members, and this concept is used as the restoration of the position of a person who has lost his place in society, to help him become an active and useful person for society.

In the process of rehabilitation of radical persons, it is observed that the countries of the world work on the basis of different approaches. However, they can be broadly divided into two groups. These are "Basic" and "Advanced rehabilitation programs".



Basic rehabilitation programs: including psychological, religious and social approaches, it includes a set of special tests, programs, educational and practical measures designed to re-educate a person who has experienced various ideological and bloody trials.

Advanced rehabilitation programs: based on each country's domestic policies and rehabilitation experience, it encompasses a set of skills and methods in addition to the "Basic Rehabilitation Programs" [7-27].

Looking at the experience of the countries of the world, it can be observed that the rehabilitation process is divided into three components. These are "psychological rehabilitation", "religious rehabilitation" and "social rehabilitation" programs.

1. Psychological rehabilitation program. Psychologists regularly meet radical persons undergoing rehabilitation, give them psychological counseling and study their mental state in prison. In doing so, they determine their ability to cope with stress, their tendency to hatred and violence, and their susceptibility to the influence of radical ideas (with the help of special tests and programs). Psychologists also study the success rate and cognitive aspects of inmate rehabilitation.

In addition, physical and psychological problems that prevent prisoners from fully participating in rehabilitation programs are identified in advance and classified according to their condition. Psychological testing, treatment, and a deradicalization program with the participation of qualified psychologists are important in this regard.

2. Religious rehabilitation program. This includes dialogue, discussion and conversation on religious topics. Many terrorists rely on misinterpreted religious concepts to justify their acts of violence. Furthermore, the evidence shows that most terrorists will have no or very little religious knowledge. Therefore, religious rehabilitation is necessary in order to discredit the theoretical and ideological foundations of various interpretations embedded in the minds of terrorists [8-177].

In the process of religious rehabilitation of radical individuals:

- Explained that the ideology embedded in the minds of the beneficiaries is negative;
- Negative ideology is replaced by the right ideology;
- The sacred concepts and slogans of Islam are explained correctly;
- It is explained on a religious basis that it is correct to live in a society inhabited by people of many nationalities and religions [9-71].

3. Social rehabilitation program. It includes assistance in the form of social support to ensure the smooth reintegration of prisoners into society after release. In this regard, the role of the family is incomparable. Detainees receive family visits and receive medical, social and material support to preserve the family as much as possible.

Also, assistance to increase the scientific and professional skills of the beneficiaries and problems of employment after release are considered as part of the social rehabilitation program.

In this sense, the President of the Republic of Uzbekistan Sh.Mirziyoyev expressed the following words at the 72nd session of the UN General Assembly. "The threat of terrorism in the world has been increasing in recent years, and the method of fighting against them by force is not justified. In this regard, it is limited to combating the consequences of threats, not the main reasons that cause them. International terrorism and extremism are rooted, among other factors, in ignorance and intolerance. In this regard, it is the most important task to form and educate the consciousness of people, first of all, young people on the basis of enlightenment" [12, 1-2].

Studies still show that a lot of research and analysis should be carried out in this area. In particular, it is required to analyze these processes and make the correct diagnosis in order to return to the right path those individuals who have joined the ranks of lost flows under the influence of a religious factor, to prevent, correct and rehabilitate fanaticism and improper propaganda.

The government of Uzbekistan has been involving specialists from various fields in the process of rehabilitation of lost persons. In particular, a Special Commission was established under the leadership of the Deputy Prime Minister of the Republic of Uzbekistan. It includes relevant leaders and specialists from the Ministries of Health, Public Education, Preschool Education, Justice, Internal Affairs, Emergency Situations, Center for Spirituality and Enlightenment, Committee on Religious Affairs, State Committee for Family and Women, Youth Union, Republican Cultural Center. In the decision, specific tasks were assigned to officials of all responsible ministries and agencies.

Uzbekistan has taken measures to provide medical and psychosocial assistance to persons in need of social assistance, restore personal documents, ensure their employment, participate in education and other social programs, and pay social benefits.

It is also stipulated that a lot of psychological, spiritual and educational work should be carried out for the rehabilitation and social reintegration of persons in need of social assistance. The reason is that in order for rehabilitation to be effective, it must be organized and continuous based on a special system and program. In this regard, we still need to conduct a lot of research and develop rehabilitation mechanisms that are suitable for our mentality and nationality.

There is no universal form of rehabilitation programs for those affected by extremist ideas. Because different-looking social and cultural software systems can have different effects depending on the region. Therefore, it is impossible to directly transform various rehabilitation programs. It is effective to influence rehabilitation programs using national, cultural norms and values.

In conclusion, it should be noted that the systematic analysis of the scientific-theoretical problems of mistakenly joining extremist and terrorist activities, neglecting religious and national values, creating methodological guides aimed at their prevention and elimination, ideological propaganda in the places, purposeful organization of educational work, and in this regard, the study of public opinion is important.



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# THE PROBLEM OF FINE DUST IN THE PRODUCTION PROCESS AND METHODS OF DETERMINING ITS CONCENTRATIONS

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## ABSTRACT

The article talks about the device for determining the concentration of dust, the intensity of light radiation, devices and methods of optical measurement of the concentration of dust particles in the air, and new measuring elements.

The device for determining the concentration of dust is a device designed to measure the mass concentration of dust in the exhaust gases of combustion devices, in work and living areas, in the ambient air. A certain type of device should be used for each task.

Today, there are several methods of dust measurement: optical (photometric), gravimetric, piezobalance, triboelectric, radioisotope [1]. The optical principle of the technological process is to determine the attenuation of the intensity of light radiation when passing through a dusty environment. The concentration of dust particles is proportional to the optical density value, which is determined automatically [3]. The main disadvantages of these measuring devices are as follows:

- Low sensitivity when measuring low concentrations of aerosol particles (less than  $30 \text{ mg/m}^3$ ), as well as the inability to control high concentrations (more than  $10 \dots 12 \text{ g/m}^3$ );
- High impact of physico-chemical properties of aerosols on the measurement result (aerosol size, composition and color). To reduce the measurement error, it is necessary to calibrate the device for a specific type of aerosol or enter a correction factor;
- There is always a need for periodic cleaning of optical elements (optics, reflectors, etc.) Fig. 1 [1].

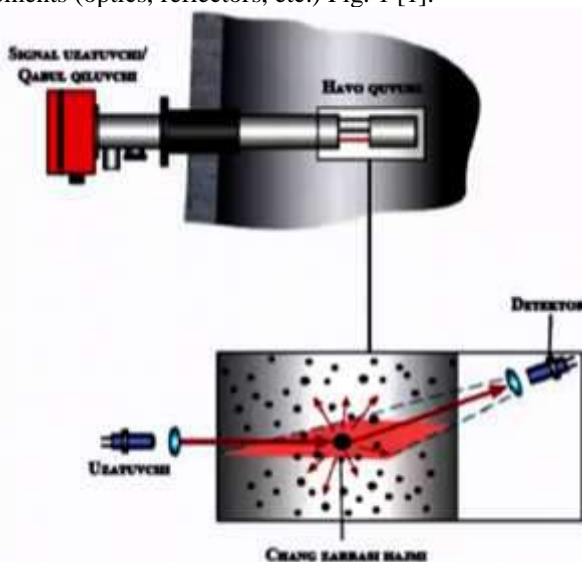


Figure 1. The principle scheme of devices for optically measuring the concentration of dust particles in the air

Dust particles in the air are circulated through a special pipe. The signal transmitting sensor sends an IK type signal. This light signal reaches the detector with a certain intensity change from the dust particles. Information is formed based on the information received through the detector. The nephelometric method, based on the registration of direct, laterally backscattered light radiation, is much more effective in measuring low concentrations of aerosol particles [96]. This method is performed on SICK, AEROKON (NPO EKO-INTECH LLC), Cassela CEL 712, Kanomax 3443 devices and TM-data, TM-digital, TM-F and TM-M (HUND) devices.

The nephelometric method works on the basis of monitoring the weight concentration of industrial dust aerosols with a wide composition. The disadvantage of the nephelometric method is a sharp loss of sensitivity when measuring the concentration of particles with a diameter of more than  $8 \mu\text{m}$ . Industrial enterprises mainly consist of dust particles of 10 microns, and the use of such devices significantly reduces or even excludes the possibility of use in many areas. Therefore, these devices are mainly used in places where fine aerosol particles are released and at the exit of filters of gas treatment plants to control their efficiency [3].

The gravimetric method of measuring aerosols (GOST 17.2.4.05-83) consists in separating particles from dust and gas flow, then placing them on an analytical filter and drying them. The weight gain on the filter, taking into account the sample volume, is used to determine the mass concentration of the aerosol. In this case, the dust concentration is calculated using mathematical expressions [98].

### Advantages of the Gravimetric Method

- The advantages of this method are measurement accuracy, because there is a direct measurement of the aerosol, and the results are not affected by physicochemical properties,

### Disadvantages of the Gravimetric Method

- The difficulty of this method,
- Duration of the process,
- Use of additional equipment.

Today, the complicated gravimetric method has been replaced by a new piezo-balance method of weighing the settled dust sample. This method was first used in KANOMAX dust meters models 3521 and 3522. Later, Russian companies such as

"NTM-PROTECTION" LLC began to master this measurement method and implemented it in the Atmos device. The piezo-equilibrium method of measuring the performance of the device consists in periodically taking a sample of aerosol particles through an impactor, which separates the receiving fractions (up to 10  $\mu\text{m}$ ) from the total mass of particles, then charges them with the help of a corona electrode and is deposited on the surface of the collecting electrode. A piezoelectric element (quartz) is used as such an electrode. Sampling is carried out by the internal pump of the device. A quartz piezoelectric element is included in the circuit of the generator of electric vibrations. When dust falls on its surface, the weight of the piezoelectric element changes its vibration frequency. The linear variation of the frequency depends on the mass of dust deposited on the element and is the value of the measured weight concentration of the aerosol.

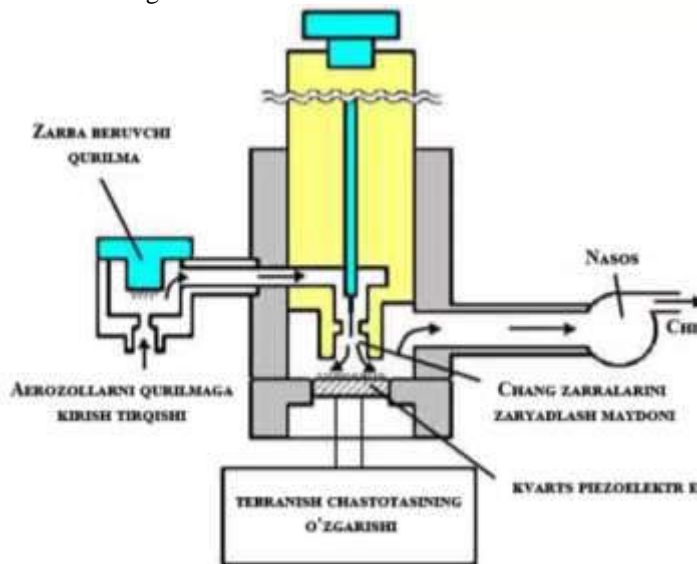


Figure 2. A view of the principle scheme of Gravimetric Measuring Devices

#### Advantages of the Piezo-Balanced Measuring Method

-Quick measurements, no need to use a large fleet of additional equipment;

-Reliability of instrument readings, physico-chemical properties do not affect measurements;  
- Small dimensions of the measuring tool (the tool is usually delivered in a portable box, the total weight of the tool does not exceed 4 kg).

#### Disadvantages of the Piezo-Balanced Measurement Method

- Measurement is carried out only in places of work and residence;  
- The price of the equipment is high;  
-Must be handled with care (the sensitive element of the device is very delicate, it should not be allowed to fall, and the prevention device must be carried out strictly according to the instructions).

The triboelectric measurement method is based on measuring the induced charge on an insulated measuring electrode located in a metal gas channel through which dust and gas flows. The induced charge results from the interaction of moving aerosol particles with the electrode surface, and its value is proportional to the aerosol mass concentration over a wide measurement range. These devices are called triboelectric. They can be divided into devices that measure the DC (digital signal) component of the triboelectric signal and devices that measure the AC (Analog signal) component of the triboelectric signal (electrodynamically induced charge). DC-type measuring devices include Auburn, FilterSense, Babbit and Bindicator (USA). AC type measuring devices include S300 series electrodynamic devices (S301 / S303 / S304 / S305) [4].

#### Advantages of the Triboelectric Measurement Method

-Vibration at the installation site does not affect the indicators;  
- Does not have nodes that can be contaminated, which allows the devices to be used for a long time in harsh conditions, and there is an opportunity to use the signals in harsh conditions due to the fact that the nodes of the initial operation are located outside;  
- The device has a low chance of losing its resources over time. The devices are durable, so their maintenance is simple and cheap Figure 1.12.



Figure 3. Measuring Devices of Triboelectric Type



The radioisotope method of measuring dust concentration is based on the absorption of radioactive radiation (usually  $\beta$ -radiation) by dust particles. The mass of trapped dust is determined by the degree of attenuation of radioactive radiation when it passes through the accumulated dust layer. The results of measuring the dust concentration by the radioisotope method depend to a certain extent on the chemical and dispersed composition, which is due to the specificity of the interaction of radioactive radiation with the substance and depends on the nonlinearity of the dependence on the level of absorption. [4]

Practice shows that the fields of application of dust meters are different and they are divided into two groups: the first - used in workplaces, the second - production industrial waste.

For workplace certification, devices with a smaller measurement range are used to achieve more accurate results. It is necessary to control the concentration of dust in this area, because a large amount of dust in the workplace can adversely affect the health of employees working in such conditions and cause a number of respiratory diseases. Recently, more and more large factories have begun to think about the exhaust gases they produce. In addition to environmental monitoring, dust emissions are monitored using stationary gas analysis stations.

## SUMMARY

Modernization of existing dust collection systems of primary cotton processing plants is often complicated by the lack of space required to accommodate new dust collection systems. Thus, primary cotton processing plants continue to use outdated and inefficient dust collectors, which has serious environmental consequences. Existing devices are only designed to determine the concentration of dust in the air under laboratory conditions. Therefore, there is a great need to create mini-stations for continuous monitoring of the amount of dust in the enterprise, and mechatronic devices for determining and monitoring the concentration of dust in the primary cotton processing enterprises.

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# IMPLEMENTATION OF THE INITIAL MODERNIZATION PROCESSES IN THE AGRARIAN POLICY AND LAND-WATER ISSUES OF THE SOVIET GOVERNMENT (In the Case of the Fergana Valley)

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## ABSTRACT

*On the basis of scientific and historical literature and archival sources, the author of the article shows a historical picture of the transformational processes carried out by the Soviet government in land and water relations in the Turkestan region using the example of the Fergana Valley. And also the article analyzes in detail the process of formation of the class agrarian policy of the Soviet government, the nationalization of large landed property and the expropriation of finished agricultural products by a wearable way in favor of the state, the goals and main functions of the formation of peasant organizations such as the "Committee of the Poor", "Peasant Associations", "Union Koshchi".*

**KEY WORDS:** *Turkestan Territory, Fergana Valley, agriculture, irrigation, nationalization, cotton industry, land ownership, "Committee of the Poor", "Peasant Associations", monopoly, extensive development path, irrigation, melioration.*

## 1. INTRODUCTION

The essence of the transformational measures implemented by the Soviet government, which took political power after the October coup of 1917, in the land of Turkestan, including in the Fergana Valley, in order to replace the long-standing land-water relations with socialist production relations, the essence of which was not brought to scientific consumption in advance, archival documents and scientific- scientific research on the basis of historical literature is of urgent importance in studying the essence of the agrarian policy implemented during the authoritarian political system.

## 2. METHODS

The article covers the generally accepted historical methods based on the principles of historicity, comparative-logical analysis, sequence, objectivity, critical approach to sources, objective assessment of historical processes from the point of view of the period, and the process of the essence of the transformation processes carried out by the Soviet authorities in the agrarian sphere is analyzed.

## 3. RESULTS, AND DISCUSSION

During the period of Soviet power, water management developed to a certain extent, large hydro facilities were built, irrigated agriculture was transferred to a new socio-economic and technical basis, but in terms of scale, these large works were subordinated to the policy of robbery and colonialism. The agrarian policy of the Soviet government was also a logical continuation of the policy carried out by the Tsarist administration. To do this, the Soviet government began to introduce an economic policy aimed at establishing socialist state ownership in all areas of economic life, centralizing the leadership of the national economy, and using administrative command methods in management[2,244].

That is why, first of all, the country's land and underground resources, forests and waters were confiscated. During the years of the stable political regime, the country was turned into a raw material base, cotton cultivation increased year by year in terms of quantity. The cotton monopoly, the cornerstone of which was laid during the reign of the imperial government, was fully formed in the course of the policy implemented under the guise of the "struggle for cotton independence" during the Soviet period. The expansion of irrigated agriculture, reserve and brownfield development was also aimed at increasing cotton production. All the work done in the field was managed by the central government of the "Union".

The Soviet government, which came to political power after the October 1917 coup d'état, during the more than 40-year rule of the previous colonial imperial government in the Fergana Valley, planned but failed to implement irrigation farming, primarily as a raw material supply base for the central industry. was to continue and complete the policy of formation.

The first deformational measure implemented by the Soviet authorities in the agrarian sphere was manifested in the decree "On Land" announced on October 26, 1917[2,10]. Because, for the first time in the decree, "The right of private ownership of land is canceled forever; it was noted that the land cannot be sold, bought, leased or mortgaged, and acquired in any other way.

With the decision of the People's Commissariat of Turkestan and Land Affairs issued on December 9, 1917, the tasks defined in the decree on land began to be implemented with the prohibition of agreements of any kind on the sale and mortgaging of existing real estate in Turkestan, including land, irrigation facilities and networks [3,170 ].

Starting from January 1918, regional, uezd and volost land and water committees established during the colonial period of





Tsarist Russia were dissolved, and new committees were formed from representatives of local poor landless peasants sympathetic to the Soviet state. The main tasks of these committees are to compile and take into account the list of lands in their territories, to announce to the villagers the essence of land confiscation, the abolition of large land ownership, the distribution of confiscated land, the procedures for providing equipment, and promoting the principles of collectivism in agriculture. , was to explain the advantages of the commune and agricultural arts.

As a result of these works, from April 1918 to April 1919, 407 desyatinas of Mirkomilboy Mirmominboev[4,42] in Andijan uezd of Fergana province, and 12315 desyatinas of 22 rich households in Skobelev uezd and Russian peasants who were resettled in the valley due to the policy of "relocation" during the imperial colonial period were organized. 75,000 desyatinas of land[6,29] of rich peasant households in 50 Russian villages[5] were confiscated along with agricultural equipment, working animals, and livestock[7,86-87].

The main part of the land confiscated by the land committees was distributed to poor landless peasants and chorikors by a special decision. In fact, according to the agricultural census conducted in the Fergana valley in 1917, 32.2% of cotton farms in Andijan uezd, 24.8% in Margilon uezd, 20.1% in Namangan uezd, and 12.7% in Ko'kan uezd consisted of cotton growers [8, 56].

Despite the difficult social, political and economic situation in the country, the main goal of the Soviet government was to obtain cotton raw materials, supply the central textile industry with cotton, and satisfy the Red Army's need for clothing. As mentioned above, the Soviet government, which is one of the important directions of its agrarian policy, entrusted the Supreme People's Economic Council with taking full control and management of the leading cotton industry in the country, and on January 12, 1918, it adopted the decision "On turning cotton industry into a monopoly"[9,17 ]. Based on the adopted decision, it was announced that all issues related to cotton cultivation and cotton trade, the existing cotton reserves in the country were turned into state property.

As a logical continuation of this decision, entrepreneurship in Turkistan was manifested in the dissolution of societies, the rejection of market relations, and in this regard, from January 21, 1918, free trade in grain was prohibited in the country, and private property owners were declared free-eaters[1,48].

On February 26, 1918, the chairman of the Council of People's Commissars of the Turkestan region, F. Kolesov, adopted the decree "On confiscation of cotton in the country"[2,11].

According to the adopted decree, all cotton available in the territory of Turkestan, regardless of its appearance and location, will be confiscated and declared to be the property of the state. All soviets and railway committees allocate their representatives to implement this decree, to bring all the cotton to the railway stations and immediately send them to the Tashkent station. It has been emphasized that measures should

be taken up to shooting on the spot if the property owners show resistance[2,11].

To implement the agrarian policy in the regions, uyezds, volosts and villages, the Soviet authorities established peasant class organizations such as "Committee of the Poor", "Peasant Unions", "Koshchi"[1,280].

The main tasks of these organizations were to promote the essence of communist ideas among the peasants, to unite the poor peasants, to fight against the owners, to accelerate the process of social stratification in the villages, to strengthen the position of the Soviet bodies on the ground, and to provide practical assistance in the work of organizing agricultural production.

As a result of these measures, until the first half of 1918, more than 330 industries in the country belonged to all branches, including cotton ginning and oil factories, cotton raw material stocks, cotton ginning and oil factories, which are considered the leading industries in the country's economy. , all available raw cotton reserves, railways, banks, all mines were confiscated for the benefit of the state, and labor control was established[10,33].

In fact, these enterprises, which were confiscated by the Soviet authorities, produced more than 80 percent of the products produced in the country by 1914[11,103], and their weight in the country's commodity-money relations became very important.

After these enterprises were confiscated for the benefit of the state and fully transferred to the workers' control, these enterprises ceased to operate due to the lack of financial resources and raw materials, and most importantly, the lack of skills and education of the "new bosses" in charge of the control work.

According to the decree, 3.4 million pounds of cotton fiber, 6 million pounds of raw cotton, 600,000 pounds of cottonseed oil, 4 million pounds of seed, and 1.1 million pounds of kunjara transferred to the existing factories in the country for free[1,248]. Farmers did not receive money for the cotton taken from their homes and delivered to the factories, even though it was at a fixed price[12].

This situation in the economic life of the country caused a sharp decrease in the purchase price of cotton, impoverishment of peasant farms, and destruction of material interests in cotton cultivation.

#### 4. CONCLUSIONS

In conclusion, it should be noted that instead of traditional land-water relations in Turkestan, including the Ferghana Valley, the Soviet government introduced an economic policy aimed at establishing socialist state ownership in all spheres of economic life, centralizing the leadership of the national economy, and conducting work with administrative command-and-control methods in management. The property of large landowners in the country was confiscated at the expense of the state. A state



monopoly was established in all sectors related to the cotton industry, which is the leader in the country's economy.

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# A STUDY ON BLACKSMITHS OF NORTHERN TELANGANA AND THEIR ANNUAL FESTIVAL: 'MAMMAYEE'

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## ABSTRACT

The aim of the paper is to record the presence, lives and working practices of rural blacksmiths and descendants of iron smelters; and to study and document the Mammayee festival, which is the traditional annual rejuvenation festival of the blacksmith community of the region dedicated to their goddess, Mammayee. The data gathered during the field survey represents a valuable ethno-archaeological tool to study the effect of social organization, culture and tradition of the rural blacksmiths of the Telangana region and understand their approach to metals.

Collecting ethnographic data in the field involved interviewing blacksmiths in their residences or work-spaces; Non-blacksmiths, including village elders, toddy tappers, owners of land containing slag or crucible heaps were also interviewed to gather knowledge or memory of past smelting as well as smithing.

Topics asked include the blacksmithing tradition of his family and the village; memory about past smelting and smithing; kinds of tools produced or repaired; target market and clients of the manufactured products; remuneration system; source of raw materials; apprenticeship process and the future of traditional blacksmithing from their perspective.

The detailed study of the annual festival of the blacksmiths was conducted by visiting the temples of their goddess Mammayee on the first day of the festival and interviewing blacksmiths about the preparation and ritual performances. The rituals were observed in four villages (Kalvala, Uploor, Ibrahimpatnam and Konasamudram).

## 1. INTRODUCTION

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The final ethnographic archive consists of five principal datasets—interview transcripts, video records, a manufactured iron tool, festival records and image archive.

## 3. THE VISWABRAHMIN IDENTITY AND THE GENEALOGIES

Consistent with most of South India (Ramaswamy, 2004, Brouwer, 1995a, 1995b Srinivasan, 1993), the iron-working communities in northern Telangana are grouped under the Viswabrahmin/Viswakarma caste, along with four other traditional groups of craft specialists—the carpenter, gold- and silversmith, bronze-smith and the sculptor. Superficially the Viswabrahmin caste identity appears to be homogenous and universally accepted throughout peninsular India. However, the research revealed that underneath this apparent homogeneity exists highly hierarchized groups of craft specialists, locked in a power struggle with other for symbolic dominance within the Viswakarma/Viswabrahmin fold.



Many of the Kammari interlocutors stated the ideological understanding that all the five craft communities were equal, like brothers. However, as our acquaintance grew, many of them made a slight, but significant alteration in the origin myth. This altered narrative suggested that Mano(Kammari) was the firstborn of the union between Viswakarma and Gayathri Maata. It was only after Mano was given the knowledge of iron-working by his divine father that he could prepare the tools for the wadla to cut down the trees and work with wood. The Maya (wadla), was then given

the skill of carpentry to make the plough for the ploughshare prepared by Mano. Finally, Mano and Maya together could combine their skills to manufacture all the tools in the world, including those needed by their brothers Twashtha, Shilpi and Vishwajnya, the first bronze-smith, sculptor and gold-/silversmith. All kammari, born from the progeny of Mano, the first born of Viswakarma, should therefore be considered the senior craftsmen among the five.

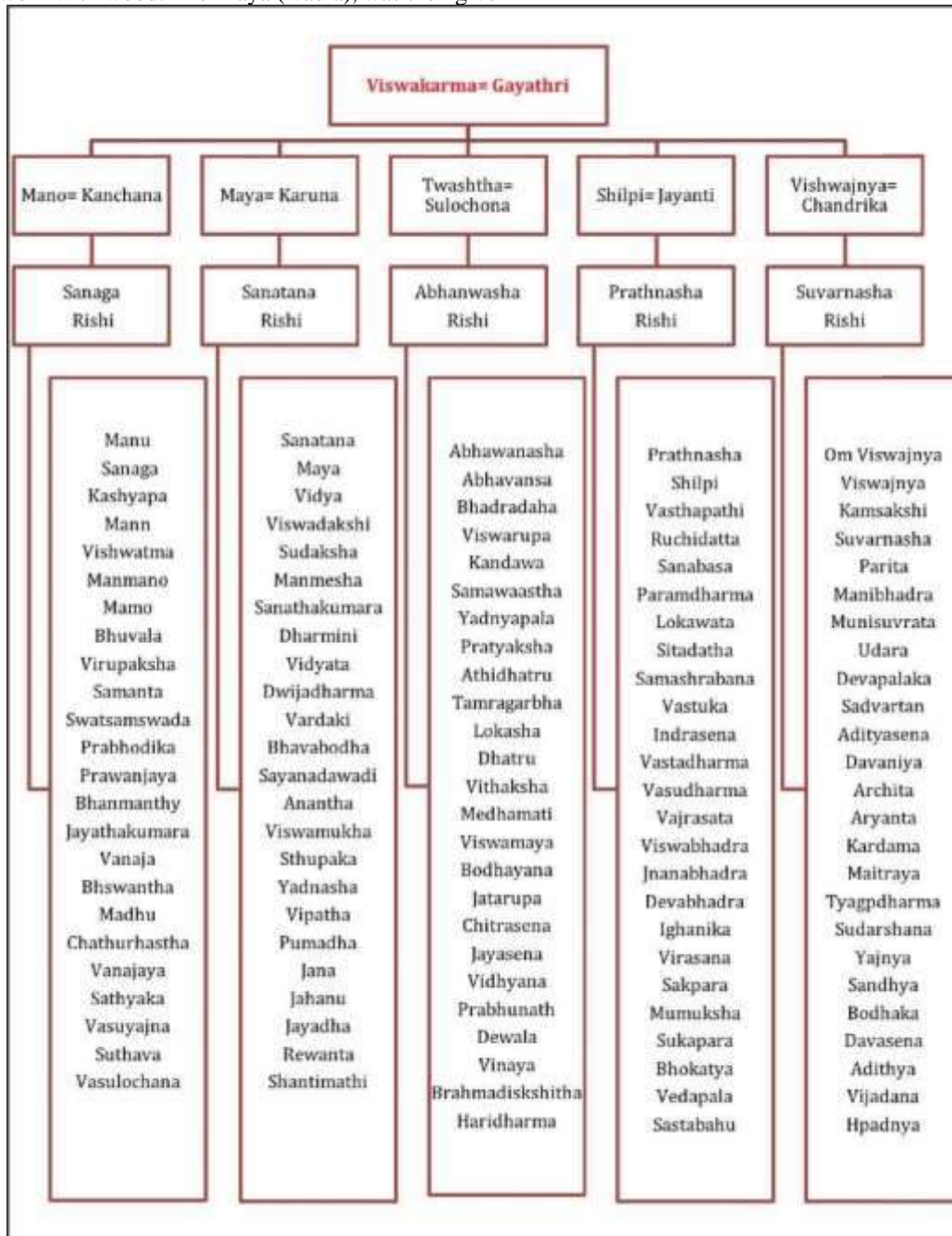


Figure 6.2 Genealogy of the Viswabrahmins of South India (prepared by T.Neogi based on a format in telugu supplied by Viswabrahmin Sangham of Jagitial)





In terms of performing the Viswabrahmin identity through ritual behaviours, a high level of adherence among the members of these five groups [Panchakulasi] was noticed. The male members of all five craft groups wear the sacred thread, a symbol of ritual purity and a challenge towards the sacerdotal authority of the Brahmins. The members also worship the cult of Veera Brahmendra Swamy, a 17th century saint who is considered to be an embodiment of the God Viswakarma.

Collecting the genealogies of iron-smelter families constituted a major part of ethnographic fieldwork. Iron-smelters were considered to belong to a low caste on the fringes of the rural hierarchy of Telangana. With the decline in smelting, the iron-smelters and their descendants have become regular village blacksmiths (Kammari), shedding their smelter identity and with it their identity term (Mudda Kammari). Therefore, family genealogies were the only entry point through which more Mudda Kammari families could be identified in the region. A total of 15 family genealogies were collected.

#### 4. KAMMARI

Kammari is a generic term for blacksmith in Telugu and many other Indian languages. However, to the Telangana blacksmiths, the term Kammari has a far deeper social meaning attached to it. As a stand-alone term, Kammari connotes the families of rural blacksmiths who traditionally forged agricultural implements for the peasant families of their village. The farmer families that they served for generations pay them a share of their harvest, the amount of which is fixed by age-old cultural conventions for each village. It is crucial for the Kammari to function efficiently in this traditional prostration system of exchange. The Kammari are required to abstain from producing for the village or urban markets. Cash transactions are perceived as unclean and are avoided when possible.

#### 5.MUDDA KAMMARI

Various terms are prefixed with Kammari to distinguish between groups of iron-workers involved in other kinds of specialized production and economic networks. Hence, the iron-smelters are known as Mudda Kammari. The prefix Mudda literally means lump, and possibly indicated the iron-bloom obtained after smelting the iron ore. Their work is perceived as unclean by the Kammari, since they worked in the heat to smelt iron from "dirt" and sold the bloom for money to the Sahukar or middle-men. A similar account coming from north Karnataka (then in Hyderabad State) can be identified in Thurston and Rangachari's *Castes and Tribes of Southern India*(1975[1907]:Vol III). In this ethnographic encyclopedia of South Indian communities, Thurston and Rangachari recorded a group of iron-smelters in the Bellary region of northern Karnataka, who were known as Baita Kammari. Baita literally means "outsider", and in this account Thurston and Rangachari noted:

"The term Baita Kammara, meaning outside blacksmiths, is applied to Kamsala [the group of five crafts] blacksmiths who

occupy a lowly position and work in the open air outside the village.

Apart from the proximity to the archaeological evidence of iron-smelting, the Mudda Kammari communities' association with the craft and their distinct identity as a community separate from the Kammari can be traced by studying their genealogies.

#### 6.SHISHA KAMMARI

The Shisha Kammari are a group of itinerant tribal blacksmiths who forge implements on a piecework basis and work within the primarily urban cash economy. They are abhorred by the Kammari for this reason. The Shisha Kammari are not considered to be a part of the Viswabrahmin community.

#### 7.OTHER IRON-WORKING GROUPS

The Colonial census data from the early 20th century suggests that there were other groups of specialist iron-workers who were closely involved with the cash-market economy—very distinct from the domain of the Kammari. Apart from the Kammaris, who are recorded as "plough and other agricultural implements maker", the Hyderabad State Census of 1901 records other specialist groups of blacksmiths including knife makers, knife grinders, gunsmiths, sword-smiths and iron hardware manufacturers (Khan, 1903). These terms, which might well have existed, has vanished with the decline in these specialized branches of blacksmithing. Use of the term Kammari is therefore loaded with meanings; social, cultural and economic. Different terms prefixed with Kammari identify a specialized branch of the craft and the nature of the economic network in which the specialist operates. The Kammari use these terms to create categories and to define hierarchical power-relations among different iron-working groups.

#### 8.RITUAL PURITY OF THE KAMMARI.

The members of the Kanchari and Ausala communities tend to challenge the Kammari claim to superiority and prestige within the Viswabrahmin caste by pointing out that the Kammari's consumption of meat and alcohol, which compromise their ritual purity.

A majority of the priests and Viswabrahmin ritual specialists come from the Kanchari and Ausala communities, where their ritual purity and access to prestige and power within the caste is reinforced by a strictly vegetarian diet and abstinence from alcohol. The Kammari counter this claim by narrating a story in which they were the victims of some deceitful Brahmins.

#### THE STORY TAKES PLACE IN THE 12TH CENTURY, DURING THE CHALUKYA PERIOD IN COASTAL ANDHRA.

The Kammari were living as good Brahmins who were well versed in all the five Vedas. Their skill as workers of iron was also thriving. Their material and intellectual prosperity had





incurred the jealousy of the Go-Brahmins (cow worshipping Brahmins) of the region. To get rid of the Kammari, the Go-Brahmins invited them to a feast where they were fed non-vegetarian food under the guise of a vegetarian meal. They were also served alcohol instead of water and finally, when they were drunk, they seduced the Kammari with beautiful prostitutes. The God Viswakarma was extremely unhappy with the conduct of the Kammari, and cursed them by taking away all of their wisdom and wealth. When the Kammari begged for forgiveness from Viswakarma, they were instructed to go to the Kakatiya kingdom (in Telangana) and forge the tools required by the farmers and other craftsmen in recompense for their crime. This was how the once illustrious Brahmins became the poor and lowly Kammari of today, addicted to alcohol and a non-vegetarian diet.

### 9. Tensions between Kammari and Kanchari & Ausala Communities

This ideological tension between the Kammari and the Kanchari and Ausala communities is reinforced by two interconnected factors—the location of these communities on the physical space of northern Telangana; and their involvement in discrete economic networks.

The farmers of rural Telangana are the primary clients of the Kammari and the Wadla communities. The blacksmiths and carpenters forge and repair agricultural tools for the farmers in each village. After each harvest, the farmers pay for these services with a traditionally determined amount of grain. The Kammari and Wadla generally work within this prostration arrangement and despise the cash economy. This traditional prostration arrangement ensures the presence of Kammari and Wadla families in almost every village of the study area, well distributed in the landscape.

Although the Kammari and Wadla were considered important members of the village community in northern Telangana with significant access to power and agrarian resources, the recent introduction of tractors and other agricultural machines has caused massive displacement in the community, rendering a majority of them poor and out of work. On the other hand, the Ausala and the Kanchari families work in the cash economy, producing ornaments, idols and ritual utensils for a comparatively affluent clientele.

Growing urbanization in the study area provided new opportunities for the gold-/silversmiths and bronze-smiths. Their traditional clients, the rural affluent families have moved to the urban areas. Urban economy also meant the presence of an affluent urban middle class, capable of affording the services of these craft specialists. A majority of the Ausala and Kanchari families therefore, presently reside in the urban areas of northern Telangana. Only a few families remain in some big villages, where there is a possibility to serve affluent farmer families. These new opportunities have ultimately strengthened the financial condition of these communities, enabling them to

fund the establishment of Viswabrahmin temples in the area, take up priestly duties, and project themselves as the prime philanthropists and leaders of the Viswabrahmin community.

### 10. THE RURAL BLACKSMITHS OF TELANGANA

The blacksmiths of the Telangana region, like most of the blacksmith communities of south India, fall within the Viswakarma (the Hindu god of arts and crafts) caste group. The Viswakarma caste in the Telangana region consists of five distinct craft communities; blacksmiths, gold-smiths, bronze-smiths, carpenters and stonemasons or sculptors.

Although intermarriage is often practiced among the three metal craft communities, it is not altogether clear whether the matrimonial relations are encouraged with the non-metal craft groups (carpenters and stonemasons). Marriage outside the caste is not encouraged. The Viswakarma caste of the region, including the blacksmith community, wear sacred threads like the Brahmins and a sense of strong inter-caste competition with the Brahmins could be observed in the traditions and taboos of the blacksmith community.

The blacksmith communities frequently occur as close clusters within larger rural settlements, often not very far from the location of a slag or crucible heap. Spatially, their residences and workspaces are situated closer to the residential cluster of the agricultural community, who are their primary clients. The community is stratified according to seniority and is headed, in each village, by a body of elder blacksmiths (consisting generally of three or four senior smiths) who preside over communal meetings, which are generally held on every new moon evening and in the premises of the temple of their goddess, Mammayee.

The elder blacksmiths are responsible for making all important decisions regarding community disputes, auspicious and inauspicious days and festivals. In most cases, their decisions are deemed as final and unassailable. This intra-community hierarchy and other inter- or intra-community and caste relations are guided and attested by a distinct ritualistic behavior as well as obligation reciprocation mechanism (Mauss 2009). These could be observed in detail during their annual rejuvenation festival. **Women are strictly prohibited from participating in any aspect of blacksmithing and the cult of their goddess.**

As mentioned, the farmers form the immediate clientele for the blacksmiths. The business relationship between these two communities is regulated through a long-standing tradition of oral contract, where the individual farmer agrees to pay a certain amount of grain (normally rice or pulses) to the blacksmith, who in turn has to make or mend as much agricultural equipment as the farmer asks from him. The payment comes in two instalments i.e., after two harvest seasons. This seemed to be a very well established tradition in most of the villages of the region. Apart from some villages which are closer to urban centers or highways, monetary transaction is not preferred. The system of two



instalments is strictly followed even during a cash transaction with the farmers.

The blacksmiths manufacture tools exclusively to fulfil the needs of the immediate rural community. It appeared that mass production of the iron implements is not practiced and manufacture or repair is done only on request, probably due to the declining market of indigenously produced items in competition with industrialized products. Consequently, all of them are primarily engaged in repair work rather than manufacture of new tools. Raw materials are generally procured from the market by the farmers, rather than the blacksmiths themselves, in the form of scrap industrial iron, commonly as lorry springs. Charcoal can be purchased from local markets but sometimes the blacksmiths prefer to make charcoal themselves from locally abundant teak wood.

Although the region is rich in ore, smelting is no longer practiced and it appears that the knowledge of smelting technology is significantly lost.

Traditional iron-smelting in the study area was in steady decline throughout the early 20th century, and finally came to an end in the late 1940s. Therefore, this surviving group of Mudra Kammari remain the only direct link to discern the social, technological and the economic networks in which pre-industrial iron-smelting functioned in northern Telangana, albeit in the final days of its decline. Their narratives also provide a unique emic perspective of how the smelters adopted strategies to sustain themselves and their craft through a period of steady decline. However, overall the number of working smithies is rapidly declining since younger generations are opting for more lucrative trade or placement in the Middle East.

## 11. MAMMAYEE FESTIVAL

Mamayee is considered to be the goddess of metal work with mamma or amma meaning mother and ayee, aya or aye meaning iron in Prakrit and Sanskrit languages (Jaikishan 2009, 62; 2015, 244; Jaikishan and Balasubramaniam 2007b, 485).

Mamayee is still worshipped in a handful of villages in northern Telangana as the goddess of the local metalworking communities—the kammari (blacksmiths), the kanchari (bronze-smith) and the ausala (gold and silver smiths).

Jakishan (2007, 2009) in his pioneering study of the social aspects of Wootz steel production, suggests that the cult of Mammayee was thriving among the iron-smelters and blacksmith communities of Telangana from the early medieval period till the decline of pre-industrial crucible steel production in the early 20th century. He further suggested that the cult of Mammayee was central to the identity of the metalworking communities in general, the blacksmiths and iron-smelters in particular, and many northern Telangana villages had a temple of the goddess within

its boundaries. Presently, only a very few of these temples survive.

Regular meetings take place in these temples, presided over by elder blacksmiths, where community problems are resolved and important decisions taken (Jaikishan 2015, 245). Jaikishan (2009, 62-4; 2015, 245-6) and Jaikishan and Balasubramaniam (2007b, 485) also describe the annual Mammayee festival that takes place during the Telegu New Year (late March to early April) in some of the villages. The festival lasts 11 days and starts with the lighting of the sacred oil lamps in the temple. All community members bring the tools of their trade (one or two implements) and place them on a stand next to the goddess idol where they stay for the remainder of the festival. The festival involves several feasts and processions of the idol through the village and ends with the tying of the sacred thread on participant wrists and on the tools. It is interesting that as well as blacksmiths, bronze and goldsmiths also took part.

The annual festival of Mammayee (amma= mother+ayee=iron), local deity of traditional blacksmith community of northern Telangana takes place during the 7 days leading up to the new year of the regional calendar. The goddess is also worshipped in the form of blacksmith's tools, the smith's hearth and a local medieval saint.

**The origin of Mammayee cult** is shrouded in obscurity. The mention of the cult is not noted in any pre-colonial documents from the region. The colonial and administrative documents under the Nizam are equally silent. Hassan's (1920) detailed eponymous study of castes and tribes of the Nizam's dominion do not mention the cult either. However, Hassan does mention a pre-dominance of worship of the female principle among the Panchals of Telangana.

"The favourite object of worship of the Panchals is the **goddess Kalika**, also called Ambika, to whom **sheep, goats, fowls and wine are offered on the first day of the bright half of Chait and again in the month of Shravana (August-September)**. No priests are employed for the worship of the goddess and the offerings are eaten by the members of the household. **Fridays and Tuesdays are believed to be the most propitious days for this worship**. Offerings of sweetmeats are also made to the goddess Kamakshi of Kanchi, who is held to be one of their patron deities. Most of the Panchals are Shakti worshippers.

## 12. MAMMAYEE AS GRAMADEVATA

The cult of Mammayee can be better understood in this context. Jaikishan and Balasubramaniam (2007) and Jaikishan (2009) suggested in their work on the cult of Mammayee, an early 10th century origin for the cult. They based their hypothesis on the surviving temples of Mammayee in Peddakalvala, Ibrahimpatnam and Doreguda villages. **These temples are built in Eastern Chalukyan (9th- 11th CE) and Kakatiya (11th-14th CE) architectural styles.**



Mammayee temples are present in Ibraheempatnam, Chinnakalvala and Peddakalvala of Karimnagar district; Balkonda, Uppulooru, Konaapuram and Konasamudram of Nizamabad district. In Konasamudram, which was a famous Iron Industry Center, there are two Mammayee temples namely Chinna Mammayee and Pedda Mammayee.

Of notable importance are the villages of Kalvala and Ibrahimpatnam in Karimnagar district and Konasamudram in Nizamabad district (Jaikishan 2009, 62, 65; 2015, 244-5; Jaikishan and Balasubramaniam 2007b, 485). In Konasamudram, two Mammayee temples are found, one for the blacksmith community and another for the bronzesmiths (Jaikishan and Balasubramaniam 2007b, 486-7).

In old Karimnagar, near Peddapalli, between Kalvala villages, on the bank of Hussain river, there is a 16 pillared Mammayee temple, constructed in Early Chalukyan Temple Architectural style. This temple is famously known as Mahaamaayee Temple. The temple priest is a Kamsali.

In Siddhipeta town, near to market, there is an ancient Mammayee temple. According to the inscription on temple entrance pillar [Dwajasthambham], this temple was constructed in 1617 CE. People are saying that in this temple, the main oil lamp [Akhanda jyothishi] is shining continuously since 400 years.

In Konasamudram, Pedda Mammayee temple is present in Kammarivada. There are two rooms in the temple; one for Mammayee idols and another for Kammarisangham. Chinna Mammayee temple is present in Kancharavada. In this street, there are 30 Viswakarma caste families are living. Here, Temple priests are Kammaris only but, the worshipping method is different when compared to other Mammayee temples. Devotees from all castes and other castes other than Kammaris, women, men, children, elders come to the temple on the early morning of Yugaadi festival. They come with flowers, fruits, coconuts, turmeric, kumkum, jacket pieces in hands and dedicate them to the goddess. Breaking the coconuts and women coming to Mammayee temple is observed only in this temple. Temple festival is celebrated every year.

"All revere the caste goddess Kamakshi Amma, who is represented by each sub-division in a special manner. Thus the Kanchara represents her by the stone on which he beats his metal work, the gold-smith by one of his implements, and the blacksmith by his bellows. On the eighteenth day of the Dasara festival, an annual festival is celebrated in honour of the goddess." (Thurston and Rangachari, 1975 [1907]: III-147)

The festival of the goddess Mammayee traditionally takes place in the last eleven days of the Telugu calendar, which normally falls in early March. However, **due to poverty among the blacksmiths of the region, the festival was reduced to three**

**days.** A total number of four villages were surveyed in the course of the festival, and the final day ritual, which coincides with Telugu New Year's Day, was observed in the village of Ibrahimpatnam (Karimnagar district), where the cult of the goddess is still the strongest.

On the first day of this festival and during the festival, the smiths cease their work and place their tools in the temple in order to revitalize productivity. The blacksmiths do not take non-vegetarian food and cooking must be done strictly within the temple premises. Women are not allowed in the cult performances and all the activities are carried out by the blacksmiths themselves. Kammari women and members of other communities, including nonkammari Viswabrahmin groups did not have permission to enter the temple. They are allowed at other times of the year but are required to take permission from the kammari elders. Although other craft groups of the caste also cease to work and worship god Viswakarma in their individual residences, the cult of Mammayee seems to be exclusively followed by the blacksmith community. **Along with Mammayee, a local saint, Veera Brahmendra Swami, is also worshipped.** Two senior blacksmiths use grains of wheat to predict the fortunes of each member of the blacksmith community, including the females.

**On the final day of the festival, the blacksmiths gather in the temple before sunrise and prepare food offerings consisting of five principal items (in this case) pulses, rice, maize, coconut and jaggery.** The final worship is conducted by the senior blacksmiths, with the senior-most of them acting as high priest, reciting mantras. It was observed that in at least three villages the high priests also operate as goldsmiths as well as being practicing blacksmiths. After these rituals, the blacksmiths gather in the temple courtyard and help each other in tying the fresh, turmeric-dipped, sacred thread. Finally, they tie sacred threads on their working implements, which appear to be extensions of a blacksmiths' body and rejuvenated through endowment of divine power and the blessings of the goddess. This is followed by the inauguration of the smithy in individual workspaces. This is done by hitting the anvil in three sets of five, first by the eldest family member followed by others according to age. Then, while the eldest smith is required to light the hearth and manufacture an agricultural implement, the next in line operates the fan bellows (hand-turned). Finally, the junior apprentices of the family carry the newly produced implements to the houses of the farmers, who, in turn, are required to offer rice, pulses, turmeric and garlic in exchange for the implements. Thus the long-standing relationship with the farming community is renewed through a ritual contract.

## CONCLUSION

In Northern Telangana, Women are strictly prohibited from participating in any aspect of blacksmithing and the cult of their goddess. Due to poverty among the blacksmiths of the region, the festival was reduced to three days and the number of working smithies is rapidly declining in the study area since younger





generations are opting for more lucrative trade or placement in the Middle East.

The cult of Mammayee performed in Ibrahimpatnam-K is targeted at reinforcing a socio-economic power structure founded on a strong agrarian base, where the kammari and the farmers were unequivocally dependent on each other for sustenance. With the recent decline in traditional prestation relations, a radical shift in the nature of cult performance is observed among the Viswabrahmins. The kammari have responded in two ways in order to prevent the community from decline, save their craft, freshly negotiate their position of power in the village society and reassert their identity—by replacing their old cult of the goddess Mammayee with the new cult of a 17th century saint-turned-

demi-god, Veera Brahmendra Swamy, and by modifying pre-existing rural associations of caste-elders into more organized, politically active and philanthropic Sanghams, or caste-associations, connected with the intra- and inter-regional narratives of Viswakarma/Viswabrahmin caste identity.

As a result, two radically different cult performances by the members of the same community within the same region emerged. The former, Mammayee Pooja, is more closed, strictly regulated and focused on the relationship between only one of the five Viswabrahmin groups and their clients—the kammari and their client farmers. The latter, Veera Brahmendra Swamy Pooja, on the other hand, is more eclectic and brings the entire Viswabrahmin community together.





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# THE GROWTH OF IRRIGATION DEVELOPMENT IN NIZAMABAD, 'TELANGANA'

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## ABSTRACT

*Irrigation is the application of water to soil artificially for the aim of grain production. Scientific irrigation water management provides the best protection against climatic disasters and weather-induced changes in overall food output. As a result, irrigation policies and programs are critical in an agriculture-oriented economy, helping to promote food production.*

*It is a well-known fact that irrigation provides several economic and societal benefits. Mankind has lived due to the availability of water and its effective modes of exploitation. Efficient irrigation water distribution control is expected to help to increasing agricultural production by allowing planting at the appropriate time, prolonging the effective cropping season, and allowing a changeover to high productivity of high tale crops. As a result, economic growth requires an understanding of irrigation, both in terms of method and structural process.*

*Telangana was the main area of the princely kingdom of Hyderabad from 1724 until 1956. Under the pressure and direction of British suzerain, the Nizam of Hyderabad and his government began to take an interest in irrigation as a means of preventing and alleviating famine in the 1870s.*

*The main sources of government revenue were taxes on non-irrigated and irrigated land (the latter at a far higher rate). While these levies consumed a significant portion of the crop's value, irrigation development formed the foundation of effective revenue and fiscal policy. The state of Hyderabad had a substantially higher*

## 1. INTRODUCTION

Irrigation is the application of water to soil artificially for the aim of grain production. Scientific irrigation water management provides the best protection against climatic disasters and weather-induced changes in overall food output. As a result, irrigation policies and programs are critical in an agriculture-oriented economy, helping to promote food production.

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The main sources of government revenue were taxes on non-irrigated and irrigated land (the latter at a far higher rate). While these levies consumed a significant portion of the crop's value, irrigation development formed the foundation of effective

revenue and fiscal policy. The state of Hyderabad had a substantially higher

'The Development of Agriculture and Irrigation in Nizamabad, Telangana,' I would like to shed some light on the most essential points concerning the Nizamabad district and its agricultural growth, as well as the developmental elements of the Irrigation department in the region. This article would also include other significant facts such as the district's population and people's living capacity.

## 2. AIMS AND OBJECTS

- We can comprehend the importance of irrigation development in Nizamabad District.
- We can understand how Asaf Jahi rulers played an essential part in irrigation development.
- We can see that the Telangana cause is placed beneath the state of Andhra Pradesh.

## 3. IRRIGATION AND ITS IMPORTANCE

Water is essential for life on the earth. The importance of water has been recognized from the primitive days. The largest volume of water in the world is used for irrigating lands, especially for the production of food grains. For the growth of plants, water must be available in the appropriate quantities and at the right time, depending on the species of plant, the soil and other climatic condition<sup>1</sup>. Efficient utilization of water resources is essential for agricultural production for meeting the challenge of feeding the



ever-increasing human population. Land and water being limited; their efficient use is basic to the survival of an ever-increasing population in the world. The conservation of moisture in soil is needed for optimum crop production<sup>ii</sup>. Economic and social development to a great extent depends upon the creation of surplus agricultural produce. This regularly requires extension of agriculture through new irrigation projects or the improvement of existing irrigation systems and practices to ensure optimum land utilization. Improved water management (including irrigation and drainage) can contribute to the increase of agricultural production, both of food and other crops<sup>iii</sup>.

The part played by irrigation in Indian agriculture is significant due to the unequal distribution, as well as the insufficiency of rain. In Large parts of the country, rainfall is the only source of the water supply and its failure causes almost famine conditions. The Irrigation works although almost un-known in Northern East have existed in India from time immemorial. The earliest and most well-known was the Cauvery delta system of canals, which Sir Arthur Cotton enhanced and extended in 1835. The Godavari works, which he subsequently built, were suggested by Cotton as a result of this system's success

Telangana is a significant state that relies heavily on agriculture and irrigation. Studies in this field are necessary because agriculture is one of the main economic areas for individuals. Furthermore, it is crucial to talk about how the agricultural One of the major districts in the state that produces a variety of crops in two seasons is Nizamabad.

#### 4.TELANGANA IRRIGATION PROJECTS

The district of Nizamabad is in Zone IV and is situated in the state's northern region. Districts of Adilabad, Medak, Karimnagar, and Nanded in Maharashtra, as well as Bidar in another neighboring state, Karnataka, are to the west, east, and west, respectively. Not only does Nizamabad have excellent road and rail connectivity. The district is separated into 36 mandalas and 3 revenue zones. There are 917 districts in all, and 718 Panchayats oversee all of these villages. If we consider the district's farmed land, which makes about 22% of the total area, the forest covers 169949 hectares. 50% of the land is made up of black soil, which is ideal for cotton cultivation.

Furthermore, red soil, which makes up 43% of the area, is ideal for growing any other crop. Based on the district profile, the district experiences 1036.70/1035.7 mm of rainfall on average. Seventy-five percent originates from the southwest monsoon in late June and early September. Manjeera, a tributary of Godavari, and other significant rivers run through Nizama City. Rice, corn, turmeric, cotton, sugarcane, and jowar. The area is used to raise soy and several types of pulses. The entire gross cropped area divided into two seasons, like Rabhi and Karib. During 600,000 hectares in total during the past few years. 23247 hectares is the net area that is being irrigated. In certain cases, the district's previous residents also use their bore wells in places where irrigation facilities are not accessible or available. Additionally, 231

communities in the area have been recognized as being overexploited.

Nizamabad's GDP now stands at Rs. 21202 crores, or 5.4% of the state's GDDP of Rs. 391751 crores. At current pricing, Nizamabad's per capita income is Rs. 71528, much less than the state's per capita income of Rs. 95361. As is well known, on June 2, 2014, the state of Andhra Pradesh was divided into ten districts, giving rise to the new state of Telangana. The Telangana state irrigation and CAD department is working to harness and utilize all of the water resources at its disposal to support the agricultural and industrial sectors as well as provide water for the state's general development in order to realize the goal of "Golden Telangana." We also know that the Godavari and Krishna Rivers, together with its tributaries, Tanks, and Ponds, are largely responsible for the development of irrigation in the state. For the citizens of the state, tanks are the most valuable resource. There are 46.351 different types of water bodies, ranging in size from tiny ponds and percolation tanks to enormous tanks. The Irrigation and CAD department, working under Mission Kakatiya, has taken on the restoration and rehabilitation of tanks. In general, irrigation projects fall into one of three major groups, this division is made based on the catchment or command area.

#### 5.TANK IRRIGATION

Refers to the practice of using small water reservoirs behind earthen dams. Although many settlements receive their drinking water from tanks, their main use is as irrigation reservoirs. A long-standing practice that predates much of India's semi-arid tropical regions is tank irrigation.

Since the Vedic era, tanks have been used in India as a means of supplying water for agricultural purposes. Historians in the region are aware of the significance of tank irrigation in southern India. The Chola, Pandya, V, and Kakatiya rulers were actively involved in the construction of the tanks, as shown by the vast quantity of inscriptions found on tank sites and temples. Tax-free access to temples for ritual performance was extended to a few tank-irrigated boys, as well as to cap masons, boatmen, fishers, and water regulators and others for upkeep.

#### 6.MAJOR AND MEDIAM IRRIGATION PROJECTS IN NIZAMABAD DISTRICT'S INITIATIVES IN NIZAMABAD

The Godavari Basin encompasses the whole Nizamabad district, while the river Manjeera, which flows towards the district's northern edge, covers portions of the area as well. The main irrigation sources cover the majority of the districts' irrigated area. Nizam Sagar, the main irrigation project, is situated on the Manjeera River. Sriram Sagar is another finished irrigation project in the area. Additionally, it is assisting the district's 33.131 acres of agricultural land to be farmed by local farmers. The area has two significant irrigation systems as well.

These are the Arugula Raman Gupta and Ali Sagar lift irrigation schemes, which are intended to complement the tail end ayacut



under the Nizam Sagar Project, extending from Ditsy No. 50 to Dysti Number 73. Additionally, there are three medium-sized irrigation projects that serve an area of 10,500, 7000, and 9000 acres, respectively: the Pocharam Project, the Ramadugu Project, and the Koulas Nala Project. The Nallavagu Project, which is being built in the Medak district, uses its canal system to irrigate a 730-acre area near Nizamabad. The district receives 993.53 mm of rain on average on a typical day.

## 7. NIZMASAGAR

The goal of the historical analysis of major irrigation projects is to demonstrate how the development of multipurpose irrigation projects negatively impacts both the local population and the environment<sup>iv</sup>. Historians have an obligation to disclose the details of large-scale undertakings like this that were carried out in the past and the effects they had on the environment. A case study of some irrigation projects, such as Nizamsagar, Nagarjuna Sagar, and Srisailem Dam, might help clarify these facts. This essay aims to investigate the advantages and effects of the Nizamsagar Project on the environment.

The primary goal of the Nizamsagar Project's creation was to protect people from natural disasters rather than to damage the environment. Floods (like the one that occurred in September 1908) occur when there are abundant rains, while famines (like the one that occurred in the area in 1896–1897) occur when there are few, late, or no rainfall. The channel of the Manjira River, on which the project was built, drains an area devoid of woods and jungles, with very few trees growing on its banks<sup>v</sup>. This is another factor contributing to the frequency of floods. Furthermore, the region's (Nizamabad District) soils desperately needed water supplies for wet farming<sup>vi</sup>.

The Nizam Sagar Project's construction was fueled in part by the demand for profits. The project's development aimed to safeguard the area and, secondly, offer irrigation services. Under the direction of Chief Engineer Nawab Ali Nawaj Jung Bahadur and Executive Engineer P.S. Raju, the Nizam of Hyderabad authorized the construction of the Nizamsagar Project, which cost Rs. 426.79 lakhs and crossed the Manjira River, the largest tributary of the Godavari River in the Nizam's Dominions near Maldoddy village, seven miles west to Yellareddipet of Nizamabad District<sup>vii</sup>. Its main river, which originates on its right

side and travels 62 miles before terminating close to Dichpalli, can irrigate over 2,75,000 acres of land covering 371 village's<sup>viii</sup>. The area commanded by the canal in 4 taluqs of Nizamabad district.

## 8. THE SRIRAM SAGAR PROJECT

Sri ram sager project is described as life line of "Telangana" as it supplies water for booth drinking and irrigation purpose which is intended to irrigate a 968.640-acre area for both drinking and irrigation purposes, is known as the "life line of Telangana" because it provides water to 68,640 acres that formerly covered four districts in Telangana: Nizamabad, Aliabad, Karimnagar, and Warangal. Additionally, the dam was intended to generate 36MW of power, of which 3\*9MW are currently under construction and in use. The amount of water released from SRSP determines how intensely the command region is cropped. Irrigated land makes about 20% of all agricultural land worldwide, yet it produces 40% of all agricultural output. This demonstrates how crucial irrigation is to the productivity of crops<sup>ix</sup>.

For appropriate preparation The World Bank estimates that agriculture uses 70% of the world's water resources. Understanding the crop season and the kinds of crops that must be grown in the right places is essential for the complete and effective use of the land. The advancement of technology in agriculture has made off-farm activities more convenient.

## CONCLUSION

We have shed some light on the salient characteristics of Telangana State and provided a general overview of the Nizamabad district in this article. We also talked about the specifics of the district's main irrigation projects. Additionally, we have discovered that several isolated settlements are still unable to access the water sources. Additionally, these farmers who take use of the water irrigation resources are cultivating their crops and lands by relying on rainfall and, if they are able, using bore wells for assistance in tilling the bores into the earth. Lastly, we shed some light on the district's numerous villages' farming patterns, occupation structures, and distribution of land holdings, as well as irrigation systems and revenue sources.

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# THE PATTERN AND CLINICAL PROFILE OF ALOPECIA AREATA. PANORAMIC REVIEW: UPDATE AND ADVANCES ON ETIOPATHOGENESIS, ASSOCIATED FACTORS, DIAGNOSIS, COMPLICATIONS, MANAGEMENT AND PROGNOSIS IN TREATMENT 2023

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## SUMMARY

**Introduction:** Alopecia areata (AA) is a chronic disorder in which the immune system affects the hair follicles, nails, and occasionally, the retinal pigment epithelium. The characteristic manifestation of alopecia areata encompasses isolated, smooth, non-scarring surfaces of hair loss on the scalp or anywhere with hair growth.

**Objective:** to detail the current information related to alopecia areata, etiology, epidemiology, pathophysiology, histopathology, manifestations, diagnosis, treatment and complications of the condition.

**Methodology:** a total of 48 articles were analyzed in this review, including review and original articles, as well as clinical cases, of which 32 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: alopecia areata, hair loss, hair follicles, hair loss, Janus kinase.





**Results:** The lifetime risk of presenting alopecia areata is approximately 2%, it is the second most frequent non-scarring alopecia, after male and female pattern alopecia. So far no study has shown whether the prevalence of alopecia areata is different between ethnic groups. The first appearance of this alteration is more common between the third and fourth decades of life, however it can occur in any age group. Recent evidence suggests that the origin of the condition is autoimmune, with a significant genetic contribution. This alteration is related to medical and psychiatric comorbidities such as depression, anxiety and different autoimmune disorders.

**Conclusions:** Alopecia areata is an autoimmune condition that generates a sudden and uneven hair loss, affecting any area of the body. Recently, alopecia areata has been interpreted as an autoimmune disease with a genetic substrate. The hair follicles do not suffer permanent damage, which is positive because of the possibility of regrowth. It is of vital importance to know the etiology, epidemiology, pathophysiology, histopathology, manifestations, diagnosis and treatment of the condition. At the moment there is no cure for alopecia areata, however the use of some medications has contributed to the improvement of the symptomatology, there are multiple treatment options available. More studies are needed to treat this condition more adequately.

**KEY WORDS:** alopecia areata, hair follicles, hair loss, Janus kinase.

## INTRODUCTION

Alopecia areata (AA) is a chronic disorder in which the immune system affects hair follicles, nails and sometimes the pigment epithelium of the retina. This disorder occurs in about 2% of the general population and is due to the immune system mistakenly attacking the hair follicles, causing hair loss without permanently damaging the follicles. Several genetic and environmental factors support the pathogenesis of AA. The characteristic manifestation of alopecia areata encompasses isolated, smooth, unscarred surfaces of hair loss on the scalp or anywhere with hair growth. Occasionally some individuals affected with the condition experience spontaneous hair regrowth within a year, however, alopecia areata is a chronic recurrent condition. There are some management alternatives available, including corticosteroids, Janus kinase (JAK) inhibitors, immunotherapy and topical solutions, to control the spread and duration of hair loss. The first clinical description of alopecia areata is attributed to Celsus in 14-37 BC and the name alopecia areata is thanks to Sauvages. Later Hebra noted the incorrectness of the hypothesis of fungal etiology proposed by Willan and Gruby in 1843. Some time later, Von Baresprung originated the tropho-fungal theory, and Jacquet elaborated the dystrophic theory, considering infectious foci, especially dental, as the cause of the condition. Recently, alopecia areata has been interpreted as an autoimmune disease with a genetic substrate. This article gives an overview of the subject with emphasis on etiology, epidemiology, pathophysiology, histopathology, manifestations, diagnosis, treatment and complications of the condition(1-4).

## METHODOLOGY

A total of 48 articles were analyzed in this review, including review and original articles, as well as cases and clinical trials, of which 32 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: alopecia areata, hair loss, hair follicles, hair loss, Janus kinase.

The choice of bibliography exposes elements related to alopecia areata; in addition to this factor, etiology, epidemiology,

pathophysiology, histopathology, manifestations, diagnosis, treatment and complications of the condition are presented.

## DEVELOPMENT

### Etiology

The hair cycle has 3 phases:

- Anagen: active hair growth is generated.
- Catagen: keratinization of the proximal end of the hair shaft occurs, then the hair follicle detaches and the remaining proximal end undergoes apoptosis.
- Telogen: represents the interval between the regression of the old follicle and the beginning of the next anagen phase.

In the anagen phase there are 6 stages of hair growth, with stage VI representing a fully formed anagen follicle, alopecia areata is an autoimmune disorder that alters this process. However, in individuals affected with alopecia areata, the hair follicles stop in stages III or IV, returning early to the catagen or telogen phase, resulting in sudden hair loss and a deficiency in hair growth(2).

### Epidemiology

The lifetime risk of presenting alopecia areata is around 2%, showing a prevalence close to 1 in 1000. The data does not dictate a sexual predilection, however it shows a higher incidence among Asians, blacks and Hispanic individuals. Alopecia areata is the second most common non-scarring alopecia, the first being male and female pattern alopecia. Most studies show no significant differences in duration, age of onset, type of alopecia areata by sex or ethnicity. The most common is to present the first appearance between the third and fourth decades of life, however it can appear at any age. The earlier age of onset is associated with a higher risk of developing extensive disease later in life. This alteration is related to several medical and psychiatric comorbidities such as depression, anxiety, as well as multiple autoimmune disorders(5-7).

Alopecia areata can occur at all ages, however, its incidence increases steadily with age, the average age of onset is 32 years in men and 36 years in women(2,8).





### Pathophysiology

Some critical body organs such as the testes, the central nervous system, the eyes, the fetus and the placenta, present immunological privilege, which means that they have the capacity to withstand exposure to antigens without generating an inflammatory immune response. The loss of immune privilege inside the hair follicles and the consequent immune dysregulation play an important role in the development of alopecia areata(5,6).

It is currently thought that the origin of the condition is autoimmune, with a significant genetic contribution, which in turn depends on some unknown environmental factors. Some of the triggers include vaccinations, viral infections, physical or emotional stress and medications. These triggers inhibit the manufacture of two anti-inflammatory cytokines, alpha-melanocyte stimulating hormone ( $\alpha$ -MSH) and transforming growth factor beta (TGF- $\beta$ ). There is also increased expression of major histocompatibility complex class I (MHC-I) polypeptide-related sequence A (MICA) in hair follicles. Then, natural killer cells are activated, causing secretion of interleukin (IL)-15 and interferon gamma (IFN- $\gamma$ )(1,2).

IFN- $\gamma$  stimulates the expression of MHC-I proteins in hair follicle cells, revealing previously hidden antigens to T cells. Uniquely, IL-15 inhibits regulatory T cells. IFN- $\gamma$  and IL-15 activate immune target cells via the JAK signal transducer and activator of transcription signaling pathway (JAK-STAT). Consequently, the inflammatory cells go to the matrix epithelium of the hair follicle undergoing early cortical differentiation (anagen hair follicles), bringing them prematurely into the catagen or telogen phase(2,6).

Currently, associations between alopecia areata and copy number variations (CNV) were found through genome-wide scans(9-11).

### Histopathology

Histopathologic evidence observable at the surface where acute active hair loss occurs shows a unique "bee swarm pattern" characterized by dense lymphocytic infiltrates around the bulbar region of anagen hair follicles. The lymphocytic infiltrate consists of CD8+ T cells within the follicular epithelium and CD4+ T cells around the hair follicles. Biopsies from sites with chronic alopecia involvement show follicular miniaturization(1,2,12).

### Manifestations

Initially, alopecia areata is diagnosed through the identification of waxing and waning focal alopecia anywhere on the body, most commonly on the scalp. It usually manifests as isolated patches of hair loss on the scalp that form within a few weeks. However, the disorder can affect the eyelashes, beard, eyebrows and extremities. Exclamation-sign hairs, characterized by a proximal end narrower than the distal end, may be seen at the periphery of lesions in active disease. A low portion of affected individuals may progress to complete scalp hair loss, which is called alopecia areata totalis. On the other hand, there are patients who go on to present total hair loss over the entire body, which is called alopecia universalis.

There are multiple types of alopecia areata, among which we have:

- Ophiasis: hair loss in the occipital region, being a band-like hair loss along the circumference of the head, particularly along the margin of the temporal and occipital bones.
- Sisyphus pattern (ofiasis inversus): hair loss on the frontal, temporal and parietal scalp, respecting the occipital region, being an extensive alopecia except around the periphery of the scalp.
- Diffuse: rapidly progressive and diffuse hair loss followed by regrowth in a few months.
- Patchy alopecia areata: one, several separate patches or clusters of hair loss.
- Total alopecia: complete or almost complete loss of hair on the scalp.
- Universal alopecia: complete or almost complete loss of hair on all hair-bearing surfaces of the body.
- Alopecia incognita: diffuse complete hair loss with positive tensile test, short, miniaturized hairs that grow back, yellow spots, without nail involvement.
- Marie Antoinette syndrome (sudden graying) is an acute episode of diffuse alopecia with very sudden "overnight" graying with preferential loss of pigmented hair.

About 10% to 15% of affected individuals present nail involvement, with fine pitting of the nails, red spots on the lunulae, onycholysis, trachyonychia, onychorrhexis and onychomadesis. Individuals with alopecia areata are also at high risk for conditions such as retinal vein occlusion, retinopathy and retinal detachment(1,2,5,6,13).



Figure 1. Alopecia Areata



Source: Lepe K, Syed HA, Zito PM. Alopecia Areata. In: StatPearls [Internet](2).

### Diagnosis

It is primarily clinical and depends on the medical history and physical examination of the affected individual. Clinical suspicion should increase when a disorder presents with a rapid development of individual patches of alopecia on the skin, usually accompanied by little or no erythema. Dermoscopy is often a useful tool in complementary diagnosis(14,15).

Early regrowth is indicated by yellow spots, black spots, hairs with exclamation marks, broken hairs and short vellus hairs, which are key features at the time of diagnosis. A skin biopsy from the periphery of a patch of active hair loss becomes beneficial when the diagnosis is still uncertain. Although alopecia areata is related to several autoimmune diseases, the evidence does not currently support routine screening unless the individual's clinical presentation suggests the possibility of alopecia areata(6,16).

### Treatment and Prognosis

In one year, about half of the individuals experienced spontaneous hair regrowth without treatment. For those who opt for treatment, intralesional and topical corticosteroids are generally used as first-line therapy for most cases of patchy alopecia areata. There are studies in which triamcinolone acetonide at concentrations of 5 to 10 mg/ml, administered every 4 to 6 weeks on the scalp, promotes localized growth 60% to 67% of the time. Triamcinolone concentrations of 2.5 to 5 mg/ml are commonly used for the beard and eyebrows. New hair growth is usually seen within 6 to 8 weeks. A clinical study compared multiple concentrations of intralesional triamcinolone acetonide (2.5

mg/ml, 5 mg/ml and 10 mg/ml) for the management of alopecia areata of the scalp showing similar hair regrowth rates regardless of the concentration applied. However, it is important to highlight that the risk of cutaneous atrophy was significantly higher using higher concentrations of triamcinolone (10 mg/ml). The use of intralesional betamethasone needs more studies to analyze its efficacy. Some of the adverse effects that corticosteroids may present are localized skin atrophy, pain and depigmentation. Using intralesional corticosteroids on the face can result in noticeable hypopigmentation in individuals with darkly pigmented skin. Although localized skin atrophy usually resolves within a few months, relapses are common after discontinuation of treatment(2,17-20).

Betamethasone dipropionate 0.05% is a potent topical glucocorticoid used in the treatment of alopecia areata. Topical corticosteroids are usually reserved for children and individuals who cannot tolerate multiple injections. Afflicted individuals should be placed on betamethasone daily for 3 months, if there is no improvement in the condition it is recommended to discontinue the medication. On the other hand, when there is notable progress, it is suggested to affected individuals to maintain the betamethasone while they proportionally decrease the dose(2,6).

Several therapies have been used for the management of children and adolescents with alopecia areata, however the efficacy is variable. Topical corticosteroids present more evidence with the treatment of the condition in children, followed by contact



immunotherapy. At the moment more scientific evidence is required to better guide the management of pediatric AA(21).

Individuals with extensive, classically defined disease, i.e. those with more than 50% scalp hair loss, may consider using topical immunotherapy or oral baricitinib to avoid numerous injections associated with intralesional corticosteroids. Retrospective studies show superior efficacy of topical immunotherapy versus intralesional corticosteroids in patients with patchy hair loss greater than 50 cm<sup>2</sup>.

A potent contact allergen, such as diphenylcyclopropenone (DPCP) or squaric acid dibutyl ester (SADBE), can be placed on the scalp weekly to encourage hair growth. Hair growth can then be seen around 3 months after the start of treatment, however it is important to note that severe dermatitis can occur as an adverse effect. A current meta-analysis examining contact immunotherapy for alopecia areata showed that 74.6% of those with patchy alopecia showed hair regrowth, compared to 54.4% of individuals with alopecia totalis and alopecia universalis. The recurrence rates were 38.2% in individuals who had maintenance treatment, on the other hand, 49% in those who did not have maintenance treatment(2,19,22).

A selective and reversible inhibitor of JAK1 and JAK2, called oral Baricitinib, treats alopecia areata by eliminating T-lymphocyte activation. Individuals generally need continuous therapy to continue to have the benefits achieved. There is a warning for JAK inhibitors because of the risk of serious infections, mortality, major adverse cardiovascular events and thrombosis. Adjunctive therapies that have shown some efficacy include platelet-rich plasma, anthralin, topical or oral minoxidil, excimer laser and PUVA. Systemic glucocorticoids can generate hair growth, but are not frequently used because of adverse effects; however, individuals with rapid and extensive hair loss may improve with oral glucocorticoids. Some systemic therapies, such as azathioprine, methotrexate, etanercept and cyclosporine, have shown multiple clinical responses. Some of the treatments currently under investigation are hydroxychloroquine, recombinant IL-2 and simvastatin with ezetimibe(6,23-29).

At the moment, topical therapy for eyelashes is not effective, improvement can be achieved with systemic therapy and the use of false eyelashes is common. Other cosmetic alternatives are tattooed eyebrows, hairpieces, wigs and head shaving. The condition also causes other problems such as anguish, anxiety and depression, which sometimes requires a psychologist or psychiatrist. A family history of alopecia areata, atopy, nail dystrophy, or concomitant autoimmune disease may be indicative of a poor prognosis(1,2,6,30).

### Complications

Among the probable complications of alopecia areata are the following symptoms:

- Unpredictable pattern, texture, and rate of hair growth.
- Recurrence.

- Permanent hair loss.
- Nail abnormalities.
- Increased risk of developing thyroid disease, lupus erythematosus, atopic dermatitis, vitiligo and psoriasis.
- Depression and anxiety.
- Sunburn and skin damage.
- Skin atrophy, hypopigmentation, dermatitis, infections, malignant neoplasms, thrombosis due to adverse reaction to medication.

In patients with alopecia areata there is evidence of a 3 times higher risk of triggering retinal diseases(2,31,32).

### CONCLUSIONS

Alopecia areata is an autoimmune condition that causes sudden and uneven hair loss, affecting any area of the body. Recently, alopecia areata has been interpreted as an autoimmune disease with a genetic substrate. The hair follicles do not suffer permanent damage, which is positive because of the possibility of regrowth. It is of vital importance to know the etiology, epidemiology, pathophysiology, histopathology, manifestations, diagnosis and treatment of the condition. At the moment there is no cure for alopecia areata, however the use of some medications has contributed to the improvement of the symptomatology, there are multiple treatment options available. More studies are required to treat this condition more adequately.

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# BALANCED SCORECARD: A CONCEPTUAL STUDY

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## ABSTRACT

*A well-defined plan in the name of 'Strategy' rules the competitive advantage of organizations. Strategies formed by the qualified top-level personnel will decide the future of any organization. In modern competitive world plenty of new strategies will come to force and some of them disappear very soon and some other gets modified as soon as the decision-making environment changes. Balanced Scorecard (BSC) is one of such strategy used by the organizations to tackle the various problems. Even though Balanced Scorecard introduced in 1991, it is still young in its approach. Various amendments are taking place to fit to the versatile needs of the organizations. Still, it is not possible to say that the Balanced Scorecard is a concrete model ready to use. We need to modify further and make them perfect suit to the organizational problem. With this background, this paper will analyse the Balanced Scorecard perspective, versatility of Balanced Scorecard and its challenges to overcome. Balanced Scorecard is a tool to kill several birds at a time, and hence it is an effort to develop a working model.*

**KEYWORDS:** Strategy, Organisation, Balanced Scorecard

## 1. INTRODUCTION

Survival of the fittest is the logo of the competitive world. A well-defined plan in the name of 'Strategy' rules the competitive advantage of organizations. Strategies formed by the qualified top-level personnel will decide the future of any organization. In modern competitive world plenty of new strategies will come into force and some of them disappear very soon and some other gets modified as soon as the decision-making environment changes. Balanced Scorecard (BSC) is one of such strategy used by the organizations to tackle the

various problems. Even though Balanced Scorecard introduced in 1991, it is still young in its approach and have the potential to grow. With this background, this paper will analyse the balanced scorecard and its implication in various fields.

## 2. LITERATURE REVIEW

The table 1 shows the literature review on the various dimensions of Balanced Scorecard at various time periods indicates the versatility of its usage.

**Table 1 Literature Review**

Sl.N	Researcher	Findings	Versatility
01	Robert S. Kaplan and David P Norton(1992), (1996), (2010)	Paints the picture of BSC with its four dimensions. Linking organisational Scorecard unit and individual scorecard Implementation process of Balanced Scorecard in the General Electric Company.	Exploratory research on Balanced Scorecard focus on the Strategy Development and implementation
02	Myroslava Hladchenko	BSC as the strategic management tool for the selected universities of Germany(Hladchenko, 2015)	Competitive advantage
03	Juha Kethunen Ismo (2005)	Combined efforts of Management Information System and Information Technology	Management Information System
04	Ahmed Al-Ashaab, Myrna Flores, et al	BSC model to the collaborative research in between US Companies and the Universities.	Collaboration
05	Sameer Pingle and Kaul Natasha	Conceptual study and the comparison of global institution to Indian Institution	Communication and feedback mechanism
06	Abd Rahman Ahmad and Ng Kim Soon (2015)	BSC as a concrete measure to translate the mission and the objective into objective and measures of an organization	Translating tool of Mission and Vision
07	Fahmi Fadhl Al-Hosaini et al (2015)	Inclusion of spirituality in the BSC model	Ethics measuring tool
08	Harold F. O'Neil, Jr., et al	Academic Scorecard' in consistent with the Balanced Scorecard in educational institutions	Individual Performance Evaluation Tool
09	Rajiv D. Banker,et all (2004)	Comprehensive version of BSC as a strategic Business Unit (SBU) performance evaluating tool	Strategic Business Unit tool





10	<b>Christopher D. Ittner, et al (2003)</b>	Linking the BSC to the reward management	Reward Management Tool
11	<b>W.-H. Tsai, W.-C. Chou and W. Hsu (2008)</b>	The Sustainability Balanced Scorecard as a framework for selecting Socially Responsible Investment	Evaluating Investment Decision
12	<b>Frederick M. Hess and Jon Fullerton (2009)</b>	BSC as a management accounting tool (the intention of which is to provide the manger needed information)	Data Collection Tool

Source: Authors Composition

### 3. OBJECTIVES

1. To understand the Balanced Scorecard perspectives
2. To know the versatility of the Balanced Scorecard Applications

### 4. METHODOLOGY

The study is conceptual in nature which analyse the implications of Balanced Scorecard to various functional area.

### 5. BALANCED SCORECARD

Imagine that you are a driver of a car. If then what are yours criteria's to judge its performance?, Is it the price that you had paid?, Is it the mileage it gives?, Is it the comfort?, Is it the durability?

We are sure that your decision will based on all the above and much more factors. In the same way, if you want to evaluate an organization, is it the mere financial statements are enough? Definitely the answer is no. To solve this problem, Balanced Scorecard Technique emerged.

The formal beginning of the work traced back to 1990 when research wing of Nolan Norton Institute sponsored a multi-company study, "Measuring Performance in the Organizations of the Future". David P Norton served as the study leader, Robert S Kaplan as an academic consultant and representatives from dozens of companies met bi-monthly to develop a new performance-measurement model. At the early period it was named as the 'corporate scorecard'. Later group of discussion led to an extension of the word to 'Balanced Scorecard'. Balance between short and long term goals, financial and non-financial result, lagging and leading indicators, external and internal performance communication. Their further work released through the series of articles in Harvard Business Review and a lot of companies had adopted the same gradually.

Since then it has been used for various purpose by various institutions according to their requirement and it is the quality of the Balanced Scorecard is like water to take the form to which shape we had put it.

It is highly difficult to give a concrete and specific definition of the Balanced Scorecard by incorporating all its functions. As people modify it as and when required and find a new implication of it. That's why some authors call it as a 'Management System' rather than a 'Management Strategy'.

Balanced Scorecard provides the companies to invest in long term-customers, in employees, in new product development and in system-rather than managing the bottom line to pump up short-term earnings (Kaplan and Norton 1996).

### 6. PERSPECTIVES OF BALANCED SCORECARD

Balanced Scorecard provides a comprehensive framework where mission statement of an organization translated into objectives and measures of performance. Balanced Scorecard provides four major perspectives to fulfil its said objective. Each perspective indicates the sub-divided objective, measure to gauge the same, target set and the future initiatives. These were discussed in detail in the following way(Kaplan R. S., 1996).

#### a. Financial Perspective

"To Succeed Financially, How should we seems to our shareholders"

The Balanced Scorecard retains the financial measures in its approach. Financial measures were substitutable but they were not complemented. Every work of organization will end with their contribution to the bottom line. Balanced Scorecard includes the financial measures like Cash Flow, Financial Result, Return on Capital Employed, Return on Investment, Economic Value Added, etc. Satisfaction of the shareholders is the main objective here.

#### b. Customer Perspective

"To do our Vision, How Should we seems to our Customer?"

The core outcome measure used was customers' satisfaction. Customers' satisfaction is measured through customer retention, new customer acquisition, customer profitability, market and account share in targeted market.

#### c. Internal Business Perspective

"To satisfy our Shareholders and Customers, what business process must we excel at?"

It comprises of two major approaches i.e. innovating product design development and operationalize (manufacturing, marketing and post-sale services) the innovation. Ultimate aim is to satisfy the stakeholders.

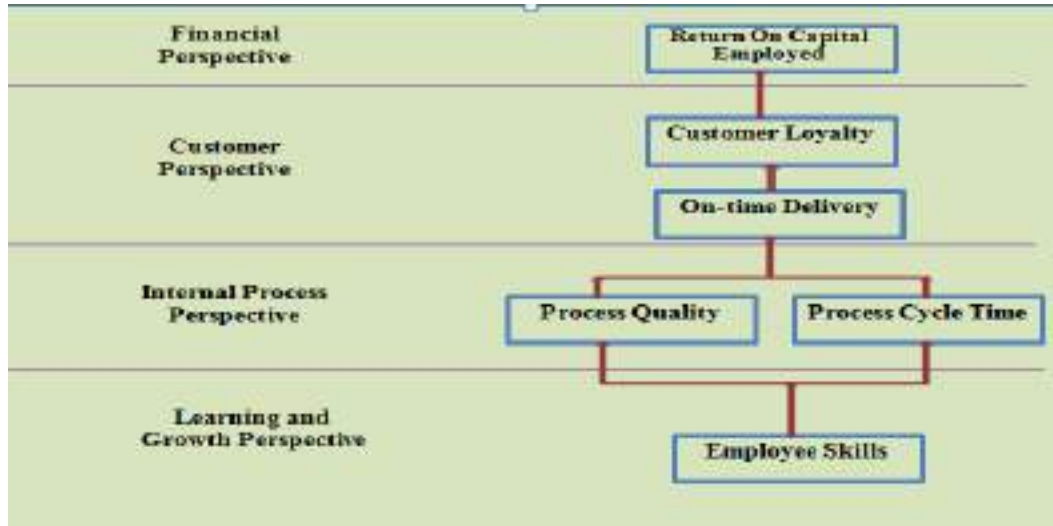
#### d. Learning and Growth Perspective

"To achieve our vision, how will we sustain our ability to change and improve?"

It bridge the gap between the present capabilities and the future challenges. It tries to improve the performance to meet the future competitive needs in terms of people system and organisational rules. This focus on invests in re-skilling employees, enhancing technology and system, aligning organizational procedures and routines.

Linking the multiple approaches to single measure can be noticeable in the chart 1. The long-term plan will ultimately ends with the financial improvement and the shareholders satisfaction and the vision statement accomplishment.

Chart 1: BSC Model



Source: (Kaplan R. S, 1996)

## 7. VERSATILITY OF BALANCED SCORECARD APPLICATIONS

Once the Balanced Scorecard implemented in the organization, then the application of which can reap from multiple angles in the organizations. The versatility of Balanced Scorecard applications were listed below

- Balanced Scorecard used as a performance evaluation technique where it measure the performance of the individual, department and the organization as a whole. (O'Neil, Bensimon, Diamond, & Moore, 1999)
- Balanced Scorecard can act as a communicating tool where it transform the vision and the mission statement of the organization to the end workers as individual's objective. The feedback can also be share by the stakeholders through Balanced Scorecard as it is a pallet of information about the organization. It can also be used as the performance evaluation reporting tool by the different departments. (Pingle & Natashaa, 2011)
- Balanced Scorecard is a learning tool to learn about the organizations strategies, past performance and the future initiatives.
- Some organizations had used the Balanced Scorecard as a reward management tool. They links the employee's performance to the achievements against the standards of the respective objectives. (Ittner, Laracker, 2003)
- As it is palette of information about the organization, manager can take more informed decisions. (Hess & Fullerton, 2009)
- Budget management can be made with easier efforts as it shows the projects contribution to the organizational growth.
- Balanced Scorecard can also be used to get the competitive advantage. Balanced Scorecard is a tool of

Blue Ocean Strategy. It focus on the satisfaction of the customers by creating the things with the foresight of long term. (Hladchenko, 2015)

## 8. CHALLENGES OF BALANCED SCORECARD

Balanced Scorecard yet faces certain challenges to overcome. These challenges were presented here

- Balanced Scorecard is subjective in nature as originally developed. It will not measure each aspects in quantitative form lacks measurability of success and comparability with other institutions.
- Provides equal importance to each measures and objectives.
- Balanced Scorecard needs well defined-strategies to implement. The success of the Balanced Scorecard depends on the strength of the mission statement.
- It takes time and money to implement. It is not just a strategy it is a management system hence needs time and money for implementation.
- It does not suggest on its own. It inly indicates where we are lagging.
- Lower level of awareness among the managers about the utility and the usage of Balanced Scorecard may result in the wrong usage.
- The Balanced Scorecard designed for one organization cannot be generalizable to other organizations as the mission statement of each organization differs.

## 9. SUGGESTIONS

The challenges can be overcome through the following measures



- a. To avoid subjectivity use percentage of achievement against every objective, based on the standard performance set earlier.
- b. Weights can be used to decide the importance of each measure and objective based on their contribution to achieve mission statement.
- c. Identification of the question is half solved.
- d. Develop Balanced Scorecard with at most care and caution involving all the stakeholders after analyzing and understanding the major strategies.

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## 10. CONCLUSION

Balanced Scorecard is a single tool with multiple advantages. Its challenges are mild and which can be overcome with an easier work. Still the success of the Balanced Scorecard depends on the care and caution taken at the time of implementation to make unique and the perfect suit to the organization.

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# UNDERGRADUATE ACCOUNTING STUDENTS' PERCEPTION ON PROFESSIONAL ACCOUNTING CAREER: A BASIS FOR INTERVENTION PLAN

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## ABSTRACT

*The paper looks into the factors that impact undergraduate accounting students' decision to pursue a professional accounting career and how that decision is influenced by their study habits, attitudes toward professional exams like the Certified Public Accountant (CPA) exam, and future plans to become accounting professionals. Questionnaires are a key component of the study's data collection strategy because it employs a survey methodology. Descriptive statistics and Pearson correlation coefficient analysis techniques were applied to a total of 107 undergraduate accounting students from Laguna State Polytechnic University - Santa Cruz Campus in order to analyze the study objectives. Findings demonstrated that holding a professional license and passing the professional examination in one sitting motivate students to seek careers in professional accounting. The student's perspective on a career in professional accounting was similarly collaborative and communication-based, and it demonstrated how important it is to develop qualities like responsibility and accountability in order to succeed as a professional accountant. Results also demonstrated a strong positive link between social factors and students' intentions to take the professional examination and pursue careers in accounting. In order to encourage, assist, and motivate accounting students to strive for professionalism, this research suggests that educational institutions, accounting professional bodies, and career counselors all play important roles.*

**KEYWORDS:** *accounting, professional accounting career, professional examination, social factors*

## 1. INTRODUCTION

Any country's gross domestic product and employment both rely heavily on professional services. Accounting is one of the most significant and influential professions in today's calculative economy and society. The profession of accounting is essentially inevitable in the modern economy and society at large. It affects how businesses are run and choices are made in both the public and private sectors. In large firms, accountants carry out crucial tasks, and their choices have important and far-reaching financial and social repercussions. Due to the important role that accounting plays in the Philippine economy, the number of accounting students enrolled in Philippine tertiary institutions is steadily rising.

The issues of shortage of professional accountants had been arising all over the world. Churchman's (2013) noted that finding and keeping accountants was a challenge for all firms. According to previous research by Yusoff et al. (2011), students will only have a stronger desire to become public accountants if they are given more professional accounting knowledge or information. Furthermore, according to Churchman's (2013) research, accounting practitioners and academics should give students who are deciding between accounting and other courses options, clear communication, and an accurate impression of the accounting profession. By doing this, the issue of challenges in hiring and retaining accountants may be lessened. In addition, Uyar, Güngörmüş, and Kuzey (2011) discovered that teachers can support students who struggle in the accounting sectors, encourage them by using real-life examples, and motivate them by sharing success stories to urge

them to continue on the path to accounting professions. So, the purpose of this study is to find out what influences students' decision to become professional accountants.

We can learn more about the students' motivations for choosing this career path through this study, as well as how their actual experiences affected their perceptions. Since it collects information on the students' perceptions of the course they are taking, this study specifically aims to improve the accounting education of the Bachelor of Science in Accountancy Program of Laguna State Polytechnic University – Santa Cruz Campus by proposing intervention plan.

## 2. OBJECTIVES OF THE STUDY

The main objective of the study is to determine if the factors that affects student's decision to pursue accountancy profession have a significant relationship on the attitude of the students in pursuing the professional accounting career.

### Specific Objectives

1. To determine the level of perception that affects student's decision to pursue a professional accounting career in terms of:
  - 1.1. Prestige Factors
  - 1.2. Reference Factors
  - 1.3. Extrinsic Factors
  - 1.4. Intrinsic Factors
  - 1.5. Social Factors
  - 1.6. Grit Personality





2. To determine the attitude of the students towards:
  - 2.2. Study habits
  - 2.3. Professional examination
  - 3.3. Pursue a professional accounting career
3. To determine if the factors that affects student's decision to pursue accountancy profession have a significant relationship on the attitude of the students in pursuing the professional accounting career.
4. To propose an intervention plan for the Bachelor of Science in Accountancy Program of Laguna State Polytechnic University – Santa Cruz Campus relevant to the findings.

### 3. RELATED LITERATURE

#### 3.1 Empirical Studies on Perception of Accounting Students towards Accounting Profession

Accounting students' intentions to pursue a professional career are largely influenced by their perceptions about the accounting profession. Due to the demands of the industry, previous studies found that some students viewed accountants as reliable and respected persons (Germanou, Hassall, & Tourmas, 2009). According to Hartwell et al. (2005), students do believe that an accounting degree would be helpful for those looking for a challenging career. Sugahara & Boland (2006) discovered that Japanese accounting students are more likely to be enthusiastic about their chosen profession than students of other business disciplines. Also, Sugahara & Boland (2006) stated that important individuals who have a substantial influence on accounting students' job decisions are practicing accountants.

In contrast, Coate et al., 2003 examined at how students perceived the accounting profession and found that the nature of the work, the workplace, and a lack of creativity significantly influenced students' decisions not to pursue professional certification. Wessels & Steenkamp (2009) went on to say that some accountants inhibit students from pursuing their professional qualifications by being dishonest, untruthful, cunning in their financial reporting, and frequently omitting crucial information from financial reports.

Additionally, earlier studies supported the notion that consumers view accountants as highly organized people who follow carefully to regulatory requirements (Parker, 2000; Hunt et al., 2004). Chen, et al., (2008) additionally discovered that students believed that accounting work was careful and correct, which stifled curiosity and limited innovation. Byrne and Willis (2005) supported the claim that students view careers in accounting as being explicit, dull, and compliance-driven. This can be a result of hesitation or a lack of understanding of the functions that accountants play (Abrecht & Sack, 2000).

Despite the fact that professional accounting organisations are working hard to dispel the false perception that students have about accounting, they have had little to no success (Jackling & Calero, 2006). Byrne & Willis (2005) asserted that students' desire to pursue professional qualifications may be hindered by the unfavorable perceptions of accountants held by the general public.

#### 3.1.1 Factors that Affects Student's Decision to Pursue Accountancy Profession

Students' intrinsic and extrinsic motivations both play important roles in determining whether they pursue a professional accounting career. Byrne & Flood (2005) and Arquero et al., (2009) believed that students' pursuit of professional degrees was impacted by external factors including decent salaries, job security, and employment prospects. According to the study, intrinsic characteristics including job specialization, job flexibility, and job accomplishment encourage students to choose a career in professional accounting.

Additionally, Jackling et al.'s (2012) study of Australian and overseas students revealed that prestige factor is a strong motivating element for both groups to seek careers in accounting. This study supports Germanou and Hasall's (2009) conclusions that the prestige factor continues to drive accounting students' pursuit of professionalism.

Furthermore, grit which is defined as strong resolve and passion for long-term goals, is a significant component that affects students' perceptions of professional careers. Bacanlı (2006) emphasized that personality traits have a strong impact on career indiscipline. Gunkel, Schlaegel, Langella and Peluchette (2010) also believed that a student's profession choice is directly influenced by their personality. Duckworth and Peterson (2007) supported the claim that having a "grit personality" is one of the key characteristics that shapes how students view professional credentials.

A student's decision to pursue an accounting career is significantly influenced by social factors, which demonstrate how society views the accounting profession. Byrne et al., (2012), and Wells and Fieger, (2005) discovered that a student's decision to pursue a profession in accounting is significantly impacted by their social position. The public perception of accounting was that it was a less important profession with relatively lax entry requirements. They believe that the accounting profession offers a less exciting and demanding career. They said that pupils with strong communication skills would probably fit in well with other, better careers besides accounting.

Furthermore, it is impossible to overstate the importance of reference criteria in students' pursuit of careers in accounting. Pimpa (2007) affirmed that factors influencing a student's career decision include their peers, parents, and the jobs that their parents hold. Hardin et al. (2000) noted that some teachers and instructors, however, lack enough knowledge in accounting and hence find it challenging to mentor the students.

#### 3.2 Theoretical Framework

##### 3.2.1 The Theory of Reasoned Action

The conceptual foundation for this study was developed using an adaptation of the Theory of Reasoned Action developed by Ajzen and Fishbein in the early 1980s. According to this, a person's behavior is a result of both his or her attitude toward that action and how much pressure they feel from others to engage in that behavior. Social pressure is the notion that



particular people or groups will accept or reject the activity, whereas attitude is the supposition that behavior will elicit specific reactions. This theory evaluates how accountancy

students at Laguna State Polytechnic University - Santa Cruz Campus perceive a career in professional accounting.

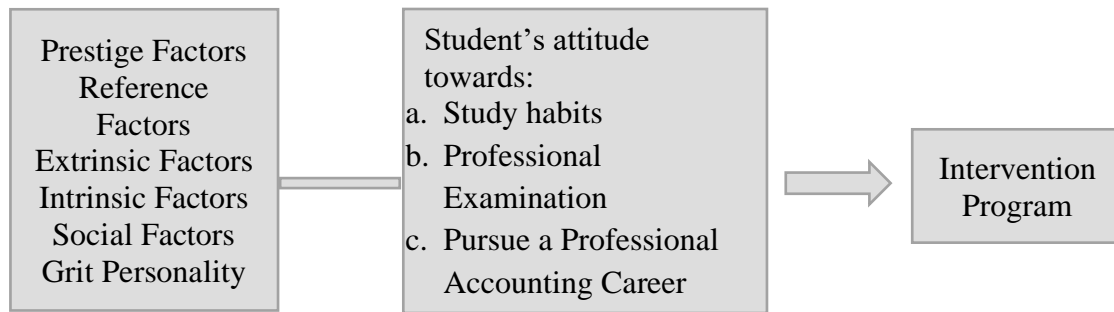


Figure1. Conceptual framework showing factors influencing student's attitude towards of professional accounting career

### 3.2.2 Hypothesis Development

Based on the framework of thought and previous studies, the research null hypothesis was formulated:

H0: There is no significant relationship between the factors that affects student's decision to pursue accountancy profession and the attitude of the students in pursuing the professional accounting career.

## 4. MATERIALS AND METHOD

### 4.1 Research Design

A descriptive research method for quantitative study design was used for this research. The factors that affects student's decision to pursue a professional accounting career and the attitude of the students were examined by the researcher using a survey methodology. An online survey was used in reaching the respondents for faster collection of data and to be more cost effective.

### 4.2 Participants

The participants of the study consist of first year and second year students who are enrolled in Bachelor of Science in Accountancy in Laguna State Polytechnic University – Santa Cruz Campus. Accordingly, a population of 124 undergraduate students pursuing accounting however 107 questionnaires were completed and used for the research.

### 4.3 Instrument

The parameters used to determine the level of perception that affects student's decision to pursue a professional accounting career in terms of prestige factors, reference factors, extrinsic factors, intrinsic factors, social factors and grit personality and its corresponding 30 questions were adapted from research conducted by Ben-Caleb, et.al (2020). The researcher then used these factors to determine if there is relationship on the attitude of the students in pursuing the professional accounting career towards study habits, professional examination and to pursue a

professional accounting career wherein 15 questions were created. In total, 45 questions were included in the survey which were answered using 7 points Linkert's scale questionnaire raring from strongly disagree to strongly agree and coded 1 to 7 respectively based on prior study and adjusted to meet the study.

### 4.3 Data Analyses

The gathered data was then turned into quantifiable figures to aid in analyzing the research objective. Data are analyzed mainly using descriptive statistics and pearson correlation coefficient analysis. Means and standard deviation analysis are used mainly in analyzing the factors that affects student's decision and their attitude in pursuing the professional accounting career. A pearson correlation coefficient analysis was used to determine the relationship of these factors.

## 5. RESULTS AND DISCUSSION

### 5.1 Factors that affects student's decision to pursue a professional accounting career

To analyze the variables affecting students' decision to pursue an accounting career, the mean and standard deviation of the 30 questions from the research survey were determined by analysis.

Table 1 shows the level of perception that affects student's decision to pursue a professional accounting career in terms of Prestige Factors. The statement "Being a professional accountant is extremely influential, boosts one's confidence, and is highly prestigious" obtained the highest mean score of 6.36 (SD = 1.00). Lastly, statement "Accounting is comparable to careers in medicine and law" obtained the lowest mean score of 5.79 (SD = 1.19). The overall mean score of 6.08 (SD = 1.17) indicate that the level of perception that affects student's decision to pursue a professional accounting career in terms of Prestige Factors were verbally interpreted as Agree.



**Table 1. Level of perception that affects student’s decision to pursue a professional accounting career in terms of Prestige Factors**

Statement	Mean	Standard Deviation	Verbal Interpretation
Prestige Factor 1	5.93	1.33	Agree
Prestige Factor 2	6.07	1.26	Agree
Prestige Factor 3	6.36	1.00	Strongly Agree
Prestige Factor 4	5.79	1.19	Agree
Prestige Factor 5	6.23	0.91	Strongly Agree
Overall total	6.08		Agree

Table 2 shows the level of perception that affects student’s decision to pursue a professional accounting career in terms of Reference Factors. The statement “My decision to seek professional career is impacted by my academic results” obtained the highest mean score of 5.64 (SD = 1.12). Lastly, statement "My decision to become a professional accountant

was influenced by successful accountants I have met or heard about" obtained the lowest mean score of 4.80 (SD = 1.79). The overall mean score of 5.11 (SD = 1.66) indicate that the level of perception that affects student’s decision to pursue a professional accounting career in terms of Reference Factors were verbally interpreted as Somewhat Agree.

**Table 2. Level of perception that affects student’s decision to pursue a professional accounting career in terms of Reference Factors**

Statement	Mean	Standard Deviation	Verbal Interpretation
Reference Factors 1	5.00	1.83	Somewhat Agree
Reference Factors 2	5.64	1.12	Agree
Reference Factors 3	4.82	1.72	Somewhat Agree
Reference Factors 4	4.80	1.79	Somewhat Agree
Reference Factors 5	5.27	1.56	Somewhat Agree
Overall total	5.11		Somewhat Agree

Table 3 shows the level of perception that affects student’s decision to pursue a professional accounting career in terms of Extrinsic Factors. The statement “Professional certification offers higher salary and other financial benefits” obtained the highest mean score of 6.17 (SD = 0.90). Lastly, statement "Professional accountants always have excellent working

conditions" obtained the lowest mean score of 5.52 (SD = 1.15). The overall mean score of 5.91 (SD = 1.05) indicate that the level of perception that affects student’s decision to pursue a professional accounting career in terms of Extrinsic Factors were verbally interpreted as Agree.

**Table 3. Level of perception that affects student’s decision to pursue a professional accounting career in terms of Extrinsic Factors**

Statement	Mean	Standard Deviation	Verbal Interpretation
Extrinsic Factors 1	6.17	0.90	Strongly Agree
Extrinsic Factors 2	5.96	1.04	Agree
Extrinsic Factors 3	5.52	1.15	Agree
Extrinsic Factors 4	6.05	0.92	Agree
Extrinsic Factors 5	5.85	1.07	Agree
Overall total	5.91		Agree

Table 4 shows the level of perception that affects student’s decision to pursue a professional accounting career in terms of Intrinsic Factors. The statement “Accounting profession gives a sense of accomplishment” obtained the highest mean score of 6.24 (SD = 0.91). Lastly, statement "Accounting industry is

fascinating and enjoyable to work in" obtained the lowest mean score of 5.44 (SD = 1.07). The overall mean score of 5.93 (SD = 1.02) indicate that the level of perception that affects student’s decision to pursue a professional accounting career in terms of Intrinsic Factors were verbally interpreted as Agree.

**Table 4. Level of perception that affects student’s decision to pursue a professional accounting career in terms of Intrinsic Factors**

Statement	Mean	Standard Deviation	Verbal Interpretation
Intrinsic Factors 1	6.09	0.85	Agree
Intrinsic Factors 2	5.44	1.07	Agree
Intrinsic Factors 3	6.07	0.93	Agree
Intrinsic Factors 4	5.81	1.09	Agree
Intrinsic Factors 5	6.24	0.91	Strongly Agree
Overall total	5.93		Agree



Table 5 shows the level of perception that affects student’s decision to pursue a professional accounting career in terms of Social Factors. The statement “Because of professionalism, I can make a significant contribution to society” obtained the highest mean score of 6.29 (SD = 0.85). Lastly, statement "Professional accountants engage in extensive social

interaction" obtained the lowest mean score of 5.88 (SD = 0.99). The overall mean score of 6.12 (SD = 0.97) indicate that the level of perception that affects student’s decision to pursue a professional accounting career in terms of Social Factors were verbally interpreted as Agree.

Statement	Mean	Standard Deviation	Verbal Interpretation
Social Factors 1	6.29	0.84	Strongly Agree
Social Factors 2	6.12	0.93	Agree
Social Factors 3	6.27	0.95	Strongly Agree
Social Factors 4	6.04	0.95	Agree
Social Factors 5	5.88	0.99	Agree
Overall total	6.12		Agree

Table 6 shows the level of perception that affects student’s decision to pursue a professional accounting career in terms of Grit Personality. The statement “I hope to pass all the professional exam papers in one go” obtained the highest mean score of 6.55 (SD = 0.89). Lastly, statement "Professional accountants engage in extensive social interaction" obtained the

lowest mean score of 5.43 (SD = 1.19). The overall mean score of 5.93 (SD = 1.10) indicate that the level of perception that affects student’s decision to pursue a professional accounting career in terms of Grit Factors were verbally interpreted as Agree.

Statement	Mean	Standard Deviation	Verbal Interpretation
Grit Personality 1	5.90	1.01	Agree
Grit Personality 2	5.90	0.95	Agree
Grit Personality 3	5.86	1.12	Agree
Grit Personality 4	5.43	1.19	Agree
Grit Personality 5	6.55	0.89	Strongly Agree
Overall total	5.93		Agree

The overall analysis from Table 1 to 6 on grit personality shows that students have the highest agreement on Item 5 (mean of 6.55) “I hope to pass all the professional exam papers in one go”. This indicates that students may choose accounting as a profession if they will be able to pass the professional exam in one sitting.

**5.2 Attitude of the students towards study habits, professional examination and to pursue a professional accounting career**

To analyze the factors about the attitude of the students towards study habit, professional examination and to pursue an accounting career, the mean and standard deviation of the 15 questions from the survey questionnaire were determined by analysis.

Moreover, analysis for prestige factors showed that students have the highest agreement on item 3 (mean of 6.36) “being a professional accountant is extremely influential, boosts one's confidence, and is highly prestigious” and item 5 (mean of 6.23) “Professional accountants have better chances to advance in their careers”. This shows that students have an optimistic view regarding a career in accounting and that being a professional accountant will have a greater probability of career advancement.

Table 7 shows the attitude level of the students towards study habits. The statement “I maintain positive attitude towards studying and being open to try new study techniques that can help me improve my study habits and enhance my learning outcomes” obtained the highest mean score of 6.14 (SD = 1.03). Lastly, statement "To maintain focus and productivity during study sessions, I essentially avoid distractions such as social media or procrastination" obtained the lowest mean score of 5.38 (SD = 1.39). The overall mean score of 5.68 (SD = 1.21) indicate that the attitude level of the students towards study habits were verbally interpreted as Agree.

On the other hand, the lowest mean score is item 4 on reference factors (mean of 4.80) “my decision to become a professional accountant was influenced by successful accountants I have met or heard about”. This report showed that pursuit of accounting career is not usually influenced by other professional accountants.



Statement	Mean	Standard Deviation	Verbal Interpretation
Attitude towards study habit 1	5.53	1.19	Agree
Attitude towards study habit 2	5.67	1.13	Agree
Attitude towards study habit 3	5.67	1.17	Agree
Attitude towards study habit 4	5.38	1.39	Agree
Attitude towards study habit 5	6.14	1.03	Strongly Agree
Overall Total		5.68	Agree

Table 8 shows the attitude level of the students towards professional examination. The statements "A serious and dedicated attitude towards professional examination can demonstrate my commitment and work ethic to potential employers" and "Cultivating a growth mindset and embracing the learning process can lead to a more positive and productive attitude towards professional examination" obtained the same highest mean score of 6.52 (SD = 0.81). Lastly, statement "A

confident and optimistic attitude towards professional examination can help me approach the test with a clear mind and focus on the task at hand" obtained the lowest mean score of 6.44 (SD = 0.93). The overall mean score of 6.49 (SD = 0.88) indicate that the attitude level of the students towards professional examination were verbally interpreted as Strongly Agree.

Statement	Mean	Standard Deviation	Verbal Interpretation
Attitude towards Professional Examination 1	6.51	0.87	Strongly Agree
Attitude towards Professional Examination 2	6.52	0.81	Strongly Agree
Attitude towards Professional Examination 3	6.45	0.95	Strongly Agree
Attitude towards Professional Examination 4	6.44	0.93	Strongly Agree
Attitude towards Professional Examination 5	6.52	0.81	Strongly Agree
Overall total		6.49	Strongly Agree

Table 9 shows the attitude level of the students to pursue a professional accounting career. The statement "A positive attitude towards working collaboratively with others and communicating effectively with clients and colleagues can help individuals excel in their accounting careers" obtained the highest mean score of 6.73 (SD = 0.70). Lastly, statement "A proactive approach to problem-solving and willingness to adapt

to changes in the industry are important attitudes to have when pursuing a career in accounting" obtained the lowest mean score of 6.59 (SD = 0.78). The overall mean score of 6.67 (SD = 0.75) indicate that the attitude level of the students to pursue a professional accounting career were verbally interpreted as Strongly Agree.

Statement	Mean	Standard Deviation	Verbal Interpretation
Attitude to pursue a professional accounting career 1	6.67	0.78	Strongly Agree
Attitude to pursue a professional accounting career 2	6.64	0.75	Strongly Agree
Attitude to pursue a professional accounting career 3	6.59	0.78	Strongly Agree
Attitude to pursue a professional accounting career 4	6.71	0.72	Strongly Agree
Attitude to pursue a professional accounting career 5	6.73	0.70	Strongly Agree
Overall Total		6.67	Strongly Agree

In total, the analysis from table 7 to 9 showed that on the attitude of the students to pursue a professional accounting career have the highest agreement on item 5 (mean of 6.73) "A positive attitude towards working collaboratively with others and communicating effectively with clients and colleagues can help individuals excel in their accounting careers" and followed by item 4 (mean of 6.71) "Developing a sense of accountability and responsibility for one's work is essential for success as an accountant, as is maintaining a high level of ethical conduct". This indicates that students viewed professional accounting career as collaborative work with effective communication. It also demonstrated the necessity of developing qualities like

accountability and responsibility in order to become a successful professional accountant.

**5.3 Relationship between factors that affects student's decision to pursue a professional accounting career on the attitude of the students towards study habits, professional examination and to pursue a professional accounting career**  
 Pearson correlation coefficient analysis was employed to analyze the relationship between factors that affects student's decision to pursue a professional accounting career and their attitude towards study habits, professional examination and to pursue a professional accounting career as displayed in tables 10 to 15. The model took into account six aspects as



determinants that affects student’s decision to pursue a professional accounting career: grit personality, extrinsic, intrinsic, reference, prestige, and social influences. With three variables as to the attitude of the students towards study habits, professional examination and to pursue a professional accounting career.

Table 10 shows the Pearson correlation coefficient that was computed to assess the linear relationship between prestige

factors and attitude of students. There were a negligible correlation between prestige factors and study habits  $r(106) = 0.19$ ,  $p = 0.05$  likewise with professional examination with moderate positive correlation  $r(106) = 0.62$ ,  $p < .001$  and pursue a professional accounting career with moderate positive result  $r(106) = 0.61$ ,  $p < .001$ . This denoted that there is a significant linear relationship between the variables. Therefore, the null hypothesis is rejected and all findings are significant.

<b>Table 10. Relationship between factors that affects student’s decision to pursue a professional accounting career in terms of prestige factors and attitude of the students towards study habit, professional examination and pursue a professional accounting career</b>					
Perception on student's decision	Attitude of the students	Computed R	Strength of Correlation	p value	Analysis
Prestige Factors	Study habit	0.19*	Negligible	0.05	Significant
	Professional examination	0.62*	Moderate positive correlation	< .001	Significant
	Pursue a professional accounting career	0.61*	Moderate positive correlation	< .001	Significant

\*Significant at 0.05

Table 11 shows the Pearson correlation coefficient that was computed to assess the linear relationship between reference factors and attitude of students. There were a negligible correlation between reference factors and study habits  $r(106) = 0.27$ ,  $p < .001$  likewise with professional examination with

low positive correlation  $r(106) = 0.44$ ,  $p < .001$  and pursue a professional accounting career with low positive result  $r(106) = 0.40$ ,  $p < .001$ . This denoted that there is a significant linear relationship between the variables. Therefore, the null hypothesis is rejected and all findings are significant.

<b>Table 11. Relationship between factors that affects student’s decision to pursue a professional accounting career in terms of reference factors and attitude of the students towards study habit, professional examination and pursue a professional accounting career</b>					
Perception on student's decision	Attitude of the students	Computed R	Strength of Correlation	p value	Analysis
Reference Factors	Study habit	0.27*	Negligible	< .001	Significant
	Professional examination	0.44*	Low positive correlation	< .001	Significant
	Pursue a professional accounting career	0.40*	Low positive correlation	< .001	Significant

\*Significant at 0.05

Table 12 shows the Pearson correlation coefficient that was computed to assess the linear relationship between extrinsic factors and attitude of students. There were a low positive correlation between extrinsic factors and study habits  $r(106) = 0.32$ ,  $p < .001$  likewise with professional examination with

moderate positive correlation  $r(106) = 0.63$ ,  $p < .001$  and pursue a professional accounting career with moderate positive result  $r(106) = 0.67$ ,  $p < .001$ . This denoted that there is a significant linear relationship between the variables. Therefore, the null hypothesis is rejected and all findings are significant.





**Table 12. Relationship between factors that affects student’s decision to pursue a professional accounting career in terms of extrinsic factors and attitude of the students towards study habit, professional examination and pursue a professional accounting career**

Perception on student's decision	Attitude of the students	Computed R	Strength of Correlation	p value	Analysis
Extrinsic Factors	Study habit	0.32*	Low positive correlation	< .001	Significant
	Professional examination	0.63*	Moderate positive correlation	< .001	Significant
	Pursue a professional accounting career	0.67*	Moderate positive correlation	< .001	Significant

\*Significant at 0.05

Table 13 shows the Pearson correlation coefficient that was computed to assess the linear relationship between intrinsic factors and attitude of students. There were a low positive correlation between intrinsic factors and study habits  $r(106) = 0.38$ ,  $p < .001$  likewise with professional examination with

moderate positive correlation  $r(106) = 0.60$ ,  $p < .001$  and pursue a professional accounting career with moderate positive result  $r(106) = 0.61$ ,  $p < .001$ . This denoted that there is a significant linear relationship between the variables. Therefore, the null hypothesis is rejected and all findings are significant.

**Table 13. Relationship between factors that affects student’s decision to pursue a professional accounting career in terms of intrinsic factors and attitude of the students towards study habit, professional examination and pursue a professional accounting career**

Perception on student's decision	Attitude of the students	Computed R	Strength of Correlation	p value	Analysis
Intrinsic Factors	Study habit	0.38*	Low positive correlation	< .001	Significant
	Professional examination	0.60*	Moderate positive correlation	< .001	Significant
	Pursue a professional accounting career	0.61*	Moderate positive correlation	< .001	Significant

\*Significant at 0.05

Table 14 shows the Pearson correlation coefficient that was computed to assess the linear relationship between social factors and attitude of students. There were a low positive correlation between social factors and study habits  $r(106) = 0.36$ ,  $p < .001$  likewise with professional examination with high positive correlation  $r(106) = 0.71$ ,  $p < .001$  and pursue a

professional accounting career with high positive result  $r(106) = 0.71$ ,  $p < .001$ . This denoted that there is a significant linear relationship between the variables. Therefore, the null hypothesis is rejected and all findings are significant.

**Table 14. Relationship between factors that affects student’s decision to pursue a professional accounting career in terms of social factors and attitude of the students towards study habit, professional examination and pursue a professional accounting career**

Perception on student's decision	Attitude of the students	Computed R	Strength of Correlation	p value	Analysis
Social Factors	Study habit	0.36*	Low positive correlation	< .001	Significant
	Professional examination	0.71*	High positive correlation	< .001	Significant
	Pursue a professional accounting career	0.71*	High positive correlation	< .001	Significant

\*Significant at 0.05



Table 15 shows the Pearson correlation coefficient that was computed to assess the linear relationship between grit personality and attitude of students. There were a moderate positive correlation between grit personality and study habits  $r(106) = 0.65$ ,  $p = < .001$  likewise with professional examination with moderate positive correlation  $r(106) = 0.59$ ,

$p < .001$  and pursue a professional accounting career with moderate positive result  $r(106) = 0.51$ ,  $p < .001$ . This denoted that there is a significant linear relationship between the variables. Therefore, the null hypothesis is rejected and all findings are significant.

<b>Table 15. Relationship between factors that affects student’s decision to pursue a professional accounting career in terms of grit personality and attitude of the students towards study habit, professional examination and pursue a professional accounting career</b>					
<b>Perception on student’s decision</b>	<b>Attitude of the students</b>	<b>Computed R</b>	<b>Strength of Correlation</b>	<b>p value</b>	<b>Analysis</b>
Grit Personality	Study habit	0.65*	Moderate positive correlation	< .001	Significant
	Professional examination	0.59*	Moderate positive correlation	< .001	Significant
	Pursue a professional accounting career	0.51*	Moderate positive correlation	< .001	Significant

\*Significant at 0.05

Overall, social factors have a high positive correlation to student’s attitude towards professional examination and pursue a professional accounting career. This is contrast with the previous study conducted by Ben-Caleb, et.al (2020) which showed a positive but weak correlation exists between social factors and pursuit of professional accounting qualification.

Then prestige factor, extrinsic factors, intrinsic factors and grit personality showed a moderate positive correlation with student’s attitude towards professional examination and pursue a professional accounting career. Also grit personality showed a moderate positive correlation with study habit.

Furthermore, prestige factors and reference factors showed a negligible correlation with student’s attitude towards study habits. Whereas extrinsic factors, intrinsic factors and social factors displayed a low positive correlation with the attitude of the student’s study habit.

## 6. SUMMARY CONCLUSION AND RECOMMENDATION

Findings showed that students highly agreed that they hope to pass the professional exam in one go. The study also found that students had a positive perception of a career in accounting and believe that having a professional accounting license will increase their chances of job growth. Based on these findings, it is recommended for accounting professors and other education stakeholders to guide the students and prepare them on how they will be able to pass the Certified Public Accountant Licensure Examination.

Moreover, findings suggests that students had a collaborative and productive communication-based view of a career in professional accounting. It also showed how essential it is to cultivate traits like responsibility and accountability in order to become a successful professional accountant. This study

suggests that courses in the accountancy program to include activities that will enhance the student’s teamwork, communication skills and to develop responsibility and accountability traits for them to prepare in the accounting profession.

Furthermore, the study showed a high positive correlation between social factors and student’s attitude towards professional examination and pursue a professional accounting career. Additionally, prestige factor, extrinsic factors, intrinsic factors and grit personality showed a moderate positive correlation with student’s attitude towards professional examination and pursue a professional accounting career. However prestige factors and reference factors showed a negligible correlation with student’s attitude towards study habits. This suggests that accounting instructors and other education stakeholders give accounting students the information and encouragement they need to decide whether to take the professional examination and pursue a career in professional accounting.

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# INSTRUCTIONAL FACILITIES AND THE ABILITIES OF NIGERIAN CERTIFICATE IN EDUCATION GRADUATES IN FEDERAL COLLEGE OF EDUCATION, YOLA

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## ABSTRACT

*This study was designed to assess the effects of instructional facilities on the abilities of Nigerian Certificate in Education Graduates in Federal College of Education, Yola. Two objectives were formulated to guide the conduct of the study. The study adopted the survey design. The population of the study comprises of all the graduates of the college from 2017 to 2022, lecturers and laboratory technicians of the departments in the various schools in the Federal College of Education, Yola. Due to the large number of lecturers in the individual departments of the various schools, and the laboratory technicians of the departments in the various schools in the Federal College of Education, Yola, the researchers selected a sample of 383 graduates, 69 lecturers and 23 laboratories technicians. The stratified, purposive and simple random sampling (SRS) techniques were adopted for the selection of the sampled population. The primary data was obtained for the study through the use of questionnaire designed by the researchers. The data collected for the study were analyzed using the simple percentage method of data analysis to analyze the respondent's demographic data and ANOVA statistics to test the null and alternative hypotheses. The finding of the study revealed that instructional facilities have an influence on the academic performance of the NCE graduates. Based on the above conclusions the following were recommended; Communities need to embark on initiatives to tap funds to ensure that the school facilities are replenished and Government should provide facilities like modern laboratories, functional libraries, and comfortable classrooms for better academic performance;*

**KEYWORDS:** *Instruction Facilities, Abilities, Nigerian Certificate on Education and Graduates*

## INTRODUCTION

Teaching facilities such as information and communication technology and laboratory have changed the way that teaching/learning impact on the facilitation of our graduate's performance over the years. Facilities transform instructional process by contributing some components of innovation to teaching/learning situations. Effective teaching facilities are an influential instrument for providing educational opportunities to learning. It is impossible to envisage future learning/teaching situations that are not facilitated with availabilities of teaching materials such as ICT facilities, equipped library, Management Information System (MIS), rich Teaching technology center, qualified facilitators, effective laboratories etc., (UNESCO, 2002). Students who received learning / teaching through use of available rich and functional teaching facilities, retain learning and graduate successfully at the end of the academic programs.

According to Akinyemi, Lawal, and Owosoro (2021) facilities comprises of all the instructional spaces and audio-visual aids, as well as other materials resources utilized in educational institutions for the aim of attaining successful teaching and learning. On his part, Sigilai (2013) observed that books, audio-visual, educational technology software and hardware, chalkboards, and shelves on which instruments for practical are organized are examples of facilities that are offered to aid

students' learning outcomes. Other include information and communication rooms, laboratories, multi-purpose halls, medical sick-boys and functional kitchen, are other facilities that are needed in Colleges to ensure quality and effective teaching for positive achievement of the graduates.

Based on the foregone analysis, instructional materials or teaching/learning facilities, can be described as well items and equipment used by a teacher during lesson presentation to enhance teaching by simplifying difficult concepts and ideas through the use of pictures, charts, diagrams, real objects, projected materials and non-projected materials. Materials o facilities should consist of use of pleasurable objects and method to enhance the performance of prospective program graduates. The teacher should try to appeal to the graduate's senses of seeing, hearing, smelling, testing and feeling and to appeal to the senses above, the teacher needs to adequately use instructional facilities for impacting knowledge to the graduates in training.

The most common reason always advanced for low use of instructional facilities, are that they are difficult to obtain and expensive to purchase. However, a few simple materials, a moderate imagination and a lot of care are needed to improvise and produce instructional facilities for the teacher and the graduates to modify, alter or change and the rule is to be imitative,





adaptive and creative in the use of the learning and teaching facilities.

Some of the factors to be considered by teachers before using any teaching/learning facilities are their availabilities, appropriateness, effectiveness and familiarity in teaching/learning process. Material appropriateness should include the following;

- i. They should be large and adequate to be seen/used by the teacher and training students. In the case of pictures, diagrams and sketches, they must be thoroughly prepared neat, attractive and educative.
- ii. Pictures and diagrams, should not be overcrowded with minutes' details and the most important points should be inclusive for easy comprehension.
- iii. Teaching facilities should not be too many so as not to cause disorder in the classroom or laboratory.
- iv. Pictures and diagram, should be real and simple to read.
- v. Teaching facilities instructions, must be in simple and sound language of interpretation.
- vi. They must be well labeled and bold and legible in hand writing by the teacher.
- vii. They must be relevant to the lesson being taught, brief and easy to comprehend, familiar to student's environment and experience.

### OBJECTIVES OF THE STUDY

The main objective of the study is to assess the effects of instruction facilities on the abilities of Nigerian Certificate on Education Graduates in Federal College of Education, Yola. Specifically, the study is designed to:

1. Assess the effects of teaching and learning facilities, on the academic performance of NCE Graduates
2. Assess the influence of educational facilities on the effectiveness of teachers in the skills development of NCE Graduates

### RESEARCH QUESTIONS

Two research questions were raised to guide the conduct of this study;

1. What are the effects of teaching and learning facilities, on the academic performance of NCE Graduates?
2. What is the influence of educational facilities on the effectiveness of teachers in skills development?

### RESEARCH HYPOTHESES

The following hypotheses will be tested at 0.05 level of significance

**H<sub>01</sub>:** Instructional facilities in colleges of education have no significant effects on the academic performance of Nigeria Certificate of Education graduate

**H<sub>a1</sub>:** Instructional facilities in colleges of education have significant effects on the academic performance of Nigeria Certificate of Education graduate

**H<sub>02</sub>:** Instructional facilities have no significant influence on the effectiveness of NCE graduates in skills development

**H<sub>a2</sub>:** Instructional facilities have significant influence on the effectiveness of NCE graduates in skills development

### CONCEPTUAL LITERATURE

Academic performance is seen as a concept that represents an individuals' achievement in relation to a given academic activity especially in school, college, or university (Steinmayr et al., 2017). Students' academic performance is considered as the desirable changes in students' behaviors after a period of teaching and learning in a school as related to learning outcomes which provide information to students, teachers, school administrators, and parents on the level of the achievement of learning outcomes (Oyedele, 2004). According to Mushtaq & Khan, (2012) students' performance in tertiary institutions (Like College of Education) is measured by GPA and CGPA based on their test and examination results.

The term instructional facilities according to Ihuoma (2008), are a combination of facilities that facilitate the teaching and learning process in the school system. The term Teaching and Learning Facilities refers to the entire scope of human, material, physical, and social infrastructures provided in the school for the purpose of teaching and learning (Okokoyo, Nwaham & Ikpeba, 2002). Lawanson and Gede (2011) on their part see educational facilities as all the materials and resources that are needed for effective teaching and learning process. Educational facilities enable the teacher to do his work very well and help the learners to learn effectively.

Akinfolarin (2008) defined Teaching / Learning facilities as major factors contributing to students' academic performance in the school system. Bandele (2013) stated that the importance of school facilities cannot be overemphasize. This is because teaching and learning facilities are to be put in place in all schools to facilitate the teaching and learning process. Adeogun (2001) discovered a very strong positive significant relationship between instructional resources and academic performance. He stated that schools that are endowed with more materials performed better than schools that are less endowed.

### EMPIRICAL LITERATURE

Usen (2016) conducted a study to examine the relationship between teachers' utilization of school facilities and the academic achievement of student nurses in Human Biology in schools of Nursing in Akwa Ibom State. The findings of the study revealed that there exists a significant relationship between teachers' utilization of school facilities and academic achievement of student nurses in Human Biology.

Anwo (2021) investigated the influence of teaching facilities and teachers' quality on the academic performance of senior school students in Physics. The result showed that teaching facilities and teachers' quality influence the academic performance of senior school Physics students. The study also showed that schools in Ilorin metropolis have a high level of qualified teachers but inadequate teaching facilities.





Osuji (2016) studied the Impact of School Facilities on Students 'Academic Performances in Public secondary schools in Zaria and Giwa Education Zones in Kaduna State, Nigeria. The findings of the study revealed that there is no significant difference in the opinions of teachers and principals on the impact of teaching facilities on students 'academic performance in Public Secondary Schools in Giwa and Zaria Education Zones in Kaduna State.

## METHODOLOGY

The study adopted the survey design, the survey research design was adopted because of the fact that all categories of information needed for descriptive and inferential use in research can be obtained through the use of survey research design. The population of the study comprises of all the 9319 NE graduate of the College between 2017 and 2022, all the 84 lecturers in the individual departments of the various schools that are using Laboratories, and all the 25 the laboratory technicians of the departments in the various schools in the Federal College of

Education, Yola. Due to the large number of NCE graduates between 2017 and 2022, lecturers and the laboratory technicians of the departments in the various schools in the Federal College of Education, Yola, the researchers selected a sample of 475 respondents using the Taro Yamane method of determining sample size. The 475 respondents comprises of 383 graduates, 69 lecturers and 23 laboratories technicians. The stratified sampling technique, simple random sampling (SRS) and purposive sampling were adopted for the selection of the sample population.

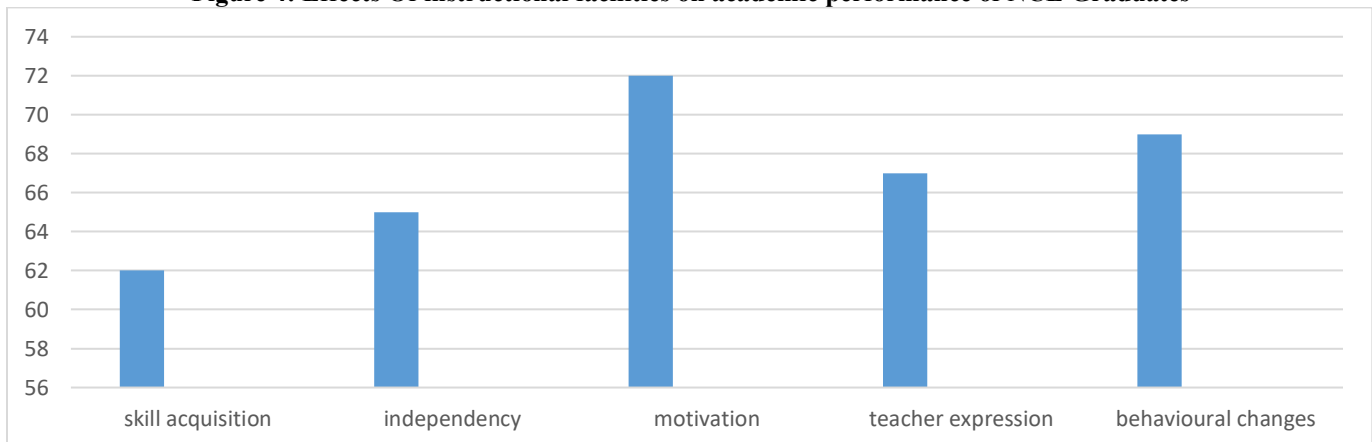
The instrument is a 20 item questionnaire designed to elicit responses from the respondents on effects of instructional materials on the academic performance of NCE graduates in Federal College of Education, Yola.

The data collected for the study were analyzed using the simple percentage method of data analysis to answer the research questions and ANOVA statistics to test the null and alternative hypotheses.

## RESULT AND DISCUSSION

**Research Question One:** What are the effects of instructional facilities, on the academic performance of NCE Graduates?

**Figure 4: Effects Of instructional facilities on academic performance of NCE Graduates**



**Source: Survey, September 2023**

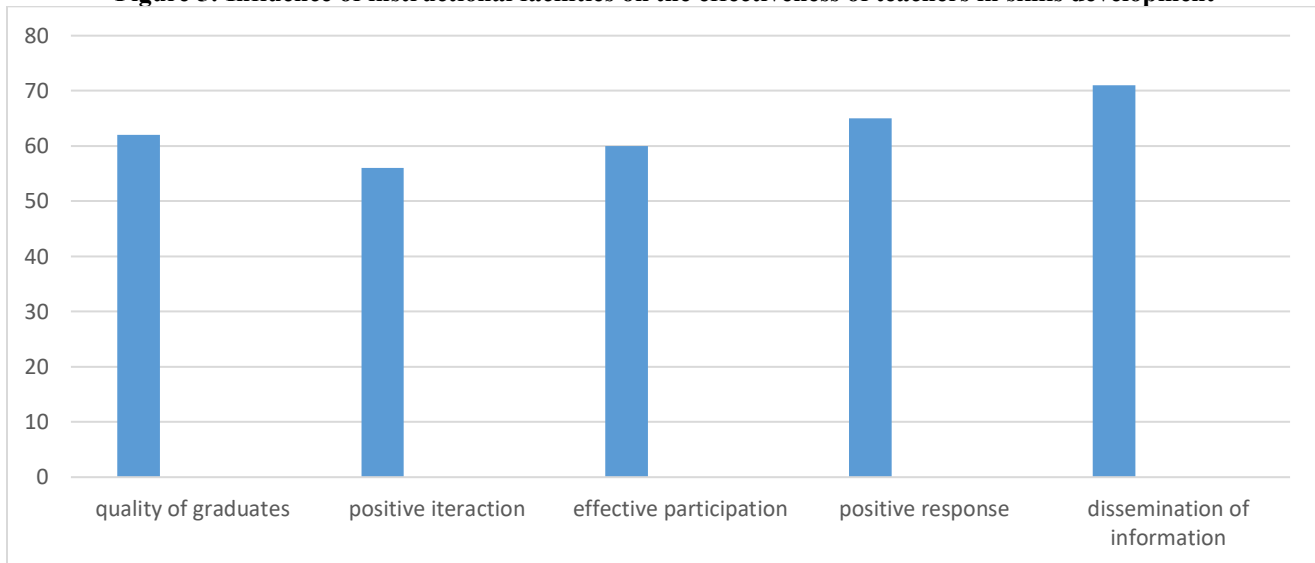
In fig 4 above, the result revealed the relationship between instructional facilities and the skill acquisition, independency, motivation, teacher expression and behavioral changes. These attributes are analyzed and describe using the simple percentage. Based on the responses of the respondents, the level of skill acquisition by the graduates' stands at 62 percent which is above average influence on the relationship. Similarly, graduate independency having used instructional facilities during teaching and learning is 65 percent which is above average in terms of relationship. The motivational influence of instructional facilities on the graduate is high at 72 percent. This indicate that teaching and learning is highly motivational when instruction facilities are used.

Similarly, the expression skills of graduates also correlates with the use of instructional facilities in teaching and learning, it is above average at 67 percent. In addition, instructional and learning facilities has as relationship with graduate behavioral change that is most of the graduates that used instruction facilities in learning has a changed in behavior as a result of the influences of instructional materials as indicated in the figure with a simple percentage of 69 percent. Finally, there is a little variation in the relationship of the attributes in fig 4 as acquired by the graduates in all the departments in the schools of the college.



**Research Question Two:** What is the influence of instructional facilities on the effectiveness of teachers in skills development?

**Figure 5: Influence of instructional facilities on the effectiveness of teachers in skills development**



Source: Survey, September 2023

The result in figure 5 indicates the responses of the respondents to the influence of educational facilities in promoting the quality of graduates, positive interaction effective participation, positive response, and dissemination of information by graduates, through teachers' effectiveness in the use of teaching and learning facilities. In the qualities of graduates 62 percent of the respondents agreed that teachers' effectiveness in the use of promote quality of achievement among the graduates. Also, teacher's effectiveness in the use of instructional facilities during teaching and learning promotes positive interaction among graduates during and after teaching and learning experience, 55 percent of the responded affirmed to this development. Again, during and post teaching and learning experiences graduates participates actively in the learning process, through effective application of learning facilities in teaching by the teacher. About 61 percent of the respondent consented to the influence of the effective use of instructional facilities on graduate participation in learning experiences.

Accordingly, positive response among the graduates during and post teaching and learning experience is influence greatly by teachers' effectiveness in the use of instructional facilities, 62 percent of the respondent's concord the concept. Dissemination of information as a skill among the graduates is highly promoted by teachers effectiveness in the use of instructional facilities, 70 percent of the respondent consented to the experience as found among the graduates.

### TESTING THE HYPOTHESES

**Ho<sub>1</sub>:** Instructional facilities in colleges of education have no significant effects on the academic performance of Nigeria Certificate of Education graduate

**Ha<sub>1</sub>:** Instructional facilities in colleges of education have significant effects on the academic performance of Nigeria Certificate of Education graduate

**Table 2: Effects of instructional Facilities on the performance of NCE graduates**

Sources	D.F	Sum of Square	Mean Square	F. Statistics	P. value	Decision
Between Group	2	25603.9935	1280.9967			
Within Group	6	99810.5066	16635.0844	0.7696	0.5041	Rejected
Total	14	2580/2972	184/3069			

F-Ratio Statistics on the effects of instructional Facilities on NCE graduates

Table 2 shows the effects of instructional facilities have significant influence on the performance of NCE graduates in Federal College of Education, Yola. The result obtained from the analysis shows that the value of F-statistics (0.7696) is greater than the P. value of 0.5041 at 0.05 level of significance. This mean that the null hypothesis two is rejected why the alternative hypothesis 2 is accepted. This suggests that instructional facilities

have significant influence on the performance of NCE graduates in Federal College of Education, Yola.

**Ho<sub>2</sub>:** Instructional facilities have no significant influence on the effectiveness of NCE graduates in skills development

**Ha<sub>2</sub>:** Instructional facilities have significant influence on the effectiveness of NCE graduates in skills development



**Table 3: educational facilities has influence on the effectiveness of NCE graduates in skills development**

Sources	D.F	Sum of Square	Mean Square	F. Statistics	P. value	Decision
Between Group	2	25589.357	12794.6785			
Within Group	6	99873.9756	16645.6626	0.7686	0.5044	Rejected
<b>Total</b>	14	2576.1391	184.0099			

F-Ratio Statistics on the Influence of educational Facilities on the effectiveness of NCE graduates in skills development

Table 3 shows the influence of educational facilities on the effectiveness of NCE graduates in skills development. The result obtained from the analysis shows that the value of F-statistics (0.7686) is less than the P. value of 0.5044 at 0.05 level of significance. This mean that the null hypothesis 3 is rejected while the alternative hypothesis 3 is accepted. This suggests that instructional facilities have significant influence on the performance of NCE graduates in Federal College of Education, Yola.

### DISCUSSION OF THE FINDING

The study found that the academic performance of the NCE graduates is the production of the teaching and learning facilities. In some of the departments of the various schools in the college students taught by teaching and learning facilities are more effective and efficiency in the display of their potentials than those that are not far from the work of Anwo (2021) and Benedicto (2019) that there is a great correlation in the performance of student-teachers ability as guided by teaching and learning facilities.

The study found out that most of the NCE graduates that were exposed to in appropriate teaching and learning materials could not perform greatly because, as Osuji (2016) and Useni (2021) rightly points that inappropriate teaching and learning facilities is just like there is none. Such conditions or characteristics of instructional facilities do not encourages skills acquisition in the proper concept.

### CONCLUSION AND RECOMMENDATIONS

From the findings of the study, it is apparent that the instructional facilities have an influence on the academic performance of the NCE graduates.

Based on the above conclusions the following were recommended;

1. Communities need to embark on initiatives to tap funds to ensure that the school facilities are replenished.
2. Government should provide facilities like modern laboratories, functional libraries, and comfortable classrooms for better academic performance;
3. School authorities should provide adequate funding for school facilities. This would ensure their effectiveness in terms of teachers' output.
4. The government should strive and set aside a reasonable amount of education budget which will be directed to improve and construct libraries in schools like what it did to promote laboratories in schools.

5. There is the need for effective maintenance or renovation of old buildings, chairs, desks, recreational equipment among others should be part and parcel of the school system.

### ACKNOWLEDGEMENTS

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# CHEMICAL REACTIONS AND BIOLOGICAL ACTIVITY OF CARBAMATE DERIVATIVES

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## ABSTRACT

Currently, satisfying the needs of the national economy for bioactive substances and searching for new compounds, developing and implementing the technology for their production are among the urgent tasks facing the chemical science. In this article, the methods of synthesis of new bioactive substances based on the chemical reactions of hexamethylene bis-[(alkyl)-carbamate] and the reaction of substances with biological activity, diisocyanates with aliphatic alcohols, creation of a harmless and waste-free technology for their production, and the search for biostimulants among the obtained substances and methods of implementation were thoroughly studied.

**KEYWORDS.** Carbamate, diisocyanate, isocyanate, pesticide, fungicide.

Currently, in our Republic, special attention is paid to the rational use of natural resources, the creation of waste-free technologies that save resources and energy. The emergence of some economic problems in the production of the Commonwealth countries caused the price increase and shortage of imported raw materials, which began to negatively affect the rapid development of our chemical industry.

Today, meeting the needs of the national economy for bioactive substances and searching for new compounds, developing and implementing the technology for their production are among the urgent tasks facing the chemical science.

From this point of view, derivatives of carbamates and bis-carbamates are undoubtedly of interest as substances with various biological and pharmacological activities. They are also used in agriculture as pesticides, herbicides, fungicides, insecticides, nematocides, acaricides, bactericides, and growth accelerators. For this reason, it is of great importance to synthesize new bioactive substances based on the reaction of diisocyanates with aliphatic alcohols, to create a harmless and waste-free technology for their extraction, and to study the chemical properties of substances with biological activity among the obtained substances.

Mono- and diisocyanates are highly reactive substances that are used to obtain various compounds of great theoretical and practical interest. This importance of isocyanates can be further increased in the production of urea derivatives, which are products of the reaction of isocyanates with alcohols. Before studying the chemical properties of isocyanates, we found it necessary to dwell on the structure of  $-N=S=O$ -groups and the distribution of electron clouds in isocyanate molecules in both static and dynamic states, because these factors often determine the nature of reactions involving isocyanates.

Isocyanate groups are a linear (cumulative) arrangement of atoms. Therefore, p-orbitals can be divided into two orthogonal systems  $p_x$  and  $p_u$ -orbitals. In this case, it is necessary to emphasize the unshared electron pair of nitrogen ( $p_{x,n}$ ), whose true hybridization is unknown. Due to the splitting of orbitals by energy, the interaction of the electrons in this orbital with the electrons in the p-system, the localized s-content should be significantly larger than that of the electrons. The presence of such  $\pi$ ,  $\pi$ -connection indicates that the length of the  $-N=C$  bond in  $O=C=NRN=C=O$  and  $-N=C=O$  molecules is reduced. Therefore, in isocyanates, a model is used that treats the orbital as if it were a p-orbital (Figure 1).

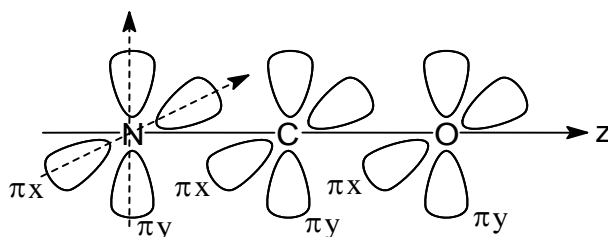


Figure 1. Wiring of electron clouds in the molecule of isocyanates

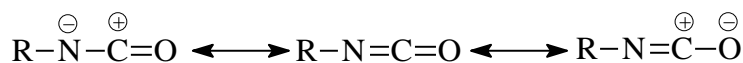
The reactivity of the NSO group is determined by its electronic structure. Since we are interested in the question of the relative reactivity of  $-N=S$  and  $>S=O$  bonds, as an index, the order of  $-N=S$  and  $>S=O$  bonds is the reactivity of N, S and O atoms from

full p-electron charges. use will be appropriate. It is these factors that determine the bond's reactivity in coupling reactions [1].

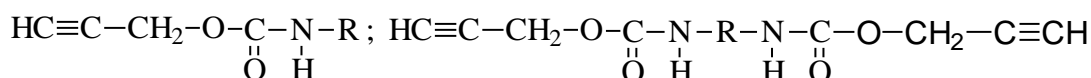


p -electron density in methyl-, phenyl-isocyanates using the Pariser Parra-Poplot approximation of the mutual coordinated field method ( method) done.

There are also data obtained by the enhanced Hueckel method on the electronic structure of some isocyanates occupied by



However , there are no clear ideas about the accumulation of negatively charged isocyanate group with respect to nitrogenous oxygen .



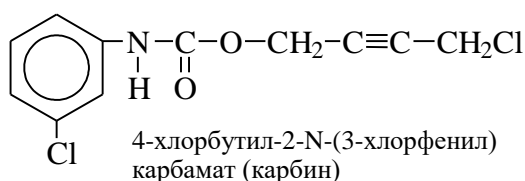
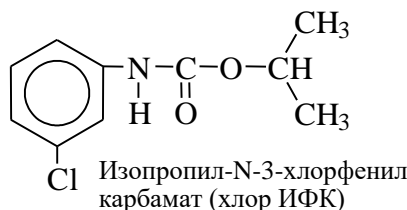
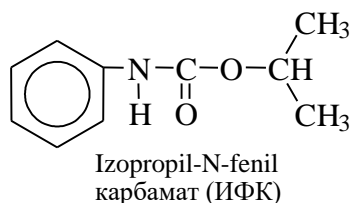
In addition, copper acetylenide mono- and dipropargyl carbamates, various heterocycles, and mono- and dipropargyl carbamate derivatives from diazomethane were synthesized. Mono- and dipyrazoles from diazomethane and benzofuran derivatives were synthesized from Kado-Sladkov reaction from ortho-iodophenol with copper acetylenide. Most of the carbamate derivatives obtained by the authors show

phosphorus and halide atoms. The results of these studies show that carbon atoms in the NCO-group often have a large positive charge, which determines the ability of isocyanates to bind to nucleophilic reagents:

AG Makhsomov and his staff [3] synthesized, characterized and determined the biological and pharmacological activity of phenylpropargyl carbamates, their high number of derivatives and their  $\gamma$  ,  $\gamma$  -diodo-, dibromo and monohaloid substituted derivatives obtained from their chemical transformations:

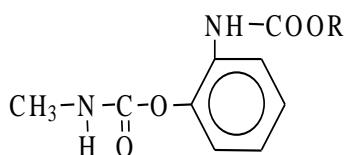
antimicrobial and anti-inflammatory, fungicidal and many other activities.

Most carbamates are biologically active and exhibit good insecticidal and herbicidal properties. Herbicides widely used against annual weeds are IFK ester of carbamic acid, chlor-IFK, carbin (barban):



The pesticidal activity of aryl-N-alkylcarbamates is explained by the nature and position of the substituents on the benzene ring. Synthesis and biological testing of 45 compounds in which R-OCO or R-OC(O)-NH (where R-alkyl, aryl -N=CZ (Z- alkyl,

aryl) groups are substituted for the ortho position of the benzene ring. 2 -aminophenol -Cl-C(O)OR and SN<sub>3</sub> N=S=O reaction compound with the formula was synthesized .



Formula 3-(2-Cl-4-CF<sub>3</sub>C<sub>6</sub>H<sub>3</sub>O) The compound C<sub>6</sub>H<sub>4</sub>OC(=O)NHR ( where R=N, alkyl , Rh, haloidphenyl) is 3-(2-chloro -4- trifluoromethyl phenoxy ) is obtained with 57% yield as a result of interaction of phenol with CH<sub>3</sub>-N=C=O. The reaction products are herbicidal in both early and post-emergence applications against ryegrass and broadleaf weeds.

of the formula X<sub>n</sub>UC<sub>6</sub>H<sub>4-n</sub>NHCOSR (R=CH<sub>3</sub> , C<sub>2</sub>H<sub>5</sub> , cycloalkyl, X-halogen, U-alkyl) form X<sub>n</sub>UC<sub>6</sub>H<sub>4n</sub>N=C=O ni R With -SH, in the presence of tertiary amines in inert solvents, the yield is 64%. A dose of 0.5–1 kg will kill most weeds without harming peanuts and wheat.

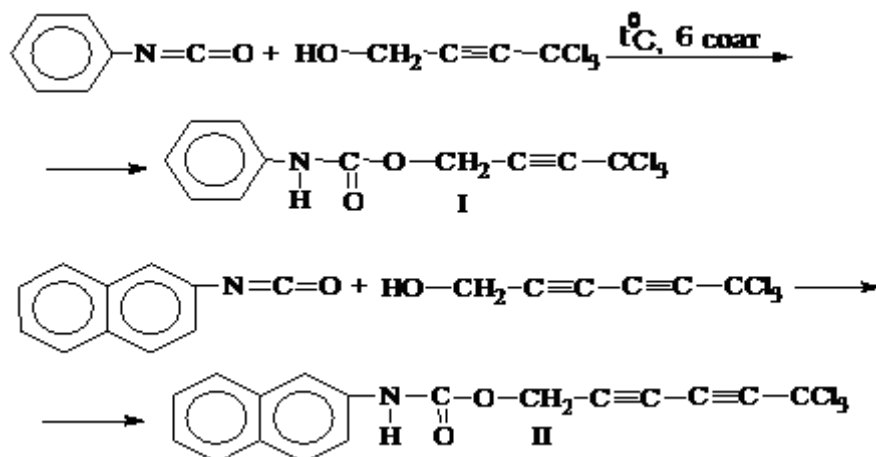


English scientists have developed a quick and convenient method of carbamate insecticides, including methiocarb (I), carbaryl (II) and others, using N-bromosuccinimide as a reagent.

Russian scientists studied the kinetics of the reaction of a number of diols, phenylisocyanates, with dry dioxane at 50 °C

using the titration of isocyanate groups. Up to 50-70% conversion, the reaction on diol and diisocyanates is first-order, followed by an effective increase in the rate constant.

German scientists synthesized esters and carbamates in order to study the dependence of pesticidal activity on the structure.



Synthesized carbamates have a herbicidal effect far superior to the effect of CCl<sub>3</sub>COOH. Also, drugs I and II show fungicidal and insecticidal activity. Compound I is considered an insecticide and is widely used in agriculture.

Emulsion extraction of isoprenoids in raw materials of plants and use of pulsation technology to obtain substances with regulatory properties is shown. Polyene alcohols, a substance that performs the function of transporting hydrophilic particles through the cell membrane, was isolated. These substances serve as the basis for the creation of substances with a broad spectrum of action against the fast-growing virus. Systematic testing of biopreparations, seed recycling, and when sprayed on plants during the growing season, have been found to have growth-regulating activity. Taking into account the seriousness of the ecological situation and the increase in oncological diseases, the technology of obtaining bioregulators was developed.

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# MANAGING CONFLICT TO INCREASE ORGANIZATIONAL EFFECTIVENESS

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## ABSTRACT

*Conflict is an unavoidable element of human interactions. Within the framework of business organizations, the ability to effectively resolve conflicts remains pivotal to preserving a pleasant and productive work environment. The present work looks at the definitions of conflict that enlist its key factors and shows how conflict is inherent in human interaction in their workplaces. This paper highlights the common types of conflict usually exhibited in organizations and examines the sources and causes of conflict. This study considers in detail six theories on managing conflict, including Thomas-Kilmann's Conflict Mode Instrument (TKI), Integrative Negotiation Theory, Interest-Based Theory (Fisher & Ury's Principled Negotiation), Mediation and Third-Party Interventions, Conflict Transformation Theory, and Cultural Intelligence and Cross-Cultural Conflict Resolution Theory. Towards the end, some steps and strategies have been shared to resolve conflicts and increase organizational effectiveness, as suggested by various researchers.*

**KEYWORDS:** *conflict, theories of conflict management, organizational effectiveness, strategies for managing conflicts.*

## CONFLICT AND ITS TYPES

Several authors have arrived at various definitions of conflict. For example, according to Cooper (2003), conflict can be defined as the convergence of conflicting interests. On the other hand, Owens (1985) defines social and psychological conflict as a phenomenon that occurs within the context of environmental and behavioral perspectives. Griffin et al. (2020), describes conflict as a disagreement between parties they believe their needs or interests will not be met. Similar to this definition, Oberschall (1978) states that social conflict can be understood as a contestation centered around differing values or competing assertions of status, authority, and limited resources.

In confrontations of this nature, the parties' objectives go beyond just obtaining desired values. These objectives also include endeavors to neutralize, inflict harm, or cause the opposing factions' demise. The fundamental purpose of Anderson et al. (2010) is to offer a complete definition of "high conflict." The above definition is formulated through a comprehensive amalgamation of extant research on high conflict, coupled with astute observations made by court employees and the author's personal clinical encounters with persons entangled in such relationships. Scholarly studies often suggest that conflict is defined variedly to be commensurate with the particular framework and scope of analysis.

Shetach (2012) posits that conflict is an intrinsic element of both social and corporate contexts, rendering it pervasive. It means that it is present in every layer of personal, corporate, social, and international existence. Furthermore, it has both negative and positive realizations in the workforce. On the negative side, it can slow down the performance, gradually leading it to a halt. On the positive side, it helps to come up with unique ideas, procedures, and positive adjustments that ultimately lead to optimal performance and effectiveness of a firm. Consequently, this can lead to mutual benefits for the firm as well as its workforce (Osad & Osas, 2013).

Conflicts may also have detrimental effects if they engender opposition to a proposed shift, lead to disruption, foster distrust in interpersonal relationships, diminish productivity, and undermine organizational performance (Hotepo et al., 2010). Ultimately, it is important to note that the way conflict is managed is a huge determinant of whether it would have positive or negative outcomes (Griffin et al., 2020; Villa & Lugo-Machado, 2022).

In this overview of conflict and business effectiveness, we will present the causes, theories of conflict management, and some strategies to resolve conflicts in business organizations.

## CAUSES AND SOURCES OF CONFLICT

### 1. Katz's Typology

Katz (1965) devised a typology that delineated the primary origins of conflict into three distinct categories:

**Economic conflict** encompasses the pursuit of limited resources through competing agendas. Each side involved in a negotiation seeks to optimize its outcomes, and the conduct and sentiments of each party are oriented towards maximizing its benefits. One of the primary origins of the conflict between unions and management frequently stems from the incongruous objectives regarding allocating economic resources.

**Value conflict** refers to a state of incompatibility between different ways of life, ideologies, and the choices, values, and behaviors that individuals hold dear. There is often a profound moral dimension at play in international wars like the Cold War, with each side insisting on righteousness, ethnocentricity, as well as superiority of their own economic and political structures.

**Power conflict** emerges as a consequence of one party's endeavors to exert and sustain its influence over the other as well as on a wider communal framework. The notion of one party demonstrating more strength while simultaneously not causing a corresponding weakening of the other side is impractical, particularly when considering their direct impact on each other. Consequently, a conflict for dominance emerges, typically resulting in one party prevailing while the other suffers defeat or,

alternatively, leading to a stalemate characterized by an ongoing state of tension. Power conflicts can manifest in various contexts, such as interpersonal, intergroup, or international settings, when one or both sides opt for a power-oriented strategy in their interactions. Power is a significant factor in all conflicts, as the involved parties want to exert control over one another (Rothbart, 2020).

## 2. Capozzoli's Seven Sources of Conflict

Capozzoli (1995) identified seven distinct sources of conflict. (1) The inclusion of team members with diverse cultural backgrounds contributes to the presence of varied values within work teams. (2) The team members exhibit varying mindsets, leading to divergent objectives. (3) Team members possess diverse unfulfilled wants, leading to a heightened sense of frustration that exacerbates conflicts. (4) The failure to meet different expectations among team members leads to conflicts. (5) Team members possess varying perspectives, leading to divergent interpretations of the same information. (6) The presence of limited resources frequently leads to a rise in conflict. (7) The team members exhibit divergent personalities that result in interpersonal conflicts. Figure 1 below shows the seven sources of conflict as identified by Capozzoli.



Figure 1: Capozzoli's identified seven sources of conflict

## 3. Ineffective Communication as a Source of Conflict

Fisher (2000) identifies that ineffective communication contributes to conflicts, as miscommunication and misunderstandings can arise. Factors like self-centeredness, selective perception, emotional bias, and prejudices influence

individual interpretations. Ineffective communication leads to perplexity, emotional distress, and resentment, perpetuating conflict dynamics. Regardless of objective factors or communication issues, disputes are seen as significant events by the parties involved.





## THEORIES OF CONFLICT MANAGEMENT

Over the course of time, a multitude of conflict resolution theories have surfaced, each presenting distinct viewpoints and approaches to effectively handle and alleviate conflicts within the context of corporate environments. The current business landscape can benefit from several theoretical frameworks, such as collaborative negotiation, interest-based solutions, third-party interventions, and cultural understanding. These theories offer adaptable approaches to address the distinct issues faced in today's corporate environment. By embracing these theoretical frameworks and incorporating them into the operational strategies of organizations, businesses can cultivate favorable interpersonal connections, bolster collaborative efforts, and finally attain elevated levels of efficacy.

### 1. Thomas-Kilmann Conflict Mode Instrument (TKI)

This instrument categorizes conflict resolution strategies into five distinct modes, namely competing, collaborating, compromising, avoiding, and accommodating. This theoretical framework places considerable importance on the careful selection of an appropriate conflict resolution strategy, with due attention given to the particular circumstances and desired outcomes. The framework offers a practical structure for individuals to assess their preferred methods of conflict management and adapt them to effectively address conflicts within corporate organizations (Thomas, 1976, Villa and Lugo-Machado, 2022).

TKI has demonstrated its efficacy over a span of more than three decades in facilitating individuals across diverse contexts to comprehend the impact of various conflict styles on both personal and group dynamics.

### 2. Integrative Negotiation Theory

Integrative negotiation theory, also known as collaborative negotiation, is focused on the creation of value that is advantageous to all parties involved in a conflict. Rather than viewing negotiations as a zero-sum game, this theory advocates for the idea that participants should discover shared interests and engage in collaborative efforts to develop new solutions that effectively address the needs of all interested parties. Integrative negotiation is an approach that prioritizes open communication, active listening, problem-solving that prioritizes open communication, active listening, and problem-solving as means to foster long-lasting relationships and maximize organizational outcomes. (Lewicki & Robinson, 1998).

Several scholarly works explore the significance of negotiation theory in the development of negotiation support systems. These studies analyze several aspects of negotiations, such as the contextual background, the parties participating, and the resulting outcomes. Buelens et al. (2008) emphasize the necessity of enhancing the application of longitudinal and qualitative research methodologies in order to overcome existing gaps in knowledge. In Thompson (1990), an analysis is conducted on the theoretical and empirical dimensions of negotiation behavior and outcomes. The study explores several factors that contribute to the success

or failure of negotiations and evaluates different theoretical frameworks. In general, the articles underscore the importance of negotiation theory in the progression of negotiation support systems and emphasize the necessity for enhanced techniques and theoretical frameworks to get a deeper comprehension of negotiation behavior and its outcomes.

### 3. Interest-Based Theory (Fisher and Ury)

Postulated by Roger Fisher and William Ury, this theory places significant emphasis on the separation of individuals from the topic at hand, directing attention towards the underlying interests rather than the specific views taken. This theoretical framework promotes the practice of generating a stretch of probable resolutions which are likely to appeal to the interests and apprehensions presented by the conflicting parties, with the ultimate goal of reaching mutually advantageous agreements. Business organizations can enhance dispute resolution and maintain relationships by identifying common ground and coming up with alternate courses of action. (Fisher et al., 1991)

### 4. Mediation and Third-Party Interventions

Mediation entails the engagement of an impartial intermediary to promote the exchange of information and the process of negotiation between parties in conflict. Mediators facilitate the process of parties examining their own interests, generating a range of potential solutions, and collaboratively striving toward a solution that is mutually agreeable. The significance of empowering participants to assume responsibility for the solution, ensuring secrecy, and fostering a cooperative climate is emphasized in mediation theory (Moore, 2003).

### 5. Conflict Transformation Theory

Conflict transformation theory surpasses dispute resolution by examining the underlying factors that give rise to conflicts and fostering constructive transformation within individuals and institutions. This view acknowledges that disagreements have the potential to foster growth and innovation when effectively managed. Business organizations have the capacity to employ conflict transformation strategies through the establishment of platforms for constructive discourse, fostering an environment that promotes comprehension of varied viewpoints, and executing modifications that effectively tackle the root causes of conflicts (Lederach, 1996).

Conflict Transformation Theory helps explain and resolve disputes. Miall (2007) argues that conflict transformation theory may educate and assess European conflict intervention and should include external agents like the EU. Mitchell (2002) contrasts "conflict transformation" with "resolution" of conflict.

### 6. Cultural Intelligence and Cross-Cultural Conflict Resolution

The phenomenon of globalization has led to the heightened importance of intercultural conflicts within commercial entities. The theory of cultural intelligence places significant emphasis on the comprehension and recognition of cultural disparities as a

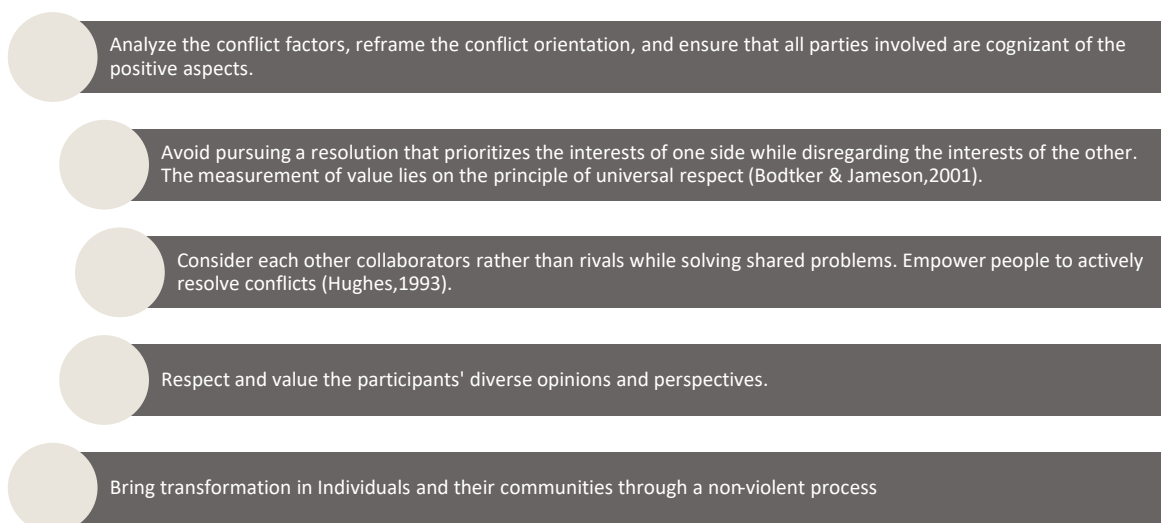


means to proficiently negotiate conflicts. Individuals can enhance their conflict resolution tactics and mitigate misconceptions by acknowledging and accommodating multiple perspectives through the recognition of varying communication styles, values, and conventions (Earley & Ang, 2003).

### STEPS TO MANAGE CONFLICT IN AN ORGANIZATION

The following figure exhibits important steps to help manage conflict in an organization, as posited by Bodtker and Katz Jameson (2001) and Hughes (1993):

Figure 2: Steps for effective organizational conflict management



### STRATEGIES TO MANAGE CONFLICT IN AN ORGANIZATION

There are numerous solutions available for managing conflicts at work in modern organizations.

- i. According to Tamunomiebi et al. (2020), efficient conflict resolution techniques can enhance group productivity, communication, time management, cooperation, and management and employee relations.
- ii. Identifying the conflict's underlying causes, active listening, and establishing common ground are just a few methods and tactics Ellis and Abbott (2011) discuss for handling disagreement.
- iii. According to Katz and Flynn (2013), most firms do not have conflict management systems or are unaware of them.
- iv. Carter (2005) offers a thorough manual for managing conflict inside an organization, including topics like turning conflict into a constructive force, responding to problems promptly, and implementing best practices for alternative dispute resolution.
- v. Mosquera, A. d. C. (2011) highlights effective strategies for managing organizational conflicts, while Murerwa and Guantai (2019) propose a pre-conflict resolution environment approach that aims to examine the fundamental aspects of conflict, including its nature, effective communication strategies, active listening skills, the importance of a willingness to settle conflicts, and the alignment of thoughts and actions.

- vi. Rovenska (2021) highlights the significance of corporate objectives and posits that the selection of conflict resolution strategies is contingent upon the relative positioning of the conflicting parties vis-à-vis their opponents.
- vii. Contemporary conflict resolution systems prioritize active engagement and personal accountability for managers. Proactive measures are necessary to mitigate contradictions, but different approaches are necessary if conflicts arise. Effective conflict resolution should prioritize personnel's psychological well-being and individualized employee management, considering their unique demands and interests (Dublenkova et al., 2022)
- viii. Organizations should provide re-education programs for employees on conflict management structures to challenge the misconception that conflict is harmful. Managers should adopt strategies that align with the conflict's characteristics. Prioritizing constructive conflict management practices is crucial for organizational effectiveness, fostering employee engagement, and influencing overall organizational effectiveness (John-Eke and Akintokunbo, 2020).

### CONCLUSION

The paper's findings indicate that there is no universally optimal approach to conflict management in contemporary companies. However, all management gurus agree that conflict resolution is necessary to enhance an organization's effectiveness. Lingered on or left unattended and unresolved, conflicts toxify a company's work environment. There are as many strategies to resolve conflict as there are causes and reasons for it. Successful



management of conflicts necessitates the implementation of a customized blend of theory-embedded methods and strategies specifically designed to address the unique circumstances of each situation.

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# CHALLENGES ENCOUNTERED BY THE FEMALE PERSON DEPRIVED OF LIBERTY AMIDST PANDEMIC

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## ABSTRACT

*The study generally determined the challenges and coping mechanism of the female Persons Deprived of Liberty or PDLs of the Bureau of Jail Management and Penology, Cauayan City, Isabela. The study made use of qualitative narrative design and an interview guide was used to collect the data. Eight (8) female PDLs were interviewed to participate in the study. The participants during the data gathering disclosed that they had encountered challenges during pandemic. It includes weight problem and personal hygiene in terms of physical aspect, social aspect pandemic adjustment and social adaptation as the main problem. Furthermore, in interpersonal aspect they encountered were depression and boredom as their common problems. The effects of these challenges vary among the individuals because they have their ways to cope up with these problems, some of the participants thought of diversion, while others repressive coping is one of their ways to overcome their problems. Furthermore, praying or spiritual activity were the coping mechanism that can reduce their problem. Finally, the PDL's challenges can be overcome through social acceptance. The challenges were either helpful or harmful in the participant's life. Moreover, the study inferred that to cope up with the prison environment the participants choose to be more active in the conduct of the spiritual activity to invite positivity in a world full of negativities.*

**KEYWORDS:** Challenges, Person Deprived of Liberty, Pandemic, Coping Mechanism, Therapeutic

## INTRODUCTION

Life is a matter of liberty and freedom of choice and exploration of voluminous challenges. Being incarcerated is a half of life limited specially to access of all to every aspect of life. Men and women have the freedom and responsibility to do what action they wanted. Men literally protectors of family and women is means to be protected, but what if the woman commits an act and being incarcerated?

Woman is also known to be emotional in nature. Driven by the action to be in jail, several challenges being encountered which makes the woman problematic and suffering from physical, personal, and sociological issues. With the glance of pandemic much greater the pain and impact to the emotional frustration to the person deprived of liberty. It becomes more challenging as the concern of protocol to the services of BJMP. To cope up of being incarcerated women tends to work on itself just to divert attention and action that cover the emotion suffered.

Ackermann (2015) stated that women in prison in Africa experience compounded discrimination due to gender and poverty. Structural inequality results in women being poorly educated, having reduced access to economic resources and legal processes. Women often remain in pretrial detention since they are unable to afford bail or fines. A significant number of women

in prison are mothers and often, the sole or primary caregiver of children prior to detention. The true impact of female detention is felt by children who are imprisoned with their mothers, or who remain alone on the outside.

The common problems for women in prison generally come from both the lives they led before being imprisoned as well their actual incarceration. As a result of their gender, women arrive in prison usually with a different set of problems than male prisoners do. After being imprisoned, a woman might encounter different problems than a male inmate because most prisons are set up to deal exclusively with young male offenders. The critical problems faced by women prisoners are being separated from their children and partners; inadequate or substandard physical and mental health care; sexual abuse; a lack of vocational or educational programs; and an unsafe prison environment. Although some male offenders might face somewhat similar problems, the problems faced by women in prison differ significantly in terms of the effects on the women and their lives both in and out of prison (Ashraf, S, 2022).

Yadav et al.(2021) cited that with the sudden outbreak of coronavirus disease of 2019 (COVID-19) pandemic, the Health Care Workers (HCWs) have claimed varying echelons of stress, anxiety and insomnia. This is the first write up ever reported





describing the numerous studies conducted globally to determine the mental health issues in HCWs throughout in COVID-19 pandemic. Herein we compile the studies conducted in different countries worldwide. All these studies alleged high pervasiveness of stress, anxiety, depression, insomnia, somatization, obsessive-compulsive symptoms, and other mental disorders in HCWs. Female medical staff showed high occurrence of mental distress over male medical staff. Transmission of infection from HCWs to their family members further increases fear and distress. Ample education, training, psychosocial services, and social support have improved mental health of HCWs.

In International Committee of the Red Cross, in their Article, Halting the Spread of COVID 19 in congested detention facilities, the isolation center at Mandaluyong City has space for 150 female detainees as COVID-19 isolation facility and Correctional institute for Women to the Bureau of Corrections. The Philippine Red Cross supported the conducted COVID-19 testing of several detainees and staffs.

### **Pandemic Adjustment**

Testa and Fahmy (2021), stated that during the summer of 2020, a disproportionately high rate of incarceration and COVID-19 cases contributed to a set of circumstances that raised serious public health concerns, as correctional institutions became major COVID-19 hotspots. Higher levels of worry for a jailed person's well-being during the COVID-19 epidemic were linked to dysfunctional coping mechanisms, but not adaptive or functional coping techniques, according to the findings.

“Moral injury” is a word used to explain the complex psychological suffering that people experience when they are exposed to events that they believe are beyond their ability to handle. The COVID-19 problems for the prison estate are unique and evolving. The COVID-19 problems for the prison estate are unique and evolving. Some issues are more generalized, like those seen in society and health care; yet the structure of prisons adds to the challenges (Kothari et al, 2020).

### **Diversion**

The BJMP provides "quite efficient" services in the areas of basic needs, health, livelihood, education, sports, and recreation. The BJMP's service delivery was rated as "moderately satisfactory" by the detainees. The lack of basic sports facilities was cited by the detainees as a widespread issue. The BJMP jail services were not up to par, based on the detainees' mediocre satisfaction. Despite the fact that correctional services were delivered in accordance with the BJMP guidelines, there were flaws and errors in their implementation. The researchers recommended that the agency provide more spacious detention facilities, that BJMP personnel strictly enforce rules and regulations in the jail, that the agency pay attention to the welfare of prisoners, particularly their basic needs and the need for sports facilities; and that dedicated employees from the five pillars of the criminal justice system be employed to help offenders achieve justice (Guadamor and Martinez, 2018).

Several detainees and staff members in the Philippines' overcrowded prisons have tested positive. Because it "has the greatest jail population in the world," the Philippines' predicament is particularly difficult and potentially psychologically dangerous to consider. More than 700 inmates have tested positive as of June 2020, and given their 'locked away' status, a lack of resources, and a lack of adherence to minimum health requirements, the inmates and detainees are 'hidden victims of the COVID-19 epidemic' and hence 'invisibly susceptible.' The causes of hidden health concerns can frequently rise to complex mental difficulties that are linked to suicidal ideation. Furthermore, there are unreported COVID-19-related deaths that require additional attention because "social distancing was impossible within the jail, prisoners lacked nutritious food, and only roughly a quarter of the detainees used face masks," according to the research (Kahambing, 2021).

### **Depression**

Scott et al. (2015), they stated that the women's demographic traits and psychiatric disorders, as well as their substance use and drug treatment histories and criminal thinking inclinations, were all collected using a wide range of assessments. The women in this study, as well as other female detainees in drug treatment programs, were divided into three groups for the purposes of analysis: women with substance use problems but no comorbid psychiatric disorders, women with substance use problems but no comorbid psychiatric disorders, and women with substance use problems but no comorbid psychiatric disorders. These therapies are most effective when offered as part of a person-centered recovery framework with integrated service modules.

Skowroński and Talik (2018), examine the differences in stress coping strategies between groups of inmates who are separated by their perceptions of their quality of life. The findings of the study show that inmates' stress coping strategies are linked to their feeling of quality of life. This result holds true not only for the overall sense of quality of life, but also for each of its dimensions: psychophysical, psychosocial, personal, and metaphysical. Thus, the employment of constructive stress coping strategies—such as seeking help, engaging in personal problem-solving activities, and drawing conclusions from poor life choices – is linked to a greater level of life quality.

### **Social Acceptance**

Guitering et al. (2018), investigated the difficulties that inmates confront while incarcerated, as well as their coping techniques and realizations. The detainees faced environmental, personal, health, and legal obstacles, according to the findings. As a result, they automated several coping methods to deal with their current problems. Finally, the findings revealed some of the inmates' realizations and lessons, such as conversion, stronger family ties, and the development of respect and discipline ideals.

Narag and Jones (2016) found out that these findings are comparable in terms of the chance of using PDL. This is something that the Department of Justice (DOJ), which oversees



the country's leaders, is concerned about. BuCor is a collective noun that refers to a group of people. PDLs were used to controlling other inmates, which led to them usurping power, confronting prison officials, and creating power dynamics that were antithetical to the rehabilitative goals. Abuse was common in various institutions, prompting victims to seek retaliation through the courts by filing a lawsuit challenging their detention conditions.

Flores-Barolo and Vicente (2019), pointed out that the challenges and coping techniques of Sablayan Prison and Penal Farm's selected Persons Deprived of Liberty (PDLs). Individuals' reactions to these challenges differ because they have different ways of adapting to the jail environment. One of the subjects considered suicide, while others developed adaptive behavior in the face of jail. Self-reflection and regeneration, faith in God, jail as a haven, and positive outlooks on life are some of the other effects of trials. The trials had a positive or negative impact on the participants' lives. Furthermore, the research found that to cope with the jail environment, participants opted to become subservient, accept the consequences of their actions, keep themselves busy, and remain engaged in religious activities.

### Theoretical Framework

The study was guided by the deprivation theory, feminism theory and behavioral theory. Deprivation Theory is offenders use disorganization as an adaptive mechanism to cope with the social and physical deprivation of imprisonment. When confronted with inmates began to try to tackle their problem jointly as a result of comparable restriction. When this happens, an inmate society emerged, "A society that contains a network of positions, which reflect varying types of adherence to sub cultural norms as well as adaptive reactions to the difficulties of confinement" (Paterline & Orr, 2016).

In the other hand, feminism theory is not only about women; it is about the world, engage through critical inter sectional perspective. Despite many significant differences, most feminism theory is a reliably suspicious of idealistic thinking, generally oriented toward fluid processes of emergence rather than static entities in one-way relationship and committed to being a political as well as an intellectual enterprise. It is rooted in and responsible to movements for equality, freedom, and justice. (Marry Wollstonescraft, 2009), In connection to the female PDL's

Behavioral theory is an analytical structure to pinpoint the behavioral roots of superior performance, where "behavioral" denotes "being about mental processes." Such roots are identified in behavioral deviations from market efficiency. The causes of these deviations are behavioral factors that bound firms' ability to pursue and compete for superior opportunities. Because these bounds are systematic and diffused among firms, they ensure that latent opportunities are not competed away. In this setting, the behavioral bases of superior performance stem from a superior ability to overcome focal behavioral bounds. This analytical structure is used to identify the mental processes especially

important to firm performance that strategic leaders can reliably manage. Its key insight is that superior opportunities are cognitively distant. They rarely correspond to common ways of thinking. The reason for this is that it is necessary to overcome strong behavioral bounds to pursue these opportunities (John B. Watson, 2018). In connection to the PDL's.

### Objectives of the Study

This research aims to determine the challenges encountered by the female person deprived of liberty during this pandemic at BJMP Cauayan City, Isabela.

Specifically, it seeks to answer the following:

1. To identify the challenges encountered by the Female Person Deprived of Liberty during the time of pandemic; and
2. To Identify the coping mechanisms of the female PDL's during the time of pandemic.

### METHODOLOGY

#### Study Design

The study entitled, "Challenges Encountered by the Female Person Deprived of Liberty Amidst Pandemic," used a Qualitative-Narrative Design to match proper with the desired outcomes. The narrative approach allowed the respondents to feel uninhibited to express themselves in their own words and focused on what is most important to them

#### Population of the Study

The researchers selected only eight (8) female PDL's as respondents of the study because the researchers don't have enough time to ask all of them. The locale of the study was conducted at BJMP, Cauayan City Isabela.

#### Data Gathering Tool

The researchers opted for semi-structured interviews based on open-ended questions.

#### Data Gathering Procedure

The researchers used interview as the main tool of this study. Interview questions was self-constructed with the help of adviser. One-on-one interview between the researchers and respondent reach a small number of people in-depth and offer insight into an array of experiences. One-on-one interviews are the most used data collection tools in qualitative research (Sandelowski 2002). In the conduct of the study, the researchers asked permission or approval to conduct this study to the BJMP. Also, the researchers secured a permission to the head of office, after the securing permission from authority, the researchers formulated the interview guide question and proceeded to validation. Then the researchers proceeded to the interview personally to the 8 female persons deprived of liberty. After acquiring all the information, the researcher promptly transcribes, code, and analyze the data. Then, themes would be generated using the thematic analysis method in the interview. The researchers adopted thematic analysis. The process gave more emphasis on the told, the events or the content of the narratives and paid a little attention to how a



story unfolded during the conversational exchange between the researchers and the respondent. Each transcript was analyzed individually.

### Treatment of Data

The researchers formulated the interview guide question and proceeded to validation. Then the researchers proceeded to the interview personally to the 8 female persons deprived of liberty. After acquiring all the information, the researcher promptly transcribes, code, and analyze the data. Then, themes would be generated using the thematic analysis method in the interview. The researchers adopted thematic analysis. The process gave more emphasis on the told, the events or the content of the narratives and paid a little attention to how a story unfolded during the conversational exchange between the researchers and the respondent. Each transcript was analyzed individually.

### Ethical Consideration

Ethically permissible research must offer benefits to PDLs that outweigh the risks. Analyzing all the potential risk is crucial. The researchers sensibly selected the words to be used on the questions and during the interview because some words might trigger harmful emotional or psychological responses. Gaining the trust of the respondents were very crucial in this study because it made the participants more cooperative and honest in answering the questions. Thus, they were informed that pseudonyms were employed to maintain the anonymity of their identity. Likewise, to ensure the protection from exploitation and to be truly ethical, researchers actively considered what is best for the participants, and the organizations.

## RESULTS AND DISCUSSION

The following discussions encompass the Female Person Deprived of Liberty revealed as among Challenges encountered Physically, Socially and Interpersonally, specifically during the time of Pandemic and the strategies and Coping mechanism to address the Challenges encountered.

### Challenges encountered by the Female Person Deprived of Liberty during the time of pandemic

A. *Physical challenges encountered by the female person deprived of liberty during the time of pandemic*

**Weight Problem.** Female person deprive of liberty experienced weight losses while staying inside the jail facility due to stress and lack of appetite, as quoted from the sample statement of P6 "*Nangayayat ako kakaisip sa mga problema ko lalo na ngayong pandemic at na i-stress din ako at nawawalan ng gana kumain, pero gumagawa pa rin ako ng paraan na mag exercise para medyo mabawasan ang problema*" [I'm losing weight and felt being dull due to the problems I encountered this pandemic while we are inside the cell, but I am doing exercise to lessen the problem that I have encountered] then P7 also said that "*Dahil sa pandemic ma'am lalo akong nangayayat dahil mas nadagdagan na naman yung iniisip ko*" [ Because of pandemic I'm losing weight due to overthinking] and P8 said also that "*Okay naman ako noon ma'am kaso unti unti akong nangayayat nung*

*nagsimula yung pandemic dahil grabe yung naging epekto ng pandemic saamin ma'am*" [I was okay before but when pandemics start everything has change then I' am slowly losing weight because it has a big impact for me].

According to sample statements from participating offenders, Female PDLs lose their appetite due to stress, overthinking, and the impact of the pandemic which leads to weight loss. During this unprecedented time, we're all processing stress differently. But for many in lockdown, the realities of socially distanced living are having a dramatic impact on our eating habits. When experiencing stress, appetite can be affected in a few different ways. Some people find themselves binge-eating as a way to cope with the feelings of being overwhelmed, while others find themselves not eating for extended hours or days. You may find that no matter how much you prepare, cook, meal or try to stock the house with the necessary foods to keep the body healthy, it's still difficult to maintain a healthy appetite. If this is the case, begin the process of rebuilding appetite by identifying the stressors. Gauge ways to be able to reduce the stress; be it asking for help, support, or taking a break (Britt, J 2012).

**Personal Hygiene.** Female persons deprive of liberty encountered improper hygiene problems due to protocols, as quoted from the sample statement of P2 "*Hindi na kami katulad ng dati noon na nakakapaglinis ng katawan namin dahil sa bagong patakaran ngayong pandemic nalagyan ng limit lahat*" [We cannot clean ourselves like before because everything has a limit now due to the protocol] then P3 said that "*Mula nung pandemic ma'am hindi na kami gaanong nakakapaglinis ng katawan namin dahil sa nagkaroon na ng limit lahat*" [ When pandemics start, we cannot clean ourselves like before because everything has limit].

Women require more attention to personal hygiene, however female PDLs actions in this area are restricted due to limited accessibility and additional pandemic protocols. Personal hygiene is a necessity in life. It is the need of every individual to keep herself clean and tidy in all aspects. The most common causes of lack of personal hygiene are lack of time, energy, dullness etc., These can be brought under control by proper planning and fixed timings for taking these measures (Ventura et al., 2020).

B. *Social challenges encountered by the female person deprived of liberty during the time of pandemic*

**Social Adaptation.** Female persons deprive of liberty experienced social adaptation because they are a new comers. Social adaptation is considered one of the issue directly linked to human behavior, as quoted from the sample statements of P7 "*Nahihirapan akong makisalamuha kasi bahugahan palang ako*" [As a newbie, I am experiencing difficulties to get along with other detainees] then P8 said that "*Mahirap pa makisama ma'am kasi baguhan palang ako dito sa loob ng kulungan*" [As a newbie, I am experiencing difficulties to get along with their environment and I am trying to find ways to adapt].





The sample statements from the, Female person deprive of liberty don't get along with other detainees because they are newcomer which affect their relationship to each other. In prison, the PDLs focus on survival. They employed various mechanisms to adjust to stressful, unpleasant, difficult situations inside the prison. The work of Johnson and Dobrzanska (2005) points toward the notion that humans can be highly adaptable regardless of the environment. In addition to that, the prison provides an environment in which inmates learn how to get along with other inmates and it also teaches inmates how to adapt to unfamiliar environments. According to an inmate in the study of Crank 2010 noted of prison adjustment, "I think those in here have a real good adjustment ability, the ability to adjust deferent situations"

**Pandemic Adjustment.** The pandemic, hits hard of excuses no one. There have been numerous restrictions imposed, as stated from the sample statement of P1 "*Nahihirapan akong mag adjust kasi hindi pa ako sanay sa mga patakaran nila ngayong pandemic*" [I have difficulties adjusting to their new rules and regulations this pandemic] and P2 said that "*Dahil sa patakaran nila ngayong pandemic nahirapan ako mag adjust*" [I have difficulties adjusting because of the rules that they have implemented].

The difficulties of imprisonment on how PDL adjusted from being free to being controlled and restricted. Adjustment to prison community is a complicated process because of absorption in to the new protocols that they encountered. Base from the sample statements from the participating offender, Female PDLs are also having difficulty adjusting to the new environment in the facility because they are new to the inside world of jail, and they are just prone to outside world. As the 2019 novel coronavirus (COVID-19) is spreading worldwide in 2020, there is growing concern about the impact of pandemic on mental health. Multiple stressors associated with the pandemic, such as health-related stressors, job loss, and work-related stress, could increase the prevalence of adjustment disorders worldwide. The present article acknowledgement adjustment disorder as a highly relevant mental health outcome of the pandemic that should be addressed by mental health professionals Quero (2020).

*C. Interpersonal challenges encountered by the female person deprived of liberty during the time of Pandemic*

**Depression.** The female PDLs experienced depression due to overthinking and because they've missed their family outside. As quoted from the statements of P1 "*Dahil sa pandemic mas lalo kaming nastress ma'am mas lalo naming iniisip yung pamilya namin sa labas, ang hirap iwasan ma stress lalo na at nandito lang kami sa loob*" [Because of the pandemic, it is hard to avoid the stress ma'am especially that we are here inside the facility jail] then P2 said also that "*dahil sa nangyareng pandemic ma'am mas lalo akong nadepress kasi iniisip ko yung kalagayan ng pamilya ko sa labas*" [Because of the pandemic, I was even more depressed due overthinking].

The sample statements from participating offenders, Female PDLs said that they've missed their family and they experienced stress due to overthinking which led to depression. Depression is a major human blight. Globally, it is responsible for more years lost to disability than any other condition. It is largely because many people suffer from it. Depression is widely diagnosed and untreated because of stigma lack of effective therapies and inadequate mental-health resources Smith (2014).

**Boredom.** The female Persons Deprived of Liberty or PDLs felt boredom. As quoted from the statement of P8 "*Syempre ma'am hindi po maiwasang hindi maboring dito sa loob ng kulungan, may mga libangan po pero nakakaranas pa din po ng pagkaboring kasi sobrang hirap maglibang dito sa loob mas lalo na ngayong may pandemic*" [We can't avoid boredom, sometimes we're having leisure, but we are still experiencing boredom because it is hard for us to have fun here inside the dorm due to the pandemic]. Based on their statement, the female PDLs cannot avoid boredom because they are staying inside the dorm, and they have limited time due to the protocols implemented which greatly affects them. Findings indicated that boredom is an extremely unpleasant and a distressing experience. Boredom remains a poorly understood phenomenon despite its evident association with dysfunctional behavior and mental health problems. However, little research has been conducted regarding the topic. Other studies were exclusively quantitative in design. For this reason, a qualitative, interpretive phenomenological study was carried out. The ten participants were asked about their experience of boredom. These people were sampled from the general population. The ten participants study agreed that they really experienced a feeling of boredom which may lead them to depression. Boredom is a phenomenon that one cannot help but to experience it during the stages of development, and this requires methods used to deal with it (Marion, M. et.al., 2014).

### **Coping Mechanism of the Female Detainees during the time of pandemic**

**Diversioin.** One of the reasons to lessen the boredom, stress, and longing of the female Persons Deprived of Liberty (PDLs) is to engage in the activities to overcome those emotional problems. Quoted from the statements of Participant 1, "*Nagpe-painting na lang po kami para Maibsan ang mga problema namin dito sa loob*" [We do painting because it's our way on how to release problems we are experiencing inside] then P2 says that "*Para mabawasan man lang yung mga problema ko e nakikijoin nalang ako sa pagpepainting ganon ma'am kahit di ako marunong*" [Through recreational activities can reduce some of my problems] and P3 added that "*Nagpepainting kami ma'am para kahit papano maibsan yung mga problema namin*" [To overcome our problems ma'am we do recreational activities like painting].

Based on the statements of the female PDLs, diversion is one of their ways to cope up their stress inside during pandemic. Determining the challenges and coping mechanisms of the selected Persons Deprived of Liberty (PDLs), the participants during the data gathering disclosed that they had trouble inside



the prison. These include difficulties in adjusting to prison life, the feeling of powerlessness, adherence to unwritten laws, bearing the pain for the sake of the family, staying out of trouble, exploitation of the weak, and they feel that they are the forgotten or the victims. The effects of these difficulties vary among individuals because they have their ways of adapting to the prison environment. One of the participants thought of self-destruction, while others develop adaptive behavior towards incarceration. Other repercussions of challenges are self-reflection and self-renewal, faith in God, prison as a haven and positive outlooks in life. The challenges were either helpful or harmful in the participants' life. Moreover, the study revealed that to cope with the prison environment, the participants chose to become submissive, bear the consequences of their act, keeps themselves busy, and, remained active in religious activities. (Jezreel et.al., 2019).

**Spiritual Activity.** Prayer is the most important thing to those female People Deprive of Liberty or PDLs to cope up with their problems inside the jail facilities. One of the motivations is to believe on what the future holds as they regret on the offenses that they have committed in the past. As quoted from the statements of P3 “*Pagdadasal ang isa sa ginagawa ko ma’am*” [Praying is one of what I do] also P4, added “*Nagdadasal na lang kami kasi wala naman kaming choice para na rin maibsan yung mga pinagdadaanan naming problema*” [Prayer is our only way to cope up on what we are experiencing and to lessen the burden that we are feeling]” Moreover, P5 stated that, “*Ipinagpapasa Diyos ko nalang lahat ma’am para kahit papano maging magaan yung nararamdaman ko*” [To lessen my problem that I have encountered, prayer is one of my ways].

Prayers and spiritual related activities can overcome pandemic related problems which give hope and courage not to give up. Besides, there are programs created by the correctional institution to help the PDLs conquer the challenges inside the prison. One of the rehabilitation programs is religion. In the implementing standard minimum rules for the treatment and rehabilitation programs for prisoners, which stated that a correctional institution shall have religious activities and facilities inside thereof (UN, standard minimum rules for treatment and rehabilitation, 1995). The idea is that spiritual rebirth by help tame the criminal impulse and set while hearts on the street and narrow (Peters, 2007).

This Corroborates the study of Eyten (2011) examined empirical data on a religion, spiritual, and mental health, or illness in places of detention. Results showed religion and spirituality, improve the coping mechanism for facing stressful life. It also reduced depressive symptoms or self-harm. Also, it has an impact on the inmate's behavior by reducing arguments. Violence and disciplinary actions inside the penal institution are reduced. According to the review, the most reliable indication of religion and spirituality is the reduction of incidents and disciplinary actions inside the prison.

**Social Acceptance.** Social acceptance can reduce the problems as quoted from the statements of P8 “*Unti-unti ko ng natatanggap na lahat ng nangyayare. At para na rin mabawasan ang nararamdaman kong kalungkutan tanggapin ko nalang*” [I am getting used to be on that environment as time goes by for me to lessen the sadness that I felt].

The sample statements of female PDLs social acceptance are one of their ways for them to lessen the burden that their feeling inside. In today's society, social acceptance is an unconscious want that everyone strives to gain. Unfortunately, not all individuals are able to experience social acceptance. There have been numerous studies conducted in the past that have indicated a correlation between social acceptance and the ability to detect emotions. The individuals who are usually rejected in social situations are better than others at recognizing facial expressions; specifically, real and fake smiles (Pickett, Gardner, & Knowles, 2004). Individuals who are often excluded know how it feels and therefore, are sensitive to the feelings of others. These examples show that a person's social acceptance can influence their ability to detect emotions.

**Repressive Coping.** As quoted from the statements of P8, “*Iniiyak ko nalang lahat ng problemang nararanasan ko*” [Crying is one of my ways on how to cope up on the problems that I have] and “*At sana makalaya na ako para makapiling ko na ulit ang aking pamilya*” [I am hoping that one day I will be free from jail and to be with my family again].

Based on the sample statements of the respondents repressive coping is one of their ways to overcome their problems. The Japanese are such strong believers in the health benefits of crying that they've taken that wisdom to the next level. Some cities in Japan now have "crying clubs" called rui-katsu (meaning, literally, "tear-seeking"), where people come together to indulge in good old-fashioned sobfests. Crying releases stress, and therefore is a great practice when it comes to staying mentally healthy. Research is backing up that theory. Studies of the various kinds of tears have found that emotional tears contain higher levels of stress hormones than do basal (aka lubricating) or reflex tears (the ones that form when you get something in your eye). Emotional tears also contain more mood-regulating manganese than the other types. According to side off stress tightens muscles and heightens tension, so when you cry you release some of that. Crying activates the parasympathetic nervous system and restores the body to a state of balance." (Govender, 2012.)

The above sample statements show that with all the challenges encountered by the female person deprive of liberty, different coping mechanisms existed. Diversion programs were provided wherein the PDLs are entertained. By doing so, the PDLs are amused which causes them to forget all the problems they are facing in a period. However, the effect was just temporary and so the PDLs has no other choice but to cry their feelings. The PDLs pain is eased by crying until they accept the reality of their lives being spent in prison. They will eventually realize that no one else





can help them except themselves and God. That is the time when female PDLs will voluntarily and willingly participate in spiritual activities that will help them grow in their relationship with God at that time. Ross Deuchar, Line Lerche Morck, Yonah Hisbon Matemba (2016) stated that the holistic chaplaincy services helped the detainees to nurture some initial turning points that stimulated identity and behavioral change.

## CONCLUSION

The findings of the study showed how female PDLs are being challenged and adjusted during pandemic because the pandemic impacted as all. There have been numerous restrictions imposed and a lot of adjustment have been made, specifically those incarcerated during the pandemic that their crime committed were under the BJMP. The challenges PDLs encountered amidst pandemic were physical, social and interpersonal respectively. With those challenges presented there are coping mechanisms that helped ease the problem. In terms of their physical challenges is exercising, and in terms of social aspect when the problems encountered are social adaptation and pandemic adjustment their coping mechanism are social acceptance and repressive coping. In interpersonal, the challenges encountered are depression and boredom and they face and cope with it through diversion and spiritual activities. The COVID-19 pandemic hit the female PDLs by surprise which led to the challenges mentioned above. The cooperation of the PDLs and the effort of the BJMP personnel makes them conquer the problems they were faced.

## RECOMMENDATION

Based on the findings, the study strongly recommends that female Persons Deprived of liberty or PDLs may adhere to follow the protocol strictly and practice proper hygiene and right diet to promote a sound physical health through proper hygiene and right diet. Additionally, the BJMP may provide a program to cope up with the challenges. Leisure time for the female PDLs to ease boredom like painting and cross stich and other activities in line with their interest may be provided to help them become more productive, motivated and entertained inside the jail. More enhanced spiritual activities as way to cope up with their problems may be proposed and conducted.

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# INFORMATION TECHNOLOGY AND ECOLOGY ENVIRONMENTAL PROTECTION

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## ABSTRACT

*The abstract is devoted to the relationship between information technology and environmental protection. The study includes an analysis of the energy consumption and carbon footprint of data centers and also provides effective methods for reducing energy costs in the IT sector. Additionally, the role of information technology in environmental monitoring and resource management using sensors and big data analysis is considered. A separate section is devoted to the introduction of renewable energy in IT and improving the energy efficiency of server systems. The work also covers the economic and social impact of environmentally sustainable IT practices, including cost reduction and company participation in social projects. Educational and social initiatives, as well as examples of successful implementation of green technologies, highlight the importance of combining information technology and environmental responsibility. The conclusion summarizes the importance of using information technology to create a more sustainable and responsible digital future.*

**KEYWORDS:** Environmental protection, Sustainable IT, Ecological footprint, Green technology.

## 1. INTRODUCTION

In the modern information society, where technologies are becoming an integral part of everyday life, their role in shaping the human environment is becoming increasingly significant. Information technology (IT) has a profound impact on various aspects of social life, including the economy, education, healthcare and social interactions. However, in parallel with the rapid development of technological progress, problems arise related to negative impacts on the environment.

The relevance of studying the impact of information technologies on the environment is due not only to their universal implementation, but also to the growing awareness of the need for a balance between technological advances and nature conservation. This balance is becoming the subject of widespread public debate, requiring a comprehensive examination of the relationships between IT and environmental sustainability.

The purpose of this work is to analyze the impact of information technology on the environment and identify ways to use technology for the purpose of protecting it. To achieve this goal, the following tasks are expected to be completed:

- Study of the main aspects of the impact of information technology on the environment.
- Identification of problematic issues associated with the environmental consequences of using technologies.
- Consideration of possible methods for reducing the negative impact of IT on the environment.
- Analysis of the positive impact of information technology on the environment

This work consists of an introduction, three main sections (The Impact of Information Technology on the environment, Information Technology as a means of environmental protection and the Economic and Social effect of environmentally sustainable IT) and a conclusion.

## 2. IMPACT OF INFORMATION TECHNOLOGY ON THE ENVIRONMENT

### 2.1. ENERGY CONSUMPTION AND CARBON EMISSIONS

The impact of information technology on the environment is a complex and multifaceted process that covers various aspects from the production of electronic equipment to the use of computing resources. Data centers are centralized data processing and storage nodes that play a key role in the functioning of information technology. However, along with their importance comes the problem of significant energy consumption, which leads to a serious environmental footprint:

- The scale of energy consumption: Data centers consume huge amounts of electricity to maintain servers, cooling systems and uninterruptible power supply. This results in high levels of carbon emissions into the atmosphere.
- Cooling as a key issue: One of the main factors influencing the high energy costs of data centers is the need for efficient cooling of the equipment. Cooling accounts for a significant portion of energy consumption, exacerbating the problem.



- Increase in the number of data centers: With the growth of digital data and the development of cloud technologies, the number of data centers is rapidly increasing, increasing the problem of high energy consumption and carbon emissions.
- Ecological footprint: Carbon emissions from data center operations contribute to climate change and environmental degradation. This highlights the urgency of finding more environmentally sustainable solutions for the operation of information systems.

## 2.2. ELECTRONIC WASTE

E-waste consists of obsolete or failed electronic equipment and its components that, if not processed correctly may have a negative impact on the environment.

The growing volume of e-waste is a challenge facing modern society as technology continually advances and the lifespan of

many devices is reduced. This puts pressure on existing waste management systems and highlights the need for more efficient methods of handling e-waste. “The challenges of recycling obsolete devices are that many contain hazardous chemicals and heavy metals. A lack of effective recycling systems can result in the release of these substances into the environment, with potentially harmful consequences for ecosystems and human health.”<sup>[4]</sup>

Innovation in sustainable electronics manufacturing is becoming a key factor in mitigating the e-waste problem. This includes efforts to create more durable devices, use recyclable materials and implement processes that reduce the environmental impact of production. In recent years, it has been possible to significantly increase the percentage of electronic waste that is involved in recycling, rather than going to landfills or incineration; Figure 1.1 shows that in 2022, more than 97% of collected electronic waste was recycled at licensed enterprises (+30% from 2019).



Figure no. 1: Volume of e-waste generated

## 3. INFORMATION TECHNOLOGY AS A MEANS OF ENVIRONMENTAL PROTECTION

### 3.1. RESOURCE MONITORING AND MANAGEMENT

Information technology not only helps to reduce the negative impact on the environment, but also serves as a powerful tool in ensuring its protection. Information technology-based resource monitoring and management represents an innovative approach to ensuring the sustainable use of natural resources. “The use of sensors and Internet of Things (IoT) technology makes it possible to create distributed networks of sensors that collect data about the environment.”<sup>[8]</sup> These sensors can measure various parameters such as air quality, water pollution levels, climatic conditions and other factors in real-time.

Analysis of big data obtained from sensors and IoT is becoming a key element in the process of optimizing resource consumption. Collecting and processing vast amounts of information allows us to identify trends, predict changes in

ecosystems, and propose science-based resource management strategies.

An example of such an approach is the use of sensors to monitor soil quality in agricultural areas. The collected data can be used to accurately distribute fertilizers, optimize farming and reduce the use of chemicals, which in turn reduces the negative impact on the environment.

### 3.2. SMART CITIES AND TECHNOLOGIES TO REDUCE POLLUTION

In the field of information technology and environmental protection, the concept of smart cities stands out as an effective approach to reduce pollution and optimize resource use. The development of transport information systems is becoming a key component of smart cities, where modern technologies are used to improve mobility and reduce the environmental impact of transport.



“Within smart cities, the emphasis is on the development and implementation of transport information systems that ensure effective management of traffic flow, optimization of routes, and reduction of traffic jams. This not only reduces time delays and saves resources, but also helps reduce vehicle emissions.” [1]

The use of sensors to monitor air quality also plays an important role in creating environmentally friendly cities. Sensors placed in different parts of the city allow real-time monitoring of air pollution levels. This data can be used to take immediate action to improve air quality and reduce the impact of harmful substances on the health of citizens. The development of transport information systems and the use of sensors to monitor air quality represent promising approaches to creating more sustainable and healthy urban environments.

### 3.3. RENEWABLE ENERGY IN IT

The introduction of renewable energy in the field of information technology (IT) is becoming a key area in order to

reduce dependence on traditional energy sources and reduce the negative impact on the environment. In particular, two important aspects are considered: the use of solar and wind energy sources, as well as the energy efficiency of server and computer systems.

In the field of renewable energy, technologies based on the use of solar and wind energy are actively used in IT. The use of solar panels to generate electricity and wind turbines to convert kinetic energy into electricity is becoming increasingly common. These technologies can not only reduce dependence on energy sources based on fossil fuels, but also significantly reduce carbon emissions into the atmosphere.

In the context of energy efficiency in server and computer systems, the emphasis is on creating and using equipment designed to reduce energy consumption. “Manufacturers are striving to create energy-efficient processors, improve cooling systems and optimize component performance.” [3] In addition, the use of virtualization, which allows for more efficient use of computing resources, helps reduce energy costs.

Figure no. 2: shows the share of renewable energy sources in electricity production in Russia for 2020.

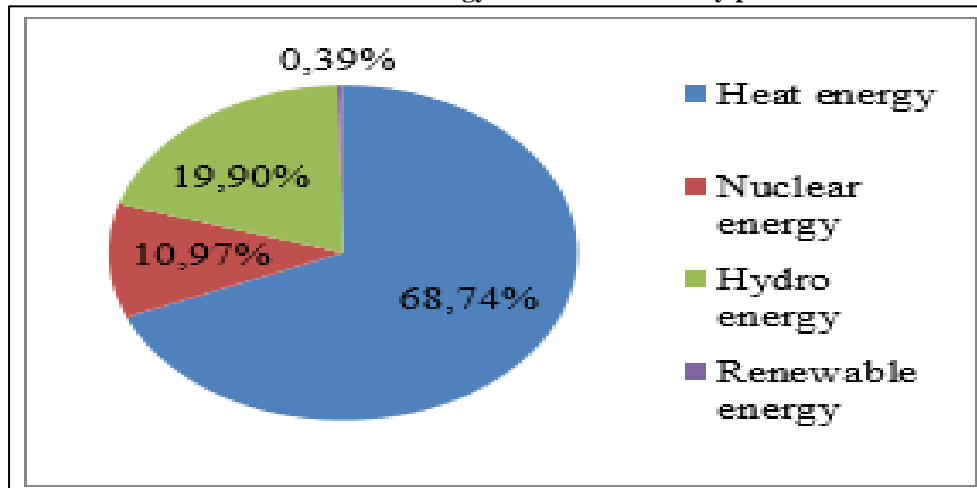


Figure no. 2: Renewable Energy

Adopting renewable energy in the IT sector not only reduces environmental impacts, but also contributes to a more sustainable and responsible energy infrastructure. Information technology companies are embracing social responsibility as they strive for energy efficiency and renewable sources, helping to create a more sustainable digital future.

## 4. ECONOMIC AND SOCIAL IMPACT OF ENVIRONMENTALLY SUSTAINABLE IT

### 4.1. REDUCING COSTS AND INCREASING BUSINESS EFFICIENCY

Environmentally sustainable information technology (IT) practices not only help protect the environment, but also have a significant impact on the economic and social aspects of business. Environmentally sustainable IT practices include optimizing production processes using modern information technologies. This includes automation, implementation of management systems, data analytics and other tools aimed at improving the efficiency of business processes. Optimizing

production not only reduces the consumption of resources such as energy and materials, but also reduces operating costs.

### Examples of companies that have successfully implemented green technologies

Many companies demonstrate examples of successful implementation of green technologies to achieve environmental sustainability. For example, Google is actively investing in renewable energy, launching waste management projects and pursuing green technology in its data centers. Apple also stands out for its commitment to total sustainability, from manufacturing its devices to running its offices on renewable energy.

### Economic and social effects

Reducing costs and increasing business efficiency through environmentally sustainable IT practices not only results in economic benefits for companies, but also improves their public perception. Environmental responsibility is becoming an



important factor in consumers' choice of products and services. "Green technology companies can strengthen their reputational capital by attracting customers, investors and talent." [6] Thus, the combination of environmental sustainability and business efficiency creates positive impacts not only on the economy, but also on the social sphere of enterprises.

#### 4.2. EDUCATIONAL AND SOCIAL INITIATIVES Development of educational programs in the field of environmental IT

One of the key aspects of the combination of information technology and environmental protection is the development of educational programs in the field of environmental IT. Companies and educational institutions are actively working to create courses, programs and training materials aimed at training specialists competent in the use of information technology, taking into account environmental aspects.

These educational programs cover a wide range of topics, including energy conservation in IT, efficient use of resources, methods for reducing the environmental impact of digital technologies, and implementing environmentally sustainable practices in software development and IT infrastructure maintenance.

#### Participation of IT companies in social projects for environmental protection

In addition to educational initiatives, IT companies actively participate in social projects aimed at protecting the environment. This includes participating in tree planting programs, creating electric vehicles and zero-emission public transport, and supporting conservation and environmental research charities.

IT companies are also actively implementing responsible waste management practices, refurbishing and recycling obsolete equipment, and conducting information campaigns among employees and customers to reduce energy consumption and reduce environmental impact.

#### 5. CONCLUSION

This work concludes by emphasizing the key role of information technology (IT) in achieving environmental sustainability and environmental protection. The relationship between information technology and environmental protection is becoming increasingly important in today's world, where digital transformation and increased dependence on technology combine with the urgent need to respect natural resources.

One of the key areas in the use of information technology to protect the environment is the effective management of energy consumption and the introduction of renewable energy sources. Optimizing the operation of data centers, creating energy-efficient equipment and actively using solar and wind energy sources help reduce carbon emissions and minimize the impact of the IT sector on the climate ecology.

In addition, educational and social initiatives in the field of environmental IT play an important role in creating a conscious attitude towards environmental issues. The development of educational programs and the participation of IT companies in social projects raise the level of environmental awareness and contribute to the introduction of sustainable practices in the business environment.

Thus, information technology, if used responsibly and with environmental considerations in mind, can be a driver of positive environmental change. Innovation, effective resource management and active participation in social and educational projects offer the prospects for creating a more sustainable and responsible digital future.

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# PHARMACOLOGICAL EVALUATION OF MORINGA OLEIFERA LEAF EXTRACT FOR ANTIDEPRESSANT ACTIVITY: A REVIEW

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## ABSTRACT

The prevalence of mental depression has increased in recent years, and has become a serious health problem in most countries of the world, including India. Due to the high cost of antidepressant synthetic drugs and their accompanying side effects, the discovery of safer antidepressant herbal remedies is on the rise. This work was carried out to antidepressant effect of n-hexane fraction of *Moringa oleifera*. Depression is a neurological disorder characterized by apathy, loss of energy, decreased mood, feeling of guilt, loss of interest, retardation of thinking and activity as well as profound feelings of gloominess, despair and suicidal ideation. About 21% of the world population is largely affected by depression. Many people in the world advocate the use of *Moringa oleifera* to treat variety of central nervous system illnesses. *Moringa oleifera* (MO) (drumstick) has been used in traditional old medicine, and in Ayurveda, it is considered as a valuable remedy for treating nervous system disorders as well as memory enhancing agent. The present study was undertaken to investigate the effect of ethanolic extract of *moringa oleifera* in mice. In the present study, the antidepressant effect of *moringa oleifera* was examined using two behavioural models, the forced swimming test (FST) and tail suspension test (TST). Depression is a wide spread psychiatric disorder. According to WHO, 450 million people suffer from a mental or behavioural disorder. this amount to 12.3% of global burden of disease and predicted to rise upto 15% by 2020. In traditional system of medicine, many plants and formulation have been used to treat depression for thousands of years. *moringa oleifera* is known miracle tree its every part having medicinal use for human. The present study reports physicochemical characterization, antidepressant activity of extracts from *Moringa Oleifera* leaves collected from local region of Nanded, Maharashtra, and India. The In-Vivo antidepressant activity of *Moringa Oleifera* leaf was evaluated by forced swim test model in mice using imipramine as a standard.

**KEYWORDS:** *Moringa Oleifera*, Antidepressant activity, Forced swim test, Locomotor activity.

## INTRODUCTION

Depression is a serious mood disorder characterized by apathy, anhedonia feeling of helplessness and worthlessness leading to suicidal attempt.<sup>[1]</sup> It is an illness characterized by persistent sadness, loss of interest and ability to perform daily activities for a period of over two weeks; at worst leading to suicides which is the second cause of death to people aged 15- 29 years globally.<sup>[1]</sup> Several million individuals in the world do experience depression in their lifetime and this translates to about 21% of the world population.<sup>[2]</sup> Depression occurs due to the default in receptor-neurotransmitter relationships leading to functional deficit in these neurotransmitters (Noradrenalin, 5-Hydroxytryptamine or Dopamine) in the limbic system as well as prefrontal cortex, hippocampus and amygdale areas of the brain<sup>[3,4]</sup> The burden of depression is 50% higher for females than males.<sup>[5]</sup>

*Moringa oleifera* a member of Moringaceae family has been used in traditional folk medicine for treating numerous central nervous system disorders including convulsion and hysteria.<sup>[6,7]</sup> *Moringa oleifera* is a small, fast-growing and evergreen tree

that usually grows as high as 9 m, with a soft and white wood and the bark is gummy. *Moringa oleifera* is commonly known as drumstick.<sup>[8]</sup> The present studies were designed to assess the antidepressant activity of *Moringa oleifera* (MO) in the mouse model. In India, it is used as food and for medicinal purposes. It is widely grown in different parts of the world. *Moringa oleifera* contains Vitamins A, B, C, flavonoids, oleic, palmitic and stearic acid, saponins, glycoside, gum, protein, calcium, magnesium, potassium, and iron.<sup>[9,10]</sup> The leaves have shown to possess strong antioxidant and anti-inflammatory properties, and thus could be used in the treatment of depression caused by OS or inflammation.<sup>[10]</sup>

## INTRODUCTION OF PLANT

### *Moringa Oleifera*

*Moringa Oleifera* Lam. (*M. Oleifera*) is a cruciferous plant that belongs to the Moringaceae family. *M. Oleifera* is commonly called horseradish tree or drumstick tree by locals and is a popular staple in different parts of the world. *M. Oleifera* is consumed not only for its nutritional values but also its medical benefits.





Figure.1:- Leaf



Figure.2 :- Powder

Table :- 1  
 Scientific Classification

Kingdom	Plantae
Order	Brassicales
Family	Moringaceae
Species	M.Oleifera
Genus	Moringa

## VARIOUS ANTIDEPRESSANT ACTIVITY TEST ON MORINGA OLEIFERA

### 1.Tail Suspension Test (TST) :<sup>[11]</sup>

The method described by Steru., *et al.* was adopted. Thirty mice were divided into five groups of six mice each. The first group was pre-treated with normal saline 10 ml/kg i.p; the second, third and fourth groups were pre-treated with 100, 200 and 400 mg/ kg of the n hexane fraction of Moringa oleifera, i.p while the fifth group was pre-treated with the standard antidepressant drug (imipramine) 10 mg/kg body weight i.p. Thirty (30) minutes after the pre-treatment, animals were individually suspended 50 cm above the floor by means of an adhesive tape placed approximately 1 cm from the tip of the tail. Duration of immobility was measured for the entire testing period of 6 minutes. Each mouse was considered inactive when hung passively motionless.

### 2.Locomotor activity test :<sup>[12]</sup>

Locomotor activity test (LAT) was performed to assess CNS inhibitory or stimulatory activity of the extract.

### 3.Forced Swim Test (FST) :<sup>[13]</sup>

Porsolt and Bertin *et. al.* are given the information about antidepressant activity. Thirty mice were divided into five groups of six mice each. The first group was pre-treated with normal saline 10 ml/kg i.p; the second, third and fourth groups were pre-treated with 100, 200 and 400 mg/kg of the n-hexane fraction, i.p while the fifth group was pre-treated with 10 mg/kg body weight imipramine i.p. Thirty minutes (30minutes) after the pretreatment, depression was produced by forcing the animal to swim individually in a transparent and open glass container of 30 cm height and 20 cm wide containing fresh water of 15 cm height and maintained at 21 ± 0.5oC. Each

animal assumed a typical immobile posture after struggling to escape. The immobility time on each mice was recorded using digital camera for the entire six minutes period. Each mouse was considered immobile when given up struggling to escape. Immobility time reduction was taken as antidepressant like action.

## DISCUSSION

In this study, alkaloids, cardiac glycosides, flavonoids, tannins and saponins were detected from n-hexane fraction of Moringa oleifera leaf extract, whereas steroids were absent.<sup>[14]</sup>

Forced swim test (FST) and Tail suspension Test (TST) remain the most applicable animal models for antidepressant screening growing to their ease of operation are require little resources. These protocols are quite specific to almost all classical antidepressants in clinical use.<sup>[14]</sup>

Tail suspension and Forced swim tests show a state of behavioral despair in rodents which reflects depression in humans.<sup>[15]</sup>

Clinically used antidepressants decrease the immobility time significantly in both FST and TST.<sup>[16]</sup> The present study was designed to investigate the antidepressant activity of ethanolic MOE in mice using well-tried-out and standardized behavioral tests of depression. MO is often used as antidiabetic, anti-inflammatory, antimicrobial, and antiulcer remedy.<sup>[17]</sup>

The polyphenolic compounds are purported to exert neuroprotective and anti-inflammatory effects in the CNS.<sup>[18]</sup> This phenomenon also suggested the involvement of noradrenergic and serotonergic pathways in the induction of antidepressant activity.<sup>[19]</sup>



In order to assess the occurrence of false positive results exhibited in the TST and FST due to CNS stimulant action of MOE, mice were subjected to open field tests.<sup>[20]</sup>

## CONCLUSION

The results of our study suggests that ethanol leaf extract of *Moringa oleifera* possess antidepressant activity in both FST and TST in mice the potential use of *Moringa oleifera* in the treatment of depression .

The two extract were tested for in vivo antidepressant activity. The different extracts of *Moringa oleifera* leaf showed significant antidepressant activity as per suggested by the various references.

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# CHALLENGES AND OPPORTUNITIES IN SCALING MILLET-DRIVEN CLOUD KITCHEN BUSINESSES: A COMPREHENSIVE STUDY

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## ABSTRACT

**Background:** In recent years, the food service industry has undergone a significant transformation driven by shifting consumer preferences and rapid technological advancements. Notably, cloud kitchens or virtual restaurants have emerged as a prominent development, focusing on food preparation and delivery, capitalizing on online ordering and app-based delivery services. Simultaneously, there has been a heightened awareness of healthier and sustainable dietary choices. Millets, small-seeded cereal grains, have gained attention due to their nutritional value, adaptability to adverse environmental conditions, and sustainable farming practices. This has sparked interest in integrating millets into the food industry to offer healthier and eco-friendly food options.

**Objectives:** The primary objectives of this study were to Assess the feasibility and scalability of cloud kitchen businesses that focus on millet-based cuisine, identifying the key challenges and opportunities within this emerging food service sector.

**Methodology:** To achieve these objectives, a mixed approach quantitative and qualitative -methods research design was employed. Data was collected through telephonic interview and online questionnaire through google form. Data were analysed using software spss 23 on the basis of Likert scale-based questionnaire.

**Results:** The research findings indicate a consistently positive perception of millet-based dishes across various dimensions among customers, as evidenced by highly significant p-values ( $p < .001$ ) and mean differences ranging from 2.824 to 3.123. The rejection of null hypotheses implies significant differences in factors influencing consumer choices in favor of millet-based options, suggesting a promising market for these products. Key challenges and opportunities within this emerging millet-driven cloud kitchen businesses were identified which will be the base for upcoming cloud kitchen businesses that focus on millet-based cuisine.

**Conclusion:** The feasibility and scalability of millet-driven cloud kitchen businesses are intricately linked to a complex set of factors, including sourcing challenges, consumer engagement, regulatory compliance, operational efficiency, and marketing. Businesses that strategically address these challenges by leveraging opportunities, such as reliable supply chains, consumer education, sustainable practices, and targeted marketing, are well-positioned to thrive in the dynamic landscape of the millet-based culinary industry.

**KEYWORDS:** Cloud Kitchen, Millets, kitchen businesses

## 1. INTRODUCTION

The gastronomic landscape is undergoing a transformative paradigm shift with the emergence and rapid proliferation of cloud kitchens, a culinary concept where commercial cooking spaces operate exclusively for online delivery orders. Cloud kitchens, which are commercial cooking facilities devoid of physical dining areas and exclusively serve online delivery orders, are anticipated to burgeon into a \$2 billion industry in India by 2024, as per estimates from RedSeer Management Consulting. The idea of cloud kitchens is not novel, as pizza delivery establishments have been in existence for decades, with take-out pizza gaining popularity in the 1950s. However, the modern concept of cloud kitchens originated in India. In 2003, Rebel Foods, supported by Sequoia, launched its inaugural venture, Faasos, specializing in Kebabs. Presently, Rebel Foods boasts a portfolio of over 9 brands, securing a recent funding of \$125 million, with a valuation reaching \$525 million (Mehnaz et al., 2021).

In the dynamic realm of food entrepreneurship, an intriguing niche has emerged with the focus on millet-driven cloud kitchen businesses (Choudhary, 2019). Millets, an ancient and resilient group of small-seeded grasses, have garnered increased attention in recent years for their nutritional benefits, environmental sustainability, and adaptability to diverse agro-climatic conditions (Ashwin Porwal et al., 2023). In the quest for sustainable and nutritious food sources, millets have emerged as a focal point, particularly within the context of cloud-based kitchen businesses, with India being a prominent player in this culinary evolution. Millets, a group of ancient cereal grains, are hailed as nutritional powerhouses, offering diverse health benefits that make them a valuable and sought-after addition to global diets. Notably, these hardy crops thrive in various agro-climatic conditions, demanding less water and inputs compared to traditional cereal grains, aligning seamlessly with the operational considerations of cloud-based kitchen ventures.





In the realm of cloud kitchens, where efficiency, sustainability, and nutritional value converge, millets take center stage. Their low glycemic index becomes a strategic asset, aiding in stabilizing blood sugar levels—particularly relevant in the context of health-conscious and dietary-aware consumer bases served by cloud-based kitchen models. Furthermore, millets' high Fiber content becomes a key feature benefiting heart health within the cloud kitchen paradigm, contributing to the reduction of LDL cholesterol levels and the promotion of good cholesterol (Anitha et al., 2021). Thus, within the framework of cloud-based kitchen businesses, the integration of millets not only aligns with the broader global movement towards sustainable and nutritious food choices but also addresses specific operational considerations inherent to the unique challenges and opportunities presented by the cloud kitchen model. As the world grapples with the challenges posed by climate change, resource scarcity, and the need for sustainable food practices, millets have emerged as a promising solution, offering a range of health benefits and reduced environmental impact compared to conventional grains. However, despite the growing recognition of millets as a staple in promoting both human and planetary well-being, there exists a conspicuous research gap in understanding the challenges and opportunities specific to scaling millet-driven cloud kitchen businesses.

This comprehensive study seeks to bridge this gap by delving into the intricacies of the millet-driven cloud kitchen model, exploring the challenges that entrepreneurs face in scaling such ventures and identifying the untapped opportunities within this niche. The study aims to provide a nuanced understanding of the unique dynamics at play in millet-centric culinary enterprises operating within the framework of cloud kitchens. In the pursuit of unravelling the complexities of millet-driven cloud kitchen businesses, this study explored various dimensions for selection of millet-based cloud kitchen as consumer point of view, including feasibility and scalability study of Millet-Based Cloud Kitchen Businesses that can influence the scalability and sustainability of these enterprises. Current research on millet-driven cloud kitchen businesses lacks a comprehensive exploration of the specific feasibility factors crucial for their establishment and successful operation. Key aspects such as initial investment requirements, infrastructure needs, and operational challenges unique to millet-focused culinary ventures are notably underexplored. This gap hinders a nuanced understanding of the practical considerations that entrepreneurs and stakeholders must address to ensure the viability and sustainability of such ventures.

Similarly, while existing studies have delved into consumer perceptions of millet-based dishes, there is a significant research gap in understanding how these perceptions intersect with the distinctive dynamics of cloud kitchens. The influence

of the cloud kitchen model on consumer preferences, ordering behavior, and overall satisfaction with millet-driven offerings remains largely unexplored. Bridging this gap is essential for unraveling the intricate relationship between consumer attitudes and the operational framework of cloud kitchens, providing valuable insights for the effective development and marketing of millet-based offerings within this innovative culinary landscape.

By conducting an in-depth analysis, this research aspires to offer valuable insights and actionable recommendations to different stakeholders involved in the nascent but burgeoning millet-driven cloud kitchen industry through the following objective.

1. To assess the feasibility and scalability of millet-driven cloud kitchen businesses.
2. To identify the key challenges and opportunities within this emerging millet-driven cloud kitchen businesses.
3. To investigate the consumer perceptions and preferences regarding millet-driven cloud kitchen businesses.

## 2. LITERATURE REVIEW

Gaining insight into consumer perceptions and the motivations behind millet consumption is pivotal, especially considering the rising popularity of millets as a healthier dietary choice (Shah et al., 2023). Millets exhibit nutritional equivalence or superiority compared to primary cereal grains. Their gluten-free proteins, elevated fiber content, low glycemic index, and abundance of bioactive compounds make them an ideal choice for promoting health (Kumar et al., 2018). Millets, belonging to the Poaceae family, are small-seeded cereals cultivated extensively in arid and tropical regions of Eurasia and Africa. These grains, among the earliest crops to be domesticated, have a rich historical presence, with evidence of millet consumption dating back to the Indus Valley Civilization around 3000 BC (Kheya et al., 2023). Globally, millets are recognized as a highly consequential group of cereal grains, ranking just after wheat, rice, maize, and barley in agricultural significance (Eugenia Ramashia et al., 2021).

Global food security has emerged as a significant concern, with widespread accessibility challenges persisting. Despite the United Nations aiming for universal access to food by 2030, the goal remains distant. Millets, versatile crops cultivated throughout the year, have witnessed a decline in cultivation since the post-green revolution era. This decline is attributed to a greater emphasis on rice, wheat, and maize. The main sources of carbohydrates, which humanity heavily relies upon, lack crucial amino acids and minerals essential for proper nutrition (Priya et al., 2023).





**Table 1: Types of Millet and their description(The Story of Millets,2018)**

Millet	Scientific name	Common names	Major areas of production for grains	Use
Sorghum	<i>Sorghum bicolor</i>	Great millet, jowar, cholam, jola, jonna, durra, Egyptian millet, feterita, Guinea corn, jwari, juwar, milo, shallu, gaoliang, kaoliang, kafir corn, dura, dari, mtama, solam.	USA, Nigeria, Sudan, Mexico, Ethiopia, India, Argentina, China, Niger, Australia	Grown for food grain in Asia and Africa, for fodder in Americas
Pearl millet	<i>Pennisetum glaucum</i>	Bajra, cattail, bulrush, candlestick, sanyo, munga, seno	India, Western & Central Africa, Eastern & Southern Africa	Grown for food grain in Asia and Africa, for fodder in Americas
Finger millet	<i>Eleusine coracana</i>	Ragi, African, bird's foot, rapoko, Hunsu, wimbi, bulo, telebun, koracan, kurakkan	India, Ethiopia, Nepal, Uganda, Malawi, Burundi, Sri Lanka, Rwanda	Grown for food grain and beer making in Asia and Africa
Foxtail millet	<i>Setaria italica</i>	Italian, German, Hungarian, Siberian, kangani, navane, thanahal	China, Myanmar, India, Eastern Europe	Grown for food grain and fodder
Proso millet	<i>Panicum milliaceum</i>	Common, hog, broom, samai, Russian, panivarigu, panic, maha meneri	Russia, USA, Ukraine, South Korea, Kazakhstan, France, Poland, Belarus, India, Iran	Grown for food grain and bird seed
Little millet	<i>Panicum sumatrense</i>	Blue panic, heen meneri	India	Grown for food grain
Kodo millet	<i>Paspalum scrobiculatum</i>	Varagu, bastard, Indian paspalum, creeping paspalum, amu	India	Grown for food grain
Barnyard millet	<i>Echinochloa crus-galli</i>	Japanese, sanwa, sawan, Korean, kweichou	India, Japan, China, Malaysia	Grown for food grain
Tef	<i>Eragrostis tef</i>	Abyssinian lovegrass	Ethiopia, Eritrea, Australia	Grown for food grain, and fodder
Fonio	<i>Digitaria exilis</i>	Fundi, hungry rice, acha	West Africa, Sudan, Ethiopia, Nigeria, Niger, Togo, Senegal, Mali	Grown for food grain in Africa

The examination of feasibility and scalability factors in cloud kitchen businesses is a critical area of study (Kulshreshtha & Sharma, 2022a) discussed the general feasibility challenges in cloud kitchens, emphasizing the importance of efficient logistics and technology infrastructure. However, the literature lacks a specific focus on millet-driven cloud kitchens. Research by (Kulshreshtha & Sharma, 2022a; Safuan & Latip, n.d.) highlighted the role of innovative menu offerings and strategic partnerships in enhancing the scalability of cloud kitchen models. Yet, the unique challenges and opportunities associated with scaling millet-focused ventures within the cloud kitchen framework remain unexplored.

Identifying key challenges and opportunities is imperative for steering the growth of millet-driven cloud kitchen enterprises. Recent studies by (Moyeenudin\* et al., 2020) delve into challenges faced by sustainable food businesses, emphasizing

consumer education and market positioning. However, a gap exists in understanding the specific challenges and opportunities within millet-focused cloud kitchens. (Ayofemi et al., n.d.; Moyeenudin\* et al., 2020) explored the potential of millets as a sustainable food source but do not address the operational intricacies within cloud kitchen models. Further research is needed to bridge this gap and provide a holistic understanding of the factors influencing the success of millet-driven cloud kitchen businesses.

Consumer attitudes play a pivotal role in the success of any culinary venture. Studies by (Kuchinka et al., 2018) explored consumer perceptions of sustainable and healthy food choices. However, there is a notable gap in understanding how consumers perceive and prefer millet-based dishes within the context of cloud kitchens. Exploring the impact of convenience, pricing, and menu variety on consumer choices in millet-driven



cloud kitchen businesses will contribute to filling this research void.

Providing actionable recommendations for stakeholders is crucial for translating research findings into practical strategies. (Kulshreshtha & Sharma, 2022b) offer strategic insights for cloud kitchen entrepreneurs, focusing on digital marketing and data analytics. However, there is a lack of tailored recommendations for stakeholders involved specifically in millet-driven cloud kitchen businesses. Drawing on the insights from feasibility, scalability, and consumer perception studies, this research aims to fill this gap by offering actionable recommendations for entrepreneurs, policymakers, and investors navigating the unique challenges and opportunities presented by millet-focused cloud kitchen enterprises.

### 3. RESEARCH METHODOLOGY

**Research design:** This present study entailed a mixed approach both quantitative and qualitative research design

**Locale:** The samples for this study were selected from within the Delhi National Capital Region (NCR) who was directly or indirectly associated with millet-driven cloud kitchen businesses.

**Sampling:** The current study employed a convenience sampling method to gather data. A sample size of 95 was chosen to achieve the objectives 1 and 2. The demographic profile of respondents included considerations of gender and stakeholders, such as App Developers and IT Teams, Chefs and Culinary Teams, as well as Cloud Kitchen Owners/Entrepreneurs and Delivery partners. These stakeholders were selected based on their direct and indirect associations with millet-driven cloud kitchen businesses. To meet the requirements of objective 3, a larger sample size of 301 was utilized.

**Tools and Techniques:** For this research, data was gathered through telephonic interviews to identify the key challenges and opportunities within this emerging millet-driven cloud kitchen businesses and the distribution of a self-administered questionnaire via an online Google Form. The respondents, who were affiliated with cloud kitchen businesses, were requested to provide their feedback by rating their agreement or

disagreement with each item on a Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree) to assess the feasibility and scalability of millet-driven cloud kitchen businesses and to investigate the consumer perceptions and preferences regarding millet-driven cloud kitchen businesses. Before implementation, the questionnaire underwent a rigorous review to ensure its appropriateness and relevance within the specific context of this study.

**Data and statistical Analysis:** The analysis of data was carried out utilizing SPSS version 23 as the primary analytical tool. The collected data underwent rigorous statistical examination, specifically employing the Descriptive statistics, Content analysis, One-Sample t-test and frequency. This statistical approach was selected due to its integration within the research (Anand & Chaudhary, 2023; Chaudhary & Sharma, 2023; Kumar & Chaudhary, 2023).

### 4. RESULTS AND DISCUSSION

In the context of assessing the feasibility and scalability of cloud kitchen businesses that focus on millet-based cuisine, the survey sample encompassed respondents from various professional backgrounds. The distribution of respondents among these professional groups was as follows: App Developers and IT Teams accounted for 11.6% of the respondents, highlighting the role of technology and digital solutions in cloud kitchen operations. Chefs and Culinary Teams constituted a substantial portion at 71.6%, emphasizing the importance of menu development and culinary expertise in millet-based cuisine. Cloud Kitchen Owners/Entrepreneurs, although a smaller segment at 6.3%, offered insights into decision-making and entrepreneurship within the industry. Delivery Partners represented 10.5% of the respondents, providing perspectives on logistics and last-mile delivery challenges. This diverse representation provides a well-rounded perspective on the industry. Chefs and culinary teams play a central role in menu development and food quality, while app developers and IT teams contribute insights on technology integration. Cloud kitchen owners and entrepreneurs offer insights into decision-making and business aspects, and delivery partners shed light on logistics and last-mile delivery. Together, these professional backgrounds contribute to a comprehensive evaluation of the feasibility and scalability of millet-based cloud kitchen businesses.

**Table 2: Distribution of Respondents by Stakeholder Category**

	Frequency	Percent	Cumulative Percent
App Developers and IT Teams	11	11.6	11.6
Chefs and Culinary Teams	68	71.6	83.2
Cloud Kitchen Owners/Entrepreneurs	6	6.3	89.5
Delivery Partners	10	10.5	100.0

In the analysis of responses to a Likert scale-based questionnaire assessing the feasibility factors for millet-based cloud kitchen businesses, several key insights emerge. Respondents appear to hold a moderately positive outlook

regarding the market demand for millet-based cuisine, with an average score of 2.84. While there is consensus among a significant portion of the respondents, the standard deviation of 1.394 suggests that there is a range of perspectives. This



variation in opinions highlights the dynamic nature of the market demand, with some respondents likely seeing substantial potential while others might be more cautious. Similarly, the establishment of a feasible supply chain for millet sourcing is seen as essential, as reflected in the mean score of

2.85. However, the standard deviation of 1.429 indicates that opinions vary regarding the importance of a reliable supply chain. It suggests that while there is general agreement on the significance of this factor, the specific approach to achieving it may differ among respondents.

**Table 3: Descriptive Statistics (Feasibility of Millet-Based Cloud Kitchen Businesses)**

	N	Minimum	Maximum	Mean	Std. Deviation
I believe there is substantial market demand for millet-based cuisine.	95	1	5	2.84	1.394
The establishment of a feasible supply chain for millet sourcing is essential for the success of millet-based cloud kitchens.	95	1	5	2.85	1.429
The development of appealing and diverse millet-based recipes is crucial to attract a wide range of consumers.	95	1	5	3.15	1.436
Effective cost management is vital to ensure that millet-based dishes can remain competitively priced.	95	1	5	3.02	1.502
Meeting regulatory requirements and obtaining necessary certifications for millet food products is a challenging yet necessary aspect of feasibility.	95	1	5	2.97	1.440
Efficient cooking processes to handle millet-based dishes and manage order volumes are vital for operational feasibility.	95	1	5	2.95	1.560

In the analysis of responses to a Likert scale-based questionnaire assessing the feasibility factors for millet-based cloud kitchen businesses, several key insights emerge. Respondents appear to hold a moderately positive outlook regarding the market demand for millet-based cuisine, with an average score of 2.84. While there is consensus among a significant portion of the respondents, the standard deviation of 1.394 suggests that there is a range of perspectives. This variation in opinions highlights the dynamic nature of the market demand, with some respondents likely seeing substantial potential while others might be more cautious. Similarly, the establishment of a feasible supply chain for millet sourcing is seen as essential, as reflected in the mean score of 2.85. However, the standard deviation of 1.429 indicates that opinions vary regarding the importance of a reliable supply chain. It suggests that while there is general agreement on the significance of this factor, the specific approach to achieving it may differ among respondents.

Menu development is a clear point of consensus among respondents, with a mean score of 3.15, indicating strong agreement on the importance of developing appealing and diverse millet-based recipes. This aligns with the broader trend of consumer preferences for innovative and diverse culinary offerings. Cost management and operational efficiency, while vital for success, show more varied responses. Effective cost management, with a mean score of 3.02, is perceived as crucial,

but the relatively high standard deviation of 1.502 suggests a broader range of opinions. The same pattern is observed for operational efficiency, with a mean score of 2.95 and a standard deviation of 1.560. These findings underscore the complexity of managing costs and operations in the dynamic context of millet-based cloud kitchens.

The descriptive statistics analysis of responses from a Likert scale-based questionnaire on the feasibility factors of millet-based cloud kitchen businesses provides significant insights. Respondents generally express a moderately positive outlook regarding market demand for millet-based cuisine and the importance of establishing a feasible supply chain. They strongly agree on the crucial role of menu development in attracting a wide range of consumers. However, opinions vary regarding cost management and operational efficiency, with some expressing concerns in these areas. Despite the challenges and necessity of meeting regulatory requirements, respondents generally recognize their importance. These results guide businesses in the millet-based cloud kitchen industry to emphasize menu innovation and address concerns related to supply chain and cost management to enhance overall feasibility. The findings offer a valuable foundation for understanding industry priorities and can inform strategic decision-making in this evolving sector.



**Table 4: Descriptive Statistics (Scalability of Millet-Based Cloud Kitchen Businesses)**

	N	Minimum	Maximum	Mean	Std. Deviation
Expanding the supply chain to source millets efficiently is a key factor for scalability.	95	1	5	3.07	1.446
Continual innovation and diversification of millet-based menu offerings are crucial for attracting a broader customer base.	95	1	5	2.86	1.357
Expanding to new geographical areas or cities to tap into a larger customer market is an important aspect of scalability.	95	1	5	3.21	1.413
Consideration of franchising or adopting a chain model to duplicate the concept across multiple locations is a viable approach for scalability.	95	1	5	3.05	1.439
Scalability necessitates robust technology systems for order management, delivery logistics, and customer management.	95	1	5	2.81	1.424
Investment in marketing strategies and promotions that reach a wider audience is essential for successful scalability.	95	1	5	2.78	1.322
Optimization and streamlining of operations to efficiently manage increased orders and maintain consistency in quality are critical for scalability.	95	1	5	2.96	1.279
A commitment to eco-friendly and sustainable practices aligns with consumer and industry trends and is important for scalability.	95	1	5	2.96	1.522
Building and maintaining a base of loyal customers through quality, service, and loyalty programs is essential for long-term scalability.	95	1	5	3.23	1.425
Collaboration with millet advocacy organizations, food startups, or government initiatives can facilitate scalability by accessing resources and support.	95	1	5	3.08	1.492

Respondents recognize the significance of efficiently expanding the supply chain, with a mean score of 3.07. This acknowledges the fundamental role of a well-established and responsive supply chain in scalability. While there is general agreement, the standard deviation of 1.446 highlights varying opinions on its exact importance, possibly due to differences in business models and approaches. Menu diversification, essential for attracting a broader customer base, receives a mean score of 2.86. The moderate level of agreement underlines the importance of continually innovating and offering diverse millet-based dishes. The standard deviation of 1.357 reflects the dynamic nature of consumer preferences, suggesting that businesses must remain adaptable.

Expanding to new geographical areas or cities, as indicated by a mean score of 3.21, is deemed crucial for scalability. Respondents generally agree on its significance, recognizing the potential in tapping into larger customer markets. Although opinions vary to some extent (standard deviation of 1.413), geographic expansion remains a key growth strategy. Consideration of franchising or adopting a chain model is perceived favorably, with a mean score of 3.05. While there is

general agreement on its potential for scalability, the standard deviation of 1.439 suggests varying perspectives on the precise approach. This factor presents an opportunity for businesses to explore different models while leveraging scalability.

Scalability necessitates robust technology systems, with a mean score of 2.81. The standard deviation of 1.424 reflects differing views on the role of technology in scalability. This highlights that technology is a critical enabler but may be perceived differently by respondents based on their experiences and technology readiness. Investment in marketing strategies is considered essential, with a mean score of 2.78. The standard deviation of 1.322 indicates variability in responses, suggesting that while marketing is crucial, there may be differing opinions on its exact impact. Effective marketing can be a powerful tool for reaching a wider audience and driving scalability.

Optimization and streamlining of operations are seen as critical for scalability, with a mean score of 2.96. The standard deviation of 1.279 indicates a range of perspectives on operational efficiency, emphasizing that achieving operational excellence is a multifaceted challenge in the context of





scalability. Respondents view a commitment to eco-friendly and sustainable practices as important for scalability, with a mean score of 2.96. The standard deviation of 1.522 reflects differing opinions on the role of sustainability. This suggests that while sustainability aligns with industry trends, respondents may have varying levels of emphasis on these practices for scalability.

Building and maintaining a base of loyal customers is considered essential for long-term scalability, with a mean score of 3.23. Although there is a general consensus on the importance of customer loyalty, the standard deviation of 1.425 implies some variation in opinions. This highlights the multifaceted nature of loyalty-building strategies. Collaboration with millet advocacy organizations, food startups, or government initiatives is viewed as a facilitator of scalability, with a mean score of 3.08. The standard deviation of 1.492 suggests varying perspectives on the role of collaboration in scalability, underlining the potential for diverse approaches to industry collaboration.

In summary the assessment of scalability factors for millet-based cloud kitchen businesses reveals a complex landscape of opinions among respondents. Each factor plays a unique role in the industry's growth, and while there is a general consensus on the importance of these factors, varying perspectives exist. Respondents acknowledge the significance of expanding the supply chain efficiently and expanding to new geographic areas. They recognize the potential in adopting a franchise or chain model and view collaboration with external organizations as a facilitator of scalability. Menu diversification and customer loyalty building are seen as essential for attracting a broader customer base and ensuring long-term growth. The commitment to eco-friendly and sustainable practices aligns with industry trends. However, opinions vary on the roles of technology integration, marketing strategies, and operational optimization in scalability. These findings reflect the dynamic and multifaceted nature of the millet-based cloud kitchen industry, where businesses must navigate various factors to achieve sustainable expansion and customer engagement.

**Table 5: Gender Frequency table of Customer**

	Frequency	Percent	Cumulative Percent
Female	118	39.2	39.2
Male	183	60.8	100.0

The gender distribution in the survey sample reveals a majority of male respondents, constituting approximately 61% of the total sample, while female respondents make up around 39% to investigate the consumer perceptions and preferences regarding millet-driven cloud kitchen businesses. This distribution may reflect the overall gender distribution in the context of the research or the specific demographics of the survey

participants. It is important to consider the potential implications of this gender distribution when interpreting the research findings. Gender-related perspectives and preferences can sometimes influence responses to survey questions, particularly in areas related to food and dining, which may be relevant to the research on millet-based cloud kitchen businesses.

**Table 6: One sample Test result**

One-Sample Test						
	Test Value = 0					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Millet-based dishes are perceived as healthier	36.194	300	.000	2.997	2.83	3.16
I prefer millet-based dishes due to their nutritional value	35.065	300	.000	2.824	2.67	2.98
I find millet-based dishes appealing in terms of taste and texture.	37.960	300	.000	3.000	2.84	3.16
Millet-based dishes offer a satisfying culinary experience.	37.844	300	.000	3.007	2.85	3.16
I consider millet-based dishes as a more sustainable food choice.	37.013	300	.000	3.043	2.88	3.20
The variety of millet-based options on the menu influences my choice.	37.370	300	.000	3.040	2.88	3.20
Millet dishes are priced reasonably compared to other menu items.	35.528	300	.000	2.967	2.80	3.13
My cultural or regional dietary practices influence my choice of millet-based dishes.	36.096	300	.000	2.900	2.74	3.06
I choose millet-based dishes to accommodate specific dietary requirements (e.g., gluten-free).	36.357	300	.000	3.027	2.86	3.19



I am more likely to order millet-based dishes when they are on special promotion or have discounts.	35.506	300	.000	2.937	2.77	3.10
Recommendations from others encourage me to order millet-based dishes.	37.496	300	.000	3.040	2.88	3.20
I am influenced by current health and wellness trends promoting millets as a superfood.	37.721	300	.000	3.010	2.85	3.17
I am curious to try something new or unfamiliar, especially if millets are not commonly consumed.	34.019	300	.000	2.944	2.77	3.11
Positive past experiences with millet-based dishes encourage me to reorder them.	39.291	300	.000	3.123	2.97	3.28

The results of one-sample t-tests conducted on a dataset encompassing respondents' perceptions of millet-based dishes reveal consistently positive attitudes across various dimensions. With highly significant p-values ( $p < .001$ ) in each case, the respondents, representing diverse stakeholder groups, consistently associate millet-based dishes with health, nutritional value, appealing taste and texture, sustainability, and satisfying culinary experiences. The mean differences, ranging from 2.824 to 3.123, underscore the strength of these positive perceptions. Notably, respondents find millet dishes reasonably priced, influenced by cultural and regional dietary practices, and swayed by factors such as specific dietary requirements, promotional offers, and health trends. These findings suggest a promising market for millet-based foods, implying potential success for businesses that emphasize health benefits, diverse menu options, and strategic alignment with current wellness trends. Overall, the positive response underscores a growing interest and acceptance of millet-based dishes among consumers.

The analysis of the data indicates that the p-values for all conducted tests are below the conventional significance level ( $\alpha$

= 0.05), as evident from the "Sig. (2-tailed)" column. Traditionally, when p-values fall below the significance level, it implies the rejection of null hypotheses. In this study, the null hypotheses posit no substantial difference or effect in various facets related to factors to choose millet-based cloud kitchen business. Therefore, based on the findings, all null hypotheses are rejected, implying the existence of significant differences or effects in the examined areas.

In the journey to assess the feasibility and scalability of cloud kitchen businesses focusing on millet-based cuisine, it is crucial to recognize and address a series of challenges and opportunities. The qualitative findings through interview with different stakeholders underscore the multifaceted nature of challenges and opportunities in incorporating millet-based dishes. Addressing sourcing challenges requires strategic partnerships and supply chain development, while consumer-oriented opportunities emphasize education, recipe innovation, and highlighting health benefits. Regulatory and operational aspects necessitate navigating complexities and optimizing processes, while marketing opportunities focus on positioning millets in alignment with contemporary trends.

**Table 7: Challenges and opportunities within this emerging millet-driven cloud kitchen businesses**

Category	Challenges	Opportunities
<b>Sourcing</b>	Inconsistent or limited millet supply	Developing reliable millet supply chains
	Variability in millet quality and pricing	Collaborating with local farmers and suppliers
<b>Consumer</b>	Low consumer awareness of millets	Educating consumers about millet benefits and options
	Resistance to trying new or unfamiliar dishes	Creating appealing milletbased recipes and menus
	Competition from established nonmillet offerings	Unique selling point as a healthconscious choice
<b>Regulatory</b>	Compliance with food safety and labeling regulations	Gaining certifications for organic and sustainable
	Meeting quality standards for millet products	millet sourcing
<b>Operational</b>	Managing millet preparation and cooking processes	Streamlining millet cooking processes for efficiency
	Cost management and pricing of millet dishes	Offering competitive pricing for millet-based items
<b>Marketing</b>	Promoting millet based dishes effectively	Marketing millets as a sustainable and healthy option
	Building brand recognition for millet offerings	Leveraging ecofriendly and health-conscious trends

Overall, these insights provide a comprehensive foundation for businesses seeking to navigate the landscape of millet integration in the culinary domain. These factors span various categories, including sourcing, consumer engagement, regulatory compliance, operational efficiency, and marketing strategies. In the realm of sourcing, businesses often grapple

with inconsistent or limited millet supply, coupled with the variability in millet quality and pricing. However, opportunities abound in the form of developing reliable millet supply chains and collaborating with local farmers and suppliers. This not only ensures a steady millet source but also fosters community involvement and sustainable practices.



On the consumer front, low awareness of millets and resistance to trying new dishes can pose hurdles. Nevertheless, these challenges can be transformed into opportunities by educating consumers about the health benefits and versatility of millets and creating captivating millet-based recipes that cater to diverse tastes. Highlighting millets as a health-conscious choice can also set them apart from the competition. In the regulatory sphere, compliance with food safety and labelling regulations, along with meeting quality standards for millet products, can be demanding. However, opportunities arise in gaining certifications for organic and sustainable millet sourcing, which can enhance the credibility of the business and its commitment to quality.

Operational efficiency is another critical area, where managing millet preparation and cooking processes and ensuring cost-effective pricing are essential. Streamlining millet cooking processes for efficiency and offering competitive pricing for millet-based items can turn these operational challenges into advantages by improving resource management and customer affordability. Finally, in the realm of marketing, effectively promoting millet-based dishes and building brand recognition for millet offerings can be transformative. By marketing millets as a sustainable and healthy dining option and leveraging eco-friendly and health-conscious trends, cloud kitchen businesses can draw in a wider and more conscientious customer base. These strategies not only address challenges but also tap into the growing demand for healthier and environmentally friendly food choices, fostering the feasibility and scalability of millet-driven cloud kitchen businesses.

## 5. CONCLUSION

The comprehensive analysis of data and insights from both quantitative and qualitative research provides a nuanced understanding of the feasibility and scalability of millet-driven cloud kitchen businesses. The distribution of respondents across various professional backgrounds, such as App Developers, Chefs, Cloud Kitchen Owners, and Delivery Partners, ensures a diverse and well-rounded perspective on the industry. Stakeholders play integral roles in shaping the success of millet-based ventures, contributing insights from technology integration to culinary expertise, entrepreneurship, and logistics. The findings from Likert scale-based questionnaires shed light on key factors influencing feasibility and scalability. While there is a moderately positive outlook on market demand and the importance of a feasible supply chain, the diversity of opinions suggests a dynamic landscape with varying perceptions. Menu development emerges as a point of consensus, emphasizing its crucial role in attracting consumers. Challenges related to cost management and operational efficiency highlight the complexity of navigating business aspects in the evolving context of millet-based cloud kitchens.

The gender distribution analysis reveals a majority of male respondents, potentially influencing consumer perceptions and preferences. Understanding these nuances is vital for businesses aiming to tailor their offerings to a diverse audience. Additionally, the one-sample t-test results underscore the overwhelmingly positive perception of millet-based dishes

across various dimensions, indicating a promising market for these products. The rejection of null hypotheses implies significant differences in factors influencing consumer choices in Favor of millet-based options. The challenges and opportunities identified through qualitative research further enrich the analysis. From addressing sourcing complexities to educating consumers and navigating regulatory requirements, businesses can leverage these insights to formulate strategic approaches. Collaborations with local farmers, menu innovation, sustainable practices, and effective marketing emerge as key strategies for success.

In essence, the feasibility and scalability of millet-driven cloud kitchen businesses are intricately linked to a multi-faceted set of factors spanning sourcing, consumer engagement, regulatory compliance, operational efficiency, and marketing. Businesses that navigate these challenges with strategic initiatives, such as reliable supply chains, consumer education, sustainable practices, and targeted marketing, are well-positioned to thrive in the dynamic landscape of the millet-based culinary industry. As the demand for healthier and environmentally conscious food choices continues to grow, the positive consumer perception identified in this research suggests a promising future for millet-driven cloud kitchen ventures.

The analysis of data pertaining to millet-based cloud kitchen businesses reveals a nuanced landscape encompassing challenges, opportunities, and stakeholder perceptions. The diverse representation of respondents, including professionals from various domains, reflects a promising interest in millet-based dishes. Challenges identified in sourcing, consumer engagement, regulatory compliance, operational efficiency, and marketing suggest avenues for strategic development. Recommendations include establishing reliable supply chains through collaborations, extensive consumer education campaigns, pursuing certifications for sustainable practices, streamlining operations, and implementing effective marketing strategies. Emphasizing the unique selling points of millet-based dishes and adopting scalable models are highlighted for feasibility and scalability. Overall, these insights provide a comprehensive roadmap for businesses in the millet-based cloud kitchen industry to navigate challenges, capitalize on opportunities, and align with evolving consumer preferences.

## 6. LIMITATIONS AND FUTURE RESEARCH

In this study exploring the feasibility and scalability of millet-driven cloud kitchen businesses, valuable insights have been gleaned from a combination of quantitative and qualitative research methodologies. The diverse representation of stakeholders, including App Developers, Chefs, Cloud Kitchen Owners, and Delivery Partners, offers a nuanced perspective on the industry. Findings from Likert scale-based questionnaires reveal a moderately positive outlook on market demand and the importance of a feasible supply chain, while challenges related to cost management and operational efficiency underscore the complexities of navigating this evolving culinary landscape. The one-sample t-test results indicate overwhelmingly positive consumer perceptions of millet-based dishes across various dimensions, suggesting a promising market. The rejection of null hypotheses implies significant differences in factors influencing consumer choices in favor of millet-based options.



Gender distribution analysis and stakeholder interviews further enrich the understanding, emphasizing the need for businesses to tailor their offerings to diverse audiences and address challenges through strategic initiatives.

However, this research is not without limitations. The sample size and composition, focused geographical scope, and potential gender imbalance may impact the generalizability of findings. Additionally, the reliance on Likert scale-based questionnaires and qualitative interviews introduces inherent biases. Future research could address these limitations by employing larger and more diverse samples, exploring varied geographical contexts, ensuring balanced gender representation, and incorporating diverse research methodologies. Longitudinal studies, cross-cultural comparisons, and in-depth analyses of consumer behavior and technological integration could further contribute to our understanding of the evolving millet-based cloud kitchen industry. Moreover, assessing economic and environmental impacts, as well as experimenting with different consumer education interventions, can provide comprehensive insights for the sustainable growth of this emerging culinary sector.

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# IMPLEMENTATION OF `replica_vector()` TO CHECK THE EFFICIENCY OF REPLICATION OF THE ELEMENTS OF GIVEN VECTOR USING `append()` METHOD OF LIST, TO CREATE AND REPLICATE VECTOR WITH THE `copy()` function of the copy module WITH RESPECT TO THE AMOUNT OF ELEMENTS OF A VECTOR. - A CASE STUDY

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## ABSTRACT

All the programming languages support copying functions which is used to copy or create replica of objects these objects represent the set of possible interpretations of any possibly-infinite sequence of symbols.

This manuscript reveals replica of vector using `replica_vector ()` function and examines the execution of replication of elements of the vector. Further comparing of `replica_vector ()` approach with the replicating of vector elements using `copy()` function in copy module in python. In addition to this time complexity and space complexity of an algorithm is examined. The purpose of this manuscript is to examine two different approaches efficiency when it comes to handling large data sets.

**KEYWORDS:** *replica vector (Rv), copy() function (Cf), Runtime Complexity (rc), Big  $O(n)$ , Big Theta  $\Theta(n)$ , Big Omega  $\Omega(n)$ , Generalised approach (ga)*

## 1. INTRODUCTION

The copying modules are basically functions which are generally used to create a new object of same data type of the data which is to be copied and copies all the objects present in it to the old object into the newly created object. This function is usually found in nearly all programming languages available across the world under different names usually providing the same features

The Copying modules mostly consists of two types of copying namely deep copy and shallow copy. In deep copy a collection of objects is constructed at first and the newly created object is recursively populated with copies of object found in the original. Whereas in shallow copy we create a duplicate of the original element but do not make copies of any elements referenced by the original element. In `copy()` function (Cf) we use the methodology of shallow copy. Therefore we tend to duplicate the elements in a new object rather than copying every elements like deep copy as it tends to be more effective.

In `replica_vector(Rv)` we use the `append()` function of list data type in Python to copy every object individually.

## 2. RELATED WORK

Many programmers around the world have researched thoroughly about the copying function around the world and have increased the number of ways through which the elements in a list can be copied very efficiently even while dealing with number of elements numbering upto zillions.

## 3. METHODOLOGY

The `copy()` function (Cf) is used to copy the elements of a list using the method of shallow copying. The time module will be imported using the import function. Two list data types will be created using the list function.

Inside an iteration upto certain number till which the number of elements in the first list or the list to be copied is needed.

Then using the `copy()` function (Cf) of the copy module of the Python you can assign the second list to the `copy()` function (Cf) and in the function where the argument of the list to be copied is required put the name of the first list.

In the `replica_vector(Rv)` we first create two list data types using the list function. The first list is then iterated to a certain number of times and the number of times the iteration is completed a new number will be added to the first list data type.

After creating a list data type of certain number of elements, once again a new iteration is created to transverse through each and every elements of the first data type and each element transverse individually is then individually appended into the second list data type using the `append()` function in Python.



**ALGORITHM FOR COPYING ELEMENTS OF A LIST DATA TYPE USING copy() function(Cf)**

**STEP 01: START**  
**STEP 02: L1=LIST**  
**STEP 03: L2=LIST**  
**STEP 04: FOR I IN RANGE (1,N):**  
**STEP 05:APPEND IN L1**  
**STEP 06:L2=copy.copy(L1)**  
**STEP 07: STOP**

**PYTHON PROGRAM TO COPY THE ELEMENTS OF A LIST DATA TYPE USING THE copy() function(Cf)**

```
import copy
def copy_():
    l1=list()
    l2=list()
    for i in range(1,N):
        l1.append(i)
        l2=copy.copy(l1)
```

**ALGORITHM TO COPY THE ELEMENTS IN A LIST DATA TYPE USING replica\_vector()(Rv)**

**STEP 01: START**  
**STEP 02: L1=LIST**  
**STEP 03:L2=LIST**  
**STEP 04:FOR I IN RANGE (1,N):**  
**STEP 05: APPEND IN THE L1**  
**STEP 06: FOR I IN L1:**  
**STEP 07: APPEND IN THE L2**  
**STEP 08: STOP**

**PYTHON PROGRAM TO COPY THE ELEMENTS OF A LIST DATA TYPE USING THE replica\_vector()(Rv)**

```
def list_method():
    l1=list()
    l2=list()
    for i in range(1,N):
        l1.append(i)
        begin=time.time()
        for i in l1:
            l2.append(i)
```

**4. COMPLEXITY OF ALGORITHM**

In computer science, analysis of algorithms is a very crucial part. It is important to find the most efficient algorithm for solving a problem. It is possible to have many algorithms to solve a problem, but the challenge here is to choose the most efficient one.[1]

There are multiple ways to design an algorithm, or considering which one to implement in an application. When thinking through this, it's crucial to consider the algorithm's **time complexity** and **space complexity**. [2]

**5. SPACE COMPLEXITY**

The space complexity of an algorithm is the amount of space (or memory) taken by the algorithm to run as a function of its input length, n. Space complexity includes both auxiliary space and space used by the input.[2]

Auxiliary space is the temporary or extra space used by the algorithm while it is being executed. Space complexity of an algorithm is commonly expressed using **Big (O(n))** notation.[2]

The Space complexity is ignored in this research paper, since the space complexity of particular problem is not considered so important.

**6. TIME COMPLEXITY**

The time complexity of an algorithm is the amount of time taken by the algorithm to complete its process as a function of its input length, n. The time complexity of an algorithm is commonly expressed using asymptotic notations:[2]

- Big O - O(n)**
- Big Theta - Θ(n)**
- Big Omega - Ω(n)**

It's valuable for a programmer to learn how to compare performances of different algorithms and choose the best time-space complexity to solve a particular problem in the most efficient way possible.[2]

**Big O** notation is used in Computer Science to portrait the performance or complexity of an algorithm.

**Big O** specifically defines the worst-case scenario of an algorithm, and can be used to describe the execution time required or the space used (e.g. in memory or on disk) by an algorithm. here O stands for order of growth.

**Big Theta(Θ)** is used to represent the average case scenario of an algorithm and can be used to describe the execution time required or the space used (e.g. in memory or on disk) by an algorithm.

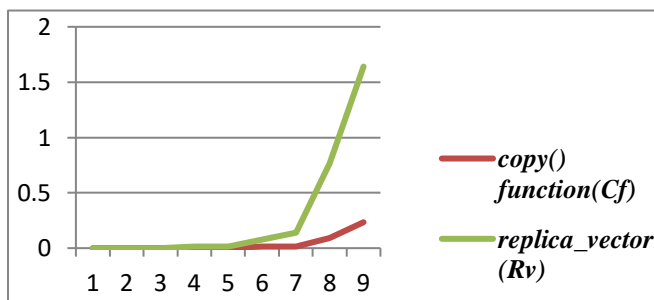
**Big Omega (Ω)** is used to represent the best case scenario of an algorithm and can be used to describe the execution time required or the space used (e.g. in memory or on disk) by an algorithm.

These three methods are the most common and very popular methods of design and analysis of an algorithm which are used for finding the efficiency of the program.



## 7. RUNTIME COMPLEXITY OF CHECKING A PRIME NUMBER

Input	copy() function(Cf)	replica_vector (Rv)
100	0.0	0.0
10000	0.0	0.0
20000	0.0	0.0
100000	0.0	0.015615940
200000	0.0	0.016032696
1000000	0.015654087	0.078124761
2000000	0.0156323909	0.140627384
10000000	0.0937488079	0.765634536
20000000	0.2343809604	1.6406536102



*Graphical Representation of Runtime complexity of both the methods*

### 8. Time Complexity of copy() function (Cf)

In the copy() function of the program the time complexity of the code for any value of N in the given code is given as

$$\text{Big } (O(n))$$

### 9. Time Complexity of replica\_vector(Rv)

The time complexity of the replica\_vector()(Rv) for any value of N of the given code is

$$\text{Big } (O(n))$$

## 10. CONCLUSION

The copy() function(Cf) of the copy module of the Python has greater efficiency compared to that of the replica\_vector(Rv) which employs the append() function of the list data type in Python. Further the copy function also uses a method of shallow copying which allows it to work very efficiently when dealing with bigger number of elements in the list data type of the Python.

## 11. ACKNOWLEDGEMENT

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# IMPROVING LABORATORY CLASSES IN CHEMISTRY IN HIGHER EDUCATIONAL INSTITUTIONS BASED ON INFORMATION TECHNOLOGY

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## ANNOTATION

*The article discusses new forms of teaching chemistry in universities. The most natural way is to use a computer based on the characteristics of chemistry as a science. This, in turn, is a simulation of chemical processes and phenomena, laboratory use of a computer in interface mode, computer support for the process of presenting educational material and monitoring its assimilation.*

**KEYWORDS:** *informatization, modeling of chemical processes, personal scientific laboratory, computer technology.*

## INTRODUCTION

The informatization of society has led to the deep penetration of information technologies into the educational industry. Not only has the material and technical level of providing training in various subjects changed fundamentally, but also new digital information tools have appeared, which inherently make it possible to organize modeling, emulation and experimentation and do not require additional special equipment.

It is impossible to implement new approaches to solving important problems in teaching chemistry without the use of new methods and tools. The formation of a competent, developed personality, capable of making adequate independent decisions, with a desire to constantly improve their training, cannot be achieved without making changes to the teaching methods of chemistry. These changes will contribute to the further implementation of the continuity and independence of modern education and will determine its advanced nature. Currently, digital technologies are increasingly being introduced into the educational process of schools.

## LITERATURE REVIEW

Laboratory digital teaching tools allow you to conduct various educational experiments as part of laboratory work. Examples of laboratory digital teaching tools are various software tools that implement models of various processes (chemical, physical, etc.) and allow you to change the parameters of the models to obtain experimental results.

Multimedia digital educational tools allow you to use the maximum number of channels for perceiving information by transmitting information in multimedia form using computers

and office equipment, thereby significantly increasing the effectiveness of learning. The need to use digital educational tools, which, as audiovisual means, can affect various senses, is undeniable. It is also due to the significant complication of learning objects - it is impossible to demonstrate a complex technical device, microcircuit or technological process only by verbal means and with the help of chalk and a blackboard.

Information technologies of higher education - the use of computer technologies and computer technology in educational, research work, management of the educational process for the training of specialists at various levels.

To better reveal the connection of the object being studied, to identify patterns of processes that cannot be shown in the educational laboratory, a chemistry teacher in his classes, when studying certain topics and experiments, uses computer methods for modeling chemical processes and phenomena.

## METHODOLOGY

Computer technologies in teaching chemistry are used to control and process data from a chemical experiment, instilling in students skills in research activities, creating cognitive interest, increasing motivation, and developing scientific thinking.

Independently, using a specific program, the student can set different values for the concentration of reacting substances and monitor changes in the volume of gas released. Students are of great interest in building models of inorganic and organic substances, studying phenomena by changing parameters, comparing the results obtained, and analyzing them.





Each educational program is compiled based on the purpose of the lesson, its content, and the sequence of presentation of educational material. In chemistry, computer software can be divided into groups:

- Manuals on basic topics of chemistry;
- Solving calculation problems in chemistry;
- Performing experimental work on certain topics;
- Performing laboratory work;
- Assessment and control of knowledge in the form of test tasks and control questions.

When studying models of chemical reactions, chemical production and many chemical instruments, if it is not possible to get acquainted with the technological processes being studied or carry out laboratory work in real conditions, you can use the programs “Chemistry for Everyone - 2000”, “ChemClass”, ChemLab, IR and NMR Simulator .

When studying the following sections: types of chemical bonds, structure of the atom, structure of matter, mechanisms of chemical reactions, theory of electrolytic dissociation, stereochemical concepts - the programs “1C: “Assemble a Molecule”, CS Chem3D Pro, “Chemistry for Everyone”, Tutor, Chemistry are used, Crystal Designer, ChemLand, “Organic Reaction Animations” [1].

Thus, we can note the advantages of teaching software in chemistry classes:

1. The ability to assimilate a large amount of material covering various sections of the chemistry course.
2. Improving the clarity of the presentation of material through the use of object movement, sound design of the material and color images.
3. The ability to demonstrate chemical experiments and technological processes that cannot be carried out in real conditions.
4. Acceleration of the pace of lectures due to the support of computer programs by 10–15%.
5. Showing interest in the subject and easier assimilation of the material (the quality of knowledge increases).
6. Increasing the level of individualization of training.
7. Operational organization of control over the acquisition of knowledge in the discipline.
8. Formation of basic concepts of the macro and microworld.
9. High degree of clarity and ease of use.
10. Formation of general educational, experimental skills and knowledge [2].
11. Generalization and deepening of knowledge in all areas of chemistry.

The peculiarity of chemistry as a discipline for students of non-chemical specialties is that in a small course it is necessary to use information from almost all branches of chemistry.

## DISCUSSION

The solution to this problem is facilitated by the introduction of modern innovative technologies into the educational process using multimedia equipment in classrooms and elements of distance learning during self-training of students, in particular this applies to chemical disciplines.

Employees of the Department of Chemistry and Plant Protection of the Stavropol State Agrarian University have been introducing new information teaching aids in the disciplines “General Chemistry”, “Inorganic and Analytical Chemistry”, “Organic Chemistry”, “Physical and Colloidal Chemistry” for several years in a row [3].

All material for classroom training is concentrated in an electronic educational and methodological complex, which has the following structure:

- work program in chemistry for each agricultural engineering specialty;
- an electronic textbook, including lecture notes and a complete interactive chemistry course on CD “Open Chemistry” with lecture demonstration multimedia experiments;
- interactive periodic table with general and specific data on each element;
- workshop in chemistry with experiments;
- test materials for current and final control of knowledge in blank and computer versions;
- methodological recommendations for organizing self-control on given topics;
- a problem book with solutions, teaching aids and reference materials [3].

The use of an electronic educational and methodological complex makes it possible to more effectively carry out the educational process in chemistry for students of agricultural engineering specialties.

In their free time from classes, students can independently use the material, which is located on the website of the chemistry teacher’s electronic office [4].

In the electronic classroom, the chemistry teacher has the opportunity to electronically arrange all educational information for each discipline taught. This can be a work program, lecture notes, recommendations for performing practical and laboratory classes, methodological recommendations and assignments for completing tests for correspondence or distance learning, a solubility table and the periodic table of chemical elements, reference manuals, a list of abstract topics, a glossary, a list of sample program questions for passing a test or exam, tests for testing students, literature on the entire discipline and any other necessary information for a student in this chemical discipline.

Teachers of the Department of Chemistry and Plant Protection use new innovative forms of lecturing in their classes. Each lecture is accompanied by the use of multimedia equipment; corresponding audio-video clips, three-dimensional and two-



dimensional graphics of models of crystal lattices of metals and models of atoms of chemical elements are demonstrated for specific chemical phenomena.

## CONCLUSION

The results of the study allow us to conclude that the previously stated hypothesis was confirmed and the goal and all objectives of the study were achieved. Based on the research materials, the following conclusions were made:

- The use of digital learning tools ensures the implementation of an activity-based approach in school education;

- Teaching aids, when used rationally, lead to the intensification of the educational process and make it possible to prepare students for work and life in the conditions of the emerging information society;

- Digital learning tools are a pedagogical tool in the hands of a teacher, which he must be able to use, based on the premises underlying their use.

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# ISSUES OF DEVELOPMENT OF THE PROFESSIONAL CULTURE OF CIVIL SERVANTS OF THE STATE IN THE CONSTRUCTION OF “ENLIGHTENED SOCIETY” IN NEW UZBEKISTAN

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## ANNOTATION

*This article highlights the issues of building an enlightened society at a new stage in the development of new Uzbekistan, the development of the concept of an “Enlightened society” based on the strategy of developing the professional culture of civil servants and ensuring the effectiveness of civil servants by introducing them into the work process.*

**KEY WORDS:** *state and society, development, professional culture, civil servants, “Enlightened society”, New Uzbekistan.*

A civil servant is the face of the former state and nation, the key to the successful functioning of Public Administration. In this sense, while it is the same task of everyone to establish a “Enlightened society” in the New Uzbekistan, the key to it is in the successful functioning of Public Administration. As a leader, representatives of the civil service of the state, which organizes this state government, have the opportunity to show enthusiasm in the construction of an enlightened society in Uzbekistan. This is the opportunity to serve for the motherland, for the land, for the nation. Consequently, during his service career, a civil servant is considered a competent person who mobilizes the authority given by the state in the interests of the people and in the pursuit of prosperity in the motherland [1] (the feeling of equal importance and genius for all in the development of society, helping people to stay away from vices such as loyalty and innocence and acting together. The service activities, work and every behavior it carries out determine the conclusion that is given not only on behalf of any public body or organization, but in relation to the state's system of government.

Therefore, there are a number of qualities that a state civil servant must have. Considering, the law plays a decisive role in the organization of public service activities. Obviously, a person, on the other hand, is brought up from an early age by moral standards. Moral standards are regulated, controlled and assessed on this basis by spiritual and cultural norms not only in the daily life of a person, but also in almost all interactions in the life of society. The ethics of each profession is manifested in the system of moral culture. This situation is especially evident in servants who work in the field of civil service of the state. For this reason, their professional ethics are required to act as an example in relation to all other professions. Husan Voiz Koshifiy expressed such an opinion about professional etiquette, “Know, there is a brief rule that applies to all professions in the same way - there are letters and there is also a special etiquette for each profession. If they ask how many are the conclusions of the necessary etiquette for all

professions, say eight. Of these, the most notable for a civil servant are:

Firstly, let him keep his profession clean of unclean, suspicious property;

Secondly, let him engage in the necessary profession only for the need for sustenance and not spend the profession on the accumulation of goods;

Thirdly, let him know that gaining a reputation for the profession is the reason for making a good name;

Fourth, let not deal with unclean people (officials, graziers, robbers, thieves, gamblers, butcher shopkeepers” [2].

Today, the issues of professional or service ethics, professional skills, ethics of behavior and ethics of a civil servant will not be an exaggeration if we say that it is in the center of attention of scientists from all states. In particular, the Russian scientist E.V. Okhotsky says in the “The ethics of Public Service”, - “is his main goal to act as the accumulator of the unity of public administration, law and public morality.” [3] In specialized literature, the ethics of the conduct of a civil servant an attribute of professional skill in addition to managerial qualifications [4] (latin attribute - I give is considered as a necessary, important, characteristic feature of the object). Today, the behavioral ethics of civil service employees is manifested in a somewhat more complex way. The ethics of the behavior of a civil servant is complex, which in turn is drawn up in the practice of issuing relevant laws, codes and other official regulatory documents that make up the only spiritual and moral space of the civil service. Through the manifestation of aspects of the spiritual and moral space of the civil service, such as humanity, devotion to duty of service, citizenship, patriotism, professional dignity, sincerity, honesty and truthfulness, initiative, sensitivity and zearfulness, as well as correctness, femininity and attentiveness, the elements that are reflected in the spiritual image of civil servants of the state are more important than ever. It is these elements that form the professional punctuality of civil servants. The spiritual and moral elements listed above in the professional and service activities of a civil servant-indicate how high the demand for norms in the professional culture of



servants should be. It shows that even for the embodiment of these elements, the professional-cultural potential in civil servants of the state should not be sufficient, it should be formed in accordance with and characteristic of the requirements of the era of modern civil servants of the state.

In the course of studying visions about public administration, activities and the servants involved in it, we found it necessary to focus on one of the philosophers Plato's factions about upbringing in civil servants and the unity of law: "the law is a way of prosperity, so that the owner must make a special effort to strengthen the upbringing of the law. If upbringing is an integral part of the nature of the mayors of the city and people like them.".. there he says that legalization can be perfect and argues that if the governors and their subordinates are uneducated, then both their affairs and the affairs of citizens will face a crisis [5].

The views associated with the form of government were shaped in a unique way in later devotions, where modern statesmanship developed. In particular, statesmanship in determining the social moral level and image of representatives of the field of civil service of the state and its formation carried out research in developed foreign countries, in the scientific research of such scientists as Gadjeiev, F.Ardan, S.Parkinson, G.Genevieve, J.Xense, Y.Metsner, O.Susumu, M.K.Rustomji, P.De Bruyn, R.Inglhart promoted studies and views on the upbringing of a perfect civil servant. Social-philosophical conceptual-theoretical idea in the research of scientists of the later period in general; it can be seen that the theoretical direction aimed at expanding socio-morally approved human rights and managerial activities is aimed at the formation of such scientific-theoretical foundations as violence, injustice, elimination of illusions of inequality from the human society, based on rational perception of the concepts of "leadership spirituality", "leader's image", "leader's ethics", "civil servant", "person and society".

It will be necessary to note The views of Eastern thinkers such as al-Qandi, ar-Roziy, Ibn Sina, Beruniy, Navai, Ghazzali and Al-Farabi about the qualities that the head should possess. In particular, Farabi's views on how the city of phosil people and the cities of ignorant people are divided by what features they are distinguished mainly dwell on the concepts of society, person, citizen and state, one by one in the book "City of generous people" [6], about what qualities and feelings the ruler of the land, (governor) officials, servants have.

Today, the management systems of states are being transformed into a simpler form day by day. The Finnish state, which has chosen such a simple state management path, is among the most progressive countries among the countries of the world. It is natural to have a question. What lies at the time of this promising development of Finland. In this regard, in his book entitled 100 social innovations of Finland belonging to the Ilkka Taipali translation on the management system of Finnish municipalities, public service, Finnish authorities will have exclusive and broad powers on the principles of decision-making and territorial planning, that is, a monopoly on territorial development. This right is exercised through the

creation of development plans of certain settlements, which include territorial zoning plans, territorial use and probable construction, which determine the activities granted. The purpose of regional planning is to create a safe, health-maintaining, comfortable and socially functional living environment that satisfies the needs of diverse population groups, and to allocate sufficient areas for living and economic activities. Regional planning is a means of ensuring economic efficiency, low cost of services, the beauty of the man-made environment, cultural values and the preservation and advancement of natural diversity. In the activities of the authorities, first of all, the provision of comprehensive quality services to citizens has a dominant place.

At the new stage of development of Uzbekistan, the issue of enlightened society is relevant. Consequently, the issue of enlightenment plays an important role in the construction of its new path today, a country that has undergone various forms of public administration. In this process, it is necessary to realize that the development of the professional culture of civil servants of the state is associated precisely with enlightenment. In the new Uzbekistan, the development of the professional culture of civil servants of the state is considered important in the way of building a "Enlightened society". Therefore, special attention should be paid to the issue of optimization of the spiritual activity of a civil servant of the state, who is active in the public administration service. To increase the spiritual activity of civil servants of the state, we offer to define the following as their optimal goals:

- The Hypocrisy;
- Ideology;
- The Enlightenment;
- Culture;
- Healthy Faith In The Moment;
- Morality In The Moment;
- Justice Of The Moment;
- Get a compromise;

Avoiding conflict of interest serves as the basis for the active movement of the moment of service towards the intended goal, that is, the foundation. In addition, increasing the professional competence of civil servants of the state is one of the important tasks and requires the organization of systematic activities. In the process of digitized management, professional competencies of civil servants of the state should be constantly increased. In itself, it is known that in the conditions of New Uzbekistan, the priority task of building an enlightened society is set, which means that the relevance of the issue of increasing the spiritual activity of civil servants of the state will also increase. On this issue, there is a need to carry out the following work in the regions:

- Establishing the organization of master classes;
- Organization of step-by-step studies during the year and systematic organization of professional development of representatives of the industry;
- Organization of service training;
- Recruitment to conferences;
- Online and offline seminars hosting industry related;





To create a platform giving knowledge of the civil servants of a single and open state, as well as to establish a system of regular data transmission.

In conclusion, it should be said that one of the main tasks of all employees working in government agencies and departments is selfless service to the people and not to forget about their duty and devotion to the Motherland, constantly improve their professional qualifications and skills, make rational decisions in the current problematic situations and, most importantly, ensure that the interests of the people consistent with personal interests, the continuous improvement of professional competencies, such as "enlightenment", serves as a solid foundation for the "Enlightened society" that we strive for.

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# THE CONCEPT AND ESSENCE OF WAQF AND ITS DISTINCTIVE FEATURES

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## ABSTRACT

*The article discusses the establishment and development of the waqf institution. Facts and information about waqf institutions have been researched based on the principle of historicity.*

**KEYWORDS:** *waqf, mosque, madrasa, era, property, education.*

During the era of Prophet Muhammad (peace be upon him), waqfs gained general importance, and they flourished during the caliphate, especially for various social purposes. Below we provide the examples:

1. Mosques: During the caliphate era, the waqf of mosques reached its highest level. Mosques were allocated to caliphs and commanders, and their imams were appointed by them. During the period of Umar, the construction of mosques increased significantly. Umar ordered the establishment of mosques in various cities. Sa'ad ibn Abu Waqqas was ordered to establish the Kufa Mosque. Umar expanded the area of the Masjid al-Haram and purchased some houses around it, incorporating them into the Masjid al-Haram complex. Usman also expanded the Masjid al-Haram, buying numerous houses and adding them to its structure. Ali, too, established many mosques in various regions.

2. Public waqf. The Companions established public endowments during the time of the Caliphs. The major ones are houses, cultivated fields, weapons for war, animals and property, wells and waterways. Endowment of houses was especially popular. The largest waqf fields are the waqfs made by Umar, Usman, Ali and Zubayr ibn Awam. Regarding the endowment of weapons, it is mentioned in the above hadith that Khalid bin Walid endowment of his shield. Umar also used to provide the necessary equipment for the battle in the way of Allah. The most famous of the endowed wells is the Ruma well. Umar also ordered Sa'd ibn Abu Waqqas to dig a river for the people of Kufa, and Abu Musa Ash'ari to dig a river for the people of Basra during his governorship.

### The State of Waqfs in the Later Period of the Companions:

According to the majority opinion, waqfs, especially familial waqfs, were considered a means of depriving daughters of their rightful inheritance. Particularly, in narrations, it is mentioned that Aisha disapproved of familial waqfs, saying, "I will not tolerate the charities of today's people being diverted only to that which has been mentioned in this verse of Allah: And they say, "These animals and crops are forbidden; no one may eat from them except whom we will," by their claim. And there are those [camels] whose backs are forbidden [by them] and those upon which the name of Allāh is not mentioned - [all

of this] an invention of untruth about Him. He will punish them for what they were inventing." By Allah, a man gives a large amount of charity to his daughter. You see in that girl the blessing of his charity. Then you feed another daughter of that person and you see poverty in her, because that person forbade her from his charity.

Caliph Umar bin Abdulaziz attached importance to people's rejection of charity that prohibited women. But he died before doing this.

Imam Malik said: Umar ibn Abdulaziz's insistence on rejecting the almsgiving that did not include girls is proof that he can give alms to both boys and girls.

**Waqfs During the Umayyad Period.** During the Umayyad era, waqfs expanded extensively, especially in newly conquered territories such as Egypt, Syria, and other regions. This expansion was due to the broadening of the conquered territories and the subsequent increase in waqf areas. During this period, waqfs were not limited to supporting only the poor and needy through direct assistance. Instead, a variety of educational institutions (madrasas) were established, contributing to the development of scholarly disciplines (Islamic sciences), and the construction of mosques and charitable homes also flourished. As people began to pay serious attention to waqfs, institutions and committees were formed to supervise and enhance waqf affairs.

In Baghdad and other regions, supervisors oversaw endowments and accounted for the endowment managers (mutawallis). If any shortcomings or negligence were identified in the management or preservation of endowments, they would be corrected or the managers replaced.

Tawba ibn Nimr ibn Hawmil Hadrami, who managed waqfs in Egypt during the time of Hisham ibn Abdulmalik, emphasized the exclusive allocation of waqf benefits to the poor and needy. He stated, "These charities are meant only for the poor and needy. Thus, we must establish a firm rule to prevent these charities from being used for bribery and inheritance." During



this era, a cautious individual named Tawba ibn Nimr, with a keen sense of responsibility, established an independent fund for waqfs, overseeing it alongside other established committees. This fund was not only the first of its kind in Egypt but also set a precedent for waqf supervision throughout the Islamic world.

**During the Abbasid era**, the endowment system further developed. Now, endowments were not limited to only the poor, needy, and scholars; libraries were established, funds were allocated to them, and hospitals providing free services to the sick were built. Homes and shelters were also constructed for the poor and needy. Additionally, during this period, a head leader was appointed for the endowment administration, known as the head of endowments (*sadr al-vuquf*). This leader supervised all endowments and appointed dedicated servants (agents) to carry out the tasks.

In the time of the Abbasid Caliph Ma'mun, Lahiya ibn Abbas Hadrami supervised endowments in Egypt. Concerning him, it is said: "During Lahiya's period of leadership, he executed excellent work in governing all the endowments of Egypt. Sometimes, he ruled based on evidence and sometimes by the consent of the endowers, and there was no endowment left unattended. He once said, 'I asked Allah for success in managing the endowments properly. Among all the endowments, not a single one was left without my ruling, evidence, or renewal of proof.'" This period marked the initial phase of establishing independent endowment records and a significant development in the endowment system.

Endowments were consistently supported and empowered by the Abbasid caliphs. According to Ibn Kathir in his book "*Al-Bidaya wa'l-Nihaya*," in the year 631 Hijri, it is mentioned that in that year, the construction of a madrasa in Baghdad initiated by Caliph Al-Mustansir Billah was completed. Such a madrasa had not existed anywhere before. In this madrasa, during the educational process, equal opportunities were provided for students adhering to the four Sunni schools of thought. Specifically, for each school of thought, there were 62 jurists, four assistants, a teacher for each school of thought, a hadith master, two reciters, 20 boarding students, a medical master, and ten Muslim individuals engaged in medical practices. Additionally, there was a special educational residence for orphaned children, providing them with sufficient bread, meat, halva, and all necessary provisions.

During the Ottoman era, urban development projects were extensively carried out through a well-established endowment system. These initiatives were financed without relying on state funds or taxes collected from the public. Instead, financial support for activities such as education, healthcare, social assistance, urban development, water supply, and various other fields came from endowments. The endowment system enabled the Ottoman Empire to provide high-quality services in diverse areas, reaching a significant level of service delivery without being dependent on government funding or taxation from the population.

In O.A. Sulstonov's doctoral dissertation on the endowment properties in Central Asia, particularly in the following information has been provided: "When we talk about the ancient endowment properties in the Central Asian region, especially during the time of the Qarakhanids, it is possible to refer to two endowment deeds related to the second half of the 12th century in Samarqand, attributed to the ruler Ibrohim Tamg'achxon. In reality, during the Qarakhanid period, several madrasas operated in Samarqand and Bukhara. These madrasas were established with endowment properties allocated by rulers, their relatives, and representatives of the upper class for financial support. Besides madrasas, there is also information about endowment properties allocated for mosques and cemeteries. One of the main characteristics of endowment properties during this period was the benevolent endowments allocated by rulers and representatives of the upper class. In the later periods, larger endowments were mainly associated with familial endowment properties. An example of this tradition is evident in the endowment properties established during the Timurid period, exemplified by the endowment properties initiated by Khwaja Ahrar, which contributed to his elevated status."

If we consider the separate regions within the current territory of Uzbekistan, one of the earliest waqf documents that has come down to us dates back to the 13th century and pertains to the city of Bukhara. This document, from the late 13th century, is associated with a waqf established for the use of two mosques in the town of Bukhara-Samarkand and the mausoleum of Khwaja Hamina in the vicinity of Hamina village. According to the information obtained from this document, endowments were allocated for the maintenance of the mosque and mausoleum, including funds for repairs, renovations, housing, and other non-movable properties. One of the earliest documents related to the waqf in Bukhara dates back to the early 14th century, around the beginning of the 14th century, and pertains to the mausoleum of Shaykh Saifuddin Bukhari in the Fathabad complex near Bukhara, including a guesthouse and a bathhouse. During the reign of Abdulloh Khan (1533-1598), when Bukhara became the capital of the Shaybanids in 1557, waqfs in Bukhara and its surroundings flourished, and many religious, social, and cultural endowments were established.

The most developed period for endowments in Samarkand corresponds to the era of Timur and the Timurids. In the 14th to 16th centuries, Samarkand was designated as the political, religious, and cultural center of the region, witnessing the establishment of numerous endowments in the city. During the Timurid period, under the prominent representative of the Naqshbandi Sufi order, Khwaja Ahrar Vali (1404-1490), and his descendants, significant endowments were organized around him. These waqf documents from that time provide information about life in Samarkand and its surrounding villages and towns.

Throughout the long reign of the Khiva Khanate, whose capital was the city of Khiva in Khorezm, the region of Khiva also developed significantly in terms of endowments.



In the latter half of the 19th century, as the Russian Empire expanded its influence over Central Asia, the issue of endowments came under review, among other religious institutions. In 1867, under the administration of K.P. Kaufman, the "Regulation on the Administration of the Turkestan Region" was issued. This regulation included a section on "Managing the Waqf Properties of the Turkestan Region." Consequently, Turkistan's waqfs fell under Russian control. The desire of the colonial policy to confiscate endowments intensified over the next twenty years. In the regulations of 1886 concerning the administration of the Turkestan region, Articles 265, 266, and 267 directly addressed the issue of endowments. According to these articles, lands designated as waqf, which were considered state property benefiting the public, were allocated to peasants. The establishment of new endowments was permitted only in "special cases" with special permission, thus placing limitations on the creation of waqfs.

Until the beginning of the Soviet era, endowments in the territories of the Bukhara Emirate and the Khiva Khanate retained their previous status.

With the advent of the Bolsheviks, on January 23, 1918, a decree titled "On Separating the Church from the State and the School from the Church" was adopted. Articles 12 and 13 of this decree contained provisions related to endowments, stating: "No religious community or religious society can be the owner of property. They are deprived of legal entity status"; "The property of existing church communities and religious societies in Russia is declared public property." According to this decree, religious organizations were not allowed to own property, and all properties, including endowments, were declared public property.

The implementation of land and water reforms marked the beginning of the significant decline for regional endowments. For example, in November 1925, at the Congress of the Uzbekistan Communist Party, a decision was made to implement the land reform. According to the resolution issued on December 19, 1925, with the number 168, all endowments outside of cities were transferred to the People's Commissariat of Village Farming. The endowments in cities were left to the discretion of religious communities. After a short period, even urban endowments were confiscated, and their revenues were handed over to the People's Commissariat of Education. However, permission was granted for imams and muezzins to retain the endowments of mosques. Thus, only the endowments of mosques remained during this period.

In this manner, only the endowments of mosques remained during this period. With the decision of the Council of People's Commissars and the Central Executive Committee in August 1927, the Central Waqf Administration was abolished, and religious endowments were also transferred to public ownership. The decree stated: "All religious endowments managed by the existing waqf administrations should be considered government property and transferred to the jurisdiction of the People's Commissariat of Education." However, until the late 1920s, endowments were not entirely

transferred to state ownership. In 1930, the central government in Moscow declared all remaining endowments, left without proper use, to be public property.

The manner in which endowments were abolished reflects a pattern seen in many countries where Islamic civilization flourished, such as Egypt, and so on. In Turkey, although the process did not unfold in the same way, the term "waqf" was changed, and for a period, it operated under a different name. The nationalization of endowments by states resulted in the weakening and disappearance of systematically organized and purposeful activities of endowments in the economic, educational, and healthcare systems. Unfortunately, despite the significant cultural and economic potential of states with a high degree of waqf culture, many endowment activities have not been able to return to their former level.

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# HISTORY AND ACTIVITY OF ORTHODOX CHURCHES IN KOKAND

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## ABSTRACT

*This article covers the process of the arrival of representatives of the Orthodox Church in Uzbekistan, their geographical location, as well as representatives of the Orthodox community of the city of Kokand in the Fergana region. In the context of this study, the main focus is on analyzing the dynamics and peculiarities of the development of the Orthodox community in the mentioned region. The work considers issues related to the historical, cultural, and social aspects of the presence of the Orthodox Church in Uzbekistan. Kalit so'zlar Bag'rikenglik, konfessiya, pravoslav, katolik, protestan, injil, bibliya, baptistlar, yevangel, adventist, missionerlik.*

**KEY WORDS.** *Tolerance, confession, orthodox, catholic, protestant, bible, baptist, evngelical, adventist, missionary.*

## INTRODUCTION

Uzbekistan is a multi-ethnic, multi-confessional country. To ensure peace and stability in a country with different religions, to establish the principles of mutual respect, patience, and tolerance in the activities of different denominations operating in the country, the history, teachings, places of worship and the role of religion in the development of society learning has theoretical and practical significance.

## LITERATURE REVIEW

The main literature related to the researched topic can be divided into two periods. The first period, the colonial period of the Russian Empire. The literature created during this period mainly included statistical information, newspapers and magazines kept in the regions of the Russian Empire. The second period is archival documents stored in the National Archives of the Republic of Uzbekistan.

## RESEARCH METHODOLOGY

In the process of writing the article, national methods were used, in particular, systematic, content, functional, comparative analysis, logical and historical approaches of prediction were widely used.

## ANALYSIS AND RESULTS

After the Russian Empire conquered the territories of the region, the present Fergana region and its neighboring regions were ruled from Kogan in the early days. For this reason, representatives of the Orthodox Church of Christianity and the first churches appeared in the Kokan region. In the report of the governor general of Fergana region No. 3658 of October 14, 1876 to the governor general of Turkestan, it was suggested that in order to turn the khan's palace in Kok into a church, the hall of the khan should be adapted to resemble a church. In the estimate prepared for this work, a small amount of money was calculated, according to which Lieutenant Sinclair, assistant to the head of engineering works of the Fergana region, reviewed it, showed the graph, and with the given amount of money found it impossible to do the work. On October 14, 1876, the

governor-general of Fergana province requested funds in the amount of one thousand six hundred and sixty-four rubles and sixty tinyas in his report No. 3658 dated October 14, 1876 [1]. From the report of the Governor General of Ferghana region to the Governor General of Turkestan, it appears that the funds for turning the khan's palace into a church were not enough and additional funds were requested. On October 18, 1876 No. 795 of the Governor General of Turkestan, in the reply letter sent to the Governor General of Fergana Region, he allowed to allocate the necessary funds[2]. The church building in the Khan's palace is designed for 100 people and is decorated with various church equipment. In 1922, the church was named Holy Apostles Constantine and Helena[3]. We can see from the details that the first Orthodox church in the Fergana region was "organized" in the palace of Kokhan Khan. The room of Kokan Khan Khudoyor Khan, intended for holding various state ambassadors and ceremonies, was turned into a church. Construction of the second church in the city of Kokan began after learning that it would cause a great protest by the local people. This church was built in 1905 under the name of Nikolay Chudotvoro on K.Libknecht (now Khojand) street in the city. The church building was built of baked bricks and had a unique appearance. For many years, requests and a large number of applications were sent to the government for the construction of the church, in 1905, based on the project of O. Vasilev, construction work began in Kokand with the help of private funds and an estimate of 75,000 rubles. This church is designed for 400 people. According to the report of Turkestan Diocese on September 17, 1908, the size of the church's architecture differed from the Orthodox churches built in Andijan and Namangan by its size, attractiveness and originality. In the central part of the Kokan church, there are 5 arched domes, one big in the middle and four small domes around it. Above the main entrance rises a bell dome, which is perfect for the structure. During the construction process, a domed sail was installed over the lower and upper arches, and the church was built with bricks. Red brick imported from Russia was used for exterior decoration, and local bricks were used for the rest of the building[4]. The building of the Kokan church was completed in 1908. However, since the church did



not have bells according to Orthodox traditions, since 1906 the priest of the church in Kokon, Venedikt Bagryansky, appealed to the palace of Khudoyorkhan for the allocation of brass rifles to cast the bells. By 1910, the military governor with his help, he obtained a permit to receive brass rifles, which are being sent to the Turkestan Public Museum. A large bell was installed in the church, which was used for various purposes, in 1930. Later, there was a fire inside the building, and only the walls of the church remained. A 300-pound "Mikhail Skobelev" bell (to glorify the hero's name with each bell) and matching small bells were cast from Khan's rifles. The church was demolished in 1934.

This church, the third church in the city of Kokan, named "Kazanskoy ikoyan bojej materi", was built from 1905 to 1908. This is stated in the letter of gratitude written by I. Paradizov, the head of the church in Kokan, to Pavel Petrovich Khabarin, in the November 1, 21, 1910, issue of the journal of the Turkestan Diocese on the construction of this church. As a person who has been living in the city of Kokan since 1895, I can say that the construction of the church initiated by you and Abraham Nikolayevich Polushin made us happy. Until the church was built, we were limited to the military church, and its size did not meet the full needs of our battalion. Your arrival in Kokan made us very happy. When there was a military church in Kokan, many people avoided coming to worship because of the smallness, inconvenience and crowding of the place. The construction of the new church removed such excuses, and eventually people who had never been to a church began to come to worship here. This builds confidence in a person. It saves many people from neglecting prayer, disbelief, and a bad mental state. The place where the church is to be built in Kok was said to be unsuitable by the local engineers and government officials. But later, on the initiative of Pavel Petrovich Khabarin, the construction of the church began. Soon the construction of the church was completed[5]. The church building was blown up in 1937. Today, none of the Orthodox churches in Kokan have been preserved, and later, in the place of the church of Svyatoga Nikolay Chudotvortsya, it was built in 1945 under the name "Kazanskoy ikoyan bojej materi". This temple is visited by 40-50 believers on normal days and up to 100 on holidays.

## CONCLUSION

In conclusion, we can say that representatives of this confession, who are foreign to the region, did not encounter any resistance or obstacles when they settled in the territory of our country and carried out activities in this place. This attitude can be expressed by the fact that the nationalities and peoples living in the territory of our country are tolerant and tolerant towards representatives of other religions. In this day, representatives of the Orthodox Church, along with representatives of other religious confessions, freely practice their beliefs and prayers. They like representatives of other confessions have been given legal status.

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# DIGITAL MEASUREMENT OF EMPLOYEE STRESS AND FATIGUE IN ARTIFICIAL INTELLIGENCE-DRIVEN WORKFORCE MANAGEMENT ENVIRONMENTS: AN EMPIRICAL STUDY USING AICOACH

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## ABSTRACT

*Effective fatigue management in the workplace is associated with employee well-being, safety, and productivity. Fatigue, often resulting from inadequate rest and high workloads, can lead to decreased cognitive function, diminished job performance, and increased risk of accidents, thus affecting both individual health and organizational efficiency. For this, we introduced an innovative approach to understanding and addressing workplace fatigue. By analyzing the interrelationships between employees' self-reported fatigue levels, their perceptions of managing fatigue, and their engagement with an AI-based coaching tool (AiCoach), we sought to uncover patterns that could inform more effective fatigue management strategies. Using advanced sentiment analysis adapted for the context of fatigue and Granger-causality tests, we examined these dynamics over time. Our findings highlight the importance of immediate perceptions of fatigue in predicting engagement with management interventions, underscoring the need for real-time monitoring and adaptive strategies in managing workplace fatigue.*

**KEYWORDS:** *Workplace Fatigue, Stress Management, AiCoach, Sentiment Analysis.*

## 1. INTRODUCTION

Fatigue is recognized as a significant occupational hazard that has profound implications on the safety and health of employees and their co-workers. Fatigue poses a considerable challenge in today's fast-paced society, primarily due to intense work demands, extended working hours, disrupted sleep-wake cycles, various social and surrounding pressures, and often inadequate sleep [1,2]. This condition is a multifaceted issue that arises from a combination of factors including the duration of wakefulness, specific times of day, extremes in workload, personal health status, and the balance between professional and personal responsibilities and lifestyle choices. Modern industrial society inherently brings about fatigue for several reasons. Operations that run 24/7, irregular work schedules, and frequent travel across time zones can significantly disrupt natural circadian rhythms. Additionally, brief and inconsistent periods of rest, long travel times to and from work, and suboptimal sleeping conditions often comprise both the amount and quality of sleep. Furthermore, people vary significantly in their sleep needs and in how they tolerate fatigue, which means some are more susceptible to its effects than others. Fatigue, along with excessive sleepiness during the day, can also stem from disorders affecting the central or peripheral nervous systems, as well as from various other health conditions, including common ailments like infections, asthma, gastrointestinal issues, and metabolic disturbances [3].

Even with advancements in technology and industry, the issue of work-related fatigue remains persistent. According to a report by the National Safety Council (NSC) in 2018, a significant portion of the United States workforce, about 107 million of the total 160 million workers, experienced work-related fatigue. A study conducted in 2007 indicated that fatigue among workers leads to productivity loss and other problems, costing the U.S. economy around 101 billion dollars annually [4]. Furthermore, it has been found that 13% of injuries in the workplace are linked to fatigue. In Spain, fatigue affects 30.8% of workers. In Europe, 3.2% of people aged between 15 to 64 experienced at least one work-related accident in the past year. About 70% of these non-deadly accidents happened because of losing control or failing, often due to stress or fatigue from work [5].

Given the aforementioned factors and to circumvent them, it becomes crucial to identify and quantify work-related fatigue. This step is essential to prevent injuries, accidents, or illness. Additionally, accurate detection and measurement of fatigue enable the provision of tailored recommendations aimed at reducing stress in the workplace.

In a previous study [6], we proposed a platform to analyze the fatigue level in patients with Multiple sclerosis (MS). Now in this study, we are trying to understand and manage workplace fatigue, leveraging the advanced data analysis techniques used in our previous research to explore the dynamic relationships between



employees' self-reported fatigue levels, their perceptions of managing fatigue, and their engagement with an AI-assisted coaching tool (AiCoach). By employing different data analysis techniques adapted to the specific context of workplace fatigue, our research aims to unravel the complex interplay between these factors over time. Furthermore, we employed the Valence Aware Dictionary for sEntiment Reasoning (VADER) methodology and conducted the Granger-Causality Test to the open-ended question to estimate the fatigue level of the participants. This approach not only provides a deeper insight into the immediate and evolving impacts of fatigue on employee engagement with fatigue management interventions but also offers a data-driven foundation for developing more effective, responsive, and personalized strategies to address fatigue in the workplace. Through this study, we seek to contribute to the growing field of occupational health psychology by offering empirical evidence and analytical perspectives on fatigue management, a critical aspect of employee well-being and productivity.

## 2. LITERATURE REVIEW

To identify and quantify fatigue, various methods are employed. These include objective techniques, which analyze the body parts exerting force during a task, and subjective methods which gauge fatigue through the use of rating scales and questionnaires. These questionnaires assess an individual's perceived stress [11]. Perceived stress, a common metric for quantifying fatigue, is described by Borg as an individual's sense of how hard their body is working during an activity. This sense is a holistic interpretation based on various sensory inputs and perceptions [12]. In studying work-related fatigue, it's important to assess symptoms and discomfort subjectivity. Therefore, three psychophysical measurement techniques for perceived stress have been developed over recent decades: ratio scaling, category scaling, and acceptability scaling [13]. Ratio scaling aims to achieve the same metric qualities as those in physics and physiology, with absolute zero and equal distances between scale values [14]. A notable example is the Magnitude Estimation scale, introduced by Stevens in 1975. This perceptual scaling method asks participants to assign numbers proportional to their perceptual intensities [12]. Borg later introduced the Rating of Perceived Exertion (RPE) scale, which allows subjects to rate their effort and stress during physical tasks on a scale from 6 (no stress) to 20 (maximum stress) [15]. Borg also developed the CR10 scale, a category scale ranging from 0 to 10 with verbal anchors, where 10 represents extremely strong stress, categorized as 'maximal' [16]. The RPE scale is often preferred in simple applied studies of perceived stress and for predicting physical intensities, while the CR10 scale is more suitable for assessing subjective symptoms [15]. Other category scales include the CR100 (centiMax), ranging from 0 to 100, and the OMNI-RPE scale, which goes from 0 to 10 and includes mode-specific pictures [17].

In addition to the methods previously discussed, questionnaires are another effective tool for evaluating perceived stress. One such example is the Fatigue Severity Scale (FSS), a self-report

questionnaire consisting of nine items, specifically designed for monitoring fatigue related to various diseases [18]. Another is the Multidimensional Fatigue Inventory (MFI-20), which is a more extensive 20-item questionnaire. It is divided into five subcategories: general fatigue, physical fatigue, reduced activity, reduced motivation, and mental fatigue, allowing for a comprehensive assessment of fatigue [19]. Additionally, there's the Chadler Fatigue Scale (CFQ), which focuses on both the physical and psychological aspects of fatigue. It comprises an 11-item questionnaire where responses are rated on a scale with four options: 0 (better than usual), 1 (not worse than usual), 2 (worse than usual), and 3 (much worse than usual), providing a nuanced view of fatigue levels [20].

Recently, there has been a surge in the utilization of wearable technology, which offers real-time monitoring, recording, and communication of an individual's physical activities and environmental conditions. These technological innovations come in various forms, including smartwatches, wristbands, eyeglasses, jewelry, skin patches, and even textiles embedded with smart technology [21]. Sensors are a key component in these wearable devices, and their application is predominantly seen in the sports sector. With the advances in semiconductor technology, these devices are now capable of monitoring a comprehensive range of parameters. This technological progress is bringing the use of wearable devices closer to practical applications in the field of medicine [22]. Various health monitoring wearables, such as ECG monitors, blood pressure monitors, and biosensors are some examples [23]. The integration of these devices into the healthcare sector has been gradual, mainly due to the necessity for their validation in the context of various medical conditions. However, numerous studies have shown the potential of these devices in research, demonstrating their feasibility for predicting, monitoring, or assessing a range of diseases and disabilities [24,25].

Beyond the previously discussed ratings of perceived fatigue for evaluating work-related stress, there is ongoing research into the potential use of wearable devices for monitoring bodily functions. Such devices could quantify physical exposures in the workplace by tracking brain activity with electroencephalography (EEG) or by observing changes in muscle activity using electromyography (EMG) [26]. However, methods based on EEG and EMG for measuring physical fatigue are considered intrusive, as they require the attachment of multiple electrodes. These methods are also not ideally suited for dynamic work environments, as they are better suited for stationary tasks, and they represent costly technologies [27,28]. Due to these limitations, researchers are exploring the use of non-intrusive wearable sensors in the workplace to monitor physical activities and movements. These devices are not only more affordable but also simpler to operate [29]. Among the various wearable sensors, one of the most frequently used is the inertial measurement unit (IMU), which provides valuable data on angular velocity and acceleration, aiding in the detection of subject movement.





In recent years, a growing number of workplace-related studies have incorporated Inertial Measurement Units (IMUs) for various purposes. These include ergonomic evaluations [30], analyzing postures [31], assessing musculoskeletal disorders [32], examining body motion and the risks associated with lifting during manual handling tasks [33], and evaluating the risk of falls during everyday activities [34,35]. Additionally, more recent studies have started using IMUs to detect physical activity levels and fatigue [36,37,38].

To create comprehensive systems capable of identifying fatigue states by processing vast amounts of data, the application of Artificial Intelligence (AI) has been increasingly utilized. Several past research projects have employed Machine Learning (ML) or Deep Learning (DL) techniques on physiological signals. These techniques help in developing systems that more effectively extract pertinent features from the collected data sets, simplifying the process of data analysis [40].

In the realm of Deep Learning (DL) for fatigue classification, Maman et al. (2017) [11], utilized IMUs to gather data on acceleration and jerk from participants engaged in manufacturing tasks. This data, combined with Heart Rate (HR) readings and Rated Perceived Exertion (RPE) values, was used to implement a Least Absolute Shrinkage and Selection Operator (LASSO) model. This model helped in selecting significant features from the data for applying regression and logistic models to estimate levels of physical fatigue. Later, Maman et al., in 2020 [39], proposed a comprehensive framework focused on the detection, identification, diagnosis, and recovery from fatigue, aiming to quantify and predict shifts in worker's performance.

In a different approach, Karvekar et al., (2019) [36], employed accelerometers integrated into smartphones to measure the motion and gait parameters of participants, alongside RPE values for data labeling. They then applied a Machine Learning (ML) algorithm, specifically a Support Vector Machine (SVM) model, to classify the fatigue levels of subjects. This methodology was similarly adopted in studies by Zhang et al., (2013), Baghdadi et al., (2018), and Kuschán and Krüger (2021), who also used SVM models for physical fatigue detection [41,42,43].

Another research focus in this area involved measuring the cycle acceleration of workers performing various tasks with IMUs for fatigue detection, employing Statistical Process Control (SPC) techniques [37]. More recently, Lambay et al. (2021) leveraged the dataset from Sedighi Maman et al. (2017) to conduct fatigue prediction for manual material handling tasks [44]. These studies collectively contribute to the development of a proactive approach to the continuous monitoring of operator's fatigue

levels, with the potential to enhance work performance and mitigate the earlier-mentioned risks [45,46].

### 3. METHODOLOGY

#### 3.1 Study Population

This study was conducted with employees from multiple industrial plants across Hungary. The focus was on understanding the dynamics of workplace fatigue and the effectiveness of an AI-assisted coaching tool (AiCoach) in managing it. Our study particularly targeted the industrial workforce, a demographic where fatigue management is crucial yet often under-researched. The participant pool consisted of employees from various industrial sectors, representing a broad spectrum of occupational roles and environments. The inclusion criteria were: (1) being currently employed in one of the participating industrial plants, (2) willingness to engage with the AiCoach tool over the study period, and (3) providing informed consent for participation in the study. Employees with any known medical conditions that could significantly impact fatigue levels were excluded to ensure the reliability of the data regarding occupational fatigue

#### 3.2 Study Design

The study was designed as a longitudinal observational study, where participants were asked to respond to a series of questions including both open and closed-ended, over five epochs, in two different phases with a duration of approximately three months. This design allowed for the monitoring of changes in fatigue levels and engagement with the AiCoach tool over time. Participants were introduced to the AiCoach tool and trained on its use at the onset of the study. They were asked to report their perceived fatigue levels and their experiences with managing fatigue using the tool. The data collected included not only their responses to the survey but also their engagement metrics with the developed software.

To ensure the robustness of the data, the study employed advanced analytical techniques, including an adapted version of the VADER sentiment analysis to interpret the textual responses and Granger-causality tests to explore the predictive relationships between reported fatigue levels, perceptions of fatigue management, and engagement with AiCoach. The study collected data in two different phases. The first phase lasted from 2021.05.10 to 2021.08.31, while the second phase lasted from 2021.09.01 to 2022.04.30. A total of 168 employees were recruited for the study. All participants provided written informed consent in accordance with the study protocol. Participants who completed all survey epochs and met the engagement criteria with the proposed tool were offered a nominal remuneration for their time and contribution to the research.

**Table 1. Balance of Enrollment During the Study Period**

Participants	Number	Percentage
Total enrolled	168	100%
Fully completed the study	105	62.5%
Partially completed the study	63	37.5%



### 3.3 Development of the mobile application

Mobilengine, an interdisciplinary team of physicians and scientists, developed the AiCoach mobile application. The organization has a long track record of developing mobile apps for monitoring and recording healthcare data [53]. The application development process involved collaboration across teams, including physicians and engineers, achieved through a series of virtual workshops. During the study, participants were asked to install the AiCoach app on their own Android smartphones. The study was conducted over approximately 3 months, and divided into two phases. During this time, participants integrated the use of AiCoach into their daily routines, providing valuable data for analysis by the Mobilengine research team.

The mobile app is structured into two distinct modules, which are elaborated upon below. (1) the first module consists of a series of

one-time questions that participants were required to complete within the first three days post-enrollment. (2) The second module includes Visual Analog Scales (VASs) that participants used to self-report their level of fatigue, depression, anxiety, and pain twice a day.

It is important to note that the data collection through VAS was consistently conducted over around 200±30 days, commencing once all one-time questionnaires were completed. Consequently, the total duration for data collection varied between 10 to 13 days, depending on the time taken by each participant to answer all one-time questionnaires. Additionally, participants were given the flexibility to pause their entries in the app and return at a later time to complete the remaining questions.

**Table 2. Overview of standardized survey questionnaires integrated into our one-time questionnaire module.**

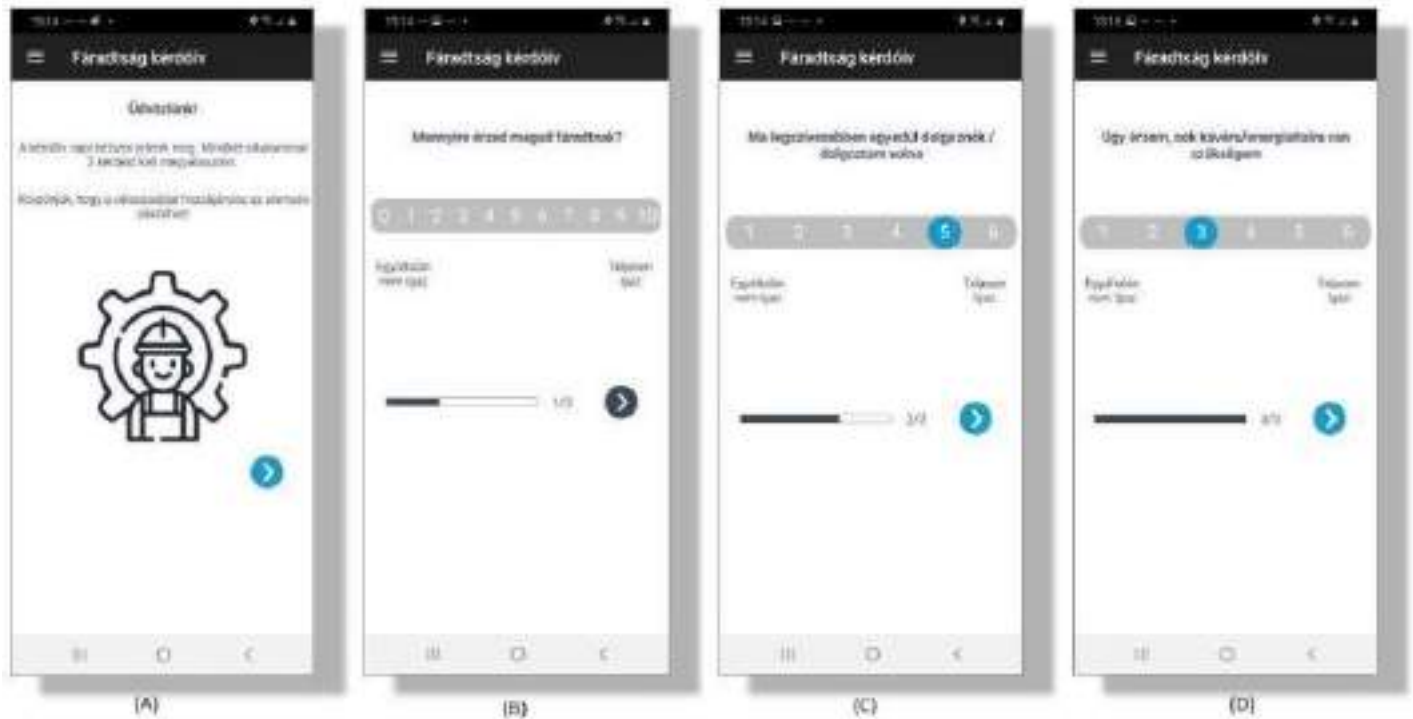
Questionnaire	Domain Assessed	Study
The Fatigue Severity Scale	Fatigue	Krupp et al (1989) [18]
The Neuro-QoL <sup>a</sup> fatigue questionnaire	Fatigue	Cella et al (2012) [47]
The Neuro-QoL depression questionnaire	Depression	Cella et al (2012) [47]
The Neuro-QoL anxiety questionnaire	Anxiety	Cella et al (2012) [47]
The Neuro-QoL sleep questionnaire	Sleep Quality	Cella et al (2012) [47]
The Modified Fatigue Impact Scale	Fatigue	Amtmann et al (2012) [48]
Symptoms of depression questionnaire (7 questions only)	Vegetative symptoms of depression	Pedrelli et al (2014) [49]
The Epworth Sleepiness Scale	Sleepiness	Johns (1991) [50]
The Godin Leisure-Time Exercise Questionnaire	Physical activity	Godin (1985) [51]
The Behavioral Approach System and Behavioral Avoidance System scale	Drive; fun seeking; reward responsiveness	Carver and White (1994) [52]

To mitigate the occurrence of slip errors in our study, the following protocols were established: (1) User-initiated response submission: answers were recorded only after the participant selected the navigational arrows to move forward or backward; (2) Navigational flexibility: participants could seamlessly traverse through questions within the same section, permitting on-the-fly amendments; (3) Uniform interface design: all visual scales were standardized in size with questions, options, and navigational cues consistently positioned on the interface. Additionally, the application supported a landscape orientation, offering expanded spacing on visual analog scales; and (4) Progress transparency: a counter indicating the number of questions completed relative to the total was displayed prominently at the interface's lower segment.

### 3.4 One-time questionnaire module

In the study, we incorporated a one-time questionnaire module comprising a total of 168 questions which encompassed a mix of

validated questionnaires (Table 2) and newly developed inquiries tailored to investigate various facets of fatigue relevant to our research objectives. These additional questions aimed to explore specific aspects of fatigue such as (1) variations in fatigue severity over the day, (2) the potential influence of caffeine and nicotine consumption on perceived fatigue levels, and (3) open-ended queries to uncover other potential factors contributing to or alleviating fatigue among the participants. The questionnaire module retained the original wording and response formats, including single-choice, multiple-choice, free-text, analog scale, and date selection, which were consistent with the formats used in the source questionnaires. Questions were logically grouped into distinct sections that mirrored the structure of the original questionnaires, allowing participants to navigate through the questions one at a time. Importantly participants were alerted that they could not revisit previous sections after completing them, emphasizing the importance of careful consideration before final submission of their responses.



**Figure 1: Sample interfaces for different types of questions within the one-time questionnaire module, including single-answer are depicted.**

The developed questionnaire is in Hungary as local participants were selected and to facilitate their involvement in the study. In image (A) the participants are being greeted to take part in the study. The image (B) asks the participants how tired they are feeling right now. The image (C) translated that “I would prefer to work alone today”. And the translation of image (D) says that “I feel like I need a lot of coffee/energy drinks”.

### 3.5 VAS Module

The VAS (Visual Analog Scale) module was utilized to evaluate an individual’s existing level of fatigue, anxiety, depression, and pain. Each of these four VASs is rated on a scale ranging from 0 to 10, where 0 signifies the absence (none) of the symptom (e.g., no fatigue), and 10 indicates the extreme presence of the symptom (as depicted in Figure 2). Prior research has demonstrated a

substantial correlation between VAS scores and a series of visual depictions of facial expressions depicting increasing distress [7,8].

Our primary objective was to investigate circadian variations in fatigue, anxiety, depression, and pain by measuring these symptoms once in the morning (2 hour after starting work) and once in the afternoon (2 hour before finishing work). The participants were given the flexibility to choose preferred times for completing their VAS (Visual Analog Scale) assessments, once before going to work and once in the afternoon. To facilitate this, the AiCoach app was programmed to send reminders. These reminders took the form of notifications, tailored to each participant’s chosen times for the survey.



**Figure 2: Workflow of the data collection process using survey questionnaire**

In our study, participants were required to respond to all questions within a questionnaire before they could submit it. A progress bar at the bottom of the screen visually displayed the participant's advancement through the one-time questionnaires or VAS assessments (as shown in Figure 1). The app recorded the exact date and time when each question was opened and submitted. Every participant was assigned a unique subject ID to maintain anonymity, and no additional personally identifiable information was collected or stored within the app.

### 3.6 Extracting Fatigue level from Open-ended texts

Adapting the Valence Aware Dictionary for sEntiment Reasoning (VADER) methodology [9], we propose an engine specifically tuned for assessing fatigue levels from free text. This adaptation maintains the original system's advantages, such as no requirement for a training phase, suitability for short texts, and rapid processing for near real-time applications. Its domain-agnostic nature and white-box model approach ensure interpretability and adaptability across various languages. The foundation of this system is a modified sentiment lexicon, now focused on fatigue-related terms. This lexicon is an extension of the original VADER lexicon, supplemented with terms and

expressions commonly associated with fatigue and tiredness. These terms are annotated to reflect varying degrees of fatigue on a scale (e.g., [0, 4], where 0 is no fatigue and 4 is extreme fatigue), using a crowd-sourcing platform similar to Amazon Mechanical Turk [10].

The key step in this fatigue assessment engine is the identification of linguistic patterns and cues that are indicative of fatigue. To this end, we adapt the VADER's sentiment polarity shifters to fatigue-specific shifters, identifying terms and constructs that either amplify or diminish the expression of fatigue. For instance:

- Punctuation: Repetitive punctuation (e.g., ellipsis ...) may indicate a trailing off of thought, potentially a sign of fatigue.
- Capitalization: Random or inconsistent capitalization could reflect a lack of attention or focus, often associated with fatigue.
- Degree modifiers: Certain adverbs and adjectives (e.g., 'extremely tired', 'barely awake') will be key in determining the level of fatigue expressed.





- Contrastive particles: Phrases like 'but still tired' can indicate a persistent state of fatigue, despite changing circumstances.
- Negation: The use of negation in the context of rest or sleep (e.g., 'not rested', 'couldn't sleep') can be a strong indicator of fatigue.

The extension to languages other than English, such as Hungarian, involves translating and adapting these fatigue-specific terms and rules. Just as in VADER, certain universal aspects, like the use of punctuation and capitalization, remain consistent across languages, while others, like specific idioms or culturally specific expressions of tiredness, require localization. This adapted method aims to provide a nuanced analysis of fatigue levels in text, offering valuable insights in domains such as health monitoring, workplace wellbeing assessments, and psychological studies.

### 3.7 Granger-Causality Testing

In the context of analyzing fatigue levels from textual data, Granger-causality is utilized as a statistical hypothesis testing model to determine if there is a directed relationship between two time series in terms of fatigue expression [7]. Specifically, a time series X, representing a measure of fatigue indicators in text, is said to be Granger-cause time series Y, which could be a series of outcomes or states related to fatigue (e.g., performance metrics, error rates, health indicators), if it can be shown that including past values of X (i.e., lagged values of fatigue indicators) alongside Y significantly improves the prediction of future values of Y.

For this adaptation, the Granger-causality test was applied to the lagged values of the fatigue indicator time series (X). All lags ranging from one to four were tested, aligning with the considered periods of data collection or observation epochs minus one. The alternative hypothesis in this context is that the time series of fatigue levels derived from textual analysis Granger causes the time series representing the related outcomes or states. The level of significance for these tests was set at 5%, i.e., a p-value < 0.05 was considered statistically significant. It's important to note that the Granger-causality test presupposes that the time series being investigated are stationary. Therefore, to ensure the validity of the test, the augmented Dickey–Fuller method was employed to verify the stationarity conditions of both the fatigue indicator series and the outcome series [8]. This adaptation of Granger-causality testing is aimed at understanding the impact of textual expressions of fatigue over time on various outcome measures, providing a novel approach to assessing and predicting the implications of fatigue in different contexts, such as workplace productivity, academic performance, or health-related quality of life."

### 3.8 Monitoring the Database

The application functioned entirely offline, storing all responses from participants on the smartphone's internal memory. The survey data from the participant's phones were collected by the Mobilengine server only when they were connected to Wi-Fi. This setup enabled real-time, on-demand monitoring of data collection. The developed database also categorized participants based on their activity. Participants who actively completed the surveys were marked green and participants lagging in their daily tasks were marked in red.

Once a participant completed the VASs, their monitoring period ended, and they were no longer able to respond to further questions. Subsequently, their code was removed from the daily update emails. This monitoring capability was crucial, as it allowed investigators to quickly follow up with participants not adhering to the study timeline, rather than waiting until the end of the period. The database was designed for easy data extraction, with each response stored in a table format that included the subject ID, individual question ID, response, and time of response, with each response generating a new row in the table, following a long data format.

## 4. RESULT

### 4.1 Exploratory Data Analysis

The research focused on identifying fatigue levels among employees, and exploratory data analysis was conducted on responses gathered from various industrial plant workers. A total of 105 fully completed and 63 partially completed responses were collected and analyzed in line with the system architecture outlined in the previous section. This analysis is critical for gleaning insights into data collection and integration processes related to workplace fatigue.

Responses were submitted over five subsequent periods, approximately 3 months in two different phases, to track changes and trends in fatigue over time. To visualize the distribution of fatigue levels across these different time points, a violin plot was generated (Figure 5). This plot illustrates the variation in fatigue scores (expressed as a percentage) corresponding to each submission epoch. Concurrently, Table 3 presents this data in a tabular format for a more detailed examination. While the mean fatigue scores were found to range between [38.67%, and 51.45%] across different epochs, the standard deviation, as well as the minimum and maximum values, highlighted significant variations in fatigue levels among the employees. These variations were evident from the extremes of some employees reporting minimal fatigue to others indicating levels considerably higher than average. Such disparities underscore the complex nature of workplace fatigue and its varied manifestations among employees in different roles and working conditions.

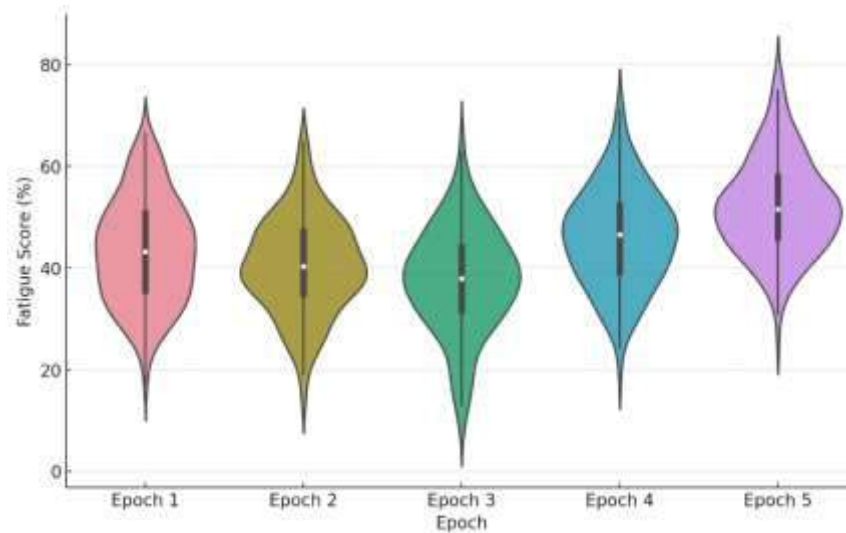


Figure 3: Distribution of fatigue percentage across five subsequent submission epochs.

Table 3. Fatigue Score (%): Descriptive Statistics Across Five Subsequent Epochs

	Epoch 1	Epoch 2	Epoch 3	Epoch 4	Epoch 5
Mean	42.67	41.77	38.67	47.39	51.45
Std	57.25	57.70	59.64	59.54	51.82
Min	0.00	0.00	0.00	0.00	0.00
Max	100%	100%	100%	100%	100%

The data presented in Table 3 reveals an intriguing pattern in the fatigue scores of employees over five different epochs. Initially, the average fatigue score starts at 42.67% in Epoch 1, slightly decreases to 41.77% in Epoch 2, and reaches its lowest at 38.67% in Epoch 3. This trend could suggest an initial adaptation or improvement in managing fatigue. However, this trend reverses in the later epochs, with a notable increase to 47.39% in Epoch 4 and further up to 51.45% in Epoch 5. This upward trend could be indicative of accumulating fatigue over time or changes in workplace dynamics or stressors. The standard deviation remains consistently high across all epochs, hovering around the high 50s, which indicates a substantial variation in individual fatigue levels within the workforce. This high variability suggests that while some employees might be coping well, others are experiencing significantly higher levels of fatigue. The minimum values across all epochs stand at 0.00%, indicating that there are individuals who report no fatigue. However, the maximum values show an extreme range, peaking at 100% in all Epochs. These maxima are notably higher and reflect instances of extreme fatigue or possibly the way fatigue is being reported or calculated, suggesting a need for closer examination of these outlier responses.

#### 4.2 Testing Granger-Causality

A comprehensive analysis of the responses to the fatigue identification survey is beyond the scope of this paper. Instead,

only answers to two open-ended questions collected from the survey are discussed for testing Granger-Causality.

Q1: "Explain how fatigued you are now?"

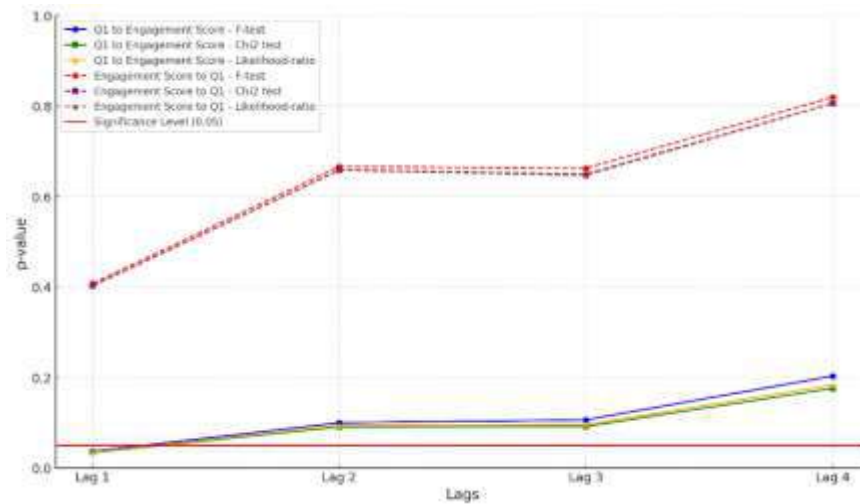
Q2: "How successful are you in managing fatigue since using AiCoach?"

Three-time series were evaluated: the fatigue intensity scores corresponding to Q1 ("Explain how fatigued you are now?") and Q2 ("How successful are you in managing fatigue since using AiCoach?"), as well as the time series of engagement levels with the AiCoach program. The Augmented Dickey-Fuller Test confirmed that each of the three-time series met the stationarity condition ( $p$ -value =  $4.6124 \times 10^{-18}$ ,  $p$ -value =  $3.2185 \times 10^{-7}$ , and  $p$ -value = 0.0035, respectively). Two Granger-causality tests were carried out to examine responses to Q1 Granger-cause engagement scores and responses to Q2 Granger-cause engagement scores. Additionally, given the concurrent consideration of all three series, it was also necessary to assess whether engagement scores Granger-cause responses to Q1 and Q2. Three different test statistics—F-test, chi-square, and likelihood-ratio—were utilized, with the number of lags tested ranging from one to four. The outcomes, presented in terms of  $p$ -values in Tables 4 and 5, indicate that both Q1 and Q2 have a Granger-causal relationship with engagement scores at lag = 1. Conversely, engagement scores do not appear to Granger-cause the responses to Q1 or Q2.



**Table 4: Q1 and Engagement Score: p-value of Granger-causality test performed with three different statistics and four different lags.**

Lag	Q1 → Engagement Score F-test	Q1 → Engagement Score Chi2 test	Q1 → Engagement Score Likelihood-ratio	Engagement Score → Q1 F-test	Engagement Score → Q1 Chi2 test	Engagement Score → Q1 Likelihood-ratio
1	0.0368	0.0339	0.0350	0.4076	0.4027	0.4031
2	0.0998	0.0908	0.0936	0.6667	0.6585	0.6592
3	0.1063	0.0917	0.0963	0.6628	0.6479	0.6496
4	0.2032	0.1760	0.1833	0.8200	0.8061	0.8064



**Figure 4: Granger-Causality Analysis of Fatigue Levels and Engagement Scores for Q1**

Figure 6 presents the Granger-causality test p-values for the relationship between employee-reported fatigue levels (Q1) and their Engagement Scores with the AiCoach tool over four sequential time lags. A striking feature of the graph is the initial set of p-values for Q1 influencing Engagement Scores at Lag 1, where all three statistical tests—the F-test, Chi2 test, and Likelihood-ratio—yield p-values below the 0.05 significance threshold. This suggests a statistically significant relationship at this initial lag, indicating that earlier reported fatigue levels can predict subsequent engagement with the AiCoach tool. As the

lags increase, however, the p-values rise above the 0.05 threshold, indicating that the predictive power of Q1 decreases, implying that fatigue levels reported further in the past are less indicative of future engagement behaviors. Conversely, the Engagement Scores do not present a significant Granger-causal influence on Q1 at any lag, as evidenced by the consistently high p-values across all tests. This lack of statistical significance suggests that how employees engage with the AiCoach tool does not serve as a reliable indicator of their future self-reported fatigue levels.

**Table 5: Q2 and Engagement Score: p-value of Granger-causality test performed with three different statistics and four different lags.**

Lag	Q1 → Engagement Score F-test	Q1 → Engagement Score Chi2 test	Q1 → Engagement Score Likelihood-ratio	Engagement Score → Q1 F-test	Engagement Score → Q1 Chi2 test	Engagement Score → Q1 Likelihood-ratio
1	0.0020	0.0339	0.0350	0.4076	0.4027	0.4031
2	0.0174	0.0908	0.0936	0.6667	0.6585	0.6592
3	0.0547	0.0917	0.0963	0.6628	0.6479	0.6496
4	0.0865	0.1760	0.1833	0.8200	0.8061	0.8064

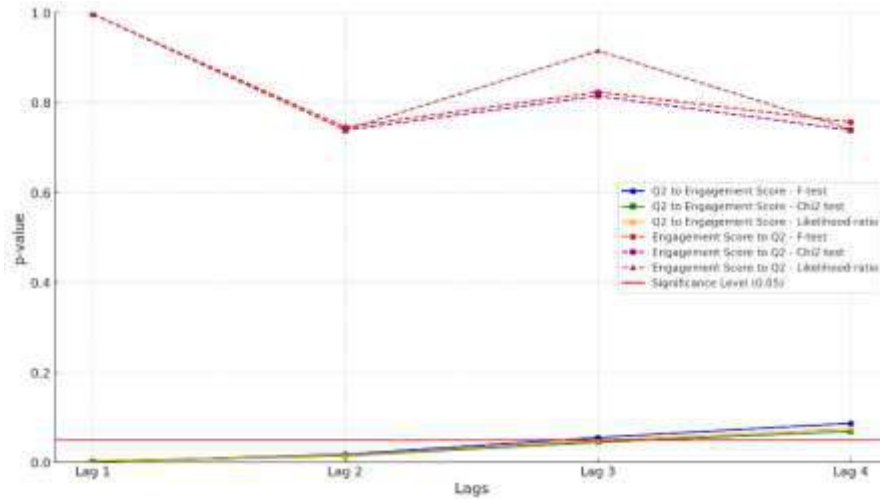


Figure 5: Granger-Causality Analysis of Fatigue Levels and Engagement Scores for Q2

Figure 5 illustrates the Granger-causality test p-values between responses to Q2 and Engagement Scores. A key observation from this graph is the marked significance of the causal relationship from Q2 responses to Engagement Scores, especially at Lag 1, where the p-values for all tests (F-test, Chi2 test, and Likelihood-ratio) fall significantly below the 0.05 threshold. This indicates a strong predictive relationship, suggesting that responses to Q2 have a substantial impact on predicting subsequent Engagement Scores. As the lags increase, the p-values for the relationship from

Q2 to Engagement Scores rise, but they remain below the threshold in some tests up to Lag 4, pointing to a sustained, albeit diminishing predictive influence. In contrast, the relationship from Engagement Scores back to Q2 does not exhibit statistical significance at any lag. The p-values in this direction remain consistently high, well above the 0.05 significance threshold for all lags and statistical tests. This lack of significance suggests that the Engagement Scores do not have a predictive effect on the subsequent responses to Q2.

4.3 Fatigue level analysis

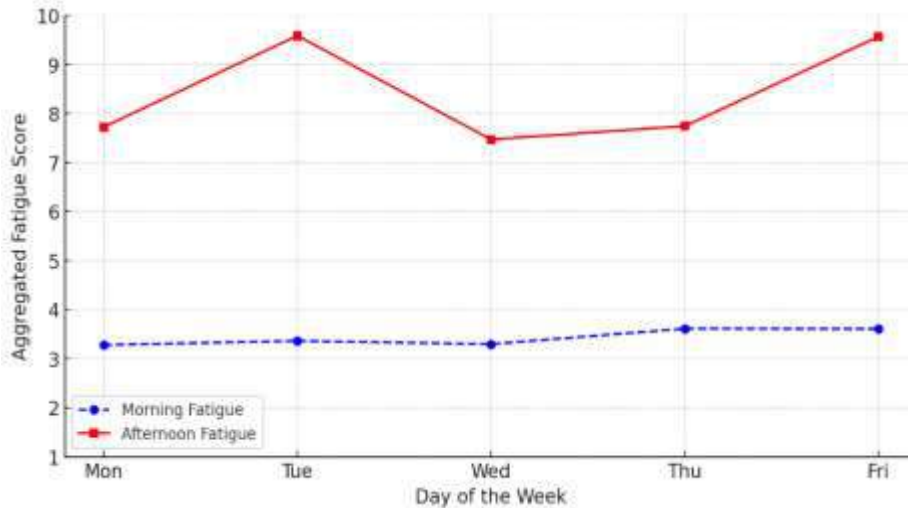


Figure 6: Average fatigue level of participant

Figure 6 demonstrates the statistical analysis conducted on a single randomly selected participant's aggregated fatigue scores over a five-day workweek. The statistic reveals a distinct pattern in the variance of fatigue levels between morning and afternoon. In the morning, the participant exhibited a moderate level of fatigue with a mean score of 3.27 and a closely aligned median of 3.20, indicating a symmetrical and consistent distribution of fatigue levels. The standard deviation of 0.38 for these morning

scores suggests minimal variability, with fatigue levels generally confined to a moderate range, as evidenced by the narrow range of scores (minimum of 2.69 and maximum of 3.86).

In stark contrast, the afternoon fatigue scores were significantly higher, with a mean of 8.66, reflecting a pronounced increase in fatigue as the day progressed. This increase is further underscored by the median score of 8.58, which, like the morning, suggests a





symmetrical distribution of scores in the afternoon. However, the afternoon scores exhibited a higher standard deviation of 0.93, indicating a greater fluctuation in fatigue levels. The broader range of scores in the afternoon, from a minimum of 7.53 to a maximum of 9.85, highlights a more varied experience of fatigue, encompassing moderately high to very high levels.

The analysis underscores a clear escalation in fatigue levels from the morning to the afternoon for the participant. The consistency in morning fatigue levels contrasts sharply with the more varied and elevated levels of afternoon fatigue. This pattern could have significant implications for understanding individual energy cycles, optimizing work schedules, and tailoring personal health and wellness strategies.

## 5. DISCUSSION

This research aimed to understand the dynamic relationship between employees' self-reported fatigue levels, their perceptions of managing fatigue, and their engagement with the AiCoach program. Utilizing Granger-causality analysis over multiple time lags, our study revealed several key insights that can inform future workplace fatigue management strategies. The results from the Granger-causality tests for Q1 ("Explain how fatigued you are now?") indicated a significant predictive relationship between employees' reported fatigue levels and their subsequent engagement with the AiCoach program, particularly at the immediate lag (Lag 1). This finding suggests that employees' current perception of their fatigue levels is a strong predictor of how actively they engage with interventions designed to manage fatigue. The significance of this relationship diminishes with time, which could be attributed to the evolving nature of fatigue and its management over longer periods.

The dynamics in Figures 4 and 5 for the two causal directions diverge as the number of lags increases, further reinforcing the one-way predictive relationship from fatigue reports to engagement levels, specifically in the short term. This unidirectional causality highlights the potential impact of immediate fatigue perceptions on the engagement with interventions but does not support the reverse; that is, engagement with the AiCoach does not appear to influence how employees will report fatigue levels thereafter.

## 6. CONCLUSION

In this research, we investigated workplace fatigue through the lens of self-reported metrics and engagement with an AI-based coaching tool that has yielded significant insights. The research found a clear and immediate relationship between employees' reported fatigue levels and their interaction with the AiCoach program. This underscores the potential of real-time monitoring and intervention in the management of workplace fatigue. The absence of a reciprocal predictive relationship suggests that while the AiCoach tool is a valuable resource in responding to fatigue, its impact on subsequent self-reported fatigue levels is not immediate or direct. This may indicate the need for a sustained

and adaptive engagement strategy to see a measurable change in fatigue over time. Furthermore, the research emphasizes the importance of user-friendly interfaces in digital health tools. By allowing participants to navigate freely, make corrections, and track their progress, we minimized user errors and enhanced the accuracy of the collected data. The study's findings advocate for the integration of such design considerations in the development of digital health interventions.

In conclusion, the implementation of AI-assisted tools in the workplace for fatigue management holds promise. It encourages active employee participation and offers organizations a proactive approach to addressing fatigue. However, it also highlights the complexity of fatigue as a multifaceted issue that requires comprehensive strategies, including but not limited to digital intervention. Future research should aim to longitudinally assess the impact of such tools on fatigue and explore the integration of these tools with broader organizational health initiatives for a holistic approach to employee well-being and productivity.

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## Conflict of interest

The authors of this paper have no conflict of interest

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# A STUDY TO EVALUATE THE EFFECTIVENESS OF STRUCTURED TEACHING PROGRAM ON ASSERTIVENESS TRAINING FOR SOCIAL ANXIETY AMONG ADOLESCENT GIRLS, SALEM DT

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## ABSTRACT

**Background:** Evaluate the Effectiveness of Structured Teaching Program on Assertiveness Training for Social Anxiety among Adolescent girls.

**Methods & Result-** Pre- experimental design one group pre-test and Post-test was used for evaluating the social anxiety among adolescent's girls. 56 adolescence girls were selected through convenience sampling technique. Pretest was conducted by using Modified Social Interaction anxiety scale. Assertiveness Training was given for 45 minutes (7 Sessions) & Posttest was assessed. In pretest 4 (7%) had no anxiety, 18 (32%) had mild anxiety, 14 (25%) had moderate anxiety, 14 (25%) had severe anxiety, 6 (11%) had extremely anxiety. In posttest 30 (54%) had no anxiety, 19(34%) had mild anxiety, 5 (9%) had moderate anxiety, 2 (3%) had severe level of anxiety among adolescence.

There results showed that the assertive training is effective for adolescents girls is 2.00 ( $p>0.05\%$ ).The results showed that there is no significant association between level of social anxiety score and selected demographic variables regarding age, birth status, type of family, residing area,religion, educational status of parents, leisure time activities, how you engaged with socialization.

**Conclusion:** This study concluded that college students unaware about assertiveness training, self esteem and they are frequently facing social anxiety. This study also pointed out Nursing students should receive adequate training regarding the techniques of assertiveness training, should assist in implementing public health awareness campaigns aimed at reduce level of social anxiety & provide knowledge, resources and leadership for establishing public health policies that focus on assertiveness training program for reducing level of social anxiety among adolescents.

**KEYWORDS:** Social anxiety, adolescence, assertiveness training self concept.

## INTRODUCTION

**“Confidence and hard work are the best medicine to kill the disease called failure. It will make you a successful person”  
A.P.J.Abdulkalam.**

Human life divided in to 5 stages namely infant, childhood, adolescence, adulthood and old age. In each of these stages, an individual find himself indifferent situations and face different problems. Adolescence is crucial period of transition between childhood and adulthood, a time of rapid physical, cognitive, social and emotional maturing as the man prepares for manhood and a girl prepare for womanhood.

A person with social anxiety does not like to start a relationship with others and avoids any situation that may be exposed to judgment and feeling unusual fear or stability<sup>1</sup>.

In adolescence period the personal identity if part of on-going identification process. As youngsters establish identity with in a group, they are also attempting to incorporate multiple body changes into a concept of self. Physical awareness is a part of self-awareness and for some time the adolescent will engage in assimilating the self-represent by dimension. Significant others

hold certain expectation for the behavior of the adolescent. Often their expectation or demands are persistent enough to result in certain decision that might be differently or not at all if the individual could be the responsible for identify formation. It is also too was to slip into the roles that are expected by these external influences without incorporating personal goals or questioning the decisions in relation to the developing personality. The process of evolving a personal identity is time consuming and fraught with periods of confusions, depression and discouragement. Determining an identity and in place in the world is a critical and perilous feature of adolescence. Personal identity mainly based on the self-concept. Self-concept is the, organized and dynamic system of learned believes and attitude and opinion that each person hold to be true about his/her personal existence.

Social anxiety disorder is a marked and persistent fear of scrutiny in social performance situation individuals who experience social distress across a broad range of social setting have severe social and general anxiety, social incubation, and fear of negative evaluation, avoidance, fear fullness, and self-consciousness and may account for 70% patients seeking for treatment.





Assertiveness training is one of the behavioral therapy methods, the components of which include guidance, roleplaying, role modeling, practice and visual and objective behavioral review. This training consists of techniques that are used to relieve anxiety caused by social interactions. Using these techniques, a person's anxiety is eliminated due to the inability to present ideas to other.<sup>2</sup>

### NEED FOR STUDY

Social Anxiety disorder (SAD) also known as social Phobia is a prevalent disorder with its onset almost universally in the childhood or adolescence. National co-morbidity survey estimated 9.1% of adolescence had social anxiety disorder and estimated 1.3% had severe impairment as per Indian Journal of community medicine says that DSM-IV criteria were used to determine impairment in epidemiological study from India 14.5% adolescence were found to be suffering from anxiety disorder in India. Study indicated that anxiety disorder among adolescence in a rural area of North India was 22.7% for social anxiety disorder in that adolescence girls are higher prevalence than boys.

Most of the adolescence suffer from anxiety disorder and depression due to low self-esteem, family related risk factors, environmental stress, academic impairment and misuse of drugs. As social anxiety disorder is among the most common during in adolescence, there is always a need to investigate all new relevant data. Early recognition and prompt treatment of social anxiety adolescence is important to prevent long term sequel. More research is necessary in order to prevent and detect the anxiety disorder among adolescence to control the mental health disorder, child sexual abuse negative self-events, substance abuse, low self-esteem, panic and fear. Some of the ways to prevent social anxiety like positive self-talk, change of environment listening music, watching TV and medication. With above mentioned facts, researcher felt to conduct the study to evaluate the effectiveness of structured teaching program on assertiveness training for social anxiety among adolescence girls.

### OBJECTIVES

- ✓ To assess the pre-test and post-test level of social anxiety among adolescent's girls
- ✓ To evaluate the effectiveness of Structured teaching program on assertiveness training for social anxiety among adolescent's girls
- ✓ To find out the association between the level of social

anxiety among adolescent's girls with their selected social demographic variables.

### ASSUMPTION

- ✓ Adolescence may have different level of social anxiety
- ✓ Assertiveness training may be reducing the social anxiety.

### LIMITATIONS

- ✓ Adolescent's those where age between age of 17to 19years
- ✓ Adolescent's girls studying in Sri Shanmugha College of nursing for women, Sankari.
- ✓ Those who are available during the data collection period.

### METHODOLOGY

**Research Design-**In this study, evaluative approach was used to evaluate the effectiveness of assertiveness training on social anxiety among adolescence girls. Pre-experimental design with one group pre-test – post-test design was used in this study. The study population comprises of all adolescent's girls studying in the college. The girls those who are studying I year B.Sc. Nursing course in Sri Shanmugha College of Nursing for Women was selected through Convenient sampling technique for the study. The sample size was 56 adolescences between the ages of 17 to 19 years.

### RESEARCH TOOL AND TECHNIQUE

The tool used for the study was modified social interaction anxiety scale the technique used for the study was a questionnaire method the tool consisted of two sections.

Section-1: [Socio Demographic variables]

Section-2: [Modified social interaction anxiety scale] - Scoring interpretation

[Modified social interaction anxiety scale] 20 item questionnaires, which were rated below

### The Rating Scale is as follows

- ✚ 0 No Anxiety
- ✚ 1-20 Mild Anxiety
- ✚ 21-40 Moderate Anxiety
- ✚ 41-60 Severe Anxiety
- ✚ 61-80 Extremely Anxiety

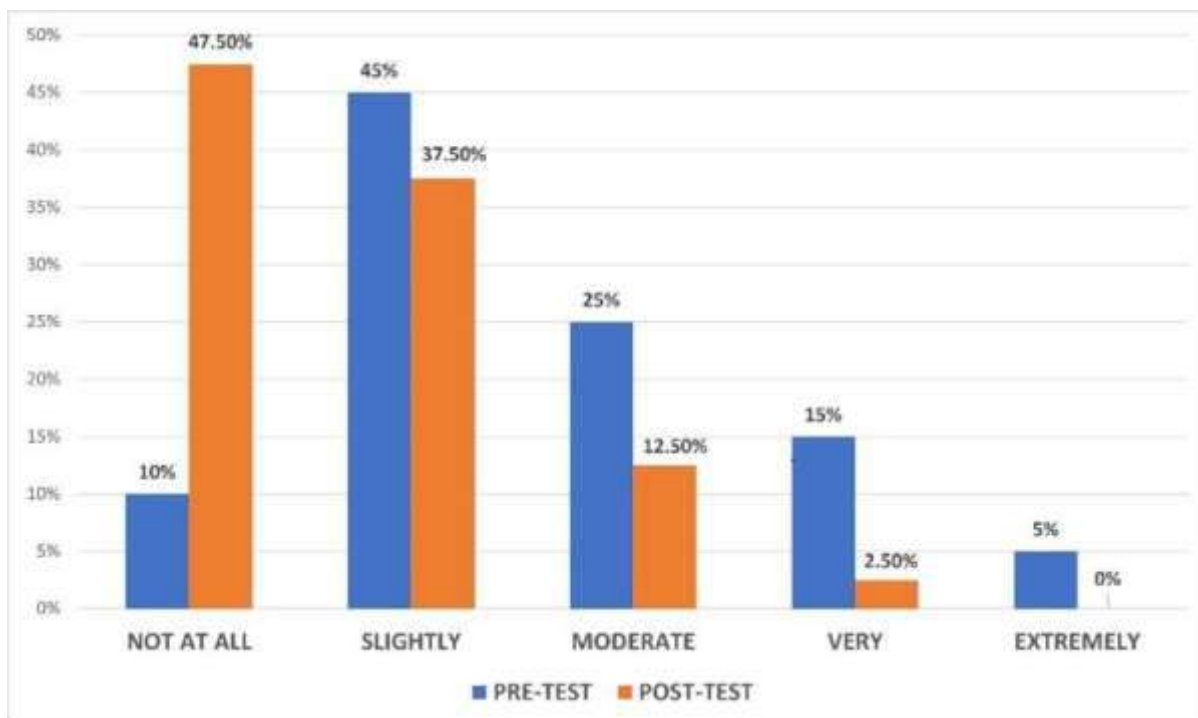
Before data collection written consent collected from the participants, and ethical consideration committee permission obtained from the head of the Institution



**Table1: Frequency and percentage wise distribution of socio-demographic variables.**

S. No	DEMOGRAPHICVARIABLES	FREQUENCY	PERCENTAGE
1	Agein Year	a)17 -18Years	6 11%
		b)18-19Years	47 84%
		c)19- 20years	3 5%
2	BirthStatus	a)SingleChild	5 9%
		b)Siblings	51 91%
		c)Twins	0 0
3	Type ofFamily	a)Nuclear	49 88%
		b)Joint	7 12%
		c)Extended	0 0
4	ResidingArea	a)Rural	41 27%
		b)Urban	15 73%
5	Religion	a)Hindu	52 93%
		b)Christian	4 7%
		c)Muslim	0 0%
6	Educational Status of father	a)Illiterate	4 7%
		b)School	52 93%
7	Educational Status of mother	a)Illiterate	9 16%
		b)School	47 84%
7	Leisure Time Activities	a)Reading Book	9 16%
		b)Watching TV	18 32%
		c)Listening Music	29 52%
8	How you engage with socialization	a)Do not Mingle with other	7 13%
		b)Mingle with Selected people	40 71%
		c)Mingle with everyone	9 16%
9	Already youknow aboutassertiveness	a) If yes mean How you Know? Friends Social media parents	2(social media) 4%
		b)No	54 96%

**Figure 1: Indicates the pretest and posttest level of social anxiety among adolescence.**





**Table2: Effectiveness of Assertiveness Training Between Pretest and Post Test Score Among Adolescent’s Girls**

	Mean	SD	Mean Difference	t-Value
Pretest	12.9	3.98	7.982	13.83
Posttest	5	1.8		

The above table indicates that pretest mean value 12.9 and SD 3.98. The posttest mean value 5 and SD 1.8. The result showed that structured teaching program 2.00 ( $p < 0.05$ ) was effectiveness to reduce social anxiety among adolescence girls.

There is no significance & association between the levels of social anxiety among adolescent’s girls with their selected social demographic variables.

**DISCUSSION**

The result shows that pretest and posttest level of social anxiety among adolescence before and after assertiveness training. In pretest 4 (7%) had no anxiety, 18 (32%) had mild anxiety, 14 (25%) had moderate anxiety, 14 (25%) had severe anxiety, 6 (11%) had extremely anxiety. In posttest 30 (54%) had no anxiety, 19 (34%) had mild anxiety, 5 (9%) had moderate anxiety, 2 (3%) had severe level of anxiety among adolescence.

To evaluate the effectiveness of structured teaching program on assertiveness training for social anxiety among adolescent’s girls. The level of anxiety was found to be significant at ( $p < 0.05$ ). It reveals the effectiveness of assertiveness training. It can be concluded that there is some difference between pretest and posttest.

To find out the association between the levels of social anxiety among adolescent’s G with their socio demographic variables. The results showed that there is no significant association between level of social anxiety score and selected demographic variables regarding age, birth status, type of family, residing area, religion, educational status of parents, leisure time activities, how you engage with socialization.

Marie Abdolghaderi -The previous study was performed in order to investigate the effectiveness of assertiveness on social anxiety and coping with stress among high school female students. In this quasi-experimental study (pre-test and post-test with control group), the population included all high school female students in Roudbar, Iran. Among 168 students, 30 students who got scores above 30 in the Watson and Friend Social Anxiety Questionnaire were randomly selected and divided into an experimental group ( $n = 15$ ) and a control group ( $n = 15$ ). In addition to the Social Anxiety Questionnaire, the Folkman and Lazarus Coping Strategies Questionnaire was also administered. The results demonstrated that assertiveness training is effective on social anxiety and coping with stress among high school female students ( $p < .001$ ). Based on these findings, it can be concluded that assertiveness training is

effective in reducing anxiety and increasing students' coping strategies.

Lin YR -his study's objective was to evaluate the effect of an assertiveness training program on nursing and medical students' assertiveness, self-esteem, and interpersonal communication satisfaction. Using a longitudinal research design, 69 participants whose scores on the Assertive Scale were  $<$  or  $=$  50% (i.e., low assertiveness) and who were willing to participate were included and assigned to an experimental group (33 subjects) or comparison group (36 participants; participants were matched with the experimental group by grade and sex). Participants in the experimental group received eight 2-h sessions of assertiveness training once a week. Data were collected before and after training and again one month after the end of the training using the Rotter's Internal versus External Control of Reinforcement Scale, Sex Role Inventory, Assertive Scale, Esteem Scale, and Interpersonal Communication Satisfaction Inventory. The generalized estimated equation (GEE) method was used for statistical analysis. The assertiveness and self-esteem of the experimental group were significantly improved in nursing and medical students after assertiveness training, although interpersonal communication satisfaction of the experimental group was not significantly improved after the training program.

**CONCLUSION**

The researcher has derived the following implications from the study results which are of vital concern to the field of nursing. Nurses should develop in depth knowledge about the social anxiety of adolescence, knowledgeable regarding the benefits of assertiveness training program in reducing social anxiety, which should be practiced in the hospital or psychiatric hospital & educate and encourage adolescence to use assertiveness training techniques like broken record, token economy etc. Nurses should incorporate health and treatment plans during their service whenever it is possible.

Nursing students should receive adequate training regarding the techniques of assertiveness training, should assist in implementing public health awareness campaigns aimed at reduce level of social anxiety & provide knowledge, resources and leadership for establishing public health policies that focus on assertiveness training program for reducing level of social anxiety among adolescence. Public information program should be designed by nurses to encourage assertiveness training program for adolescence.



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# TRENDS IN MALNUTRITION AMONG THE UNDER FIVE YEARS CHILDREN OF INDIA

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## ABSTRACT

At least 1 in 3 children under 5 years (U-5) is not growing well in the World owing to malnutrition. Stunting, wasting, underweight, and overweight are important measuring indicators of malnutrition. Those indicators also reflect the population health of a country. India's economy is growing faster and already has emerged as the 5<sup>th</sup> largest economic country in the World. However, stunting, wasting, and underweight prevalence remain high in India. The purpose of this study is to find the trends of stunting, wasting, underweight, and overweight prevalence of U-5 children in India comparing its status with the Global average and to evaluate its status towards the Global target of Sustainable Development Goal (SDG) 2.2 by 2030. Data on stunting, wasting, underweight, and overweight prevalence of U-5 children are collected for 2010 to 2020 from the open website of WHO and the World Bank. The data from the reports of National Family Health Surveys (NFHS-3 to 5, India) are also considered for the study.

It is observed that India's average prevalence of stunting from 2010 to 2020 is 37.59%, which is higher than that of the World (24.55%). However, India is accelerating its progress with an average annual reduction of 3.58%. Data on wasting and underweight of U-5 are very sporadic. India's wasting and underweight prevalence are found higher than that of the World average to available values in different years from 2010 to 2020. India's average overweight prevalence from 2010 to 2020 is much lower than that of the World's value (5.63%).

In the case of U-5 stunting and overweight prevalence, India will be closer - based on the average annual reduction rate - to the interim global target 2025 (adopted by WHA 2012) which was to reduce 40% stunting and not to increase the overweight prevalence but, India will be far away from the SDG 2.2 in all forms of malnutrition by 2030. An immediate acceleration of progress is required in the reduction of stunting, wasting, and underweight prevalence along with long-term future strategies to manage the growth of overweight prevalence to achieve the Global target (SDG 2.2) by 2030. Further in-depth research studies may be conducted having broader demographic features and on policy implementation.

**KEY WORDS:** Stunting, Wasting, Underweight and Overweight, Global target.

## INTRODUCTION

All the countries in the World are affected by either one or more forms of malnutrition. The greatest health challenge is to combat malnutrition in all its forms. Malnutrition comprises stunting, wasting and underweight (undernutrition), overweight and obesity, inadequate vitamins and minerals, and diet-related non-communicable diseases. The indicators of stunting, Wasting, Underweight, and Overweight prevalence are the important reflectors of the population health in India as well as in the World perspective (WHO, 2021). A child is considered to be stunted when its height-for-age is less than 2SD (Standard Deviation), a child whose weight-for-age is less than 2SD is considered underweight and a child is called wasted when its weight-for-height is less than -2SD (Jamison et al., 2006). A child under five is considered to be overweight when its weight-for-height is greater than + 2SD from the median (WHO, 2017).

Globally around 45% of deaths among children U-5 are linked to undernutrition. 1.9 billion adults in the world are overweight or obese and 462 million adults are underweight (WHO, 2021). Stunting, wasting, and overweight affected 148 million

(22.3%), 45 million (6.8%), and 37 million (5.6%) of children under five respectively, in 2022 (WHO et al., 2023).

Undernutrition (with stunting and wasting) causes poor growth, infection, death, poor cognition, and poor school performance. Undernutrition (with stunting and underweight) causes perinatal complications, prematurity low birth weight, and chronic diseases for children in later life. Being overweight results in cardiovascular problems, infection, overweight, obesity and overweight and chronic diseases in for child in later life (UNICEF, 2019). Malnutrition increases healthcare costs, reduces productivity, and slows economic growth, which can prolong a cycle of poverty and ill health (WHO, 2021).

Factors associated with malnutrition (Stunting, wasting, underweight & overweight) are the mother's nutritional status, anemia, lack of knowledge to feed children nutritionally, insufficient breastfeeding, early marriage and conception, short intervals between pregnancies, and Women's education and sanitation (Narayan, 2019).



At least 1 in 3 children U-5 is not growing well in the World owing to malnutrition and at least 1 in 2 children under 5 is suffering from hidden hunger owing to vitamins and other nutrients deficiency in the World (UNICEF, 2019). At least 2 in 3 children are not fed the minimum diet to be healthy (UNICEF, 2020).

Various initiatives have been taken to make the world free from malnutrition. Food And Agriculture Organisation (FAO) was formed on 16<sup>th</sup> October, 1945, to struggle perpetually against hunger and malnutrition, worldwide (Philips,1981). Now the objectives and strategic framework of FAO are intrinsically aligned with the Sustainable Development Goals aiming towards Zero Hunger, No Poverty, and Sustainable Use of Natural Resources (FAO, 2019).

The World Food Programme, the largest humanitarian organisation in the World, was founded in 1961 to eradicate hunger and malnutrition (WFP, 1993). The goals of the WFP Strategic Plan (2017-21) were to support the countries in achieving zero hunger (SDG 2) and to support the implementation of 17 SDGs (WFP, July 2016).

In 2012, the Comprehensive Implementation Plan on maternal, infant, and young child nutrition was endorsed by the World Health Assembly resolution 65.6. Six Global targets were adopted out of which the three targets are: (i). 40% reduction in the number of U-5 are stunted, (ii). Reduce and maintain childhood wasting to less than 5% and (iii). No increase in childhood overweight, by 2025 (WHO, 2014).

‘Nutrition for Every Child’ UNICEF Nutritional Strategy 2020-2030, was adopted with a golden Goal to protect and promote diets, services, and practices that support optimal nutrition, growth and development for all children, adolescents, and Women; to enable children to have a nutritious diet and end all forms of malnutrition as per 2030 agenda for Sustainable Development Goals (UNICEF, 2020).

‘The 2030 Agenda for Sustainable Development’ was adopted by the United Nations General Assembly on 25<sup>th</sup> September 2015 by 2030 through fixing 17 sustainable Goals (United Nations, 2015). The SDG target 2.2 was to end all forms of malnutrition by 2030, including achieving the targets of stunting and wasting in children U-5 of age by 2025 (WHO, 2023).

Several initiatives have been taken by India to fight against malnutrition emphasising the reduction of poverty, fortification of food, improvement in sanitation, enhancement of Women's education, and improvement of agricultural practices. Many policies and schemes have been adopted by the Government of India to improve nutrition such as the Integrated Child Development Scheme(ICDS,1975), Mid-day Meal (MDM,1995), National Health Mission (NHM,2005), National Food Security Act (NFSA, 2013) and Rajiv Gandhi Scheme for Empowerment of Adolescent Girls (RGSEAG) or Sabala (Narayan et al., 2019).

To reduce the number of stunting children, under-nutrition, anemia & low birth weight, the Prime Minister of India launched POSHAN Abhiyaan (Prime Minister’s Overreaching Scheme for Holistic Nourishment) on 8th March 2018, with a budgetary allocation of over 9000 crore (FY 2017-18 to 2019-2020) (Niti Aayog, 2019).

As per data from the World Bank (2022), India ranked as the 6<sup>th</sup> largest economic country concerning the Gross Domestic Product(Growth) in the years 2019, 2020 and 2021. Now India has become the 5<sup>th</sup> largest economic country in the World (World Bank, 2022).

But, as per the report of the Global Hunger Index (GHI), 2023 is calculated based on the values of the four indicators: undernourishment, child stunting, child wasting, and child mortality) India’s rank is 111<sup>th</sup> (Score 28.7) out of 125 countries in the World. In 2015 the GHI score was 29.2, ranking 80<sup>th</sup> out of 104 countries (Grebmer et al., 2023; Grebmer et al., 2015).

Global Food Security Index 2022 which evaluated the food security of 113 countries based on the four key pillars: affordability, availability, quality, and safety, shows that India’s rank is 68<sup>th</sup> with a score of 58.9 out of 100 (Economist Impact, 2022). About 48% of Indian infants under five years of age are reported to suffer from stunted growth owing to malnutrition (Narayan, 2019). National Family Health Survey 2019-21 also reported a higher prevalence of stunting, wasting, and underweight children under five years. But India has to achieve SDG target 2.2 by 2030.

There is an urgency to look into the trends of Stunting, Wasting, Underweight, and Overweight prevalence in India and to evaluate the status of stunting, wasting, underweight, and overweight prevalence with the World average and with Sustainable Development Goal 2.2.

## METHODOLOGY

Investigators tried to compare India’s status of stunting, wasting underweight, and overweight with the World average and to assess its status towards the Global targets.

The sources of available data are open websites of the World Health Organisation (Global Health Observatory), the World Bank, and the reports of National Family Health Surveys of India. The prevalence of stunting, wasting, underweight and overweight of U-5 children are extracted for the study. All the collected data are interpreted, computed and analysed for educational research purposes only and no professional interest or profit-making organisational interest is involved with it. The Prevalence of Stunting, wasting, underweight and overweight among U-5 children are estimated based on standardised methodology used by WHO Child Growth Standards & also based on UNICEF-WHO-The World Bank Joint child malnutrition estimates-Levels & trends (UNICEF/WHO/WB 2021 edition).

Prevalence of stunting estimates the percentage of U-5 children whose height-for-age is below -2SD(Standard Deviation) from the median of the WHO Child Growth Standards(WHO,2021).



Prevalence of Wasting estimates the percentage of U-5 children whose weight-for-age is below -2SD(Standard Deviation) from the median of the WHO Child Growth Standards(WHO,2022).

Available data are interpreted and computed and are expressed through tables and figures. The average prevalence of stunting, wasting, underweight and overweight children

under five years (from 2010-2020), Arithmetic annual growth rate (2010-2020), Arithmetic annual reduction rate (from 2010-2020), Projected Growth and Projected reduction (by 2025 and 2030) are conducted for the study. Microsoft Excel 2010 is used for the different numerical calculations.

RESULTS

Stunting

Table-1 shows that India possesses a higher prevalence of average stunting (37.59%) from 2010 to 2020 than that of World value (24.55%), but India’s average annual reduction in stunting from 2010 to 2020 is higher than that of the Global average.

Table-1: A .P, AAR of stunting among U-5 children of India during 2010-2020 and projected prevalence

Table with 6 columns: Country/World, Average Prevalence of stunting 2010 - 2020, Avg. Annual Reduction of stunting from 2010 to 2020.(%), Prevalence of Stunting in 2020 (%), Projected prevalence by 2025, Projected Prevalence by 2030. Rows for India and World.

A.P> Average Prevalence, AAR> Average Annual Reduction

By 2025, the projected stunting prevalence will be 25.75% in India and 19.6% in the World based on the average annual reduction of stunting.

By 2030, the projected values (based on the annual reduction) of prevalence of stunting children under 5 Yrs. will also be higher in India(21.46%) than that of the World (17.47%) by 2030 (Table 1)

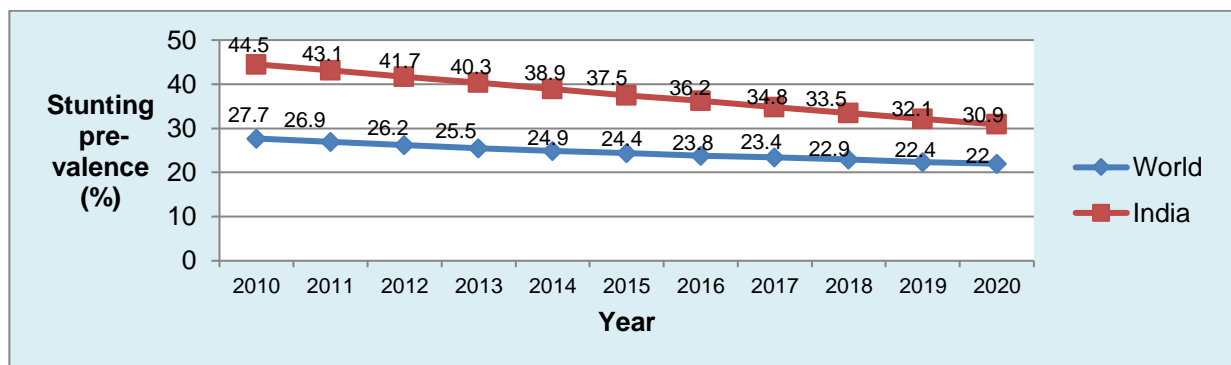


Figure-1: Stunting prevalence of World and Indian U-5 Children from 2010 to 2020 (As per WHO, 2021,year).

Table-2: U-5 Stunted Children (Height-for-Age) in India (%).

Table with 7 columns: Indicators, NFHS-3 (2005-06), NFHS-4 (2015-16), NFHS-5 (2019-21) (Urban, Rural, Total), Reduction % from NFHS 4 to NFHS 5. Row for Children under 5 years who are stunted (height-for-age) (%).

# Data are in %, \* Source: National Family Health Survey -5, (2019-21), Ministry of Health and Family Welfare, Government Of India

India’s tendency in reduction of stunting children from 2010 to 2020 is more than that of the World average but as the initial

value was high in 2010 its prevalence of stunting children also remains considerably high in 2020(Figure1).



As per the National Family Health Survey, NFHS-3(2005-06), NFHS-4(2015-2016) and NFHS 5(2019-21) India's percentage of total Stunting children under 5 Yrs. were 48, 38.4 and 35.5 respectively, however, but as per WHO (2021), the stunting percentage in India was 30.9 in 2020. Rural children are more vulnerable than urban children (NFHS-5) (Table-2).

**Wasting**

Data on Wasting children under five years are very sporadic. India's Wasting prevalence was much higher than that of the World average in respect of the respective years(Table 3). In 2015 it was approx. 3 times greater than that of the World, in 2017 it was 2.5 times greater and in 2020 it was 2.75 times greater than that of the World average (Table 3).

**Table 3: Wasting Prevalence among U-5 children of India and the World from 2010 – 2020**

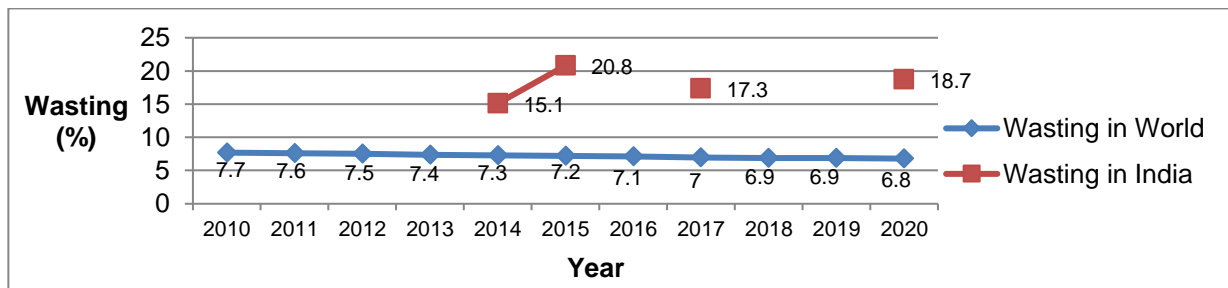
YEAR	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
India	-	-	-	-	15.1	20.8	-	17.3	-	-	18.7
World	7.7	7.6	7.5	7.4	7.3	7.2	7.1	7	6.9	6.9	6.8

(-) Data not available, # Last updated on 17.04.2023 By WHO.

**Table 4: Wasting (Weight-For-Height) U-5 (%) according to National Family Health Survey, India.**

INDICATORS	NFHS-3 (2005-06)	NFHS-4 (2015-16)	NFHS-5 (2019-21)			NFHS-4 to NFHS-5, Reduction. (%)
	Total	Total	Urban	Rural	Total	Total
Children under 5 years who are wasted (weight-for-height) (%)	19.8	21	18.5	19.5	19.3	8.10

\*Source: National Family Health Survey -5, (2019-21), Ministry of Health and Family Welfare, Government Of India



**Figure-2: Prevalence of Wasting among the U-5 children in the World and in India (%) from 2010-2020 (WHO, 2023)**

Report of the National Family Health Survey, NFHS-3(2005-06), NFHS-4(2015-16) and NFHS-5(2019-21) shows the percentage of U-5 children are wasted (Weight for height) as 19.8, 21 and 19.3 (Urban 18.5 and Rural 19.5) respectively (Table 4). In respect of the World average India's Wasting percentage is very high(Figure 2). No effective reduction is found in the percentage of wasting both as per data from the World Health Organization and from the National Family Health Survey. The present prevalence of wasting children in India as per the latest available data is 18.7 % (WHO, 2020) and 19.30% (NFHS-5, 2019-21). Both values are much higher than

all the other countries and as well as the World average. National Family Health Surveys reveal that from 2005-06 to 2015-16 the percentage of wasting increased by 6.06% and thereafter decreased by 8.1% from 2015-16 to 2019-21.

**Under Weight**

Very sporadic data are available among the U-5 children in the selected countries. As per available data, it is observed that India's prevalence of underweight children under 5 Yrs. age was 29.4% & 36.3% in 2014 and in 2015 and it was 33.4% in 2017.

**Table 5: Underweight prevalence (%) among U-5 Children (Weight- For- Age <-2SD)**

Year	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
India (%)	-	-	-	-	29.4	36.3	-	33.4	-	-	-
WORLD %	16.2	15.8	15.3	14.9	14.5	14.1	13.7	13.4	13.1	12.9	12.6

(-) Data is not available, #Last updated on 30.06.2022 by WHO

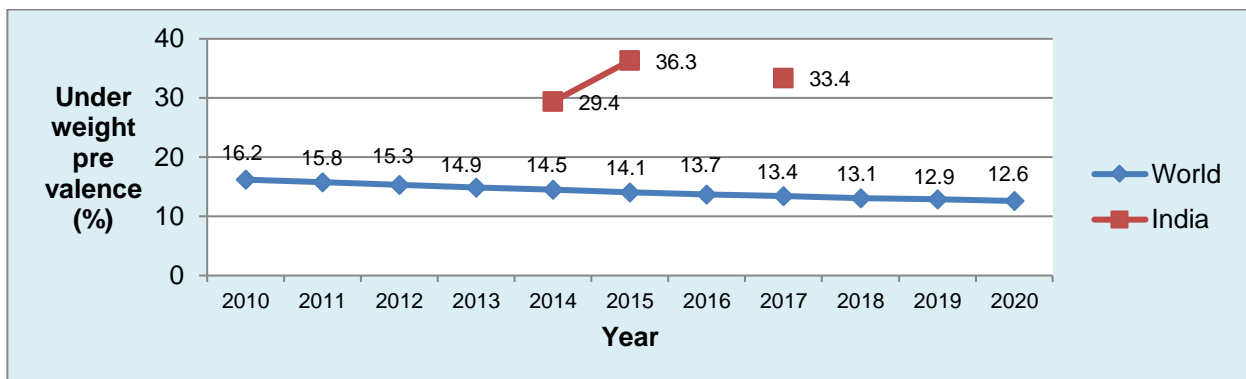




**Table-6: U-5 Children with underweight (Weight-for-Age) (%) in India**

INDICATORS	NFHS-3 2005-06	NFHS-4 (2015-16)	NFHS-5 (2019-21)			NFHS-4 to NFHS-5, Dec. %
	Total	Total	Urban	Rural	Total	Total
Children under 5 years who are underweight (weight-for-age) (%)	42.5	35.8	27.3	33.8	32.1	10.34

\*Source: National Family Health Survey -5, (2019-21), Ministry of Health and Family Welfare, Government Of India



**Figure 3: Prevalence of U-5 Underweight Children in the World and India during 2010-2020 (%).(WHO 2022 )**

As per the latest data available from the WHO, in the year 2017, India's prevalence of underweight children under 5Yrs. was 33.4% and at that time the World average was 13.4% and it reveals that India's prevalence of underweight children under five was two and half times (approx.) that of the World in 2017 (Table 5 and Figure 3).

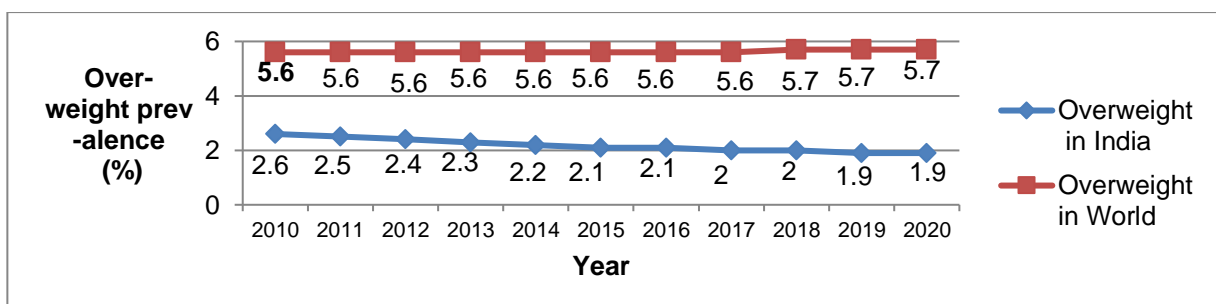
To National Family Health Survey, India's underweight children (Under 5 Yrs.) percentage was 42.5 in 2005 -06 (NFHS-3), 35.8 in 2015-16 (NFHS-4) and 32.1 in 2019-21(NFHS-5)(Table 6). In the year 2020 World percentage of

underweight children under 5 Yrs. age was only 12.6% and in 2019-21 (NFHS-5) its value was 32.1 i.e. more than two and half times the World values(Table 6)(Figure 3). As per NFHS, from 2015-16 to 2019-21 reduction of underweight prevalence was noticed by 10.34% (approx.) only.  
 Overweight:

The average prevalence of overweight children Under 5 Yrs. from 2010-2020 in India (2.18%) is lower than that of the World average (5.63%).

**Table 7: Avg. Overweight Prevalence and Avg. annual Growth of U-5 children during 2010-2020 and projected prevalence.**

Country/ World	Average prevalence of overweight 2010 to 2020. (%)	Avg. Annual Growth of overweight from 2010 to 2020.(%)	Prevalence of overweight in 2020 (%)	Projected prevalence by 2025	Projected Prevalence by 2030
India	2.18	-3.07	1.90	1.63	1.39
World	5.63	0.18	5.7	5.75	5.80



**Figure 4: Prevalence of Overweight among the U-5 Children in the World and India (WHO, 2021)**



In 2019 and 2020 India maintained a statuesque position having the values (1.9) same for those two consecutive years as per WHO data. It is observed that India will fulfill the targets set by the World Health Assembly (WHA 2012) to have no increase

in childhood overweight by 2025 and will be very close to the Global target of 2030 to make the World free from all types of malnutrition (Table 7) (Figure 4).

**Table 8: U-5 children (%) with overweight (Weight-for-Height).**

INDICATORS	NFHS -3 (2005-06)	NFH S-4 (2015-16)	NFHS-5 (2019-21)			NFHS-4 to NFHS-5 Growth.(%)
	Total	Total	Urban	Rural	Total	Total
Children under 5 years who are overweight (weight-for-height) (%)	-	2.1	4.2	3.2	3.4	61.90

\*Source: National Family Health Survey -5, (2019-21), Ministry of Health and Family Welfare, Government Of India

But, the report of the National Family Health Survey (NFHS-5) (2019-21), reflects **quite increasing tendencies (2.1 to 3.4, Approx. 62%)** in respect of overweight prevalence value 2015-16 to 2019-21 (Table 8).

**DISCUSSION**

The average prevalence of stunting in India (37.59%) was higher than that of the World (24.55%)(Table 1). But, India’s average annual reduction (3.58%) in stunting from 2010 to 2020 is higher than that of the World (2.28%).

In 2012, the World Health Assembly (resolution 65.6) adopted one of the Global targets which was to 40% reduction in the number of children under 5 Yrs. who are stunted by 2025. It is observed that India will be very close to the Global target by 2025 (Table 1) by its existing average annual reduction rate in stunting but, India will not be able to hit the Global target SDG 2.2 by 2030 to be freed from any kind of malnutrition as India’s initial prevalence of stunting considerably very higher and by 2030 its projected prevalence will be 21.46% based on the existing average reduction rate (Table 1 and Figure 1).

Data on wasting children under five years are very sporadic. India’s Wasting prevalence was much higher than that of the World average (Table 3). In 2015 it was approx. 3 times greater than that of the World, in 2017 it was 2.5 times greater and in 2020 it was 2.75 times greater than that of the World average (Table 3).

The Global target which was to Reduce and maintain childhood wasting by less than 5% by 2025 and the SDG2.2 target by 2030 will not be fulfilled by the India in existing reduction percentage (8%) from 2015-16 to 2019-21 (NFHS 4 to NFHS 5) as the latest prevalence are very high as 18.7% in 2020 (WHO) and 19.3% in 2019-21 (NFHS 5) (Table 4 and Figure 2).

India’s underweight prevalence in 2014, 2015, and 2017 are much higher than that of the World average in respective years (Table 5). The report NFHS 3, NFHS 4 and NFHS 5 reveals decreasing tendencies in underweight prevalence by 15.76% (42.5 to 35.8, from 2005-06 to 2015-16) and by 10.34% (35.8 to 32.1, from 2015-16 to 2019-21). However, this reduction rate is not enough to achieve the Global target of SDG 2.2 by 2030.

Hemaltha et al. (2020) also assessed the prevalence of stunting, wasting and underweight prevalence from 2010 to 2017 and its findings are also compatible with the trends of stunting, wasting and underweight prevalence in the present study.

India can meet the Global targets (Adopted by WHA, 2012) which are not to increase childhood overweight, by 2025, based on existing trends in overweight prevalence among the U-5 children as per WHO data. The projected overweight prevalence of India will also be close to the Global Target (SDG 2.2) by 2030 (Table 7), but it is quite alarming that the National Family Health Survey (NFHS-5) reflects much increasing tendency in overweight prevalence (%) under five years from 2015-16 to 2019-21 (2.1 to 3.4) by 62% approximately (Table 8). The findings of Varghese et al. (2022) also prove an increasing tendency in overweight children in India.

India is in the same boat as all the other countries in the World with a vision of ‘Transforming our World by 2030’ through achieving all the SDGs. SDG 2.2 is to end all forms of malnutrition by 2030, including achieving by 2025, the internally agreed targets. India’s rank in the Global Hunger Index 2023, is 111<sup>th</sup> out of 125 countries and its rank in the Global Food Security Index 2022, is 68<sup>th</sup> out of 100 countries. India’s prevalence of Stunting, Wasting, Underweight and Overweight among children under five years as per the National Family Health Survey 2019-21, are 35.50%, 19.30%, 32.10% and 3.4% respectively. The prevalence of Stunting, wasting and underweight in India are much higher than that of the World. Only overweight prevalence is lower in India than that of the World average.

As the present trends of progression are not enough to achieve the goals in time, India has to accelerate its improvement regarding immediate reduction in Stunting, Wasting, Underweight prevalence mostly to reach the global target by 2030, and effective strategies have to be taken to control overweight prevalence in future.

**CONCLUSION**

India’s economy is growing very fast but, India is still a large hub of under-nutrition children, adolescents and adults. The researcher has tried to investigate the trends in stunting, wasting, underweight and overweight prevalence among U-5 children in India comparing its status with the World average



and evaluating its status towards the Global targets. All the data on stunting, wasting, underweight and overweight prevalence are collected from the open websites of WHO, the World Bank and the National Health Surveys (NFHS), India.

The Stunting, Wasting and Underweight prevalence in under five years in India is much higher than that of the World average. India is still in the safe zone in Overweight prevalence among children under five years as per the report of WHO, but effective strategies have to be taken to control overweight prevalence in the future as NFHS-5 reflects a highly increasing tendency. With the existing progress rate India will be far away from SDG 2.2 by 2030 in stunting, wasting and underweight prevalence despite having the possibility to be close to the interim Global target by 2025 in case of prevalence of stunting. Big challenges are ahead, India has to do progress faster along with maximum implementations of different policies and strategies.

### ACKNOWLEDGEMENT

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# ROLE OF HEIS IN PROMOTING SOCIAL ENTREPRENEURSHIP - A STUDY WITH REFERENCE TO KOLKATA, WEST BENGAL

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## ABSTRACT

*Social entrepreneurship is receiving a lot of attention due to its growing importance as a powerful tool to address challenging societal issues, while fostering economic development worldwide. In this context, the role of higher education institutions in promoting social entrepreneurship has emerged as a significant area of study. In West Bengal, higher education plays a crucial role in encouraging social entrepreneurship by cultivating a culture of innovation, equipping aspiring entrepreneurs with the resources and skills they need to succeed, as well as offering a platform for confronting the socio-economic problems. Higher education institutions in West Bengal can integrate social entrepreneurship courses and modules into their curricula. These programs will develop an ecosystem which will encourage students to understand the dynamics of social issues and create innovative solutions to combine business principles with societal impact. In West Bengal, Kolkata is the key pioneer in the creation of the contemporary educational system ((Invest in West Bengal, n.d.). Hence the present study intends to explore the role of higher education in promoting social entrepreneurship with respect to the Kolkata district of West Bengal. To achieve the objectives of the research work, 124 students enrolled under Higher Education Institutions (HEIs) in Kolkata are surveyed. Statistical test such as Kruskal-Wallis test and factor analysis has been conducted to understand the various factors that affecting the contribution of higher education institutions in promoting social entrepreneurship among the students in Kolkata.*

**KEYWORDS:** Social Entrepreneurship, Higher Education, Ecosystem, Primary Survey.

## I. BACKGROUND

Social entrepreneurship is receiving a lot of attention due to its growing importance as a powerful tool to address numerous challenging societal issues, while fostering economic development worldwide. India is a country of diversified population in terms of gender, cultural, social class, and economic status etc. Despite of the fact that the country has made significant progress in recent years, with increasing access to education, healthcare, and technologies etc., but numerous social and environmental issues including poverty, unemployment, gender inequality, and environmental degradation are still persisting today.

India is likely to miss the deadline for 50 percent of Sustainable Development Goals (SDG) indicators including major concerns (Dubey, 2023). In this context, social entrepreneurs have a significant role to play and social entrepreneurship has gained as an important mechanism to address those challenges by generating sustainable solutions. Social entrepreneurship refers to the practice of using innovative, sustainable, and business-oriented approaches to confront the socio-economic problems. In order to bring constructive social change, social entrepreneurs focus on creating sustainable impact solutions that go beyond traditional philanthropy or charity which have a positive impact on society as well as on the environment.

Due to its potential to develop innovative solutions for crucial socio-economic issues, the intersection between higher education and social entrepreneurship has drawn a lot of

attention in recent years. Kolkata offers a unique context for exploring the role of higher education in promoting social entrepreneurship. In the present study, the researchers intend to analyse the role of Higher Education Institutions (HEIs) in promoting and fostering social entrepreneurship among the students in Kolkata.

## II. REVIEW OF LITERATURE

The prevailing state of relevant policies & recent Social entrepreneurship policy developments revealed that there are negligible concerns for entrepreneurship policy framework in majority of developing countries including India (Satar, 2016). In the context of the Asia-Pacific countries (APAC), there are some major factors like economical, contextual, institutional, social etc. that requires further investigation which are having potential to make APAC nations future ready social entrepreneurship (Sengupta et al., 2017). Apart from that, an entrepreneur's perception, risk taking ability, gender, social networking etc. influences the intention to build social entrepreneurship (Banerjee et. al., 2022).

The start-up ecosystem in building social entrepreneurship plays a crucial role by availing various R&D facilities, infrastructural resources and also conducting numerous accelerator programmes that have been instrumental in strengthening connections (Cheah et. al., 2019). In order to address the needs of the society at large, social innovation comes forward to generate new business plans or ideas and through Social entrepreneurship, innovations take place which



can lead to a large-scale social change with different kinds of governmental intervention (Shokley et. al., 2011).

### III. RESEARCH GAP

On the basis of extensive review of literature, it is witnessed that several studies have been conducted on the importance of social entrepreneurship. But very few research works have been done in the context of role of higher education in fostering social entrepreneurship and no such seminal work is evident with respect to West Bengal. Hence, the researchers identified the area as a major research gap.

### IV. RESEARCH OBJECTIVES

The following are the research objectives based on the research gap:

1. To analyse the variation in perception regarding role of higher education in promoting social entrepreneurship among students with respect to educational level, type of institution and academic stream.
2. To explore the factors responsible for creating social entrepreneurship ecosystem by the higher education institutions in Kolkata.

### V. RESEARCH QUESTIONS

The research questions of the study are as follows:

1. Is there any variation in perception regarding role of higher education in promoting social entrepreneurship among students with respect to educational level, type of institution and academic stream?
2. Does there exist any factors responsible for creating social entrepreneurship ecosystem by the higher education institutions in Kolkata?

### VI. RESEARCH HYPOTHESIS

Based on the research questions, the following research hypothesis are formulated:

1. H<sub>1</sub>: There is no variation in perception regarding role of higher education in promoting social entrepreneurship among students with respect to educational level, type of institution and academic stream.
2. H<sub>2</sub>: The null hypothesis states that there are no latent underlying structures and that all variables load equally.

### VII. RESEARCH METHODOLOGY

The present study is exploratory as well as empirical in nature and is based on primary data. A structured questionnaire has been framed based on several literatures. The questionnaire contains questions with respect to demographic profile of the respondents as well as five-point Likert scale is used to measure the perception of the respondents. The survey is conducted in the district of Kolkata in West Bengal. The responses are collected from 124 students from different higher education institutions through google form and direct interviews using convenient sampling technique. SPSS software has been used for analysing the data collected from the primary survey. Cronbach's Alpha is used to test the internal consistency of the questionnaire. Simple percentages, bar chart, pie charts and frequency tables have been used to present and interpret the

data. To empirically analyse the survey data collected and to validate the above mentioned hypothesis based on the research objectives, Kruskal - Wallis test and Principal Component Analysis (PCA) are conducted.

### VIII. ANALYSIS AND INTERPRETATION

In the present study, the researchers have collected 124 responses from the district of Kolkata, West Bengal. The analysis and interpretation of the data collected from the survey are presented here.

Cronbach's Alpha	N of Items
.945	15

Source: Compiled by the researchers through SPSS 26

To test the reliability of the questionnaire, Cronbach's Alpha has been used. The Cronbach's Alpha value is 0.945, which is more than 0.90 and considered to be excellent.

**Hypothesis 1:** There is no variation in perception regarding role of higher education in promoting social entrepreneurship among students with respect to educational level, type of institution and academic stream.

Role of higher education institutions in promoting and fostering social entrepreneurship			
Test Statistics	Educational Level	Type of Institution	Academic Stream
Kruskal-Wallis H	3.732	4.761	4.411
df	2	1	2
Asymp. Sig.	.155	.029	.023
Decision	Accept	Reject	Reject

Source: Compiled by the researchers through SPSS 26

From the above table, it is seen that the role of higher education institutions in promoting and fostering social entrepreneurship does not vary with respect to educational level but varies in terms of type of institution and academic stream of the respondents. The possible reason behind the acceptance of null hypothesis with respect to educational level could be due to the underlying fact that the institutions are taking initiatives regarding social entrepreneurship irrespective of their educational level. The higher education institutions are intended to include entrepreneurship development in the course curriculum, whether it is graduation or post-graduation course. Various awareness programs like workshops, seminars, professional meets, etc. are organised by the institutions for all educational levels.

On the other hand, there exist variation in their perception with respect to type of institution could be due to that private institutions are taking more frequent initiatives regarding social entrepreneurship, including entrepreneurship development in the course curriculum, using ecosystem framework, etc. as compare to government institutions. Moreover, private educational institutions are often having more flexibility and autonomy in funding and curriculum designing. Non-government institutions might have better networking opportunities due to their connections with private sector



organisations, Non-Governmental Organization (NGOs), and social entrepreneurs. Private institutions might be quicker to respond to changing societal needs and trends, while government institutions might have more established structures and processes that take longer to adapt.

Lastly, it is also evident that there exists variation in perception of the respondents in terms of their academic stream as awareness of social entrepreneurship varies among academic streams, with business and management students being more likely to encounter information about it. Business schools often offer dedicated courses and resources due to its alignment with sustainability and corporate responsibility. The extent of

awareness depends on curriculum, faculty expertise, and institutional culture, but interdisciplinary approaches are emerging. Commerce students' exposure to topics like innovative business models contributes to their awareness, along with encountering real-world examples. Their entrepreneurial mind set further makes them receptive to ideas of innovation and impact. Nevertheless, efforts to raise awareness should span all academic streams, fostering interdisciplinary collaboration for a broader understanding of social impact across fields.

**Hypothesis 2:** The null hypothesis states that there are no latent underlying structures and that all variables load equally.

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.			.927
Bartlett's Test of Sphericity	Approx. Chi-Square	1384.611	
	df	105	
	Sig.	.000	

Source: Compiled by the researchers through SPSS 26

In the present research work, the KMO statistic value is 0.927 which is more than 0.9 and is considered to be excellent, and hence PCA can be undertaken. The calculated Bartlett's test

value is 0.000 which signifies that the correlation matrix is not identity matrix, hence the null hypothesis is rejected. Thus, the PCA can be undertaken.

	Component			
	1	2	3	4
You believe that higher education Institutions can encourage students to develop innovative solutions to major societal and environmental issues through social entrepreneurship	.859	.217		.248
There is a need of specific interdisciplinary collaborations or partnerships that higher education institutions should engage into enhance the promotion of social entrepreneurship.		.234	.834	.244
You believe higher education institutions should be involved in promoting and fostering social entrepreneurship	.834	.344		.108
Integrating social entrepreneurship into the curriculum of various disciplines can enhance your understanding of its principles and practices	.171	.286	.730	.356
You are aware of the term "Social Entrepreneurship"	.629	.475	.266	-.133
Your Institution arranges for 'Entrepreneur-Student Meetup & Visit' programs	.161	.822	.156	.300
You are aware of the initiatives taken by your institution to promote social entrepreneurship among their students	.305	.723	.354	.147
Your Institution organizes seminars/workshops/specific courses on "Social Entrepreneurship"	.311	.661	.305	.324
You have participated in any social entrepreneurship-related courses, workshops, or programs during your higher education	.222	.488	.659	
Your Institution educates you about "Social Entrepreneurship"	.647	.213	.390	.361
In your experience, you believe that your institution is adequately equipped to teach and mentor students in the complexities of social entrepreneurship	.403	.235	.537	.498
Your course-curriculum includes the concept of "Social Entrepreneurship"	.220	.310	.808	.216
Your Institution have Incubation Centre (Entrepreneurship Development Cell)	.146	.428	.264	.625
You believe that the concept of social entrepreneurship aligns well with the traditional academic structures of higher education	.239	.198	.260	.804
Your institution contributes to creating a supportive ecosystem where social entrepreneurs can learn from each other, share experiences, and collaborate on projects	.417	.541		.562
Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.				
a. Rotation converged in 9 iterations.				

Source: Compiled by the researchers through SPSS 26

The first component has four variables which are (a) Encouragement for development of innovative solutions to major societal and environmental issues (with loading .834), (b) Involvement of institutions in promoting and fostering social entrepreneurship (with loading .866), (c) Generating Awareness about the term social entrepreneurship (with loading .629), and (d) Role of institutions in educating social entrepreneurship (with loading .647). The first component

clearly shows the 'Perceptiveness' factor indicating the role of higher education in creating awareness regarding social entrepreneurship among students.

The second component has three variables which are (a) Arrangement for 'Entrepreneur-Student Meetup & Visit' programs (with loading .822), (b) Awareness of the students regarding initiatives taken by your institution to promote social



entrepreneurship (with loading .723), and (c) Organization seminars/workshops/specific courses on "Social Entrepreneurship" (with loading .661). The second component depicts the 'Initiatives' factor representing the role of higher education in taking various initiatives for promoting social entrepreneurship among students.

The third component has five variables which are (a) Need of specific interdisciplinary collaborations or partnerships (with loading .834), (b) Integration of social entrepreneurship into the curriculum of various disciplines (with loading .730), (c) Participation in social entrepreneurship-related courses, workshops, or programs (with loading .629), (d) Ability to teach and mentor students in the complexities of social entrepreneurship (with loading .537) and (e) Course-curriculum

contains the concept of "Social Entrepreneurship (with loading .808). The third component clearly reflects the 'Course-curriculum' factor representing the role of higher education in the integration of social entrepreneurship into the Course-curriculum.

The fourth component has three variables which are (a) Availability of Incubation Centre (with loading .625), (b) Alignment of social entrepreneurship with the traditional academic structures of higher education (with loading .804), and (c) Creation of Supportive Ecosystem (with loading .562). The fourth component reflects the 'Ecosystem' factor representing the role of higher education in creating supportive Ecosystem to foster the growth of social entrepreneurship.

Table 5. Summary Results of PCA

Factor Component	Naming the Components	Included Variables
Component 1	Perceptiveness	1. Generating awareness in promoting and fostering social entrepreneurship 2. Educating about social entrepreneurship 3. Development of innovative solutions
Component 2	Initiatives	1. Informing students about the initiatives 2. 'Entrepreneur-Student Meetup & Visit' programs 3. Organising seminars, workshops, specific courses, etc.
Component 3	Course-curriculum	1. Integrating social entrepreneurship into the course-curriculum 2. Equipped to teach and mentor students 3. interdisciplinary collaborations or partnerships
Component 4	Ecosystem	1. Availability of Incubation Centre 2. Alignment of social entrepreneurship with the traditional academic structures of higher education 3. Creation of Supportive Ecosystem

Source: Compiled by the researchers through SPSS 26

The above table depicts the four significant components that includes Perceptiveness, Initiatives, Course-curriculum and Ecosystem that defines the role of HEIs in promoting social entrepreneurship among students as derived by the PCA. Firstly, perceptiveness entails the institution's awareness of the societal impact of social entrepreneurship. HEIs need to recognize and understand the evolving needs of society, identifying social issues, and acknowledging students' potential for positive change. Secondly, initiatives involve proactive efforts and programs, such as workshops, seminars, and dedicated centres, that provide resources and support for social entrepreneurial ventures. Thirdly, course-curriculum integration is crucial, requiring HEIs to incorporate social entrepreneurship-related content into academic programs, fostering a comprehensive understanding of the principles and practices involved. Lastly, the ecosystem encompasses the broader environment that supports social entrepreneurship within and beyond the institution, including collaborations with external partners, mentorship programs, and community engagement, creating a holistic approach to cultivating a culture of social innovation among students.

IX. CONCLUSION AND RECOMMENDATIONS

In the present study, the researcher focused to empirically understand and analyse the role of HEIs in promoting and

fostering social entrepreneurship in the district of Kolkata. From the analysis it is evident that higher education institutions acquiring resources to assist social entrepreneurship by creating an ecosystem among the students. Irrespective of the educational level, it is seen that the HEIs are taking various initiatives like including entrepreneurship development in the course-curriculum, arranging for workshops and seminars, professional meet-ups etc. to develop the concept of social entrepreneurship. Besides that, the survey results also highlighted that as compare to government institutions, non-government institutions are having more flexibility and autonomy to adopt the concept social entrepreneurship by taking more frequent initiatives. Moreover, non-government institutions are quicker to respond to changing societal needs and trends by availing better structures and processes.

The present study also reveals that; awareness of social entrepreneurship can indeed vary based on the academic stream of the students. The extent of awareness in each academic stream can depend on the curriculum, faculty expertise, institutional culture, and the evolving trends within each field. However, interdisciplinary approaches are becoming more common, allowing students to explore the intersections of their chosen academic streams with social entrepreneurship. Students studying business and management disciplines, such as entrepreneurship, management, and business administration,





are more likely to encounter information about social entrepreneurship. In this light, Commerce students often study subjects related to business management, marketing, and economics, which could include discussions about innovative business models like social entrepreneurship to encounter more real-world examples of social enterprises and successful social entrepreneurs in their coursework. These topics might be more directly related to social entrepreneurship than some subjects in science or arts streams.

In the wake of the National Education Policy, Higher Education Institutions (HEIs) in India are under increasing pressure to redefine their role in the economy by actively fostering entrepreneurship and small business development. Embracing a pivotal role, HEIs should prioritize cultivating an entrepreneurial spirit among students, making entrepreneurship education an integral part of the curriculum for all disciplines. Beyond university-level initiatives, HEIs should extend their focus to primary schools, aligning educational efforts with local development needs. A crucial element is government support for these endeavours, ensuring holistic education and facilitating the establishment of entrepreneurial ventures. By raising awareness of social entrepreneurship across academic disciplines, HEIs can encourage interdisciplinary collaboration, fostering a comprehensive understanding of how diverse fields contribute to social impact and economic development.

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# REQUIREMENTS FOR THE FORMATION OF HARDINESS IN CHILDREN

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## ANNOTATION

*In every age period of a person, there are some internal resources that allow you to optimally cope with life's difficulties, however, these resources may remain unclaimed if attention is not promptly focused on their identification and development. This article presents information on the process of formation of the phenomenon of hardiness in young school age and adolescents.*

**KEY WORDS.** *Hardiness, Self-confidence, Young school age, Adolescent, Communication skills, Coping skills, Self-regulation skills*

Age-related changes in the manifestations of hardiness are associated, first of all, with social factors: family upbringing, the influence of positive examples of adult hardiness, learning to control one's temperament and developing one's character.

Knowing the mechanisms of development of psychological structures, one can pay attention to sensitive periods in the development of one or another psychological property associated with the manifestation of hardiness, and note the different manifestations of the phenomenon of hardiness in different age periods. This can be used in the development of developmental programs for children and adolescents. It is important for a growing person to be shown his capabilities, help him comprehend them, choose what is right for himself, formulate a goal, and only then this leads to action in the chosen direction<sup>1</sup>.

1. High adaptability. Such children are socially competent and know how to behave at ease, both in the company of their peers and among adults. They know how to win others over
2. Self-confidence. Difficulties only encourage them. Unforeseen situations do not bother you.
3. Independence. Such people live by their own mind. Although they listen carefully to the advice of adults, they know how not to fall under their influence.
4. Striving for achievements. Such children strive to demonstrate to others their high performance in school, sports success, artistic or musical abilities. Success brings them joy. They are convinced from their own experience that they can change the conditions that surround them.
5. Limited contacts. Usually their friendships and family ties are not very abundant. They establish only a few stable and ongoing contacts with other people. A small

number of connections contributes to their sense of safety and security<sup>2</sup>.

When considering the development of hardiness in a child, it is important to note the role of a significant adult. The adult creates a developmental environment that promotes the activation of the child's psychological resources. An adult acts as an intermediary between the child and a set of social values, attitudes, norms, forms of relationships and activities.

The development of all psychological functions of a child helps to form adequate self-esteem, which will allow him to master various strategies for coping with difficulties, tactics for self-regulation of his own emotional state, and through skills of interaction with others, develop communicative competence.

The child develops an attitude towards active interaction with the world, inclusion in situations of overcoming difficulties, regulates his emotions (significant components of the development of resilient behavior is the formation of the "I can" locus, which is mediated by the development of habits and skills that are optimal for age)<sup>3</sup>.

Research conducted by S. Maddi showed a stable connection between the level of hardiness and the conditions of early childhood development. It was revealed that the formation of hardiness can be positively influenced by: stress in early childhood (financial difficulties, parental divorces, frequent moves); sense of purpose in life; nurturing confidence, maintaining high standards. The development of hardiness in childhood was negatively affected by: lack of support and encouragement from loved ones; lack of sense of purpose; lack of involvement in various activities, school life, alienation from significant adults.

<sup>1</sup> Фролов Ю.И. Психология подростка. Хрестоматия. М., 1997.

<sup>2</sup> Крайг Г. Психология развития. Учеб. пособие. Грейс Крайг, Дон Бокум; науч.ред.пер на рус.яз, ТВ.Прохоренко – 9-е изд. – СПб.: Питер, 2004.

<sup>3</sup> Фролов Ю.И. Психология подростка. Хрестоматия. М., 1997.



Based on the above, it becomes clear that in childhood it is necessary to develop:

**Intellectual Skills:** positive analysis of difficult life situations; role-playing games - "playing out" situations of stress; broadening one's horizons and internal culture.

**Communication Skills:** social support; requests; the ability to say "no"; adequate response to fair and unfair criticism.

**Coping Skills:** self-acceptance and self-esteem; self confidence; volitional efforts.

The behavioral aspect of hardiness in adolescents is associated, first of all, with active-aggressive methods of self-defense and defense of one's opinion, which corresponds to typical adolescent reactions and is an important stage in socialization. In adolescence, a person's ability to resist external circumstances is based primarily on a "strong" character and manifests itself in hyperthymic behavior. In the process of growing up, the connection between hardiness and spontaneity and aggressiveness weakens<sup>4</sup>. Removing aggressive self-affirmation is possible through the inclusion of a teenager in meaningful activities that bring him a sense of confidence, relieving emotional tension.

The formation of life stability of adolescents and young men necessarily includes the development of value systems. Among teenagers, "cheerfulness", "education", "rationalism", "courage in defending one's opinions and views", "strong will" - as a certain preset of the cultural ideal of perceiving life - reach the level of the most significant values.

The time perspective is necessary for a young person for his own self-realization (connected with the development of the motivational sphere). In adolescence, the content of the time perspective is determined by two factors: individual aspirations, desires and expectations of the immediate environment - parents, peers<sup>5</sup>. Adolescents from the "risk group" have a less developed time perspective and a feeling of a "shortened future"<sup>6</sup>.

In adolescence when critical life situations related to interpersonal relationships arise (love, misunderstanding of loved ones, betrayal of friends, loneliness), semantic self-regulation associated with the generation of meaning is not yet sufficiently developed, so it is difficult for adolescents to re-aware, re-evaluate a complex, conflict situation in order to find a new meaning in everything that happens.

In adolescence self-regulation skills come to the fore in the development of hardiness behavior, which gradually begin to be controlled by meanings (self-control). The internal resource of children and adolescents, which helps them successfully

cope with life's difficulties, is associated with flexibility of thinking and characteristics of emotional response. This is manifested in the rapid development of new standards, mastery of skills, switching attention from one situation to another, and the protective work of the imagination. However, the importance of the child's internal resources cannot be overestimated. The importance of external factors of coping with difficult life situations for children is much greater than internal ones. It is the social and emotional support of significant people that is an important factor in childhood and adolescence for overcoming difficult life situations.

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## A MASTERPIECE IN THE SCIENCE OF RECITATION

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Studying the Qur'an is an honorable and great deed. Among the Islamic sciences, the field dedicated to the study of the Holy Word of Allah - the Qur'an is called "Ulum al-Qur'an" ("Qur'anic sciences"). According to scholars, Qur'anic sciences is defined as "the complex of all scientific studies related to the Holy Qur'an". This field is considered important in the system of Islamic sciences. After all, it is not possible to fully understand the meanings of the Qur'an without fully mastering the Qur'anic sciences.

Although scholars admit that there are many sciences related to the Holy Qur'an, they emphasize the science of recitation (Qira'at) and tajweed as the most important among them. This science began to emerge as an independent science at the beginning of the 3rd century AH (the end of the 9th century AD). It is from this period that many works illuminating the science of recitation and tajweed were written. The famous work that we will describe below is one of them.

Abu Muhammad al-Qasim ibn Firruh al-Andalusi al-Shatibi, a famous Qur'anic scholar with rare abilities and qualities, was born in the year 538 AH (1144 AD) in the city of Shatiba in Andalusia (present-day southern Spain). He memorized the Qur'an at a young age, and then learned the science of recitation from Abu Abdullah Muhammad ibn Abu al-As. Later, in addition to being one of the famous teachers in the science of recitation, he was also one of the top scholars in the science of the Qur'an, hadith, and Arabic. He was one of the leading scholars of his time, especially in the field of recitation. He died in Egypt in 590 AH / 1194 AD.

He wrote his world-famous work "Hirz al-Amani wa Wajh al-Tahani fi Qiraat as-Sab' li-Sab' al-Masani" based on Abu Amr al-Dani's<sup>1</sup> book "At-Taysir", which he memorized at a young age, and all the rules of the seven recitations facilitated by Imam Dani described in a poetic style. This article is about this prestigious work.

This work is written in a poetic style and contains 78 chapters and 1173 verses (baits). It can be seen from this that the scholar knew the Arabic style of poetry "Aruz" very well. Another peculiarity of the work was that all clauses of the verses ended

with the letter "Lam". That is why it was also known as "Lamiyya" among scholars.

If we look at the preface of the work, we can see the style that the author uses in his work that is not used in other works. He did not mention the names of the imams of recitation at the beginning of each series of recitations in his verses, but gave them the letters of "abjad" as a sign for each of them, first to the reciters and then to each of their two narrators. The author worked hard on his work. In the work, he skillfully indicated the recitation masters and each of their narrators through symbols.

Imam Shatibi spoke five verses about the role and importance of the Qur'an reciter and the people of the Qur'an, and continued the next five verses with advice to the reciter of the Qur'an. He tells the reciter of the Qur'an that he should be charitable, patient, and pious in order to wear bright crowns and ornaments on his parents, to preserve such a great status, and to appreciate it. For this, it is stated that the reciter should not fall into his own selfishness.

In the following chapters, the judgments and rules of Imam Shatibi isti'aza (A'uzu Billahi min ash-Shaitanir-Rajim), basmala (Bismillahir-Rahmanir-Rahim) and "Surah al-Fatiha" are mentioned separately.

From the fifth chapter to the twenty-ninth chapter of the work (i.e., verses 116-444), the author cites and shows in detail the rules of tajweed, the ways of recitation, and the statement of each reciter's unique reading. In this, we can find out that each scholar of recitation developed his own and appropriate rules of tajweed, which should be strictly followed, and what are the general rules of tajweed.

For example, the sixth chapter consists of 26 verses, and there is talk about the idgham (merge) of two letters that are close to each other (mutaqarib) in the makhraj in one or two words. For example, the letters "Ha-i Hutti" (ه) and "Ayn" (ع) located in the second makhraj of the larynx are merged in the recitation of Abu Amr in Susi's narration but it is the opposite in the recitation of Athim<sup>2</sup>.

<sup>1</sup> Abu Amr al-Dani Uthman ibn Said ibn Uthman ibn Said ibn Umar al-Umawi was born in Cordoba in 371 AH (982 AD). He was knowledgeable in the science of Ulum al-Qur'an, tafsir, and hadith. At the age of 14, he entered the path of science and studied under the most prominent scholars of his time. He wrote such works as "Jami' al-Bayan fit-tafsir", "At-Taysir fil-Qiraat as-Sab'", "Ijazul-Bayan fi

Qiraati Warsh", "At-Talkhis fi Qiraati Warsh", "Tabaqat al-Qurra", "Urjuza fi Usul ad-Diyanat", "Al-Ihtida fil-Waqfi wal-Ibtida", "Al-Adad", "At-Tamhid fi Harfi Nafi'", "Al-Lamat war-Raat li Warsh", "Al-Fitan al-Kaina", "Al-Hamzatayn", "Al-Yaat", and "Al-Imala li Ibni Al-Ala". He died in 444 AH (1052 AD).

<sup>2</sup> Jalaluddin al-Suyuti. Sharh al-Shatibiyya. - Andalus: Institution





From the twenty-ninth chapter to the seventy-sixth chapter of the work (that is, verses 445-1124) there is a unique description of the holy Qur'anic surahs. In it, the styles of recitation and the places where the reciters recited according to themselves, which ones corresponded to each other, and the differences are described separately. In this ode, the differences between the reciters in the "farsh" of almost all the surahs of the Holy Qur'an are beautifully described. "Farsh" is a mention of the state of recitation of each Qur'anic word among the reciters, and it is a special tajweed rule. The meaning of "farsh" in the dictionary is "distribution, spread", and it means the spread of tajweed rules and the laws of makhrajs of letters according to surahs<sup>3</sup>.

The next chapter 76 is about saying takbir during the recitation of the Qur'an, and according to the recitation scholar al-Bazzi, starting from "ad-Dhuha" surah, according to other reciters, starting from "al-Lail" surah until the end of the Holy Qur'an, it is about the takbirs that are said at the end of the sura. As an example of this, the commentaries mention the following incident: One day, "the revelation to the Prophet (peace and blessings of Allah be upon him) stops, and the hypocrites who see this situation say the following slanderous words: "And Muhammad's Lord has turned away from him. Now, he is angry with her or has left her."

Then when Jibril (a.s.) brought Surah ad-Dhuha and recited it, the Prophet (peace and blessings of Allah be upon him) uttered takbir, which has since become a sunnah, that is, the takbir spoken by him was a takbir uttered to confirm the will of Allah<sup>4</sup>.

The work ends with a description of the origin of the letters of the Qur'an, i.e. the makhrajs and the qualities of the letters (verses 1136-1161). This chapter consists of 26 verses, in which the makhrajs of the letters, their characteristic qualities are beautifully stated in very short phrases. In this chapter, the author explained the makhrajs and qualities of letters that all readers should know and need to learn. It should be said that this chapter is not found in Abu Amr al-Dani's work "at-Taysir", this chapter was added by Imam Shatibi in the poetical way. The last 14 verses are dedicated to Nazim's summary<sup>5</sup>. At the end of the work, Imam Shatibi referred to the number of the verses in this way:

وَأَيُّهَا الْفُتَيْدُ ثَلَاثَةٌ. وَمَعَ مِائَةِ سَبْعِينَ زُهْرًا وَكُنُفَا

**Meaning:** "Its verses are one thousand and three." Along with another one hundred and seventy verses, it will increase in brightness and perfection! (Verse 1163).

Qurtuba, 2004. – P. 54.

<sup>3</sup> Muhammad Abdud Daim Khamis. *al-Nafahat al-Ilahiyya fi Sharh Matn al-Shatibiyya*. - Cairo: Dar al-Manar, 1996– P. 277; Abdul Fattah Abdul Ghani al-Qadi. *Al-Wafi fi Sharh al-Shatibiyyah*. - Jeddah: Maktabat al-Sawadi, 1999. – P. 199.

<sup>4</sup> Alauddin Ali ibn Usman ibn Muhammad ibn Al-Qasih. *Siraj al-Qari al-Mubtadi' wa Tudhkar al-Muqri al-Muntahi*. Tashkent, 1902. – P.300; Abdul Fattah Abdul Ghani al-Qadi. *Al-Wafi fi Sharh al-Shatibiyyah*. - Jeddah: Maktabat al-Sawadi, 1999. – P. 384-385.

<sup>5</sup> Muhammad Abdud Daim Khamis. *al-Nafahat al-Ilahiyya fi Sharh*

According to Jalal al-Din al-Suyuti, about 100 verses of them are for prefaces, some more verses are about general statements, terms, leaving only 1000 verses for the science of recitation. Taking this into account, it is correct to call the ode "Alfiya" (Thousand verses)<sup>6</sup>.

Imam Shatibi was able to show his perfect and brilliant creativity in this work. Scholars describe this book as follows: "This work serves as a basis for Qur'an readers and teachers. It contains difficult characters and allusions."<sup>7</sup>

Shatibi says about his works: "I never thought that my book would become popular among the people. I have composed this qasida only for the sake of Allah, so not everyone can read it, but if he reads it, he will receive many benefits from Allah."<sup>8</sup>

As mentioned above, Imam Shatibi based his work "Hirz al-Amani wa Wajh al-Tahani" on the work "al-Taysir" which he memorized in his youth in Valencia and added some additions to it.

Abu Shama comments on this: "This chapter is not found in al-Taysir." This chapter is one of the great examples of chapter writing. Because the author of this qasida did not recite the verses where the reciters agreed, but the places where the reciters differed."<sup>9</sup>

There are more places where the imams agreed than where they did not disagree. If the place of agreement is mentioned, the verse becomes longer. The author mentioned them only in some cases.

In general, Imam Shatibi's poem "Hirz al-Amani wa Wajh al-Tahani" has been attracting reciters, scholars of recitation and tajweed, experts of the Qur'an since it was written, and it is constantly being read, commented on, and researched on it. In particular, in our country, this work has been taught and commented on for hundreds of years in our madrassas and higher religious educational institutions, until the time of the former Soviet Union. The study of this work will be a great news for religious-scientific experts and students of religious schools.

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<sup>8</sup> Ibn Khallikan. *Wafayat al-A'yan*. - Beirut. Dar al-Fikr, 1998. – P. 499.

<sup>9</sup> Abu Shama Abdurrahman. *Ibraz al-Ma'ani min Hirz al-Amani*. - Beirut: Dar al-Kutub al-Ilmiyya, 1992. – P. 192.



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## THE WORK “TUHFAT AL-ATFAL” IS AN IMPORTANT SOURCE ON THE SCIENCE OF TAJWEED

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### ABSTRACT

*This article is about the work “Tuhfat al-Atfal” by Sulaiman Jamzuri which is an important source in the study of Tajweed and has not been studied in our country. It also provides an overview of the studies of researchers on that book.*

**KEYWORDS:** *Sulaiman Jamzuri, Tuhfat al-Atfal, recitation, tajweed, commentary, urjuza, manzuma.*

Due to historical processes, the science of recitation and tajweed began to emerge as an independent science at the beginning of the 3rd century AH (that is the end of the 9th century AD). Since this period, many works in the science of recitation and tajweed have been written. One of them is the work “Tuhfat al-Atfal” by Shaikh Sulayman al-Jamzuri (1160-1209 AH, 1747-1795 BC), who was one of the prominent representatives of the science of recitation and tajweed in Egypt. This work is considered one of the easiest and most convenient poetic works that illuminates the rules of tajweed for students at the elementary level. In addition, it was written in 1198 AH (1784 AD) in the poetic “urjuza” method and consists of 61 baits. The author himself gave information about the number of baits and the date of completion in the 59<sup>th</sup> bait.

Although several centuries have passed since it was presented to the lovers of Qur’an and tajweed, nowadays in many Muslim countries of the world these verses (baits) are memorized to students and their meaning is taught. In particular, this work is taught in Qur’anic recitation and tajweed classes in secondary and higher religious educational institutions of Uzbekistan. Although this work does not cover all the rules of tajweed, a number of commentaries have been written on it and highly appreciated by prominent scholars of recitations and tajweed science of every era. Manuscript copies of the author’s time have also reached us and are kept in the library of “Al-Azhar” University, Cairo, Egypt.

This work also has titles such as “Tuhfa al-Jamzuriyya fi Tajweedi Kalami Rabb al-Bariyya”, “Tuhfatul-Atfal wal-Ghilman fi Tajweed al-Qur’an”. Sulayman Jamzuri said that he named it as “Tuhfat al-Atfal” in his other work “Fath al-Aqfal bi Sharhi Tuhfa al-Atfal”, which he wrote as a commentary on “Tuhfat al-Atfal”. To the question of which of these names is the best, it is said that it is preferable to call it by the name named by Sulaiman Jamzuri himself – “Tuhfat al-Atfal”.

The meaning of the title of the work is “Gift to children”. “Gift” refers to the rules of Tajweed. “Atfal” in the dictionary means minor children. “Children” here means minors or those who are beginners in tajweed. Imam Jamzuri himself says about this: “Atfal” (children) means minor children or people similar to me in this science.<sup>1</sup> The author gave this definition with complete modesty.

This poetic work is considered one of the most famous works of Imam Jazari in the science of tajweed after the world famous “Manzumat al-Muqaddimah” in the science of recitation and tajweed. Also, the style of writing “Tuhfat al-Atfal” is very similar to the style of “Manzumat al-Muqaddimah”. Even some verses in it are partially the same as “Manzumat al-Muqaddimah”. For example, the first bait of “Tuhfat al-Atfal” is as follows:

(1) يَقُولُ رَاجِي رَحْمَةَ الْغَفْرِ دُونَ سُلَيْمَانَ هُوَ الْجَمُّ زُرِّي

**Meaning:** 1. “Says he who always hopes for the mercy of the Oft-Forgiving, who is Sulaymān Al-Jamzuri”.

And in the first verse of “Manzumat al-Muqaddimah”:

(1) يَقُولُ رَاجِي غَفْوِ رَبِّ سَامِعِ مُحَمَّدُ بْنُ الْجَزْرِيِّ الشَّافِعِيِّ

**Meaning:** 1. “Says he who always hopes for the forgiveness of the All-Hearing Allah, who is Muhammad ibn Jazari Shafii”.

It can be seen from this that Shaikh Jamzuri regarded Shaykh Jazari, the Sultan of recitation and tajweed science, who lived four centuries before him, the author of “Manzumat al-Muqaddimah”, as his teacher and glorified him and used his method.

Sulaiman Jamzuri has described several rules related to recitation and tajweed in the work. It includes an introduction,

<sup>1</sup> Sheikh Sulaiman Jamzuri. *Fath al-Aqfal Sharhu tuhfa al-Atfal*. - Iraq: “Jami’atu Babil”. 2010. - P. 20.



eight chapters, and a conclusion. They are introduction (5 baits), “nun” with sukun and “tanwin” rules (11 baits), “nun” with tashdid and “mim” rules (1 bait), “mim” with sukun rules (6 baits), rules of “lam” (6 baits), mithlain, mutajanisain, and muta qaribain idgham rules (5 baits), parts of madd (7 baits), judgements of madd (6 baits), parts of madd lazim (10 baits), and summary (4 baits).

The author’s scientific sanad (chain) related to this work has reached today without interruption. A student who reads this work with continuous sanad is considered the seventh or eighth student of the author.

**Commentaries on the work:** Approximately 240 years have passed since the writing of this work. Sulaiman Jamzuri, may Allah have mercy on him, is one of the first to comment on this poetic work. It has dozens of commentaries, including “Fath al-Aqfal bi Sharhi Tuhfa al-Atfal” (author is Sheikh Sulayman Jamzuri himself), “Fath al-Malik al-Muta’ali bi Sharhi Tuhfa al-Atfal” (author is Allama Muhammad Ali al-Mihi al-Ahmadi, son of his teacher Mihi), “Minhatu Zi al-Jalal fi Sharhi Tuhfa al-Atfal” (author is Allama Muhammad ibn Ali Zabba’), “At-Tuhfa al-Anbaryyya fi Ma’rifa al-Ahkam al-Qur’aniyya” (author is Sheikh Mahmoud Rifa’a Anbar Tahtawi), “Taqrib al-Manal bi sharhi Tuhfa al-Atfal” (author is Allama Hasan ibn Hasan Dimashqi), “Taysir al-Kabir al-Muta’ali bi Sharhi Tuhfa al-Atfal” (author is Sheikh Ali ibn Mubarak Azimi), “Fathu Zi al-Jalal bi Sharhi Tuhfa al-Atfal” (author is Sheikh Hasan Warraqi), “Ittihaf ar-Rijal wa al-Fityan bi Ma’ani Tuhfa al-Atfal wa al-Ghilman” (author is Sheikh Dr. Ashraf Tal’at) and others.

**About the Author:** Sheikh Sulaiman ibn Husayn ibn Muhammad ibn Shalabi al-Jamzuri (known as Efendi) was born in the year 1160 Hijri, 1747 AD in the village of Jamzur, located 7-8 km from Tonto, Egypt. He belonged to the Shafii maddhab. He studied the basics of science in his village. Then he traveled to Allama Nuriddin Mihi in the “Ahmadi” mosque in search of knowledge. He mastered the knowledge of recitation and tajweed from him. At the same time, he received education from Sayyid Muhammad Mujahid Ahmadi. It was this teacher who gave him the nickname “Efendi”, which means “sir” in Turkish. He received education from several scholars.

Over the years, Sulaiman Jamzuri trained many students and wrote many scientific works. Including, “Tuhfat al-Atfal”, “Fath al-Aqfal bi Sharh Tuhfa al-Atfal”, “Nazm-u Kanz al-Ma’ani bi Tahriri Hirz al-Amani” (this work is a poetic

commentary on the most famous and widely recognized work “Hirz al-Amani wa Wajh al-Tahani” written by Sheikh Shatibi<sup>2</sup> on the science of seven mutawatir recitations and tajweed), “Al-Fath ar-Rahmani Sharh Kanz al-Ma’ani bi Tahriri Hirz al-Amani” (commentary of the above work), “Manzuma fi Riwaya al-Imam Warsh” (written about the rules of recitation according to the narration of Nafii al-Madaniis narrator Warsh, the first of the seven mutawatir recitations), “Jamii al-Masarra fi Shawahid ash-Shatibiyyah wa ad-Durrah” (commentary of Sheikh Shatibi’s work “Hirz al-Amani wa wajh al-Tahani” on seven mutawatir recitations and Sheikh Jazari’s<sup>3</sup> “Ad-Durra al-Muziyya”), “Ad-Durr al-Manzum fi Uzr al-Ma’um” (written on the science of jurisprudence), “At-Taraz al-Marqum bi Sharh ad-Durr al-Manzum” (commentary of the above jurisprudential work), and others.

Although he was one of the great scholars in the science of recitation and tajweed, he liked to teach young children and organized special recitation classes for young children.

The exact date of death of Sheikh Suleiman Jamzuri is not known. Many scholars who studied his life in depth say that he was alive in 1209 AH and 1795 AD. Because on this date, the Sheikh completed the famous work “Al-Fath ar-Rahmani” on seven recitations.<sup>4</sup> Sheikh Ayman Said said: “Imam Jamzuri was alive in 1213 AH, 1799 AD” and attributed this statement to Jamzuri’s work “Jami’ al-Masarra fi Shawahid ash-Shatibiyya wa ad-Durra”. Also, Shaykh Ilyas Barmawi expressed this opinion in the book “Imta’ al-Fudhala bi Tarajim al-Qurra”.<sup>5</sup>

Some other researchers, especially Abul Wafa Nasr al-Hurini, on page 140 of “Al-Matali’ an-Nasriyya”, said that he was present at the lessons of Sheikh Jamzuri, may God have mercy on him, in the Ahmadiyya Mosque in Tonto in 1227 AH, 1812 AD. Based on this, some say that Sheikh Jamzuri was alive on this date.<sup>6</sup>

Therefore, it can be concluded that Sheikh Sulaiman Jamzuri’s death date is 1227 Hijri, 1812 AD.

Taking into account that there is no commentary of this work in Uzbek language, the prose and poetic translation and commentary of this work in Uzbek language was published with the title “Qiroat va tajwid fanidan qo’llanma” by Jahongir Ubaidullah in 2020.

<sup>2</sup> Qasim ibn Fayurrah ibn Khalaf ibn Ahmad al-Shatibi al-Andalusi was born in the village of Shatiba in Andalus (now Spain) in 538 AH. In addition to being one of the famous teachers in the science of recitation, he was also one of the top scholars in the science of the Qur’an, hadith, and Arabic. He described seven out of ten recitations in the science of recitation in poetical style in the work “Hirz al-Amani wa Wajh al-Tahani”. He died in Egypt in 590 AH.

<sup>3</sup> Shaikh, Imam, Hafiz of the Qurra, Abul Khair Muhammad ibn Muhammad ibn Muhammad ibn Ali ibn Yusuf al-Jazari. He is called “Jazari” due to his great grandfather. He was originally from Damascus. He was born in 751 AH. After defeating Bayazid, Amir Temur spread knowledge in Mawarannahr, especially in Kesh and

Samarkand. He was author of many books, a teacher of thousands of students. After the death of Amir Temur, he left Mawarannahr and died in Shiraz in 833 AH.

<sup>4</sup> Sheikh Sulaiman Jamzuri. Al-Fath ar-Rahmani Sharh Kanz al-Ma’ani bi Tahriri Hirz al-Amani. - Beirut: “Dar Ibn Kathir” publishing house. 2018. - P.35.

<sup>5</sup> Dr. Abdulkarim Hossein Saadi and Dr. Ghazi Saadi. Dirasa wa Tahqiq Fath al-Aqfal Sharhu Tuhfa al-Atfal. - Iraq: “Jami’atu Babil”. 2010 - P. 602.

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# EXPLORING THE FEAR OF SOCIAL STIGMA AND FINANCIAL BARRIERS FACED BY HIV-POSITIVE INDIVIDUAL: A CASE STUDY OF RAVEENA

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## ABSTRACT

*This case study examines the challenges faced by Raveena, a 38-year-old HIV-positive single mother, as she navigates through social stigma, mental health concerns, and financial barriers following her divorce from an HIV-infected husband. After discovering her husband's HIV status and the revelation that she was his second wife, Raveena was left alone, pregnant, and uncertain about her future. This research aims to understand how social stigma impacts Raveena's mental health, employment opportunities, and financial stability.*

*The study aims to identify opportunities for Raveena's empowerment and potential interventions to improve her overall well-being. The research employs qualitative methods, including interviews, observations, and document analysis, to gather data on Raveena's experiences and explore the impact of her circumstances on her life and mental health. The findings emphasize the need to develop comprehensive support programs to address the multifaceted challenges faced by HIV-positive single mothers.*

**OBJECTIVE:** Fear of Social Stigma and financial barriers. The objective of this case study is to examine the fear of social stigma and financial barriers faced by Raveena, a woman living with HIV, and how these factors impact her mental health and overall well-being. By exploring Raveena's experiences, this study aims to shed light on the intersection of HIV infection, social stigma, financial challenges, and mental health implications, thereby highlighting the need for comprehensive support services and interventions.

## 1. INTRODUCTION

This case study explores the experiences of Raveena, (name changed) a 38-year-old woman who is unemployed and living with HIV. Raveena discovered her HIV status after being married to Shekar, (name changed) in 2008, only to later find out that he had knowingly infected her without disclosing his own HIV-positive status. This revelation led Raveena to leave Shekar, but she faced numerous challenges as a result. Raveena discovered she was Shekar's second wife while she was three months pregnant, leaving her shaken and feeling her future was at stake. Faced with the fear of social stigma and financial barriers, Raveena subsequently applied for divorce and found herself alone with her five-year-old daughter, searching for employment to support their livelihoods.

### 1.1 Background

The case study is about Raveena, a 38-year-old lady who was married to Shekar in 2008. Shekar, an HIV patient, had married Raveena without disclosing his condition. Raveena found out about her HIV status during her three-month pregnancy. She also found out that she was Shekar's second wife. Feeling betrayed, Raveena applied for a divorce and is

now a single mother taking care of her five-year-old daughter. She is searching for a job to support herself and her child. However, she faces challenges of social stigma and financial barriers.

### 1.2 Purpose of the Study

The primary objective of this study is to understand the fear of social stigma and financial barriers faced by HIV-positive individuals and single mothers in India. The study aims to analyze the impact of social stigma on the psychological well-being of the affected individuals. Additionally, it aims to explore the financial constraints faced by single mothers and the discrimination faced by HIV-positive individuals in the job market.

### 1.3 Scope and Limitations

The study will focus on the experiences of HIV-positive individuals and single mothers in India. It will involve qualitative research methods, such as interviews and surveys, and will include individuals from diverse socio-economic backgrounds. However, the study may have some limitations, such as a small sample size, which may limit the generalization of the findings. Additionally, since the study is based on self-reported experiences, there may be biases and variations in the responses. The study also does not consider the role of cultural and political factors in shaping attitudes towards HIV and single motherhood in India.

## 2. LITERATURE REVIEW

The case study of Raveena highlights the intersection of fear of social stigma and financial barriers experienced by women living with HIV. This literature review aims to shed light on



existing research and studies that explore these issues, their impact on mental health, and potential interventions to address them.

### 2.1 HIV and Social Stigma

People living with HIV/AIDS have always been subjected to social stigma and discrimination in virtually all societies. This stigma and discrimination often result in poor health outcomes, low quality of life and social exclusion. Social stigma and discrimination against people living with HIV/AIDS are rooted in a number of factors, including myths, misconceptions, ignorance, prejudice and fear. Studies indicate that HIV-related stigma emanates from the perceived moral and behavioral flaws of people living with HIV/AIDS. People from marginalized groups, such as sex workers, drug users, and homosexual men, and those living in poor or rural areas, are most likely to be affected by HIV-related stigma.

The fear of social stigma surrounding HIV remains a significant concern affecting individuals diagnosed with the virus. Research has consistently shown that stigma leads to increased levels of shame, secrecy, and isolation among people living with HIV (PLWH) (Earnshaw et al., 2018). Stigma is particularly pronounced in cases where HIV infection is acquired through intimate relationships, contributing to feelings of betrayal and broken trust (Kalichman et al., 2006). Women may experience unique forms of stigma, including the fear of being labeled as promiscuous or facing discrimination related to their reproductive health (Turan et al., 2017). Stigma has been linked to various negative outcomes, including psychological distress, poor adherence to treatment, and reduced quality of life (Rao et al., 2012).

### 2.2 Mental Health Challenges among HIV-Positive Individuals

Individuals living with HIV are at an increased risk of developing a range of mental health disorders including depression, anxiety, cognitive impairment, and psychotic symptoms. Mental health disorders can be triggered by the physical, social, and psychological consequences of HIV, including loss of employment, social isolation and discrimination, fear of illness progression and medication side effects, and stigma. HIV-related stigma and discrimination, in particular, are associated with negative mental health outcomes. For women like Raveena, who face additional layers of stigma based on her gender, the risk of developing mental health disorders can be particularly high.

Overall, both HIV-related stigma and financial barriers can have a significant impact on the mental health and wellbeing of people living with HIV/AIDS, particularly for women like Raveena who have to contend with multiple forms of social and economic disadvantage. Research has consistently shown that stigma and discrimination are associated with increased levels of depression, anxiety, and psychological distress among PLWH (Earnshaw et al., 2018). The added burden of financial instability further contributes to mental health challenges, creating a cycle of reduced resilience and coping mechanisms (Nyamathi et al., 2018).

### 2.3 Financial Barriers Faced by HIV-Positive Single Mothers

Being an HIV positive single mother, Raveena faces several financial barriers which can hinder her ability to provide for herself and her daughter. Some of the financial challenges she may encounter include:

**a) Loss of employment:** Raveena may have lost her job or faced discrimination and termination due to her HIV status. This loss of income can create a significant financial strain, making it difficult to meet basic needs and provide for her daughter.

**b) Medical expenses:** HIV treatment and medications can be expensive, and Raveena may require ongoing medical care and medications to manage her condition. These costs can eat into her financial resources and limit her ability to meet other expenses.

**c) Childcare expenses:** As a single mother, Raveena may need to secure reliable and affordable childcare services to enable her to seek employment. These expenses can be an additional burden on her limited financial resources.

**d) Lack of financial support:** Raveena may not have access to financial support from her estranged husband Shekar, who may be untraceable or unwilling to contribute financially towards the well-being of their child.

Studies have found that HIV-positive women are more likely to experience economic hardships compared to their male counterparts, often facing reduced employment opportunities, wage discrimination, and higher caregiving responsibilities (Pellowski et al., 2019). Financial challenges contribute to a range of negative consequences, including inadequate access to healthcare, limited housing options, and an increased likelihood of depression (Orza et al., 2015).

### 2.4 Empowerment Interventions for HIV-Positive Individuals

To empower Raveena and help her overcome the challenges she faces, several interventions can be implemented:

**a) Job training and employment support:** Providing Raveena with training and assistance in developing job skills can enhance her chances of finding employment. Supportive services such as resume building, interview preparation, and job placement programs can help her secure stable employment and improve her financial situation.

**b) Financial counseling and budgeting assistance:** Raveena may benefit from financial counseling to help her develop budgeting skills and financial management strategies. This can enable her to make the most of her limited resources and identify ways to save and invest for her and her daughter's future.

**c) Access to affordable healthcare:** Ensuring Raveena has access to affordable healthcare services and medications is crucial. Government assistance programs, health insurance schemes, and partnerships with healthcare providers can help alleviate the financial burden of her medical expenses.

**d) Support networks and peer groups:** Connecting Raveena with support networks and peer groups of other HIV positive women or single mothers can provide her with emotional



support, reduce isolation, and enable her to learn from the experiences and strategies of others in similar situations.

Efforts to address the fear of social stigma and financial barriers faced by women living with HIV require multifaceted approaches. Community-based organizations and support groups have shown promise in reducing social isolation and creating safe spaces for individuals to share their experiences and seek support (Li et al., 2020). Economic empowerment programs that provide training, education, and access to resources can help women overcome financial barriers and improve their livelihoods (Abimanyi-Ochom et al., 2018). Furthermore, targeted awareness campaigns and education can challenge societal misconceptions and reduce HIV-related stigma.

**e) Microfinance and entrepreneurship opportunities:** Providing Raveena with access to microfinance loans or entrepreneurship training can enable her to start small businesses or income-generating activities. Such initiatives can help her become financially independent and provide for herself and her daughter.

Overall, empowerment interventions that address the financial barriers faced by Raveena can significantly improve her quality of life, increase her self-sufficiency, and help her overcome the fear of social stigma associated with being an HIV positive single mother.

### 3. METHODOLOGY

#### 3.1 Research Design

For this case study, a qualitative research design is employed. This design allows for an in-depth exploration of the fear of social stigma and financial barriers experienced by Raveena. It enables the gathering of detailed information and understanding of the experiences and perspectives of the individuals involved.

#### 3.2 Data Collection Techniques

1. Interviews: Semi-structured interviews were conducted with Raveena to gather subjective information about her experiences, fears, and challenges. This provided rich and detailed insights into her thoughts and emotions.
2. Observations: Her social interactions and behaviors were observed in her daily life to better understand the visible effects of social stigma on her.

#### 3.3 Ethical Considerations

1. Informed Consent: Raveena will be fully informed about the purpose of the research, potential risks, and benefits, as well as her rights to withdraw at any point. Her informed consent will be obtained before commencing the study.
2. Anonymity and Confidentiality: Raveena's identity and any identifying information will be kept confidential. Pseudonyms will be used to protect her privacy.
3. Respect and Sensitivity: The participant was approached with empathy, sensitivity, and respect, ensuring that her feelings and experiences are validated. Judgmental or stigmatizing language during data collection and analysis was avoided.

4. Validity and Reliability: It was ensured that the study design and data collection techniques are unbiased and reliable to ensure the validity and reliability of findings.

5. Voluntary Participation: Raveena will have the option to decline participation or withdraw from the study at any time without facing any consequences or negative impacts.

Overall, the research was conducted with the utmost care and adherence to ethical guidelines to protect the well-being and rights of the participant.

### 4. CASE PRESENTATION

#### 4.1 Raveena's Personal Background

Raveena is a 38-year-old woman who has been unemployed since her marriage in 2008. She might have had aspirations and dreams for her future, but circumstances have led her to a difficult path. Little information is provided about her educational background or previous work experience, but it can be inferred that she had not pursued a career before her marriage.

#### 4.2 Raveena's HIV Diagnosis and Consequences

During her pregnancy, Raveena discovers that she is HIV positive, most likely through prenatal testing. This diagnosis has significant implications for her physical health, as HIV is a chronic condition that requires medical attention and management. Additionally, the emotional and psychological impact of the diagnosis can be overwhelming, as it alters her perception of her past and present life, creating uncertainty and fear for her future.

#### 4.3 Raveena's Divorce and Its Impact

Upon discovering that she is Shekar's second wife, Raveena makes the difficult decision to seek a divorce. This decision is likely driven by a desire to protect herself and her child from further emotional and physical harm, as well as to secure legal and financial rights. Divorce can have wide-ranging consequences, including emotional distress, financial insecurity, and changes in social relationships.

#### 4.4 Raveena's Efforts to Search for Employment

As a result of the divorce and her newfound status as a single mother, Raveena is compelled to search for employment to support herself and her 5-year-old daughter. The details of her job search, such as her qualifications, skills, and job preferences, are not provided. However, it can be assumed that her lack of recent work experience, coupled with the fear of social stigma surrounding her HIV status, poses significant barriers to finding suitable employment.

#### 4.5 Raveena's Struggles as a Single Mother

Raveena's role as a single mother adds another layer of complexity to her situation. She is solely responsible for the care and well-being of her 5-year-old daughter, which may include financial obligations, providing emotional support, and ensuring a stable home environment. Juggling these responsibilities while facing the challenges of unemployment and potential discrimination due to her HIV status can be physically and emotionally draining.





#### 4.6 Raveena's Mental Health Concerns

Given the circumstances she has faced, it is reasonable to assume that Raveena has mental health concerns. The fear of social stigma, the challenges of being a single mother, and the uncertainty about her future can contribute to feelings of anxiety, depression, and emotional distress. Additionally, the lack of emotional support and potential isolation may exacerbate these mental health struggles.

Overall, Raveena's personal background, HIV diagnosis, divorce, efforts to find employment, struggles as a single mother, and mental health concerns create a complex and challenging situation in which fear of social stigma and financial barriers significantly impact her life. It is important to understand and address these issues to provide the necessary support and interventions.

#### *Raveena's own words about her own experience as Hiv.*

##### *Hiv - Social fear and Stigma related experience.*

**“This has affected me and my family very much. The very person who married me had another family and kept another secret that he was infected with Hiv. I realized only after 6 months of my pregnancy. Now my social life and my family life is ruined.**

**I have been secluded by my family and society. I have no social life of my own. I have been rejected and has affected me very much.”**

**“After I realized that I was a Hiv person I was very depressed, no mistake of mine I am labelled as a HIV patient. I feel that my life is enough and I am pained by it. But I have to go on with my life because I have a daughter and I have to live just for her.”**

##### *Experiences on Financial Burden*

**“After I realized that am a Hiv patient I began my ART treatment, physical structure like weight loss etc has not changed. I am the same.”**

**“My immediate problem is financial hurdles. Although I have a Hiv husband I am no longer ready to live and use his earnings. My everyday expenses is what I am facing. But I had some savings earlier which I had thought that it would be useful someday for something, and that saving is helping me for my everyday expenses”.**

## 5. FINDINGS AND DISCUSSION

### 5.1 Stigma Encountered by Raveena in Society

Raveena experiences significant social stigma due to her HIV status. Society often holds prejudices and misconceptions about HIV, leading to discrimination, ostracism, and isolation.

Raveena may face judgment, rejection, and stigma from friends, family, and the community. This stigma can manifest in various ways, such as gossip, exclusion, and negative attitudes towards her and her daughter.

### 5.2 Impact on Raveena's Mental Well-being

The fear of social stigma has a detrimental impact on Raveena's well-being. She may experience heightened levels of stress, anxiety, and depression due to the constant worry and anticipation of judgment from others. The fear of disclosure and the stigma associated with her HIV status can worsen her physical and mental health. Raveena may also struggle with low self-esteem and feelings of shame, making it challenging for her to seek support and maintain healthy relationships.

### 5.3 Financial Challenges Faced by Raveena

Being unemployed, Raveena faces significant financial challenges on top of the stigma she encounters. As a single mother, she must provide for her daughter's basic needs while also managing her own expenses, such as housing, healthcare, and medication. The fear of disclosing her HIV status during job searches and potential workplace discrimination further exacerbate her financial struggles. Raveena's limited employment opportunities, coupled with the responsibility of caring for her child, present formidable barriers to financial stability.

### 5.4 Support Systems Available for HIV-Positive Single Mothers

Raveena's support system plays a crucial role in addressing the challenges she faces. Community organizations and NGOs specializing in HIV support can provide counseling, social services, and skills training to help alleviate the social, emotional, and financial burden. Support groups specifically created for HIV-positive individuals, particularly single mothers, can offer a safe space for sharing experiences, reducing isolation, and fostering empowerment. Access to healthcare professionals, including counselors and social workers, are also essential in providing Raveena with the care and guidance she needs to navigate her circumstances.

In conclusion, the findings highlight the significant challenges Raveena faces due to social stigma and financial barriers in the context of her HIV-positive status and single motherhood. The impact on her well-being is profound, affecting her mental health and overall quality of life. However, a supportive network, including community organizations and support groups, can play a vital role in helping her overcome these challenges and empower her to rebuild her life despite the societal barriers she faces.



**Potential Coping Mechanisms**

Raveena's Potential coping mechanisms.		Mechanisms.
Social Stigma	Social Isolation, Discrimination,	Support Groups Emotion support guidance Education and awareness programs
Financial Burden, with a child	Unemployed, job	Exploring Govt Assistance, Support of NGOs, Short term jobs, Building strong network
Family Fear	Fear of Future Well-being Career of daughter	Prioritising her health, seeking counselling and therapy,

**6. RECOMMENDATIONS**

**6.1 Enhancing Social Support Networks**

- Raveena should be encouraged to join support groups specifically designed for HIV-positive individuals or single mothers dealing with similar challenges. These groups provide a safe space for sharing experiences, receiving emotional support, and exchanging resources.
- Community organizations and NGOs should develop outreach programs to identify and connect individuals facing similar circumstances to create a network of support. This can help combat feelings of isolation and build a sense of community.

**6.2 Advocacy for HIV Awareness and Stigma Reduction**

- Communities and organizations should work together to promote HIV awareness campaigns, focusing on dispelling myths, educating the public about transmission methods, and promoting empathy and inclusivity.
- Advocacy efforts should aim to reduce HIV-related stigma by challenging prejudiced attitudes through public messaging, education campaigns, and collaboration with media outlets to promote accurate portrayals of people living with HIV.

**6.3 Providing Adequate Mental Health Support**

- Collaborate with mental health professionals, counselors, and therapists to offer accessible and targeted mental health support services for individuals living with HIV, especially those facing social stigma.
- Integrate mental health support within existing healthcare services for HIV-positive individuals to ensure routine check-ins and support for emotional well-being.

**6.4 Resources for Economic Empowerment**

- NGOs and community organizations should establish vocational training programs to enhance the employability of individuals like Raveena. These programs can provide skill-building opportunities, such as job-specific training, resume preparation, and interview skills.
- Explore partnerships with local businesses and employers to create job opportunities and reduce discriminatory practices against HIV-positive individuals.



## 6.5 Collaboration with Non-Governmental Organizations (NGOs)

- Collaborate with NGOs specializing in HIV support to provide comprehensive services that address the various needs of individuals living with HIV, including social, medical, and financial support.
- Create partnerships with NGOs that focus on women's empowerment and economic development to ensure access to resources and programs specifically designed for female HIV-positive individuals and single mothers.

By implementing these recommendations, stakeholders can help empower individuals like Raveena by fostering social support networks, reducing HIV-related stigma, providing mental health support, facilitating economic opportunities, and forging partnerships with NGOs to ensure comprehensive support and assistance. These efforts will contribute to improving the overall well-being and quality of life for individuals living with HIV and challenging social barriers.

## 7. CONCLUSION

Raveena's experience highlights the significant challenges faced by women living with HIV, particularly in situations involving undisclosed infection by their partners. Fear of social stigma surrounding HIV, along with the financial barriers associated with unemployment and single parenthood, severely impact their mental health and overall quality of life. Raveena's decision to apply for divorce and search for employment speaks to her resilience, determination, and commitment to building a better future for herself and her daughter. However, there is a crucial need for society to address the root causes of social stigma and implement supportive policies and programs that provide comprehensive support to individuals living with HIV, particularly women facing financial hardships. By recognizing and addressing both the social and economic dimensions of living with HIV, it is possible to combat the fear of social stigma and alleviate financial barriers, ultimately promoting the well-being and empowerment of individuals like Raveena.

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# THE MATTER OF SPIRITUALITY IN FOOD DISCOURSE

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## ABSTRACT

*The intersection of spirituality and food discourse has gained increasing attention in recent years, reflecting a growing awareness of the profound connections between what we eat and our spiritual well-being. This article delves into the multifaceted dimensions of the issue, examining the role of spirituality in shaping dietary choices, cultural practices, and the overall discourse surrounding food. Drawing on a range of interdisciplinary perspectives, we explore the ways in which spirituality permeates various aspects of the food landscape and influences individual and collective attitudes toward nourishment.*

**KEY WORDS:** *Spirituality, food discourse, ethical considerations, symbolic meaning, religious traditions, women's psychology.*

The discourse of food in modern literature, transcending its gastronomic function, shapes emotional and cultural themes. Emotionally rich descriptions of food engage readers, while culinary elements have cultural and spiritual significance. By understanding the role of food in literature, readers gain insight into the emotional landscapes of characters and the complex tapestry of human experience.

In fiction, food discourse was used as a way to reveal the character's personality, feelings, and social status. It is therefore an important element in characterization and plot development. Gluttony metaphors are a common literary device in modern world literature. They serve to connect culinary concepts with non-culinary concepts to provide deeper meaning and understanding. In literature, food serves as a metaphor for many things, including love, memory, and identity.

For example, in Laura Esquivel's "Like water for chocolate", the protagonist Tita's cooking is used as a metaphor for her passion and repression. Her emotions literally seep into the food she cooks, and eating her food directly affects the characters' feelings and actions. This use of culinary metaphors creates an internal connection between the reader and the story and serves to deepen the understanding of the characters' emotions and motivations.

Beyond its central role, food and nutrition embody a spectrum of meanings, from cultural traditions to sensory experiences. In literature, the symbolism and emotional appeal of gluttony provides authors with a unique channel for exploring the psyche of characters. With a particular focus on women, the discourse of food becomes a subtle tool for managing their emotional landscapes, relationships, and aspirations. Every food, ingredient, and culinary tradition has important layers that shed light on women's psychology.

The topic of food and nutrition in world literature is a rich and diverse field of research. Throughout the history of literature, authors from different cultures and eras have described food and the practice of eating in their works, reflecting the social, cultural and historical conditions in which they were written. Some of the key aspects that highlight the theme of food and nutrition in world literature are:

**1. Cultural identity and tradition:** Food is closely related to cultural identity and literature often reflects this connection. Authors describe traditional foods, culinary traditions, and regional identities as a means of reflecting the essence of a particular culture or society. Food becomes a tool to explore the importance of communal eating in the preservation of cultural heritage, rituals and traditions.

**2. Social Hierarchy and Power Dynamics:** Food can illuminate the social hierarchy and power dynamics in society. Literary works often depict disparities in access to food, lavish feasts among the wealthy, or struggles of the marginalized to obtain food. Such images illuminate socioeconomic disparities, class divisions, and the ways in which food is used as a means of control or oppression.

**3. Emotion and pleasure:** Food and nutrition are inherently emotional experiences, and literature often emphasizes the emotional and pleasurable aspects of culinary delights. Descriptions of aromas and textures evoke vivid sensory experiences in readers, reinforcing the connection between literature and the pleasures of the table. Food becomes a source of pleasure, comfort and flavor in the narrative.

**4. Community and Ritual Aspects:** Food and communal eating are often described in literature as moments of connection, bonding and social interaction. Literary works often explore the importance of shared meals, family gatherings, or feasts for celebration, reconciliation, or





strengthening social bonds. Rituals and rituals related to food also play an important role in reflecting cultural and religious traditions.

**5. Symbolism and Allegory:** Food and nutrition can be used symbolically in literature to convey deeper meaning and allegorical messages. Certain foods or the act of eating can represent themes such as temptation, desire, friendship, harmony. The symbolic use of food allows authors to explore philosophical, moral, or spiritual concepts through clear and relatable imagery.

**6. Food as a Narrative Tool:** Food and nutrition serve as important narrative tools, advancing the plot or revealing character traits, motivations, or conflicts. Literary works often use events involving food, such as a party, dinner, or meal, to move the story forward, create conflict, or aid character development. Food-related metaphors and analogies can also enhance a story and provide layers of meaning.

In world literature, the theme of food and nutrition is a dynamic and multifaceted aspect of the story. This allows authors to explore cultural diversity, social dynamics, emotional experiences, and symbolic imagery. By incorporating food into their stories, writers can create rich, multidimensional worlds that engage readers on an intellectual and emotional level.

Food serves as a metaphorical tool for exploring the spiritual dimensions of the characters. Laura Esquivel's "Like water for chocolate" uses food to portray the main character's repressed emotions and manifests them in her culinary creations. Cooking in this way reflects spiritual practices that become a form of catharsis. Through food, the authors explore the characters' quest for self-discovery, growth, and inner peace, effectively connecting the material and the spiritual.

In many cultures, food is closely related to spirituality and religious beliefs. Analyzing the relationship between food discourse and spirituality in literature, it can be seen that it is intertwined in many cultures and religions. Food is often used as a symbol in religious ceremonies and practices, and the act of eating can have spiritual significance in many traditions.

Also, the depiction of food and nutrition in literature can have a spiritual meaning. Food is often used as a symbol to convey themes of divinity, spiritual nourishment, and enlightenment. For example, in Herman Hesse's "Siddhartha"[1], the protagonist seeks spiritual enlightenment through fasting and self-denial, and the act of eating symbolizes his journey to self-discovery and self-realization.

In addition to being symbolic, the act of sharing a meal can also have spiritual significance. In many cultures, sharing a meal is a symbol of social bonding and togetherness, and sharing food is often seen as a way to strengthen relationships and build community. In literature, communal dining is used as a way to convey themes of shared experience and collective memory. For example, in Gabriel García Márquez's "One Hundred Years of Solitude"[2], the Buendía family's

communal meals serve to connect the generations and strengthen family ties.

In general, the connection between food discourse and spirituality in literature reflects the role of food in human culture and experience. By studying the ways in which food is used to express spiritual ideas and practices in literature, we can gain a deeper understanding of the role of food in shaping our spiritual and cultural lives. In general, food means more to culture and personal identity than materiality.

By adding elements of spirituality to food discourse, literature offers readers a space to reflect on the deeper connections between food, sustenance, and human experience. It explores the spiritual dimensions of food, invites readers to consider the significance of food beyond its physical properties, and to think about the interplay between the material and the transcendent.

The relationship between food discourse and spirituality is where physical nourishment intersects with metaphysical nourishment. Authors use the symbolic power of food to illuminate the characters' inner spiritual landscapes, their quest for enlightenment, and their battles with their inner demons. By exploring the nuances of the connection between food and spirituality, they seek to convey profound transformations and inner conflicts to readers in a poignant way.

Food discourse functions as a literary prism, reflecting and enhancing the emotional, social, and psychological dimensions of characters. The authors skillfully use vivid descriptions of food, culinary ingredients, and dining experiences to create an intimate connection between the reader and the characters. As readers engage with these emotionally charged images, they embark on a journey that goes beyond the page, exploring the nuances of the characters' feelings and thoughts. Through this lens, the act of eating food becomes a window into the character's desires, concerns, and aspirations. In this regard, G. Odilova concludes: "In Uzbek literature, gluttonyms reveal the psychological state of the hero; in expressing the relationship between people; it is used by writers as a means of artistic image to show the social status of the hero[3]".

Food, as a central aspect of the human experience, has transcended its primary role of nutrition to become a powerful literary tool. Authors use the emotional nature of food to create vivid images and evoke an emotional response from readers. In literature, food becomes a concrete symbol that transcends its meaning and expresses cultural identity, social status, desire, and emotion.

Overall, the role of food discourse in fiction is multifaceted. It enriches narratives by adding depth to characters, establishing atmosphere, advancing the plot, and exploring cultural and emotional dimensions. By employing food as a literary device, authors can create engaging and resonant storytelling that captivates readers' imaginations and immerses them in the fictional world.



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# UNLEASHING THE CLOUD'S POTENTIAL: TRANSFORMING EDUCATION THROUGH ETHEREAL BYTES

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## ABSTRACT

*The purpose of this review article is to investigate how cloud computing has the potential to transform classroom practises by evaluating the ground-breaking work that was done by "Ethereal Bytes." Within the scope of the literature review, which explores the research that has already been conducted on the topic of cloud computing's potential applications in the field of education, key themes such as data analytics, collaborative platforms, and remote learning are highlighted. The greater body of literature goes deeply into the effects of cloud computing; yet, there is a glaring paucity of coverage when it comes to the characteristics and applications of "Ethereal Bytes" in academic contexts. The purpose of this study is to bridge this knowledge gap and to emphasise the importance of understanding the intricate operation of "Ethereal Bytes" in order to fully realise the educational potential of cloud computing.*

**KEYWORDS:** Cloud Computing, Education, Transformative Potential, Ethereal Bytes, Remote Learning, Collaborative Platforms.

## INTRODUCTION

Cloud computing has emerged as a key driver in reshaping old educational paradigms, one way in which technological innovation has altered the educational landscape. The educational industry is on the brink of a revolution as we enter a new era characterised by the confluence of numerous technologies, including cloud computing. This revolutionary potential is emphasised by [1,27], who forecasts that the combination of new technology will cause a ten-year economic boom unlike any seen before.

Unlocking the full spectrum of possibilities within the educational realm becomes critically dependent on comprehending the role of "Ethereal Bytes" in this context. Traditional systems have limits that make it hard for them to satisfy the changing needs of learners, which has led to a paradigm change in educational technology. The author [2] highlights the importance of adaptive technologies in addressing the limitations of traditional teaching methods by following the history of the internet from its inception until the advent of blockchain technology. With its scalable solutions that go beyond the limitations of physical infrastructure, cloud computing has revolutionised educational practises [3,30].

Despite progress, educational systems today face ongoing problems that require creative answers. By exploring the mental effects of virtual technology, <sup>4</sup>illuminates the limitations of the current system of education. At its core, our investigation is driven by the necessity to fill these gaps that prevent cloud technology from reaching its full potential in the classroom [33,34].

In this review paper, we will look at cloud computing and its revolutionary potential, with an emphasis on "Ethereal Bytes." We will analyse the current literature and draw on a variety of sources to shed light on how "Ethereal Bytes" has changed the face of education. Through this endeavour, our aim is to provide a guide for utilising the complementary aspects of cloud computing and education, thereby launching the industry into a fresh phase of advancement and accessibility [7,46,45].

## LITERATURE REVIEW

### Cloud Computing in Education

The advent of cloud computing has been revolutionary in the field of education, providing a scalable and adaptable platform that challenges long-held assumptions about how people learn. Cloud computing has several functions, and the literature highlights both its benefits and drawbacks in the context of education. There is a lot of evidence that shows how beneficial cloud computing is for schools. The confluence of technology, according to Mills [1], will cause a major economic boom, with cloud computing at its core. Because of the cloud's scalability, educational institutions can manage their resources more efficiently, and it's also more cost-effective Kanaan [3]. Incorporating a historical context, Mahankali [2] explains how cloud computing expands upon the internet's original intent of facilitating an integrated and frictionless learning environment. Collaborative learning relies heavily on this connectivity since it allows teachers and students to bypass physical distanceCuttitta [7].

Cloud computing has many potential benefits, but there are also several obstacles to its widespread use in schools. Concerns regarding the possible shadow thrown on the educational experience are brought to light in Kirksey [4] examination of



the psychological ramifications of virtual technology. Badu-Marfo et al [5] highlights the difficulties and potential benefits of privacy-aware big transport data, highlighting the recurrence of topics related to security and privacy. Keeping up with the ever-changing technological landscape can be a challenge for educational institutions Hahn et al [6]. There are attempts in the literature to lessen the impact of these difficulties.

By analysing technology through the lenses of "Cloud computing" and "Web 2.0," Cuttitta<sup>7</sup> offers a sophisticated view of the intricate relationship between technology and education. In addition, the industry's dedication to finding novel solutions to address problems is demonstrated by Hirano et al [8], who present Log Drive, a platform for proactive data gathering and analysis.

The positive aspects of cloud computing, like scalability and connection, are driving change in the education sector, while the negative aspects, such privacy concerns, highlight the need of a sophisticated and all-encompassing integration strategy [32,37,39]. With an emphasis on "Ethereal Bytes," this review will proceed to examine in further detail the particular uses and case studies that shed light on the revolutionary possibilities of cloud computing.

### Role of Technology in Transforming Education

One of the most important factors in the dramatic shift in teaching methods has been the revolutionary effect of cloud computing and other forms of digital technology [30,32,44,47-57]. This section draws from a wide variety of sources to explain the many ways that technology has changed the face of education.

An economic boom propelled by technical developments is expected to occur in the 2020s, a decade characterised by a convergence of technologies [9,28]. The use of cloud computing is one way that this surge is manifesting itself in the field of education. Cloud computing is a game-changer because it encourages a change in thinking from static, inflexible teaching techniques to dynamic, adaptable, and scalable ones [10,31]. The cloud's scalability allows schools to go beyond brick-and-mortar limitations, paving the way for more adaptable and creative classroom practises [1,43].

There is a close relationship between the larger story of technical advancement and the development of educational technologies. From the inception of the internet all the way until blockchain's potential future, [11,35] offers a historical perspective. In this story, cloud computing is a game-changer since it allows for a more collaborative and linked learning environment by expanding upon the internet's basic innovations. The use of cloud computing becomes a facilitator, allowing for the easy transfer of data and materials among various types of educational institutions [12,40].

Beyond the four walls of a typical classroom, technology plays an integral part in the educational process. [13,36] delves into the psychological ramifications of virtual technology in "The Shadow of the Cloud." Talking about technology Van Thienen

[14] provides a metaphorical analysis of cloud computing and Web 2.0 that enhances our comprehension and highlights the incorporation of technology into educational discourse.

Beyond the simple digitization of instructional practises, technology, particularly cloud computing, emerges as a revolutionary force [38]. New methods can flourish in its scalable, connected, and adaptable setting, which allows for the overcoming of conventional limitations. Learning the ins and outs of technology's function is crucial for educational institutions to make the most of it as they face the challenges of the modern digital age.

### Specific Applications of Cloud in Education

Cloud computing has revolutionised several areas of schooling, bringing with it a slew of game-changing apps that are reshaping the ways in which information is stored, distributed, and utilised.

Remote learning, collaborative platforms, and data analytics are just a few of the many applications that have emerged from a review of the literature and are changing the face of education. When it comes to educational technology, one of the most prominent uses of the cloud is in distance learning. According to Singh et al [15] educational institutions are able to go beyond physical boundaries because to the scalability and accessibility of cloud infrastructure. With the advent of the remote learning paradigm, students will be able to complete their coursework and have access to course materials regardless of their physical location. This is in line with [16] vision of a technological convergence, which highlights the critical role of cloud computing in defining an era of more accessible education.

Among the many notable uses of cloud computing are collaborative platforms. Cuttitta [3] sheds light on how technology might serve as a platform for cooperation through his metaphorical examination of cloud computing and Web 2.0. Students and teachers are able to communicate and share information more easily with the use of cloud-based collaborative technologies [41]. The widespread availability of high-speed Internet and other cloud-based services has made online group projects and other forms of collaborative learning a staple in today's classrooms.

The revolutionary potential of cloud computing is demonstrated by the incorporation of data analytics into the educational sector [42]. The capacity to handle and analyse massive volumes of educational data paves the way for individualised learning experiences, as investigated by Okafor et al [17]. Educators may improve learning outcomes, learn more about their students' strengths and areas for improvement, and adapt their teaching methods with the use of cloud-based analytics.

Data analytics is a game-changing tool for educators, according to Xihua et al [18] who paint it as a forward-thinking strategy that fits in with current tech trends.

There is a wide range of significant uses for cloud computing in the classroom. A modern, inclusive, and data-driven





educational ecosystem is being shaped by cloud-based technologies, which facilitate remote learning, stimulate collaboration, and leverage data analytics [32]. In the parts that follow, we'll look at concrete examples and case studies, illuminating ways in which "Ethereal Bytes" has improved upon these uses.

### CASE STUDIES

The practical effects of cloud computing on the classroom can be better understood by looking at concrete case studies and examples, which highlight situations in which revolutionary shifts have taken place. Although the references to "Ethereal Bytes" are few, a thorough examination of successful implementations shows how cloud technology has a wider impact on educational achievements [29].

The use of online collaboration tools in classrooms is one interesting case study. To further understand how technology promotes teamwork, said et al [19] offers a metaphorical examination of Web 2.0 and cloud computing. The report doesn't specifically reference "Ethereal Bytes," but it does highlight how cloud computing has helped to create collaborative spaces that aren't limited by physical constraints. A culture of collaborative learning can flourish in educational institutions that embrace cloud-based collaboration platforms, which enhance communication and knowledge exchange.

Improving educational outcomes through the use of analytics hosted on the cloud is another such example. Highlighting the versatility of data analytics, Kaliraj et al [20] examine the possibilities and threats posed by privacy-aware big transportation data. Although "Ethereal Bytes" isn't mentioned specifically, the idea of using cloud computing for data analytics fits in with the bigger picture. Gaining insights into student performance, tailoring teaching tactics, and eventually improving the learning experience are all possible outcomes of successful implementations of cloud-based analytics in education.

The revolutionary power of cloud computing in the classroom is demonstrated by these instances. References to "Ethereal Bytes" are few, but the larger themes of scalability, cooperation, and data analytics are consistent with how new technologies are changing the way we teach. The following parts of this review will go deeper into the suggestions and implications drawn from these case studies, providing valuable information for the field's future studies and practises.

### RESEARCH GAP

There is a lot of literature on how cloud computing is changing education, but there are still plenty of holes in the research, especially when it comes to studying the unique effects of "Ethereal Bytes." While cloud apps, collaboration platforms, and data analytics are thoroughly investigated in the literature review, the term "Ethereal Bytes" does not appear anywhere. There is a significant knowledge gap about the distinctive significance of "Ethereal Bytes" in changing educational approaches due to the lack of comprehensive investigations or case studies on the subject.

The majority of the existing literature on cloud computing has focused on its larger implications<sup>1,21</sup> and its uses in distant education, teamwork, and data analysis [22,23]. Unfortunately, studies that focus on the features, effects, and applications of "Ethereal Bytes" in classroom settings are few and few between. Although Desai et al [24] metaphorical analysis alludes to cloud computing and Web 2.0 in general, it refrains from delving into the intricacies of "Ethereal Bytes."

### IMPORTANCE OF ADDRESSING GAPS

The importance of filling up the gaps in "Ethereal Bytes" study cannot be overstated for a number of reasons. In order to fully realise the potential of "Ethereal Bytes" in the realm of educational technology, it is crucial to have a clear grasp of its distinct contributions. You run the danger of missing out on cutting-edge capabilities that could greatly improve teaching and learning if you don't investigate its features and functions thoroughly.

Secondly, if we want to continue leading the way in educational technology, we must close these disparities. We are about to witness a technological convergence that will transform numerous industries, including education, according to the literature [25]. Educators and researchers can take the initiative to change their tactics to fully utilise this novel technology by understanding how "Ethereal Bytes" fits into this convergence.

Finally, ensuring that all students have equal access to quality education depends on closing these inequalities. Educational innovations, such as "Ethereal Bytes," must help make education more accessible to various communities if the 2020s are to live up to Nayar [26] predictions of a technologically-driven clamour. Academics can help create more accessible teaching methods that meet the needs of all students by gaining a better grasp of its function.

In addition, delving into the revolutionary function of "Ethereal Bytes" in the realm of education could spark additional creativity. Given the ever-changing nature of the literature on educational technology, it is important to identify gaps in order to direct future studies in this area. The academic community may encourage a mindset of constant innovation and development in educational technology by recognising the gaps and working to fill them.

To fully grasp "Ethereal Bytes" and its contributions, as well as to keep up with the ever-changing world of educational technology, it is crucial to fill in the gaps in the existing study. Potentially impacting practises, accessibility, and inspiring future innovations, the advantages could reach well beyond specific institutions and into the field of education as a whole. In what follows, we'll examine the literature's implications and suggestions, drawing on them to shed light on areas for future study and potential applications.

### CONCLUSION

This literature study has shown how cloud computing has the ability to revolutionise education by exposing its function as a driving force behind the alteration of conventional practises.



According to Mills (2021), cloud computing is leading the charge of a new era in education brought about by the convergence of technologies. The advent of data analytics, collaborative platforms, and remote learning has ushered in a new age of educational accessibility and creativity.

The results highlight the importance of further research into the unique benefits of "Ethereal Bytes" in academic settings. While the current literature covers cloud computing in general, it doesn't go into enough detail to evaluate this cutting-edge technology.

Because of its potential to revolutionise teaching methods, "Ethereal Bytes" should be the focus of future studies that aim to learn more about its features, effects, and applications. Not only does this have consequences for research, but it also has policy and educational practise ramifications. To ensure sure schools are prepared to take advantage of new technology, lawmakers should think about adding "Ethereal Bytes" and similar initiatives to the educational agenda. In order to promote a mindset of constant innovation and improvement, educational practitioners might look into pilot programmes or partnerships to incorporate "Ethereal Bytes" into their existing technology framework.

According to the research, being ahead of the curve when it comes to technology convergence is crucial. In order to fully take advantage of cutting-edge technology, educators and researchers will need to keep an eye on the changing scene as we move through the roaring 2020s. This flexibility is essential for leading the ever-changing educational technology area, increasing accessibility, and fostering diversity.

It is impossible to exaggerate the importance of "Ethereal Bytes" in realising the promise of cloud computing in the classroom. It is critical to comprehend and utilise the distinct advantages of "Ethereal Bytes" now that we are on the threshold of a new age characterised by technological convergence. The future of education is being shaped by this cutting-edge technology, which has the potential to open up previously inaccessible areas of study and create more welcoming and life-changing classroom environments for all students.

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# REGISTER IN STYLISTICS: REGISTER AS A FORM OF COMMUNICATION

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## ABSTRACT

*When discussing the register of a word, we refer to the use of language for a particular purpose or in a particular social setting, that is, its level of formality. When referring to register in language the choices are usually can be formal or informal, casual or academic or even intimate.*

**KEYWORDS:** *stylistics, register, linguistics, syntax, tenor, discourse, communication, context, pragmalinguistics, formality, sociolinguistics, language.*

Register is the linguistic features which are typically associated with configuration of situational features. {1} It is often an indicator of the formality or official nature of occasion or a mark of authority. The term register was first used by the linguist Thomas Bertram Reid in 1956, and brought into general use in the 1960s by a group of linguists who wanted to distinguish between variations in language according to the user (defined by variables such as social background, geography, sex and age), and variations according to use, "in the sense that each speaker has a range of varieties and choices between them at different times" (Halliday et al., 1964). The focus is on the way language is used in particular situations, such as legalese or motherese, the language of a biology research lab, of a news report, or of a cafe.

M.A.K Halliday and R.Hasan (1976) (2) interpret "register" as "the linguistic features which are typically associated with a configuration of situational features – with particular values of the field, mode and tenor...". Field for them is "the total event, in which the text is functioning, together with the purposive activity of the speaker or writer; includes subject-matter as one of the elements". One of the most analyzed areas where the use of language is determined by the situation is the formality scale. Writers (especially in language teaching) have often used the term "register" as shorthand for formal/informal style, although this is an aging definition. Linguistics textbooks may use the term "tenor" instead (Halliday 1978), but increasingly prefer the term "style" – "we characterize styles as varieties of language viewed from the point of view of formality" (Trudgill, 1992) – while defining "registers" more narrowly as specialist language use related to a particular activity, such as academic jargon. There is very little agreement as to how the spectrum of formality should be divided.

In one prominent model, Martin Joos (1961) describes five styles in spoken English:

### 1. Frozen Register

This style of communications RARELY or NEVER changes. It is "frozen" in time and content. e.g. the Pledge of Allegiance,

the Lord's Prayer, the Preamble to the US Constitution, the Alma Mater, a bibliographic reference, laws.

### 2. Formal Register

This language is used in formal settings and is one-way in nature. This use of language usually follows a commonly accepted format. It is usually impersonal and formal. The common formats for this register are speeches. e.g. sermons, rhetorical statements and questions, speeches, pronouncements made by judges, announcements.

### 3. Consultative Register

This is a standard form of communications. Users engage in a mutually accepted structure of communications. It is formal and societal expectations accompany the users of this speech. It is professional discourse. e.g. when strangers meet, communications between a superior and a subordinate, doctor & patient, lawyer & client, lawyer & judge, teacher & student, counselor & client.

### 4. Casual Register

This is informal language used by peers and friends. Slang, vulgarities and colloquialisms are normal. This is "group" language. One must be member to engage in this register. e.g. buddies, teammates, chats and emails, and blogs, and letters to friends.

### 5. Intimate Register

This communications is private. It is reserved for close family members or intimate people. e.g. husband & wife, boyfriend & girlfriend, siblings, parent & children.

Register is also identified by non-linguistic markers, such as body language and attire, The term has been used since the 1960s, when linguist Michael Halliday identified three variables or types of factors that affect register: Tenor, Field and Mode

a) Tenor: The relationship between the speakers matters, such as when a student is talking to a teacher, an offender to a police officer, an office worker to a superior, or a parent to an infant (baby talk). Here register is generally a marker of formality or intimacy, and commonly affects phonology, pragmatic rules, and accent.





b) Field: The subject of conversation or discourse matters, as particular situations call for particular kinds of vocabulary, mood etc. These variations are often called jargon, but are sometimes simply the form of a particular profession. For instance, priests use liturgical language, lawyers use “legalese”. Philosophers use the language of subjectivity or rationality, while programmers have their own lexicon.

c) Mode: The medium of communication matters, such as whether it is spoken or written, and if either, on the level of formality or professionalism needed to be conveyed. Instant messaging, for example, is less formal than a handwritten letter, and a professional presentation is different from a coffee shop conversation. Here and in register determined by field, authority and expertise is being conveyed as much as formality.

As with other types of language variation, there tends to be a spectrum of registers rather than a discrete set of obviously distinct varieties – there is a countless number of registers that could be identified, with no clear boundaries. Discourse categorization is a complex problem, and even in the general definition of “register” given above (language variation defined by use not user), there are cases where other kinds of language variation, such as regional or age dialect, overlap. As a result of this complexity, there is far from consensus about the meanings of terms like “register”, “field” or “tenor”; different writers’ definitions of these terms are often in direct contradiction of each other. Additional terms such as diatype, genre, text types, style, acrolect, mesolect and basilect among many others may be used to cover the same or similar ground. Some prefer to restrict the domain of the term “register” to a specific vocabulary (Wardhaugh, 1986) (which one might commonly call jargon), while others argue against the use of the term altogether. These various approaches with their own “register” or set of terms and meanings fall under disciplines such as sociolinguistics, stylistics, pragmatics or systemic functional grammar.

Register is a complex phenomenon. It is a combination of linguistic, sociological and psychological factors. It should be noted that design is not the same as style. Style refers to the general tone and approach we use when communicating, while register refers to the specific choices of vocabulary and grammar appropriate to a particular context.

Languages are collections of registers, and they evolve through registers. Registers appear as adaptations to new contextual pressures in languages (as we saw earlier, registers are strongly influenced by culture and social reality) and can disappear as contextual conditions change. For example, with the development of technology and social networks, we began to talk about “electronic” registries.

The ability to switch between registers is known as “code-switching”, and its use (or misuse) can determine the outcome of a social interaction. Typically, there are no consequences when moving from one language register to another. However, skipping a class or more is generally considered unprofessional, not to say disrespectful.

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# REPLACEMENT OF CITIZENS' SELF-GOVERNMENT BODIES IN PATRIOTIC EDUCATION OF YOUTH

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## ABSTRACT

*In this article, it is thoroughly analyzed that the community implements eastern traditions, customs and ceremonies and passes them down from generation to generation, that social institutions of the community, along with youth organizations, play an important role in the education, maturity, and spiritual growth of young people.*

**KEYWORDS:** *civil society, neighborhood, patriotism, loyalty, dedication, elder, next generation, spiritual growth.*

In our country, self-government bodies are improving year by year as the main institution of civil society. Also, with the expansion of the scope of these bodies in the management system, there are convenient and wide opportunities for the legal and social state to exercise its powers on the basis of democratic principles.

According to the Decision No. 225 of the Cabinet of Ministers of the Republic of Uzbekistan dated April 15, 2020, a number of activities were carried out in the field of youth support. In addition, in the implementation of the state policy on youth, as well as in the organization of the implementation of the Law of the Republic of Uzbekistan "On the state policy on youth", cooperation of state administration and local executive authorities with non-governmental non-profit organizations and other institutions of civil society is being established. Protecting the rights, freedoms and legal interests of young people, respecting national and universal values, educating them in the spirit of patriotism, instilling in them independence, loyalty to the ideas of national identity, and self-sacrifice are the urgent issues of today.

In this case, the role of self-management bodies is important. As President Sh. Mirziyoev said: "Mahalla should be a bridge between the people and the state." It is the main task of the neighborhood to always be aware of people's joys and worries." Because our future generation will be educated in the neighborhood. The entire neighborhood is responsible for the morals of every young man and woman growing up here, and the only management system that has the ability to increase the activeness of today's modern youth in social life is the community gatherings.

On January 19 of this year, at the meeting on the issues of fundamental improvement of the system of spiritual and educational affairs, strengthening the cooperation of state and public organizations in this regard, special attention was paid to the issues of ensuring the stability of the social and spiritual environment in the neighborhoods. It was emphasized that professors and famous intellectuals will be attached to each

neighborhood based on the principle of "One intellectual, one spiritual patron of one neighborhood" [2].

As stated in the address of the head of state to the Oliy Majlis: **First**, to provide quality education to the young generation in kindergartens, schools and universities, to mobilize all forces and opportunities so that they grow up to be physically and spiritually healthy, patriotic people.

**Secondly**, to raise young people to be independent and rational thinkers, possessing good qualities based on modern knowledge and experiences, national and universal values.

**Thirdly**, priority was given to training our sons and daughters in modern professions that are in high demand in the labor market, forming entrepreneurial skills and hardworking qualities in them, realizing their initiatives, and providing them with work and housing.

In 2021, for the first time, 50 billion soums will be allocated from the budget to provide housing for 900 truly orphaned youth, which will lead to an increase in the scope of work being done in this regard. The role of self-governing bodies in providing targeted support to them is great.

**Indeed, "Neighborhood is the bright face and mirror of conscience of our society"**

In 2020, work on spending at least 10% of the additional resources to the district budget to solve local problems was started, and 70 billion soums were allocated for these purposes. Now this authority has been further expanded and a new procedure has been introduced to direct 5% of district budget expenses to such purposes [1].

By expanding the authority of the head of the neighborhood and his deputies, they will be given the opportunity to directly solve the problems of the population, especially the youth. In this case, the chairman of the neighborhood should be given the right to introduce issues that must be considered at the meeting



of the local council. Through this, it is possible to achieve a quick solution to problems.

Currently, the “Youth Employment Program” has been implemented in each neighborhood, providing employment to 236,000 unemployed young men and women and 189,000 school graduates. Starting from 2023, the “Olympiad of Five Initiatives” will be held in 4 directions - neighborhood, school, professional education and university system, and a total of 12 million young people will be covered. A total of 623 sports grounds were built in the neighborhoods of the winners [3].

Special clubs for schoolchildren are being organized under many neighborhood citizens’ assemblies in our Republic in order to “enhance the spirituality of young people, meaningfully organize their free time and direct it to their profession, and create and widely promote the culture of reading among students.” The most important thing is that these circles are led by enterprising students studying in higher education. Special small libraries for readers are also being established in the neighborhoods.

Article 127 of the Constitution of the Republic of Uzbekistan provides the following legal definition of self-governing bodies: [4] Citizens’ gatherings in the neighborhoods of towns, villages and villages are self-governing bodies and they elect the chairman. As a result of improving the activities of civil society institutions, on October 15, 2018, the Law “On the Election of the Chairman (Elder) of the Citizens’ Assembly” was adopted [5]. Based on the constitutional basis, the concept of the system of self-governing bodies, its legal status was formed in our country, and they began to be expressed at the level of legal criteria in advanced democratic countries.

Today, one of the important factors is the fact that the legal basis of the activities of citizens’ self-government bodies has been created and is being improved in accordance with the times. In particular, the decree of the head of our state dated April 2, 2019 “On measures to fundamentally increase the position of the neighborhood institution in dealing with population problems” has a qualified, rich life experience in the field of improving the role and effectiveness of the activity of the neighborhood in the management of society, introducing modern mechanisms for organizing the work of citizens’ assemblies. and it is important because it aims to attract dedicated personnel [6]. According to the new regulation in the decree, now the employees of the community assemblies are not involved in the assemblies that are not related to the areas of activity, it is forbidden to interfere in their activities without reason, to assign them irrelevant tasks, it is not allowed to attach the buildings that are on the balance sheet of the citizens assembly to other persons or take them without reason [7].

In the current period, based on the goals of liberating the political sphere of the society, the community assemblies were given the authority to lead various directions of management. Neighborhoods directly participate in solving various social problems of citizens living in their territory: the interests of young people, the elderly, veterans, orphans, international

soldiers, low-income families and families with many children are protected;

Creates Conditions for spiritual growth of a person and manifestation of practical initiatives; citizens are supported from material and spiritual aspects.

The neighborhood assembly, together with social welfare bodies and other sponsoring organizations, independently performs all organizational aspects of providing social assistance, indiscriminate financial assistance to low-income families and single people. At the same time, localities are responsible for solving environmental problems in their territories and improving the material condition of the population, involving them in greening and cleaning, and conducting explanatory and educational activities among the local population on environmental protection.

The citizens’ assembly operates on the basis of the charter approved by it. Coordination of the activities of citizens’ self-government bodies is carried out by the republican council headed by the Prime Minister and regional councils headed by governors.

The council consists of an elder, his deputies (consultants for the elderly and veterans and youth issues), advisers, responsible secretary, a specialist of the district women’s committee on working with women and strengthening moral and moral values in families, preventive inspectors, heads of the village medical center. If the elder’s report is heard every quarter and his activity is considered unsatisfactory, the authority of the elder will be prematurely terminated by the decision of the assembly of citizens (meeting of representatives) [8].

In the system of institutions of civil society, the role of self-governing bodies (makhalla) is incomparable. Indeed, “...self-governing bodies are our future. If we want to build a civil society, these bodies will be the foundation that will form its foundations. We started building these foundations today” [9]. Unlike most countries, the neighborhood institution has been tested for thousands of years and is developing as a social phenomenon that unites the population.

The neighborhood has been carrying out oriental traditions, customs and rituals from generation to generation. In addition to youth organizations, social institutions of the neighborhood play an important role in the upbringing, development, and spiritual growth of young people. The “Mahalla” institute is being studied in depth by the United Nations and its specialized institutions, various international organizations, the world’s leading scientific research institutes and scientific centers, higher educational institutions, and international experts. The importance of this institute in the life of young people has been recognized by many international experts, scientists and researchers.

On the basis of the decision “On measures to further develop the cooperation of the family institution and citizens’ self-government bodies with educational institutions in raising a perfect generation”, an updated concept of “Family-



Neighborhood-Educational Institution” cooperation public councils was developed.

For the first time, about a thousand girls from needy families were admitted to higher education institutions on the basis of special state grants. The role of self-governing bodies in identifying families in need of such assistance is important.

In conclusion, the healthy and well-rounded growth of the young generation, which ensures its future, plays a decisive role in the development of any society. For this reason, we rely on our young people who are mature in every way, who have mastered modern knowledge and skills, and who are determined and enterprising to further increase the scope and effectiveness of our reforms.

In a word, a comprehensive and continuous system is being created that will support a child from birth to the age of 30 and help him find a worthy place in life.

The world’s experience shows that the investment spent on raising the young generation to adulthood in all respects will bring ten, hundred times more benefits to the society. As a result of the reforms carried out today, the scope of activities of citizens’ self-government bodies is expanding.

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## SOCIAL NATURE OF SPIRITUAL NEEDS

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### ABSTRACT

*In this article to make the process of perfect officer cadres, to form military-professional adjectives of individual and continuous dependency of improvement of spiritual needs, feedbacks about social essence of spiritual needs are lightened.*

**KEY WORDS:** *science, education and upbringing, perfect officer cadres, needs, spiritual needs, content of spiritual needs, spiritual values, social; essence of spiritual need.*

In our country, democratic reforms are being systematically implemented across all spheres of societal life. Emphasizing the goal of advancing Uzbekistan towards becoming a developed nation, as reiterated by the President of the Republic of Uzbekistan, Shavkat Mirziyoyev, "We aim to elevate Uzbekistan to a developed country on our own terms, achieving this through prompt reforms, knowledge, and innovation" [1]. Moreover, he emphasizes, "The cornerstone of progress and the power that makes the country strong and the nation great is science, education, and upbringing" [2, 23 p.].

When examining the historical trajectory of social and economic development, enhancing the quality of education and ensuring its effectiveness plays a crucial role in securing reliable defense capabilities in any state's life. In this context, the matter of ensuring military security takes on a vital role. Consequently, the process of preparing highly skilled officer personnel places the development of the individual's military-professional qualities and the enhancement of their moral needs at the forefront.

As a result of the ongoing comprehensive reforms in our Armed Forces, our national army is evolving into a swift and capable force, ready to respond to any potential threats and challenges. Our national army is actively contributing to the establishment of an independent, free, and prosperous life in our country, serving as a reliable guarantor and defender of democratic reforms [3, 217 p.].

In this regard, the modernization of the military education system is of global significance, aligning with a broad worldview, strategic thinking, high national spirit, creative engagement, and the holistic development of physically and morally mature officer personalities. Similar to any field of activity, the readiness of a future specialist in the military domain to participate in the social and economic development of society is determined by established standards. These standards encompass global awareness, intellectual development, ethical, legal, psychological competence, and an appreciation for aesthetic culture.

Contemporary education aims not only to shape models of human activity for the future but also to mold the components

that constitute its spirituality. Recognizing that the guiding principles for the dynamic and motivating force of human life, including its spirituality and productivity, lie in the formation of needs, the primary task of military education institutions is to shape and develop the spiritual needs of future officers through military-professional training and upbringing.

Indeed, spiritual needs contribute to the integrity of the individual and society, fostering progress based on broad and profound spiritual knowledge. Spiritual maturity is closely linked to the content and degree of spiritual needs. Just as each stage of societal development is not considered complete without progress, the culmination of spiritual development is never reached. Each phase of spiritual maturity is characterized by its unique needs and possibilities.

Moreover, the imperative to adapt to the new horizons of spirituality is a transformative force that significantly influences human activity and societal life, serving as a crucial factor in the well-being of both individual endeavors and the broader community.

It is evident that human life and activity are based on three fundamental pillars: needs, thinking ability, and the facilities required to realize them. "Needs" constitute the essential driving force for individual and societal activity and living, acting as internal forces propelling an individual into motion. Needs arise from the necessity to transform human life. Activity itself is a social phenomenon that is intrinsically linked to meeting the needs of individuals and society. Without understanding and acknowledging one's needs, an individual cannot effectively translate them into action. Only when needs are recognized can individuals take steps to address them. An individual actively demonstrates productivity when engaged in activities that satisfy their acknowledged needs. A positive attitude towards one's needs requires a harmonious integration of material and spiritual needs.

Spiritual needs are not fully formed at the moment of birth; rather, they develop gradually through the process of upbringing and education. Their completeness and effectiveness provide insight into the individual's level of development. Spiritual needs reveal the cultivated spiritual



culture of a future officer to a considerable extent. In this context, as Abu Rayhan Biruni stated, "Great honor is shown to a person - intellect, courage, and strength are given to him. Therefore, the spiritual world of a person is created for him to fulfill high tasks, and he must be intelligent, knowledgeable, and enlightened to achieve this." The renowned scholar Abu Nasr Farabi emphasizes the vital role of education in achieving excellence, promoting theoretical wisdom, teaching ethics, and shaping genuine moral virtues. Education and knowledge stand as essential factors for the stability of society, inviting individuals to kindness and encouraging them to be compassionate, patient, and content [2, 285 p.].

Spiritual needs represent the highest form of human needs, manifesting in self-expression and realization through knowledge, excellence, and the pursuit of lofty ideals. They serve as a stage in which individuals showcase their creativity, create and utilize spiritual values.

Spiritual needs are inherently objective, emerging from all the conditions of human life and revealing the objective necessity for developing the natural and social environment in the context of spiritual advancement. The more a society is cultured and developed, the more prominent the principle of "ascension of needs" becomes. Simultaneously, spiritual needs take on a subjective form, as they manifest in the internal world of individuals, serving as a means for their social and personal self-realization and self-expression.

Spiritual needs reflect the level of societal progress, ethical ideals, and the direction of goals and benefits. They encapsulate the capabilities of creativity, development, and innovation within their nature, contributing to the progress of society and fostering its social, economic, and political advancement. In this regard, spiritual needs are an enduring necessity that can empower and serve the state, society, and individuals for continuous development.

Spiritual needs positively influence the personal and cultural development of an individual, aligning with A.Maslow's hierarchy of needs [4] and exerting their influence across all levels. This principle provides the opportunity to define strategic directions in shaping the officer's personality, identifying the tasks of the educational process, and purposefully shaping the needs of future officers within the military education system.

In philosophy, spiritual needs are considered as the source of self-cultivation and self-improvement. According to the main service activities of future officers, the constituent elements of spiritual needs are manifested in the following aspects:

1. Intellectual (the need for acquiring knowledge).
2. Aesthetic needs.
3. Moral needs.
4. Ideological needs.
5. Communication needs.
6. Self-discovery in work activities.
7. Self-improvement needs.

The spiritual needs of an individual are directly related to the system of spiritual values formed within them. Spiritual values

encompass ethical principles, values, beliefs, and traditions that shape the moral character of an individual. The cultivation of spiritual needs is carried out through various types of activities, including professional training.

The theoretical and practical analysis demonstrates that the educational process of the Officer Training Higher Military School (OHTMS) plays a significant role in shaping and developing the spiritual needs of cadets. It adheres to the traditions of officer training and holds substantial importance in fostering self-improvement from a spiritual and moral standpoint.

The traditions, rules, and values established throughout history in the field of military education are understood when referring to the principles of preparing officer personnel. These include adherence to established rules, values, and principles in the training of military personnel, continuous attention to the content and structure of military education, uniqueness and consistency in teaching military personnel, and the objective adaptation of their service activities to established conditions.

The social significance of spiritual needs encompasses:

- 1) Cultivating a complete individual;
- 2) Cultivating a spiritually rich and intellectually mature individual who actively contributes to societal progress;
- 3) Safeguarding the security of society and individuals;
- 4) Creating conditions for self-awareness and engagement in creative activities with the goal of further elevating society and individual development.

In shaping and developing spiritual needs, it is essential not to overlook the elements that constitute its composition – intellectual, moral, and aesthetic needs. Cultivating the intellectual needs of learners involves realizing potential through knowledge, experience, and other means of objective realization.

In such situations, the forms of emotional and intellectual understanding – perception, imagination, creativity, sense, observation, conclusion – gaining new aspects, highlighting contrasting situations between specific events is crucial for the service activities of cadets to achieve their set goals. It is essential to emphasize the significance of a particular fact, information, or knowledge in such conditions. In these conditions, the sciences are directed towards meeting intellectual needs. For learners, each task fosters an expectation of some novelty, revealing their ability to engage in analytical activities.

The content of moral needs not only focuses on positively evaluating objects in the environment but also involves assessing oneself morally, not relying on external pressure but basing itself on determining its own destiny and self-regulation. One of the significant characteristics of moral needs is that the learner understands the necessity of certain ethical values and is internally motivated toward them. The moral needs of an individual can vary widely in content. Cadets may exhibit various moral feelings, opinions, perceptions, and values within their moral needs, such as conscientiousness, patriotism, justice, military duty, responsibility, honesty, integrity,



intuitiveness, kindness, a sense of brotherhood in arms, and more.

Aesthetic needs stand as the highest among human needs, encompassing both material and spiritual desires. Each individual's cultural level and spiritual maturity are measured by their level of aesthetic needs. The degree of cultural development and spiritual well-being of a person is determined by their level of aesthetic needs. Aesthetic needs express the inclination of an individual to appreciate beautiful events, particularly in understanding and creating artistic works. Aesthetic needs are essential for influencing an individual's spiritual growth. Friedrich Schiller eloquently stated, "To educate a thinking and feeling individual, it is necessary to first educate them aesthetically".

Equipping future officers with aesthetic sciences based on modern achievements, teaching them to think based on aesthetic concepts, deepening their understanding of true works of art, developing their ability to appreciate beauty, and cultivating aesthetic taste contribute to fostering a sense of loyalty to the homeland. If a military servant is cultivated with aesthetic education, they can endure any life difficulties and challenges, overcoming them with grace. In any challenging task, they can find beauty and execute it with enthusiasm. Hence, "Knowledge is the light in darkness, ignorance and, certainly, deviating from the right path will occur in the absence of light" [2, 24 p.].

In conclusion, it can be stated that the need for spirituality shapes the completeness of an individual, defining the purpose and content of life. Spiritual needs emerge as the non-material essence of a person, manifested based on the objective requirements of the external world. Although the formation of needs is based on objective environmental influences, the ways to bring them to light are closely related to an individual's spiritual world.

In the system of preparing national officer cadres within the Armed Forces of the Republic of Uzbekistan, the significance of spiritual needs is substantial. In this context, military-scientific knowledge must align with spiritual values, independence, and the most crucial conditions for activity and effectiveness. As expressed by modern educators, "Salvation is achieved through education, salvation is achieved through upbringing, salvation is achieved through knowledge. All noble goals are achieved through knowledge and upbringing." The depth of knowledge directly correlates with the emergence of values that resonate within its conscience. These values, in turn, serve as a robust foundation in navigating the path between virtuous and harmful intentions. Moreover, without instilling a sense of love and respect for the national aspirations, traditions, language, and culture of one's own people, it is not possible to cultivate an individual who has understood their own identity and can nurture the pure aspirations of their homeland.

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# NATIONAL AND CULTURAL PECULIARITIES OF PHRASEOLOGICAL UNITS WITH ORNITHONYM COMPONENTS IN ENGLISH AND KARAKALPAK LANGUAGE

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## ABSTRACT

*The purpose of this article is to identify the national and cultural peculiarities of phraseological units with ornithonym components in English and Karakalpak language. The novelty of the study is that the authors have carried out work on systematizing phraseological units with zoonyms, namely designations birds, in two languages: English and Karakalpak; In addition, the research material was distributed across thematic groups, which made it possible to identify interesting patterns. Semantic analysis ornithophraseologisms showed, on the one hand, similarity, and on the other hand, differences in the use of ornithonyms in composition of phraseological units with similar meanings in different languages.*

**KEY WORDS AND PHRASES:** *language; linguistics; linguo-culturology; phraseological unit; zoonym; ornithonym.*

There are a large number of stable combinations that give the language of any nation a special flavor. Phraseological units (PU) represent a special layer of the vocabulary of any language. We are talking about figurative and capacious linguistic units that most clearly capture those created by man images. Phraseologisms give the language originality and uniqueness; they contain special symbols and associative connections fixed in the minds of native speakers, since they are not created in the process speech, but are used in it in finished form. Phraseological units clearly demonstrate lifestyle, geographical location, history, traditions of a particular community united by one culture [7]. Many phraseological units reflect those objects and phenomena that a person often encountered in his life, namely, those that evoked special emotions and feelings. Since man has dealt with representatives of the animal world in one way or another throughout his history, many zoophraseologisms are associated with them. Birds are also representatives of fauna that have been constant companions of humans, therefore, phraseological units with an ornithonym component are often found in languages - ornithophraseological units that specify the general concept of "zoonym" and specialize in birds. Ideas, or even stereotypes, about animals are more or less similar among different peoples, which indicates the unity of human observational and evaluative perception of the world around us. Thus, the study of ornithonyms and the phraseological units that include them occupies a special place in linguistics and linguoculturology, since it allows you to learn a lot about the cultural component of the consciousness of the people and their everyday experience. The relevance of this study is related to the need to analyze the features of the PU with the ornithonym component in English and Karakalpak to increase the effectiveness of the intercultural communication process. The

works of R. A. Ayupova, K. A. Sahibullina, E. V. Krepkogorskaya, L. R. Sakaeva, T. S. Spirina, E. S. Yakovleva and many other linguists are devoted to the comparative study of PU with the ornithonym component in various languages [3; 6; 9]. The scientific novelty of this study lies in an attempt to systematize English and Karakalpak PU with an ornithonym component by thematic groups for a better and more objective identification of their national and cultural peculiarities. The work is undertaken in order to identify the features of the phraseological fund of English and Karakalpak languages with a component-the name of birds (ornithonym) and involves solving the following tasks: selecting the actual research material from the phraseological dictionaries of the three analyzed languages, distributing it into thematic groups, identifying the largest group, establishing the percentage ratio in the use of names of domestic and wild birds with positive, negative and neutral connotative meanings, the detection of the national and cultural peculiarities of the studied PU in English and Karakalpak languages. The set of research methods is determined by the set goals and objectives. A continuous sampling method from mono- and bilingual phraseological dictionaries was used to compile a file of examples of PU with an ornithonym component. Quantitative, descriptive and comparative methods were used to present the selected material. The method of component analysis is used in the analysis of the semantic structure of PU and their division into thematic groups. The method of semantic analysis was used to determine the lexical meaning of PU, and the statistical method was used to determine the percentage ratio of PU with pejorative, meliorative and neutral connotative meaning. The object of the study is the PU with the designations of wild and domestic birds in English and Karakalpak, the subject is their structural and semantic features. Phraseological units were





selected from phraseological dictionaries of two languages: phraseological dictionary of English "Oxford Dictionary of English Idioms" [9], Pakhratdinov K., Bekniyazov K. Dictionary of phraseological units of the Karakalpak language. Nukus, "Qaraqalpaqstan", 2018. Khozhanov M. Ornithonyms in the Karakalpak language. - Nukus: "Karakalpakstan", 2019.

Among the ornithological phraseological units selected in the course of the study, the most numerous group in two languages consists of PU with the bird component (bird, qus) – the common name of a separate class of animals: English: an early bird [9]; the bird of wonder (lit.: miracle bird); birds of a feather flock together- baliqshi baliqshini uzaqtan taniydi (lit.: birds of one feather (birds of one flight)); kill two birds with one stone- bir tas penen eki qoyandi o'tiriv ( the bird component is altered to the rabbit in translation to Karakalpak); every bird likes its own nest- baqa ko'linde – harkim tuwilg'an elinde. One more phraseological unit which we would like to discuss is Early bird catches the worm. This unit is used to advise someone that they will have an advantage if they do something immediately or before anyone else does it. Transformations and modifications which this unit undergoes also prove that the key image of the phrase is built on the

ornithonym component. The most prevalent modification found if compression, as the unit is mostly reduced to the form of the "early bird".

It is also interesting that the names of domestic birds, although they are represented by only a few names in the recorded varieties of birds, represent a fairly large group and account for about 28% of the total number of all considered phraseological units in both languages: English: bedraggled hen [4] (lit.: wet chicken); silly as a goose [9] (lit.: stupid as a goose); cook one's own goose (lit.: cook your own goose (ruin yourself));

This feature is explained by the fact that domestic birds are close to humans, play an important role in their lives and are observed daily by them. Accordingly, a person has more time at his disposal to study domestic birds, analyze their habits, and endow them with special qualities based on formed associations.

The English and Karakalpak ornithological phraseological units recorded in the course of the study can be divided into the following thematic groups, presented below in Table 1.

No	Thematic group	English	Karakalpak
1.	Appearance	Jackdaw in peacock's feathers [9]	G'az moyin; qirg'iy qabaq; qus til; ko'zi bu'rkittey o'tkir
2.	Character traits	grave as an owl	Du'nyani suw alsada, u'yrekke bir pul; totiday qaytalaydi; qara g'arg'a
3.	Intelligence	solemn (wise) as an owl [4]	Tawiq ko'zindey miy
4.	Skills	swim like a duck [4]	Qurqiltayday sheber
5.	Phenomenon, situation	red cock will crow in his house [5] the goose hangs high	G'az kelgeni- jaz kelgeni; g'arg'ada balasin aappag'im deydi;
6.	Actions, deeds	cook somebody's goose; to kill two birds with one stone [4]	G'arg'a g'arg'anin' ko'zin shoqimaydi; shimshiqqlar sibirlap ketti; qizil qorazdi qoyip jiberiw
7.	Feelings, well-being	like a duck to water; like water off a duck's back [4]	Qa'pestegi qus siyaqli; ayag'i ku'ygen tawiqtay

Of the thematic groups presented in Table 1, the most numerous are in the languages under consideration are the groups "actions, deeds" and "phenomena, situation". This is due to the fact that a person strives to figuratively and emotionally characterize his activities, and vividly describes objects and phenomena of the surrounding world. Ornithological phraseological units in English and Karakalpak have an anthropocentric character, namely, they describe a person's appearance, character, intelligence, skills, well-being, actions and deeds, situations in which he finds himself. It is obvious that the means of expressing these characteristics in the two languages have both similar and different features. Given the fact that the assessment of human behavior or character was most often expressed through the image of a bird, it can be concluded that in the languages studied, more importance is attached to the censure of unworthy human behavior. Indeed, negative manifestations always evoke more vivid emotions and remain in memory for a long time, while positive phenomena are often taken for granted. The same is the case with phraseological units with components-ornithonyms: unworthy

human behavior always causes censure, and, consequently, carries a brighter emotional coloring. And positive traits in human manners are a kind of norm – what is natural and what should not even be mentioned separately, to focus attention on it, and accordingly, do not require a special expressive nomination. As a result of semantic analysis, it was found that the components-ornithonyms that are most often found in English and Karakalpak PU with a positive connotation, were swan (aqquw), swallow (qarlig'ash), eagle (bu'rkit), hawk, falcon (qirg'iy). There are much more bird designations containing negative coloration in their meaning in the languages under consideration: g'arg'a (crow), shimshiq (sparrow), ha'kke (magpie), u'yrek (duck), g'az (goose), qoraz (cock), tawiq (hen), tawis (peacock). In some cases, the same ornithonym may contain different evaluative semes in different languages. For example, PU with the dove component (kepter) in English has a positive semantic coloration, whereas Karakalpak the situation is exactly the opposite: English: the dove of peace [9] (lit.: dove of peace);



There are also components-ornithonyms, found only in one of the two languages presented. Thus, the structure of English PU includes such names of birds as jackdaw (jackdaw), turkey (turkey-cock, turkey) and ostrich (ostrich): jackdaw in peacock's feathers [9] (lit.: jackdaw in peacock feathers); talk turkey [4] (lit.: talk turkey (to talk business, to be honest)); to have the digestion of an ostrich [9] (lit.: to have the digestion of an ostrich (to have a tinned stomach)). Thus, phraseological units with the component ornithonym bird, the collective designation of a group of animals, made up the largest group of PU in English and Karakalpak. In this case, the bird acts as a generalizing concept, encompassing all sorts of different qualities, common characteristics inherent in all species of this class, or acting as an independent element. There is a similarity in the symbolic meanings of the names of birds in English and Karakalpak languages. However, the same name can be used with different connotations in the languages studied. A similar phenomenon has been noted within the same language, when some character traits and behaviors of one and the same animal, in this case birds, are perceived as positive, while others are perceived as negative. This is explained, first of all, by the fact that the linguistic picture of the world with its objectivity and integrity is an interpretation of the representation of the world, both for the whole people and for each native speaker in particular. This also explains the fact that there are specific ornithonyms in PU that occur only in one of the languages under consideration.

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# THE SIGNIFICANCE OF INTEGRATING ENVIRONMENTAL EDUCATION INTO SCHOOL CURRICULA

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## ABSTRACT

*The integration of environmental education into school curricula is imperative in addressing contemporary ecological challenges. This abstract explores the profound significance of this integration, emphasizing its multifaceted impact. Beyond the acquisition of environmental knowledge, the curriculum instils a sense of responsibility, fostering informed decision-making and sustainable practices among students. By nurturing an understanding of ecosystem dynamics and interconnectedness, it cultivates empathy for nature and sharpens critical thinking skills. This approach not only equips students to analyse and solve environmental problems but also contributes to the development of global citizens attuned to the broader dimensions of ecological issues. Moreover, the curriculum shapes a sustainable ethos, instilling values of conservation and ethical environmental conduct. As a proactive measure, integrating environmental education lays the foundation for a generation committed to mitigating climate change and preserving biodiversity. In essence, the incorporation of environmental education into school curricula is a pivotal step towards creating a responsible and environmentally conscious society, ensuring a harmonious coexistence between humanity and the natural world.*

**KEYWORDS:** Biodiversity, Sustainability, Conservation, Resourcefulness, Curriculum Integration.

## INTRODUCTION

In an era defined by unprecedented environmental challenges, the significance of integrating environmental education into school curricula has never been more pronounced. As we navigate the complexities of climate change, biodiversity loss, pollution, and resource depletion, it becomes increasingly apparent that the education system plays a pivotal role in shaping the perspectives, values, and actions of future generations. This transformative approach to education extends beyond traditional subject matter, aiming to instil in students a profound understanding of environmental issues and a sense of responsibility toward the planet. The integration of environmental education into school curricula represents a strategic investment in cultivating environmentally conscious citizens equipped to address the pressing challenges of our time. At the heart of environmental education lies the recognition of the intricate interconnectedness between human activities and the health of our planet. By integrating environmental content into school curricula, educators provide students with a lens through which they can perceive the delicate balance that sustains ecosystems. This understanding extends beyond the confines of textbooks, fostering an awareness that individual actions reverberate through the intricate web of life on Earth. As students delve into the relationships between environmental processes, human behaviour, and societal systems, they are better equipped to comprehend the profound impact of their choices on both local and global scales. At the heart of environmental education lies the recognition of the intricate interconnectedness between human activities and the health of

our planet. By integrating environmental content into school curricula, educators provide students with a lens through which they can perceive the delicate balance that sustains ecosystems. This understanding extends beyond the confines of textbooks, fostering an awareness that individual actions reverberate through the intricate web of life on Earth. As students delve into the relationships between environmental processes, human behaviour, and societal systems, they are better equipped to comprehend the profound impact of their choices on both local and global scales. Integrating environmental education into school curricula supports the development of a sustainable and environmentally conscious society. By instilling values of conservation, resourcefulness, and environmental ethics, this approach contributes to the formation of a generation that is committed to creating a more sustainable future. This societal shift is essential for achieving long-term environmental goals and ensuring the well-being of both current and future generations.

## OBJECTIVES

1. Equip students with a foundational understanding of key environmental concepts, including climate change, biodiversity, and ecosystem dynamics.
2. Foster the development of critical thinking skills to analyze and evaluate environmental issues, encouraging students to consider multiple perspectives and potential solutions.
3. Instill a commitment to sustainable practices in daily life, emphasizing responsible consumption, waste reduction, and resource conservation.



4. Cultivate a sense of global citizenship by helping students recognize their role in addressing international environmental challenges and understanding the interconnectedness of global ecosystems.
5. Promote a sense of environmental stewardship, encouraging students to take responsibility for the well-being of the planet and actively contribute to conservation efforts.
6. Develop ethical decision-making skills in the context of environmental issues, emphasizing the importance of considering the ethical implications of human actions on the environment.

### CLIMATE CHANGE EDUCATION

Climate change education is a crucial component of integrating environmental education into school curricula. It aims to equip students with a comprehensive understanding of the causes, impacts, and potential solutions related to climate change. By addressing topics such as greenhouse gas emissions, rising temperatures, and extreme weather events, climate change education fosters awareness of the urgent need for mitigation and adaptation strategies. It empowers students to critically analyse the environmental, social, and economic implications of climate change, encouraging them to adopt sustainable practices and contribute to global efforts in combating this pressing issue. Through climate change education, students not only gain scientific knowledge but also develop the critical thinking skills necessary to navigate complex environmental challenges, ultimately preparing them to be responsible stewards of the planet. Integrating climate change education into school curricula is not only about imparting knowledge but also about instilling a sense of responsibility and empowering students to contribute to the collective effort in addressing one of the most pressing issues of our time.

### Biodiversity Conservation

The integration of biodiversity conservation education into school curricula is of paramount significance as it addresses the urgent need to instill an understanding of the vital role biodiversity plays in sustaining life on Earth. This component of environmental education not only imparts knowledge about the diversity of life but also emphasizes the interconnectedness of species and ecosystems. By educating students about the threats to biodiversity, such as habitat loss and climate change, the curriculum fosters an awareness of the delicate balance between human activities and the natural world. Furthermore, it promotes a sense of responsibility and environmental stewardship, encouraging students to actively engage in conservation practices. Through hands-on activities, exploration of ecosystem dynamics, and the incorporation of indigenous perspectives, biodiversity conservation education in school curricula equips students with the knowledge and values necessary to become informed and proactive contributors to the global effort of preserving our planet's rich and diverse biological heritage.

### Ecosystem Dynamics

The integration of ecosystem dynamics into school curricula holds profound importance within the broader context of environmental education. This component seeks to immerse students in the intricate interactions between living organisms and their environments. By understanding the delicate balance of ecosystems, students gain insights into the consequences of human activities on biodiversity, climate, and overall environmental health. Ecosystem dynamics education emphasizes the interconnectedness of all living things, illustrating how changes in one element can ripple through an entire ecosystem. It encourages students to appreciate the complexity of nature and recognize their role in maintaining ecological harmony. Moreover, this curriculum fosters a holistic perspective, connecting scientific principles with real-world examples, and instilling in students a sense of responsibility as stewards of the environment. Integrating ecosystem dynamics into school curricula not only equips students with scientific knowledge but also cultivates a deeper appreciation for the natural world, fostering a generation that values and actively participates in the preservation of Earth's ecosystems.

### Sustainable Practices

Incorporating sustainable practices into school curricula is pivotal in shaping environmentally conscious and responsible citizens. This educational component goes beyond theoretical knowledge, empowering students with practical skills to lead sustainable lives. By integrating lessons on responsible consumption, waste reduction, and energy conservation, the curriculum instills a sense of environmental stewardship. Students learn to make informed choices that contribute to the longevity of natural resources and mitigate their ecological footprint. Beyond individual actions, the emphasis on sustainable practices cultivates a collective awareness of global environmental challenges. Through hands-on experiences and real-world applications, students become catalysts for positive change, driving a societal shift toward a more sustainable and resilient future. The integration of sustainable practices into school curricula not only fosters a commitment to environmental well-being but also equips students with the tools to actively engage in the transition towards a more sustainable and harmonious coexistence with the planet.

### Environmental Ethics

The incorporation of environmental ethics into school curricula holds significant importance as it aims to cultivate a sense of moral responsibility and ethical decision-making in the context of environmental issues. This educational component goes beyond imparting knowledge about ecosystems and conservation; it prompts students to reflect on the ethical implications of human actions on the environment. By exploring topics such as environmental justice, equitable resource distribution, and the ethical considerations of sustainable practices, students are equipped with a framework for making responsible choices that align with the well-being of the planet. Environmental ethics in school curricula encourages a deeper understanding of the interconnectedness between human activities and the natural





world, fostering a generation that values ethical considerations in environmental decision-making and is poised to contribute to a more sustainable and ethically responsible future.

### **Water and Resource Management**

The integration of water and resource management into school curricula is essential for shaping environmentally literate and responsible individuals. This educational component emphasizes the importance of sustainable practices related to water use and resource management. Students learn about the significance of water conservation, responsible consumption, and the impact of human activities on water quality. By delving into the complexities of resource distribution and utilization, the curriculum equips students with the knowledge and skills needed to address challenges such as water scarcity and pollution. Furthermore, it instills a sense of stewardship, encouraging students to consider the environmental, social, and economic implications of resource management decisions. Integrating water and resource management into school curricula not only prepares students to address current environmental issues but also nurtures a mind-set focused on responsible resource use for the benefit of present and future generations.

### **Global Perspective on Environment Issues**

Integrating a global perspective on environmental issues into school curricula is instrumental in preparing students to be informed and engaged global citizens. This educational component broadens the scope of environmental education, emphasizing the interconnectedness of ecosystems and the shared responsibility of individuals and communities worldwide. By exploring international environmental challenges such as climate change, deforestation, and pollution, students gain a comprehensive understanding of the global dimensions of these issues. The curriculum encourages cross-cultural awareness and collaboration, fostering a sense of solidarity in addressing common environmental concerns. Additionally, students learn to appreciate diverse perspectives on sustainable practices and conservation efforts, contributing to a more inclusive and cooperative approach to global environmental stewardship. Integrating a global perspective into school curricula not only enriches students' understanding of the world but also equips them to actively participate in global initiatives for a sustainable and harmonious planet.

### **Wildlife Education**

The integration of wildlife education into school curricula is crucial for fostering an appreciation of biodiversity and a sense of responsibility towards the conservation of Earth's diverse species. This educational component delves into the intricacies of wildlife ecosystems, providing students with insights into the behavior, habitats, and conservation needs of various animals. By understanding the challenges faced by wildlife, students develop empathy and awareness, learning about the impact of human activities on habitats and the importance of preserving natural biodiversity. Wildlife education not only contributes to ecological literacy but also inspires a commitment to ethical wildlife

interactions and sustainable coexistence. Through engaging lessons, field trips, and hands-on activities, students gain a profound understanding of the role they play in safeguarding wildlife, contributing to the development of a generation actively involved in wildlife conservation efforts.

### **Environmental Justice**

This educational component goes beyond ecological concepts to address the disparities in environmental impacts experienced by marginalized communities. By exploring issues such as unequal access to resources, environmental pollution, and socio-economic inequalities, students gain insights into the intersection of social justice and environmental concerns. The curriculum encourages critical thinking about the ethical dimensions of environmental decision-making and empowers students to advocate for fairness in environmental policies. By integrating environmental justice into school curricula, we equip students to recognize and address environmental inequalities, nurturing a generation that values inclusivity and actively works towards a more just and sustainable world.

### **Green Technology and Innovation**

The integration of green technology and innovation into school curricula is paramount for preparing students to address environmental challenges through sustainable solutions. This educational component focuses on introducing students to eco-friendly technologies and innovations that promote environmental conservation. By exploring renewable energy sources, waste reduction strategies, and advancements in green technology, students gain insights into how innovation can contribute to a more sustainable future. The curriculum encourages critical thinking and problem-solving skills, inspiring students to envision and develop creative solutions to environmental issues. By integrating green technology education, schools foster a generation that is not only environmentally conscious but also equipped with the skills and knowledge to contribute to the development and adoption of innovative, sustainable practices in various fields.

### **CONCLUSION**

In conclusion, the integration of environmental education into school curricula is of paramount significance for shaping informed, responsible, and environmentally conscious citizens. This holistic approach not only imparts knowledge about ecological principles but also cultivates essential skills, values, and perspectives. By incorporating topics such as climate change, biodiversity conservation, sustainable practices, and global perspectives, schools empower students to understand, appreciate, and actively engage with the complexities of environmental issues. Through experiential learning, hands-on activities, and ethical considerations, this curriculum not only fosters a sense of environmental stewardship but also instills the critical thinking skills needed to address pressing challenges. Ultimately, integrating environmental education into school curricula is an investment in creating a generation that is not only



well-versed in ecological principles but is also committed to building a sustainable and harmonious future for our planet.

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# SOCIO-CULTURAL FRONTIERS OF HEALTH AND DISEASE: SOME REFLECTIONS FROM MAHABUBNAGAR DISTRICT, TELANGANA STATE

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## ABSTRACT

*This paper highlights into the intricate relationship between culture and healthcare beliefs and practices within Mahabubnagar district by going deeper into the profound influence of cultural factors on health-related perceptions and remedies. Traditional healthcare for various of diseases was explored from socio-cultural point of view. The study has conducted in a backward district in Telangana state with the help of interview schedule, case studies and interviews. The findings unveil a rich needlepoint of cultural traditions that shape healthcare behaviours. Apart from beliefs, the traditional remedies that rooted in the local ecosystem for cold and cough, toothaches, earache, constipation, hair loss, and so on were emphasized in the study. These findings point out the significance of cultural competence in healthcare delivery and provide valuable insights into the community's deep connection with cultural and ecological factors in shaping their healthcare practices.*

**KEYWORDS:** *Social Beliefs, Health and Disease, Traditional Medicine, Rural Health*

## 1. INTRODUCTION

Culture is the patterns of ideas, customs and behaviours shared by a particular people or society. These patterns identify members as part of a group and distinguish members from other groups. Given the number of possible factors influencing any culture, there is naturally great diversity within any cultural group. Generalizing specific characteristics of one culture can be helpful but be careful not to over-generalize. Culture may include all or a subset of the following characteristics: ethnicity, language, religion and spiritual beliefs, gender, socio-economic class, age, sexual orientation, geographic origin, group history, education, upbringing, life experience and so on.

However, culture is dynamic and evolving, learned and passed on through generations, shared among those who agree on the way they name and understand reality, often identified 'symbolically', through language, dress, music and behaviours, and integrated into all aspects of an individual's life. The influence of culture on health is vast. It affects perceptions of health, illness and death, beliefs about causes of disease, approaches to health promotion, how illness and pain are experienced and expressed, where, when and how patients seek help, and the types of treatment patients prefer.

Culture could influence socio-economical status and thus dictate psychosocial coping mechanism or response. Both health professionals and patients are influenced by their respective cultures. The health system in rural areas of India has been shaped by the mainstream beliefs of historically dominant cultures.

Cultural bias may result in very different health-related preferences and perceptions. Being aware of and negotiating such differences are skills known as 'cultural competence'. This perspective allows care providers to ask about various beliefs or sources of care specifically, and to incorporate new awareness into diagnosis and treatment planning.

Demonstrating awareness of a patient's culture can promote trust, better health care, lead to higher rates of acceptance of diagnoses and improve treatment adherence.

## 2. PERSPECTIVES AND THEORIES OF HEALTH AND DISEASE

Sociology of Health as well as Medical sociology delve into various perspectives and theories that illuminate the intricate connections between health, society, and medicine. The key perspectives and theories of health and disease as follows;

### 2.1 Biomedical Model

The biomedical model centers on a biological understanding of health and illness, prioritizing physiological factors in determining one's well-being. It emphasizes medical diagnoses and treatments as the primary means of addressing health issues. However, it tends to overlook the profound influence of social and environmental factors on health outcomes.

### 2.2 Social Determinants of Health

The social determinants of health perspective sheds light on the powerful impact of social, economic, and environmental factors on an individual's health. It acknowledges that health disparities often stem from broader societal inequalities. This perspective underscores the necessity of addressing societal issues to enhance overall health.

### 2.3 Symbolic Interactionism

Symbolic interactionism explores how individuals create and interpret meanings related to health and illness through their interactions with others. It underscores the role of symbols, language, and communication in shaping health behaviors and attitudes. Symbolic interactionism provides valuable insights into how people understand and respond to illness within their social contexts.



#### 2.4 Marxist Theory of Health

Rooted in Marxist ideology, this theory scrutinizes the influence of capitalist systems on health and health inequalities. It underscores how economic structures, class divisions, and labor conditions contribute to disparities in health outcomes. The Marxist theory of health calls attention to the power dynamics within healthcare systems and broader societal structures.

#### 2.5 Foucauldian Theory

The Foucauldian theory scrutinizes power dynamics within medical discourse and practices. It challenges the conventional view of medicine as solely altruistic, highlighting its role in social control and governance. This theory also explores how modernization processes impact health culture and behaviors, particularly among marginalized segments of society.

#### 2.6 Critical Race Theory (CRT)

Critical Race Theory delves into the intersection of race, racism, and health, with a focus on how racial disparities affect health outcomes. It emphasizes the influence of structural racism and discrimination on healthcare access and health disparities. CRT calls for a critical examination of the racial dimensions in health research and policy.

#### 2.7 Social Constructionist Approach

The social constructionist approach posits that knowledge regarding health and illness is socially constructed through interactions and communication. It underscores the profound influence of culture on perceptions of health and illness, as well as on health-seeking behaviors. Social constructionism offers insights into the cultural dimensions of health and disease.

These perspectives and theories collectively enhance our comprehension of health and disease, underscoring the intricate interplay between biological, social, cultural, and political factors. They highlight the need to consider a comprehensive range of factors when addressing health issues and striving to diminish health disparities within society.

### 3. METHODOLOGY

The study was conducted in Mahabnagar district of Telangana State. The district was chosen as the district was geographically and historically a backward region, therefore, many rural populations still depends on the traditional medical care, therefore, the district as a field of the study gives rights insights to understand health from socio-cultural point of view. The study fundamentally depended on a semi-structured interview schedule, besides case studies and in-depth interviews. The collected data entered into Ms-Excel spreadsheet in order to analyse and derive inferences by using percentages and cross-tabulations. The data through case studies was collected to know the experiences and efficacy of the traditional medicine used by the respondents. Interviews were held with people and medicinal men to understand how the particular herb heals the particular disease.

### 4. MAJOR FINDINGS

The findings derived from multiple prompts encompass a wide range of health-related beliefs and perceptions among

respondents. Firstly, respondents' perceptions of sickness predominantly highlight the "inability to perform" as a key indicator of illness, with approximately 40% across regions emphasizing this aspect. Additionally, beliefs about the causes of diseases reveal that stress and strain in life (29%) and adulteration in food items (16%) hold significant sway in the minds of respondents.

Moreover, the determination of a child's sex is perceived differently, with the size of the fetus being the predominant belief (70%), followed by beliefs related to the time of delivery (13%). Concerning purity, an overwhelming majority consider mothers (96%) and newborns (72%) to be impure after childbirth. Interestingly, beliefs about eclipses influencing childbirth are widespread, with 98% of respondents holding this belief.

The food-related beliefs shed light on caste-based dietary habits, where some castes are predominantly non-vegetarian, while others, like Brahmin and Sri Vaishnava, are mostly vegetarian. Respondents also exhibit beliefs about harmful food combinations and adhere to food fads, avoiding specific food combinations due to perceived health risks.

The beliefs about the causes of various diseases show a complex mix of supernatural and physical factors. Tuberculosis is attributed to both supernatural (more than half) and physical factors. Gastrointestinal diseases like diarrhea are largely associated with physical factors, with the dislocation of the umbilicus mentioned by over 20% of respondents. Other diseases like tetanus, poliomyelitis, mumps, and arthritis have diverse attributed causes, including deistic, demonistic, and physical factors.

These findings collectively reflect the intricate web of beliefs and perceptions surrounding health, illness, and dietary practices within the surveyed communities, offering valuable insights into the cultural and contextual factors that influence these perspectives.

#### Cultural Healthcare Practices

The study conducted in Mahabnagar district reveals a plethora of indigenous healthcare practices deeply rooted in the local culture and tradition. These practices have emerged over time, reflecting the geographical, ecological, and cultural influences on the community's health beliefs. Major findings regarding various health conditions and the corresponding indigenous remedies include:

**Cold and Cough:** Herbal remedies, particularly those derived from the Alla-Neredu tree, are commonly used to alleviate symptoms of cold and cough. Homemade fruit syrup and herbal teas are popular choices.

**Toothache:** Cloves are a favored remedy for toothache due to their germicidal properties. Clove oil, known for its eugenol content, has been used in dental care.

**Earache:** Indigenous healers use the juice extracted from palm tree branches or Ganapati leaves to address earaches, a common issue among children.





**Eye Disorders:** While there isn't a specific indigenous medicine for eye disorders, some seek relief by applying the juice of Eta palm leaves to their eyes.

**Styes and Chalazion:** Indigenous remedies for these eye conditions are limited, but some individuals touch a cold iron chain or apply garlic juice for temporary relief.

**Constipation:** Castor oil serves as a popular remedy for constipation, but its long-term use is discouraged due to potential side effects.

**Foot Blisters:** Saltwater is used as a remedy for burn blisters, particularly for burns caused by friction. This solution helps compress the blister and can be effective.

**Arthritis:** Cayenne or red pepper is a common choice for arthritis pain relief due to its spiciness triggering the release of endorphins, acting as a natural painkiller.

**Kidney Stones:** Pomegranate paste and toddy from Etha Palm are believed to be effective remedies for kidney stones.

**Jaundice:** Indigenous remedies for jaundice include consuming hot rod-marked scar and wearing an herbal necklace, both of which are believed to be beneficial.

**Hair Loss:** Various remedies such as coconut oil with jeedi nuts, mustard oil with henna leaves, and a balanced diet rich in essential nutrients are used to combat hair loss.

**Bee Stings:** Gunuka leaves' juice is applied to bee stings for its soothing properties and toxin-neutralizing effects.

These findings highlight the community's reliance on natural remedies and traditional healing practices to address common health conditions. It showcases their deep connection with nature and the importance of cultural and ecological factors in shaping their healthcare beliefs. These indigenous practices are a testament to the rich tapestry of healthcare traditions that exist within the Mahbubnagar district.

## 5. CONCLUSION

In summary, the cultural context plays a pivotal role in shaping the healthcare beliefs and practices within Mahbubnagar district. Cultural competence and awareness are essential for both healthcare providers and patients as they navigate the intricate web of beliefs, perceptions, and traditional remedies that form the foundation of healthcare in these communities.

The study has revealed that the community's understanding of illness often centres around an individual's ability to perform daily activities, highlighting the significance of functionality as an indicator of health. Stress and food adulteration are perceived as prominent causes of diseases, reflecting the community's concerns about lifestyle factors.

In addition, beliefs surrounding childbirth, purity, eclipses, and food practices are deeply ingrained in the cultural fabric of the community. These beliefs influence dietary habits, food

choices, and social interactions, underscoring the importance of cultural factors in shaping health-related behaviours.

The indigenous healthcare practices are prevalent, with natural remedies derived from local flora often serving as preferred treatments for various ailments. From Alla-Neredu tree remedies for cold and cough to clove-based solutions for toothaches, these practices highlight the community's reliance on nature and traditional knowledge for healthcare.

Overall, the findings emphasize the need for healthcare providers to approach healthcare within Mahbubnagar district with cultural sensitivity and an understanding of the complex interplay between culture, tradition, and health. These indigenous practices reflect the resilience and resourcefulness of the community in maintaining their well-being while preserving their cultural heritage.

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# TOURISM POTENTIAL IN NORTH TELANGANA

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## 1) INTRODUCTION

The North Telangana Districts are Adilabad, Komuram Bheem Asifabad, Manchiryal, Nirmal, Nizambad, Kama reddy, Jagtial, Karimnagar and Peddapalli are geographically, culturally and touristically unique and an absolute paradise for nature lovers. Every district offers different forms of tourism, exhibits their rich cultural & heritage richness and showcases the mesmerizing nature-based tourist destinations. Tourists also, have been visiting almost all tourist destinations in general and ecotourism destinations in good number around the year.

North Telangana region is a vast and great region with a huge potential for tourism and has a number of historical places and monuments, great shrines and temples, place of pilgrimage, wild life sanctuaries etc. Besides it offers a great variety of cultures, festivals, arts, crafts etc. There were many Dynasties which ruled over the North Telangana region.

There are many a number of places to visit Basara Saraswathi temple, Adilabad, the only Saraswathi temple in North Telangana, Pochera and kuntala water falls, Nirmal handicrafts in Nirmal district is known for its varied range of handicrafts. Nirmal world famous for oil paintings depicting themes from the epics such as Ramayana and Mahabharata. Exhibited in the form of wood painting and other wooden articles Nirmal artwork accompanies aesthetic expression. The pranahitha wildlife sanctuary is a natural habitat for various types of wild species kawal wildlife sanctuary is one of the important wild life sanctuaries in Telangana. The kawal sanctuary houses various animals and several varieties of flora and fauna are seen here. This sanctuary is located in the Adilabad district.

Nirmal is a prominent town in north Telangana region and ancient history of the town has glorious past due to patronization of arts and culture by ruling nobility. This legacy of the heritage is seen in the town where the French established a strong presence by building a magnificent fort, which stands majestically till date Nirmal fort is also called as the Shamgarh fort.

Dhokra or Dokra, is also known as bell metal craft. It's a tribal metal craft practiced in Jainoor Mandal, Asifabad district. Dokra artifacts are mainly made in barass and highly unique where in the pieces do not have any form of joints the whole object is fully hand crafted.

Nizamabad is a city and district headquarters in Telangana. It's is major urban agglomeration and rated as the third largest city in the state. One among the impressive historical monuments here is the very striking Nizamabad fort Ashok Nagar is a

picturesque lake and tourist attraction situated nearly 7 km from the city the Ali sager reservoir, the Ali sager deer park was established few decades ago.

Tourism here to like any other export industry has the potential for growth besides processing the distinct advantage over their industries. The basic resources for tourism are over temples and monuments, waterfalls reservoirs, performing arts, culture, and wildlife. Tourism here also tends to give support to local handicrafts and cultural activities, both in urban and rural areas. North Telangana as said above has tremendous unexploited tourism potential.

## 2) OBJECTIVE OF THE STUDY

To make study on various aspects of tourism along with potentiality of tourism in North Telangana region of Telangana this study will discuss the various socio economic and cultural benefits of tourism.

- This study examines and analysis the factors which played dominant role in the development of tourism in north Telangana.
- Attempt is also made to identify the natural and man-made tourist resources in North Telangana and assess their potentiality.
- To study intends to have a glance on various tourism related policies, plans and their reviews formulated by different bodies concerned with tourism in the context of present and future development of tourism.
- It will assess the existing situation of tourism and its development in Telangana particularly in terms of tourist resources, human resources, tourist information and publicity tourism awareness and allied aspects.
- To make study on tourism that will help in providing a systematic and constructive outlook for the development of Tourism in Telangana in future.

## 3) HYPOTHESIS

Preliminary studies of the primary sources revealed majority of the governmental initiatives are directed towards tribal and jungle tourism, pilgrim tourism eco-tourism. Further these initiatives are found to be focused in and around Adilabad, Asifabad, Manchiryal, Peddapelli, Karimnagar, Rajanna Sirisilla, Jagtial, Nirmal, Kamareddy, and Nizamabad districts of north Telangana region's tourism potentiality. The present thesis attempts to highlight heritage sites in Telangana along with tourist spots and emerging trends of this region.





#### 4) SCOPE OF THE STUDY

The current and emerging trends like eco- tourism, pilgrim tourism, tribal and jungle tourism etc... According to changing time and demands this region is catering the needs of tourist. It is therefore felt to understand the changing trends in tourism in particular to Telangana region. Defining time limit is a difficult thing as present topic speaks about current trends. So, if periodisation is done then there are many chances of getting faded as this industry is undergoing drastic changes. Moreover, tourism being the most current and developing industry during the recent decades, the recent phenomenal changes in this industry is considered more.

The increase in incomes of people increased their urge to spend on leisure consequently giving a fillip to holiday tourism and eco-tourism. So, the economic, cultural and social that came under impact of tourism will be and studied.

#### 5) METHODOLOGY

The resent study is based on the data collected from primary and secondary sources. Primary data was collected through intensive field work by visiting various ecotourism destinations in the study area. Tourist, local people, tourism related service providers were interviewed.

Secondary data was collected through District Census Hand Book, District Gazetteer, published and unpublished materials, Travel books, newspapers, periodicals, etc. Different statistical method and cartographic techniques are used wherever necessary. A random sample survey was conducted during the field research. The information related to geographical background, origin of tourists, economic status, mode of transport, infrastructural facilities etc used by tourists, was collected through the questionnaire. The behavioural attitude of tourist at ecotourism destinations in north Telangana districts and tourist opinion and impact of tourism on local residents are calculated with the help of percentage method. To measure the tourist satisfaction levels, five-point Likert Scale method was used. As well as to know the satisfaction levels of tourists and visitors the Percentage and Chi-square test were applied. The collected information is finally tabulated, analyzed summarized and finalized the result presented in the form of maps, tables, photographs etc. it should be easier to analyze and draw conclusion from them.

**Adilabad District:** Adilabad district is a very beautiful place. Because of its lush green scenic beauty with dense forests and hills, it is called as 'Telangana Kashmir'. The district is also 98 popular for cascading waterfalls of Kuntala, Pochhera, Tiger reserve of Kawal, Wildlife sanctuary of Pranahita. The Pranahita wildlife sanctuary is an interesting destination not just for its flora and fauna but for its rock formations of prehistoric and treasure trove of fossils. The district is also famous for its spiritually elevating temples like Basara, Jainath and Keslapur. Basara Saraswathi temple is considered as the 'Goddess of Knowledge'. This temple was said to be built by the great sage Veda Vyasa. It is very popular for performance of 'Aksharabhyasam' (first letter writing ceremony to children) which is believed as an auspicious initiation into the process of education. Sri Lakshmi Narayana Swami Temple of Jainath,

which was believed to be built by the Pallavas, was a testimony to the rich architecture of that period. The Nagoba temple of Keslapur attracts many devotees to participate in the NagobaJatara. This Jatara is a tribal festival that is held in the honor of Nagoba (the Serpent God) every year. Toys & Paintings of Nirmal and Metal crafts of Docra etc., are renowned for cultural identity of the Adilabad district .

Situated in the middle of the Sahyadri mountain range, the Kuntala waterfalls is in dense forest. It is said to be the highest waterfalls in Telangana that cascades down with a height of 45 meters. If the Kuntala waterfall is the highest waterfall, the Pochera waterfall is the deepest waterfall plunging from the height of 20 meters, in the middle of a forest. In addition to these two popular waterfalls, there are many less travelled waterfalls in the district. Those are Mitte waterfalls, Koratikal waterfalls, Kanakai waterfalls or Kanakadurga waterfalls, Mukti Gundam waterfalls, Gayatri waterfalls etc., which became new tourist vistas in the district . Kadam reservoir amidst scenic hillocks is an ideal destination for leisure tourism activities in the district. This exotic location surrounded by verdant forests is a perfect getaway for nature lovers.

**Komuram Bheem Asifabad District:** Jodeghat, the birthplace of tribal leader Sri KomuramBheem, Babezari waterfall and scenic Ada Reservoir (named as KomuramBheem Reservoir) etc., offer a wide range of diverse tribal tourism experience to tourists visiting the Jodeghat tourism cluster.

**Kawal Tiger Reserve (KTR)** is an ecological paradise and a potential tiger tourism destination. Covering a core area of 892.13 Sq. Kms., and buffer area of 1123.0 Sq. Kms. the Kawal Tiger Reserve (KTR) forests are extended as contiguous to the other two Tiger Reserves of Tadoba Andheri of Maharashtra and Indravathi Tiger Reserve of Chattisgarh. Between the Kawal and the other two Tiger Reserves, Tigers are known to migrate. Hence, development of tiger corridor linking these three Tiger Reserves helps for the conservation of the Tiger species and promotes tiger tourism . For nature enthusiasts, Jannaram wildlife expedition is a pleasant experience that the Kawal Wildlife Sanctuary cum Tiger Reserve offers . Nirmal town which is embedded amidst the Sahyadri mountain ranges offers a wonderful climate throughout the year. There are four forts of medieval period in the outskirts of Nirmal town namely Chhattisgad, Battishgad, Samgad and Sonagadh .

**Nirmal District:** the district occupies a proud place on the map of Telangana for its Dokra art and Nirmal wood crafts & paintings. Dokra is an art form of the tribals since times immemorial with an ancient method of making metal artifacts by a wax-casting technique. Today, this art form is 100 appreciated all over for its primitive simplicity and enchanting folk motifs. Every piece of Dokra art has a distinct identity having cultural relations with the civilization . Dokra Metal craft is popularly practiced by the local tribal community in the district. The places like Ushegaon, Chittalbori, Keslaguda and Jamgaon villages are the main promoters of this art. All the objects are primarily made of brass scrap, created niftily by hand. In addition to the Dokra art, the district is known for its world-famous Nirmal paintings & wooden toys. While the





Nirmal paintings are famous for their rich colors and variety, the woodcrafts are famous for use of locally available softwood called 'Poniki' with a range of products. This art & craft was patronized by the Nizam of Hyderabad too. Historical in nature, rich in color, intricacies in art; these toys & paintings of Nirmal which were named after Nirmal town where these were originated and remained a fascination through the ages are exported to world markets as well. With all these pull factors, the district has an excellent tourism potential to attract large number of domestic and international tourists.

**Karimnagar District:** The Lower Manair Dam, constructed on the river Manair is a promising leisure & recreation tourism destination for visiting tourists to the Karimnagar district. The Dam is the first sight of any visitor entering into the Karimnagar city from the capital city of Hyderabad. This water destination is a pleasure to the eyes when the water level in the reservoir is at optimum level and the water gushing out of the gates. There are also water sports facilities here for an added experience. In the near vicinity, there is a wildlife park called Rajeev Deer Park. The Shiwaram wildlife sanctuary located along the river line of Godavari is a beautiful wildlife sanctuary. It is well known for marsh crocodiles in addition to the other notable flora and fauna. Further, Banyan tree of Paidimadugu along the shores of the river Godavari is an historical tree aged about 500 years. The tree spread over about five acres. A flow of a rivulet from east to west is spotted here which is a rare sight.

The Buddhist sites, the Quillas and Forts, the temples nestle in the confluence of river Godavari and Pranahita etc. add value to the tourism appeal of the Karimnagar district. Dhulikatta is an important Buddhist destination of the district. It is believed that the stupas and viharas found at Dhulikatta were of the Satavahana period. Bommamma Gutta, near to the Karimnagar city is a center of archaeological prominence. This is of a Chalukyan period attraction with a carved Yakshini statue called Chakresvaridevi, (now called Seethamma), statues of Jain Teerthankaras and inscriptions on stone witnessing the hundreds of years of telugu, kannada culture and literature. Elgandala fort was a seat of power for many dynasties right from Kakatiyas, Bahamanis, Qutb Shahis, Mughals and Asaf Jahis. A mosque in the fort with three minarets is an interesting feature, which oscillates when shaken. The 'Urs' annual festival celebrated here was an honor of the saints, whose tombs are in the fort.

**Rajanna Sirisilla District:** Sri Raja Rajeshwara Swamy temple is a major pilgrimage tourism destination in the district, which draws pilgrims from many places. Built by the Chalukyan Kings between 750 AD and 973 A.D., this Shiva temple complex houses several other deities as well. A Muslim Dargah inside the temple complex is a representation of communal harmony. The temple located on a hillock offers a beautiful view of the surroundings. The temple town itself is blessed with the nature's scenic beauty. Sri Mukteshwara Swamy temple at Kaleshwaram is an ancient temple. Two Shivalingas on a single pedestal is a special significance of this temple. The location of the temple is at a picturesque spot, which is also a confluence point of the river Pranahitha with the river Godavari. Dharmapuri - the 10th century temple town of

Sri Lakshmi Narasimha Swamy was a seat of learning for languages, literature, dance, and music in ancient times.

Nagunur group of temples are an amazing destination for heritage lovers in addition to a pilgrimage interest. Nagunur was once the center of authority for many dynasties. Manthani was a great center of Vedic learning from the ancient times. It has a great archaeological, historical, and religious importance with many temples and well-versed scholars in Vedas & Sastras. Sri Kesavanath temple of Raikal is also one of the ancient temples in the district built by the Chalukyas during the 11th century A.D. The sculptures on the temple are remarkable. The five faced lord Shiva temple, Bhimanna temple, annual Jatare etc are also interesting features of this place. The district is also famous for the motifs of Silver Filigree art work. Thus, with its Old Stone Age evidence and excavations of PeddaBonkur, Dhulikatta, Kotilingala and magnificent historic Elagandal Fort,

**Jagtiyal District:** Jagtiyal Fort, Nagunur Fort, amazing temples of Vemulavada, Sri Anjaneya Swamy temple in Kondagattu is one of the most famous temples of the district. Dharmapuri - the 10th century temple town of Sri Lakshmi Narasimha Swamy was a seat of learning for languages, literature, dance, and music in ancient times. Dharmapuri, Manthani, stunning monuments of Raikal, Ramagundam, Peddapalli, and many more architectural gems the old Karimnagar district has huge potential for development and promotion of tourism in the district.

**Nizamabad District:** The river Godavari which originates at Triambakeshwar of Nasik District in Maharashtra enters in Telangana at Kandakurthy village of Nizamabad district. Kandakurthy ghat is a popular pilgrim center to perform Hindu religious activities as it is considered as Triveni Sangamam with confluence of three rivers - the river Haridra, river Godavari and river Manjeera. This village has a great historical background. Ali Sagar Lake, Ashok Sagar Lake, Nizam Sagar Project, Sri Ram Sagar Project, Armoor Rock formations, Mallaram forest & bird sanctuary etc. are the distinctive tourist places in the district with good potential to attract large number of tourists.

Previously known as Indur, Nizamabad district is an ancient region ruled by various dynasties. The district boasts of many historical sites such as Nizamabad Fort, Domakonda Fort, Kaulas Fort etc. The district also houses magnificent temples such as Ramalayam temple at Dichpally, Trikuta temple at Tandur, Sri Laxmi Narasimha Swamy Temple at Jankampet, Shiva temple at Domakonda etc. Nizamabad Fort, also known as Nizamabad Quilla, was built in 10th century A.D. by the Rashtrakuta Kings. The Fort, Prison & Sri Raghunatha Temple are the main attractions to tourists. The Dichpally Ramalayam, built by the Kakatiyas, was one of the oldest temples in Nizamabad. Owing to similarity in style and structure, the temple was also famed as the Indur Khajuraho (Khajuraho of Nizamabad).



## 6) SUGGESTIONS & CONCLUSION

If the tourist business is to flourish, all governmental and non-governmental organizations must pay special attention.

1. They should conduct quantitative and qualitative analyses of the natural, cultural, artistic, and human resources, as well as plan for their use and conservation. The majority of planned tourism extends their usage without protecting resources.
2. It is necessary to recognize that a country's legacy is a part of humanity's heritage in order to avoid conflict, violence, and a lack of sensitivity to a global perspective of heritage.
3. To acknowledge the social and economic significance of tourism via the preservation and creation of a clean environment. To acknowledge that traditional values, especially nonmaterialistic ones, should govern tourism as a social force and a negotiated resource between the wealthy and the poor.
4. Socioeconomic objectives of a state can be implemented if tourism is for the development of the host nation.
5. Tourism should not only confront risks and challenges, but also be environmentally sustainable. All tourist development must not only answer to short-term requirements, but also to duties we feel towards the exploited, the marginalized, the poor and backward, the ignorant, etc. Hence, a long-term perspective on tourism is necessary.
6. Most of the historic legacy is vulnerable to both natural and human forces of deterioration, necessitating in-depth research and enough funding for preservation and upkeep. The majority of nations have antiquities and art preservation laws that allow national museums to purchase artefacts that may be stolen or smuggled out of the country.
7. Regarding conservation and pollution control methods, an international organization like the WTO proposes encouraging the local community to decorate their houses and balconies through contests and other activities.
8. By information and advertising efforts, the government should coordinate visitor enjoyment with the social and cultural activities of the local community.
9. The government should provide pedestrian zones at tourist destinations such as retail malls, public parks, and playgrounds in order to attract an increasing number of tourists.
10. Government and non-government organizations can encourage the business by awarding quality certificates and prizes (both financial and non-financial) for upholding standards in the provision of tourism amenities.
11. Respect and awareness of local cultural and sensitive historical sites must be maintained, with particular emphasis on places of religious importance. Due to the cultural and religious variety of the state, it is essential to educate tourists about cultural standards and religious traditions at these locations. Information on etiquette, acceptable and inappropriate behavior at religious locations, particularly at all places of worship, should be

made available in English. Such advice would include removing footwear at the door, prohibiting photography within temples, and never photographing photographs during worship.

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# IMPLEMENTATION OF THE PEDAGOGICAL TECHNOLOGY OF PROFESSIONAL-PERSONAL ECOLOGICAL EDUCATION IN TECHNICAL UT

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## ВНЕДРЕНИЕ ПЕДАГОГИЧЕСКОЙ ТЕХНОЛОГИИ ПРОФЕССИОНАЛЬНО-ЛИЧНОГО ЭКОЛОГИЧЕСКОГО ОБРАЗОВАНИЯ В ТЕХНИЧЕСКОМ УТ

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### ABSTRACT

*In this article, the acquisition of ecological knowledge and skills for professional activity, the acquisition of practical knowledge of ecology and environmental protection, the advantage of laboratory training, the training, education, development, self-education of individuals and the population aimed at the formation of norms of behavior and special knowledge and issues such as the experience-gathering process, aspects of laboratory practicum design, practice-oriented training stages, population ecology and pedagogical technology of professional-personal ecological education in technical higher education institutions are highlighted.*

**KEY WORDS:** *Professional-personal ecological education, ecological awareness, human ecology, ecological outlook, laboratory practice.*

**Аннотация.** В данной статье рассматривается приобретение экологических знаний и навыков для профессиональной деятельности, приобретение практических знаний по экологии и охране окружающей среды, преимущество лабораторного обучения, обучения, воспитания, развития, самообразования личности и населения, направленное на Освещены формирование норм поведения и специальных знаний, а также такие вопросы, как процесс накопления опыта, аспекты оформления лабораторных практикумов, практико-ориентированные этапы обучения, экология населения и педагогическая технология профессионально-личностного экологического образования в технических вузах.

**Ключевые слова:** Профессионально-личностное экологическое образование, экологическое сознание, экология человека, экологическое мировоззрение, лабораторная практика.

### INTRODUCTION

During the years of independence, a complete legal and regulatory framework was created in the field of ecology, environmental protection and rational use of natural resources. In particular, the Constitution of the Republic of Uzbekistan, the laws "On Nature Protection", "On Education" and the National Personnel Training Program, as well as a number of other documents form the legal basis of the environmental education system. It is worth noting that in Article 4 of the Law of the Republic of Uzbekistan "On Nature Protection" the obligation to teach ecology in all types of educational institutions has been strengthened to achieve the goals of nature protection [1]. Undoubtedly, it is important to increase the environmental culture of the population, especially the young generation, in order to achieve environmental purity and prevent environmental problems [2].

In the environment of globalization, it is impossible to acquire theoretical knowledge without practical skills in ecology and environmental protection. They are interrelated and serve as a guide for the future engineer's work [3].

### THE MAIN PART

In the conditions of the global ecological crisis, which is characterized by the existence of sharp conflicts in the relations between society and nature, between man and nature, when the issue of survival before humanity arises, it is necessary to develop the forms of dialogue between human thinking and nature in the form of a deep moral restructuring of the entire way of life and behavior of humanity. there is a need to redirect. In this context, the need to form a "new" ecological consciousness is increasing, and one of the sources of its





emergence is a philosophy that promotes and establishes new ecological and cultural values. "New" ecological consciousness and "new" universal ecological values (preserving the diversity of ecosystems, treating the Earth as a unique ecosystem, treating living creatures with care and respect, treating nature as a part of nature, etc.) and accordingly The "new" ecological worldview is formed in the emergence of new directions of value, in numerous attempts to build a philosophy of ecology [4,5].

Ecological education is a purposeful, continuous and complex process of teaching and educating children and adults with the aim of forming their ecological consciousness (S.D. Deryabo and V.A. Yasvin, 1996), which includes: formation of ecological ideas of a person; development of a person's subjective attitude to the natural world; formation of "new" environmental values of a person; development of appropriate standards for nature-oriented practical activities (nature management, nature protection, interaction with the natural world during other activities) [6]. The term "ecological education" was introduced in 1970 at the conference of the International Union for Conservation of Nature.

Yu.D. Zheleznov presents general, in our opinion, universal methodological principles for environmental education in the form of an application to environmental education of students:

- Environmental education based on the worldview should express the rise to the highest morality and responsibility of a person to mother nature;

- It is necessary to study the definition of man as a holistic phenomenon of nature in cosmic, biological, social and spiritual unity on the foundation of educational philosophy;

- Ecological education (means training in a specialty - A.G.) should be considered as a stage in mastering the totality of being and realizing the absolute necessity of Society and Nature [7].

B.T. Grigoryan defines man as the universal force of nature, the inheritor of its integrity, and says that man is no longer a purely natural force, but realizes and develops his universality as a social and spiritual being directly in natural determination. The development of ecological and humanitarian ideas of a person takes place within the framework of interaction and communication with nature.

X. Vittorio concretizes this problem, conducts an analysis in terms of the relationship between ecology, economy, politics and ethics, and raises the question of a fundamentally new type of civilization development. When talking about the development of new strategies of ecological nature necessary for the sustainable development of modern civilization, the author considers the individual as a part of a self-developing system, in which a person does not oppose the object (nature), but interacts with it. Knowledge of the prohibitions of certain interactions, which have potentially fatal consequences, has a special place in their work [8].

N.F. A distinctive feature of Reimers' work is his philosophical approach to the environmental problems of our time. In his

opinion, there is simply not enough time to confirm the processes of self-management in the stabilization of the relationship between society and nature. Therefore, the field of management of the interaction of society and nature should be in the first place. In fact, the uncoordinated interaction of man and the biosphere from an ecological point of view today may have the most negative forecasts for the future.

From the point of view of human ecology, ecological education is the most important means of forming the inner world of a person, it is "the development of fundamental problems in the field of human ecology, the creation of new educational technologies, as well as the change of the existing education and enlightenment system, from the traditional, intellectually oriented educational paradigm to the nature and social environment of a person. "Transition to the paradigm of ecological education, which allows to form knowledge and understanding of the ability and skills of optimal interaction with nature, its physical and spiritual nature, methods of natural regulation of one's somatic and mental health" can exist when the condition is fulfilled ("Human ecology. Culture and education in modern conditions from the conclusion to "interaction" / Doctor of Medicine S.V. Kaznacheev, Doctor of Philosophy N.V. Nalivaiko et al. - Volume II - Part I. Novosibirsk, 1998) [9].

As we mentioned, the main object of modern ecological problems is the inner world of a person with its "pluses" and "minuses" compared to the universal evolution of nature (Y. D. Zheleznov). From the point of view of human ecology, ecological education (including ecologicalization of the educational system) is considered the most important means of shaping the inner world of a person (and not only as a factor regulating his attitude to nature).

It (ecological education) is only "developing fundamental problems in the field of human ecology, creating new educational technologies, as well as changing the existing education and enlightenment system, from the traditional, intellectually oriented educational paradigm, to give a person the ability and skills of optimal interaction with nature and social environment, his physical and "transition to the paradigm of ecological education, which allows to form knowledge and concepts about the methods of natural regulation of one's spiritual nature, one's somatic and mental health" can come forward when the condition is fulfilled [10].

Considering the problems of further development of human civilization, N.N. Moiseev said that humanity should change the paradigm of development, move to another evolutionary channel.

In the study, one of the forms of acquisition of environmental knowledge and skills for further professional activity is considered - a practice-oriented module, which includes the following stages: acquisition of the basic knowledge and skills of working with the tool base, the importance of the possibility of preventing negative impact on people and the environment during professional activity understanding; formation of



readiness to solve environmental problems using modern technologies; development of a systematic view of environmental problems, formation of the ecological culture of a specialist.

The practical significance of the research problem is to develop methods of effective use of information technologies in order to develop creative activity and independence during laboratory training in the "Industrial Ecology" training course. This method makes it possible to increase cognitive activity and independence of students in laboratory classes, and to develop engineering-ecological thinking.

The very meaning of the word "laboratory" (Lat. Laboro - work) is associated with the use of mental and physical efforts in order to find previously unknown methods of solving scientific problems [91].

Laboratory work is a method of teaching, a type of independent activity, during which the student performs experiments, measurements, and elementary research that confirm the learned theoretical rules [128].

A practice-oriented module is a collection of a number of laboratory studies integrated into a whole by a certain sign.

Practicum is a form of organizing training sessions, in which students organize and perform experiments under the supervision of a teacher [11].

The following can be stated as the purpose of conducting laboratory work: practical assimilation of the scientific and theoretical rules of the subject being studied by students; learning research, and then acquiring instrumental knowledge in order to solve real experimental and practical problems. The components of the module allow to study the interaction of man and nature in the course of production activities, to determine the level and nature of the impact. They make it possible to develop a non-indifferent attitude towards the state of the environment, a personal feeling of environmental problems.

The advantage of conducting laboratory training is to combine theoretical, methodological, practical knowledge and skills in a single educational-research process; the peculiarity of the laboratory practicum is the organization of independent work of students under the guidance of the teacher. Methodologically correctly organized laboratory exercises help to develop students' thinking, strengthen practical activities and develop the ability to observe, measure, plan, mutual support and mutual control.

Working in the laboratory requires creative initiative, independence in decisions, and deep understanding of learning material.

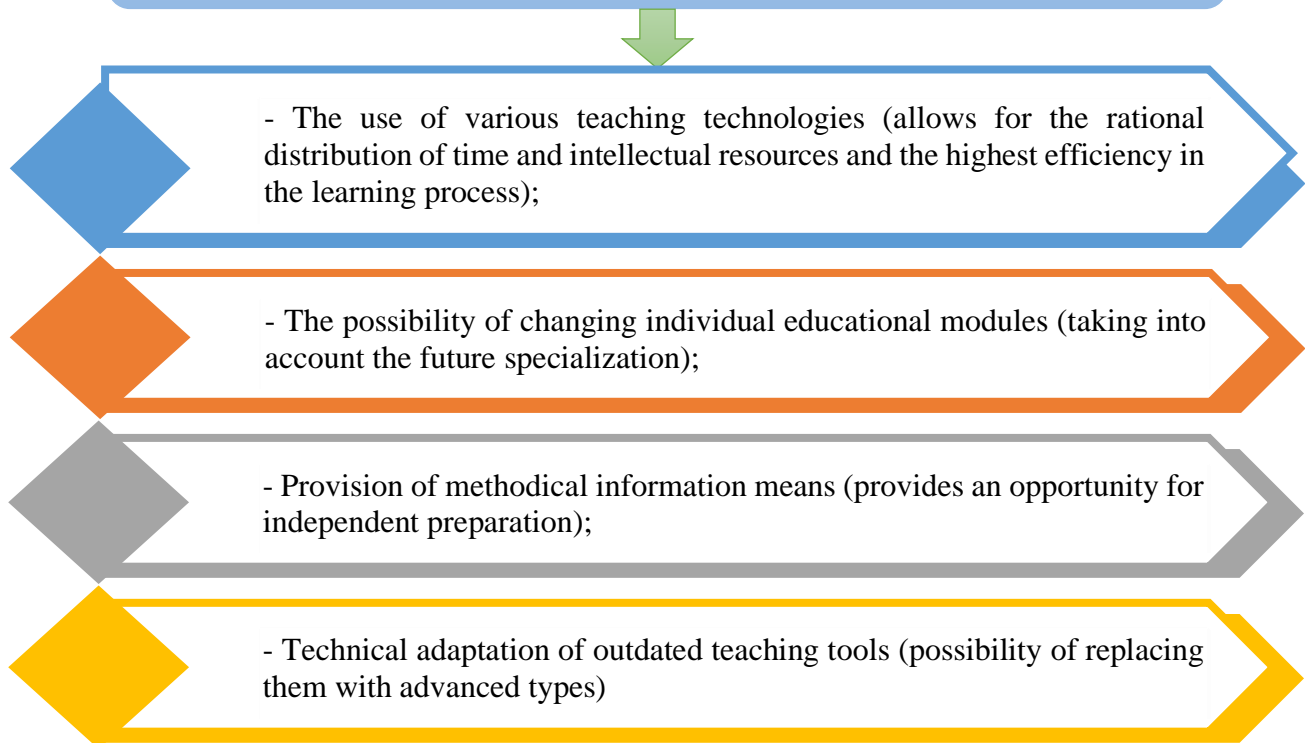
Working in the laboratory forms an attitude to the environment based on the need for personal participation in the acquisition of knowledge and skills, in solving existing environmental problems and in their prevention.

Professionally oriented ecological module, whose tasks are aimed at the implementation of concrete practical activities, is considered the most effective form of organizing training based on the independent work of students.

The goal of the laboratory training is for students to learn the scientific and theoretical rules of the studied science, to acquire the latest experimental techniques in the field of relevant science, to instrumentalize the acquired knowledge, that is, to turn it into a means of study and research, and then to solve real experimental and practical problems, in other words - theory and is to establish a connection between practice [12].

On the basis of existing equipment, a practically oriented module for the course "Industrial Ecology" was developed and introduced into the educational process, which included eight cases, each of which was designed for training lasting 2-4 academic hours. A unique laboratory complex is designed for students of technical specialties, taking into account their specialization.

**The Following Aspects were taken into account when designing the Laboratory Practicum:**



**Figure 1: Scheme of Educational Research Solution**

During practice-oriented lessons, students practically master the scientific and theoretical positions of the studied subject, acquire instrumental knowledge to solve educational research, and then real experimental and practical problems.

The following are the main tasks set in the process of designing the laboratory practicum: experimental verification of laws, mastering the measurement methodology and acquisition of experimental skills, learning the principles of operation of measuring instruments.

The use of information technologies in teaching allows to effectively engage students in active cognitive activities for understanding and strengthening the educational material, applying knowledge in the process of solving problems. In order for the developed teaching technology to provide the goals set in practice, the students' motivation, learning, information, mastery of normative materials, ability to master given volumes of information are taken into account. Elements that provide connection to the educational process with the future professional activity were also deleted. New information technologies easily entered the educational process and did not

affect the educational standard and educational content determined by the state programs.

Effective use of modern means of teaching, a comprehensive approach to the organization of the educational process, its implementation in practice allows a broader approach to solving the problems of implementing environmental education.

Before completing practice-oriented tasks, students study the necessary theoretical materials from lecture notes and textbooks, familiarize themselves with the content and procedure of work. During the performance of laboratory work, students will have the opportunity to perform all stages of laboratory work individually by designing their experimental research activity. The work is carried out in a group of 2-3 people, taking into account individual wishes. The completed task is formalized in a special notebook, specifying the topic and the purpose of the training. The results of the work are presented in the form of tables or calculations.

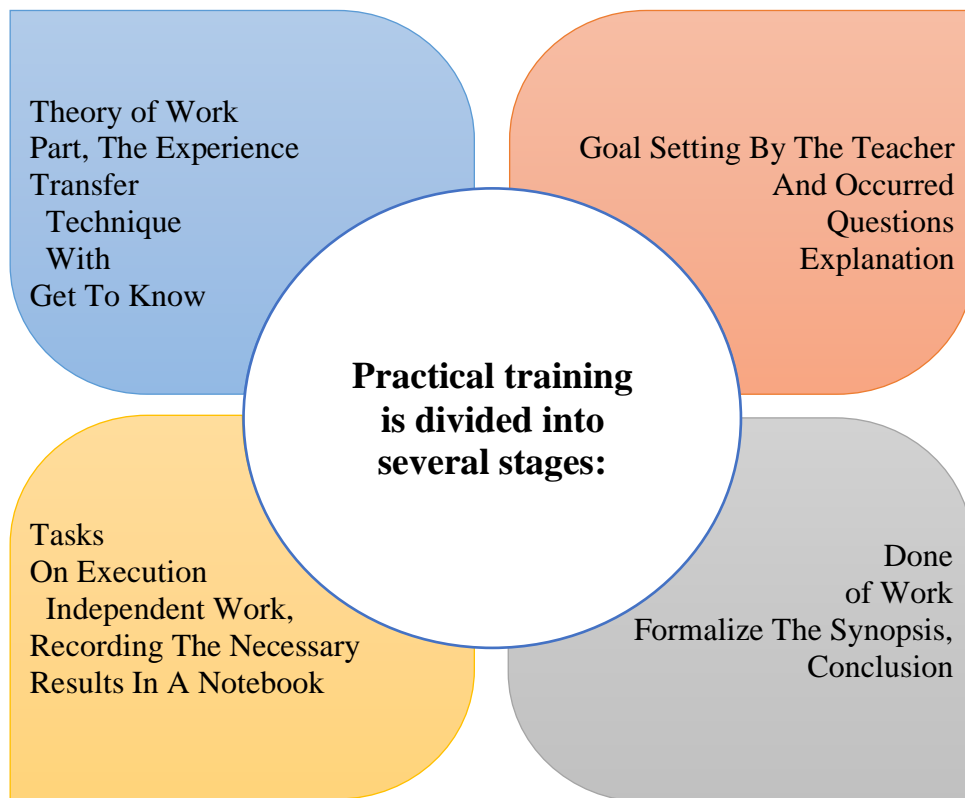


Figure 2: Schematic of Practice-Oriented Training

The completion of each laboratory work is intended for 2 hours of study time.

As an example, let's consider one of the works that allows us to study the change in population growth by modeling the process.

The doctrine of population or population ecology is one of the main branches of modern ecology. The term "population" was borrowed by biologists from demographers, including this concept long before the emergence of population ecology. In demography, it is used in the sense of defining the population of the whole country (or part of it), or the population of any settlement. From the ecological point of view, a population is understood as a group of representatives of a species living together, united by a unit of life activity. Self-reproduction of living material takes place within the population, which ensures the survival of the species due to the inheritance of adaptive qualities, is the beginning of new populations and processes of species formation [51].

**The Conclusion** in the process of preparing students of the "Labor protection and technical safety" educational direction for professional activities based on innovative technologies, technical higher educational institutions acquire ecological knowledge and skills, acquire practical knowledge of ecology and environmental protection, the advantage of laboratory training, behavior - they should have professional ecological competence about the process of teaching, training, development, self-education and experience gathering of individuals and population aimed at forming behavioral standards and special knowledge, aspects of laboratory practicum design, stages of practice-oriented training.

### Suggestions

1. To correctly determine the pedagogical and organizational conditions for the formation of professional readiness of future engineers, taking into account the ecological and psychological characteristics and the possibilities of mastering;

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# EFFECTIVENESS OF SOCIAL MEDIA ON MENTAL HEALTH OF ADOLESCENT STUDENTS IN CHENNAI CITY

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## ABSTRACT

Social media, in its broadest meaning, refers to any digital application or software that allows users to engage in social interaction. There is an increasing concern regarding the impact of social media on adolescent mental health. Primary objectives of this study are a) To assess the effects of social media on mental health of adolescent students and b) To analyse the association between mental health of adolescent students with their selected demographic variables. The sample size of the study comprises of 135 adolescents. They were selected by non-probability convenient sampling method. A structured questionnaire and Four point DASS were used to analyse the association of level of mental health among adolescent students. Out of 135 adolescents, 71(52.59%) had moderate distress, 35(25.93%) had mild distress and 29(21.48%) had severe distress. The mean score of mental health among adolescents was  $63.35 \pm 25.32$ . The median was 51.0 with minimum score of 32.0 and maximum score of 120.0. The demographic variable 'Which social media channels you are most active on?' ( $\chi^2=13.726, p=0.033$ ) had shown statistically significant association with level of mental health among adolescents at  $p < 0.05$  level. Social media use by some females can be concerning, since female adolescents report spending more time on social media and experience poorer mental health than male peers.

**INDEX TERMS-** Social media, Mental health, Adolescence, Gadgets, Depression, Screen time.

## INTRODUCTION

Teenagers now have unprecedented access to digital content via a variety of gadgets, including smartphones, tablets, laptops, desktop computers, and gaming systems. Today's media landscape is more expansive and diverse than ever before. Social media is a key component of this ecosystem. Social media, in its broadest meaning, refers to any digital application or software that allows users to engage in social interaction. Recent research on the relationship between online communities and depression has found a common connection between the use of social networks by adolescents and depression, though there are some places where these findings are contradictory (like the relationship between screen time and mental health issues) and the quality of the evidence is not of great importance (Keles B, McCrae N, Grealish A, 2020). It is difficult to assign exact cause to the troubling trends of increasing depression, anxiety, self-harm and suicide in adolescents. However, with suicide being the fourth leading cause of death globally in people aged 15-25-years, it is important to discover which factors are influencing adolescents to commit suicide (Brandie Walton, Denise Rizzolo, 2022).

Yue-Yue You, Junwen Yang-Huang, Hein Raat, Amy van Grieken (2023) conducted a study to evaluate which factors were associated with heavy social media use on weekdays and weekends among 13-year-old adolescents (N=3727) in the Netherlands. The findings revealed that the prevalence of heavy social media use was 37.7% on a weekday and 59.6% on a

weekend day. The study concluded that being a girl, living in a one-parent family, or having a longer computer playing time were associated with heavy social media use on weekdays and weekends.

Brandie Walton, Denise Rizzolo (2022) conducted a study to assess the effects of social media on adolescent mental health. The study reported that there is increasing concern regarding the impact of social media on adolescent mental health. Research has suggested a negative association between excessive times on digital media, more than 2-hours per day, and emotional health. Perhaps more importantly, adolescent vulnerabilities, such as existing anxiety or depression, when exposed to certain social media experiences can cause further decline of mental health. Chirag Gupta, Sangita Jogdand, Mayank Kumar (2022) conducted a study to review the impact of social media on the mental health of the adolescents and young adults. Smartphone and social media usage among teenagers are associated with an increase in mental distress, sleep deprivation, self-harming behaviours, and suicidality, according to evidence from numerous cross-sectional, longitudinal, and empirical studies.

## RESEARCH METHODOLOGY

Quantitative research approach was adopted for this study to accomplish the objectives of the study. The research design used for this study was cross-sectional descriptive method. Primary objectives of this study are a) To assess the effects of social



media on mental health of adolescent students and b) To analyse the association between mental health of adolescent students with their selected demographic variables. The sample size of the study comprises of 135 adolescents. They were selected by non-probability convenient sampling method. The Inclusion criteria are; Adolescents without any other psychological problems, available at the time of data collection period and willing to participate.

The instrument envisaged for use in this study was divided into two sections. 1) A structured questionnaire to assess the demographic variables of the adolescent school children and 2) Four point DASS (Depression Anxiety Stress scale) which consists of 42 statements with 4 point Likert scale and can be coded as Never – 0, Sometimes – 1, Often – 2 and Almost always – 3. The maximum score is 126.

**Table 1: Scoring and Interpretation**

Total Score	Depressive Severity
1-42	Mild distress
43 – 84	Moderate distress
85 – 126	Severe distress

The duration of intervention was 25 to 30 minutes. Frequency and percentage distribution were used to analyse the demographic data, level of mental health among the adolescent school children. Mean and standard deviation was used to assess the level of mental health among the adolescent school children. Chi-square was used to analyse the association of level of mental health among the adolescent school children with their selected demographic variables.

**DATA ANALYSIS AND INTERPRETATION**

The table 2 shows that most of the adolescents, (71; 52.6%) were aged between 13–15 years, 89(65.9%) were male, 82(60.7%) were Hindus, 100(74.1%) were residing in urban area and 85(63.0%) had secondary education.

**Table 2: Percentage Distribution and Association of Demographic Variables of Adolescent Students with their Mental Health**

Demographic Variables		Frequency N=135	Percentage (%)	Chi-Square Test
Age in years	10 – 12	33	24.4	$\chi^2=1.569$ d.f=4 p=0.814 N.S
	13 – 15	71	52.6	
	16 – 18	31	23.0	
Sex	Male	89	65.9	d.f=2 $\chi^2=3.195$ p=0.202 N.S
	Female	46	34.1	
Religion	Hindu	82	60.7	d.f=4 $\chi^2=0.453$ p=0.978 N.S
	Christian	37	27.4	
	Muslim	16	11.9	
Residence	Urban	100	74.1	$\chi^2=1.079$ d.f=2 p=0.583 N.S
	Rural	35	25.9	
Education	Primary	24	17.8	d.f=4 $\chi^2=3.255$ p=0.516 N.S
	Secondary	85	63.0	
	Higher secondary	26	19.3	

Note: \*p<0.05, S – Significant, N.S – Not Significant

The table 3 shows that 89 adolescents (65.9%) had spent 2 – 3 hours on social media every day, 94(69.6%) were active on Facebook, 92(68.1%) had reported that social media is useful for learning, 71(52.6%) had used networking for social media, 83(61.5%) were on 2 social platforms, 135(100%) had used social media everyday, 76(56.3%) had posted somewhat often on social media, 135(100%) said that social media as the first thing they check in the morning, 124(91.9%) had not bullied

online and 135(100%) were harassed online. The table also shows that the demographic variable ‘which social media channels are you most active on’ ( $\chi^2=13.726$ , p=0.033) had shown statistically significant association with level of mental health among adolescents at p<0.05 level and the other demographic variables had not shown statistically significant association with level of mental health among adolescents.



**Table 3 Association of Level of Mental Health Among the Adolescent students**

Demographic Variables		Frequency N=135	Percentage (%)	Chi-Square Test
1) How many hours do you spend on social media every day?	1 hour	28	20.7	$\chi^2=4.015$ d.f=6 p=0.675 N.S
	2 – 3 hours	89	65.9	
	3 – 5 hours	14	10.4	
	More than 5 hours	4	3.0	
2) Which social media channels are you most active on?	Facebook	94	69.6	$\chi^2=13.726$ d.f=6 p=0.033 S*
	Instagram	24	17.8	
	Snapchat	4	3.0	
	Twitter	13	9.6	
3) How useful is social media for learning?	Very useful	92	68.1	$\chi^2=3.790$ d.f=4 p=0.435 N.S
	Somewhat useful	36	26.7	
	Not useful	7	5.2	
4) What do you use social media for?	Networking	71	52.6	$\chi^2=5.208$ d.f=6 p=0.517 N.S
	Business	4	3.0	
	Learning	53	39.2	
	Others	7	5.2	
5) How many social platforms are you on?	1	22	16.3	$\chi^2=2.955$ d.f=6 p=0.814 N.S
	2	83	61.5	
	3	21	15.5	
	4	9	6.7	
	5 and above	-	-	
6) How often do you use social media?	Every day	135	100.0	-
	Weekly	-	-	
	Monthly	-	-	
	Others	-	-	
7) How often do you post on social media?	Very often	36	26.7	$\chi^2=6.450$ d.f=4 p=0.168 N.S
	Somewhat often	76	56.3	
	Rarely	23	17.0	
8) Is social media the first thing you check in the morning?	Yes	135	100.0	-
	No	-	-	
9) Have you ever been bullied online?	Yes	11	8.1	$\chi^2=0.473$ d.f=2 p=0.790 N.S
	No	124	91.9	
10) Have you ever been harassed online?	Yes	135	100.0	-
	No	-	-	

Note: \*p<0.05, S – Significant, N.S – Not Significant





**Table 4: Frequency and Percentage Distribution of level of Mental Health Among the Adolescent Students**

Level of Mental Health	Frequency (N-135)	Percentage
Mild Distress (1 – 42)	35	25.93
Moderate Distress (43 – 84)	71	52.59
Severe Distress (85 – 126)	29	21.48

The above table (4) shows that among the adolescents, 71(52.59%) had moderate distress, 35(25.93%) had mild

distress and 29(21.48%) had severe distress.

**Table 5: Assessment of Mental Health Among Adolescents**

Depression (N = 135)	Score
Minimum	32.0
Maximum	120.0
Median	51.0
Mean	63.35
S.D	25.32

The above table 5 shows that the mean score of mental health among adolescents was 63.35±25.32. The median was 51.0 with minimum score of 32.0 and maximum score of 120.0.

social media use by some females can be concerning, since female adolescents report spending more time on social media and experience poorer mental health than male peers (Brandie Walton, Denise Rizzolo, 2022).

**DISCUSSION**

The analysis revealed in table 4 shows that among the adolescents, 71(52.59%) had moderate distress, 35(25.93%) had mild distress and 29(21.48%) had severe distress. The findings of this study were consistent by the study conducted by Chirag Gupta, Sangita Jogdand, Mayank Kumar (2022) to review the impact of social media on the mental health of the adolescents and young adults. Despite rising evidence of the harmful impacts of social media on adolescent mental health, there is still a paucity of empirical research on how teenagers understand social media, notably as a body of wisdom, or how they can use the larger modern media discourses to voice an opinion (Strasburger, et al 2012).

The present study is to assess the effects of social media on mental health of adolescent group in selected schools in Chennai. The study concluded that majority of the adolescents who were exposed to social media had mild to moderate distress and hence necessary health education on impact of extensive exposure to social media on mental health must be imparted to the adolescents to improve their mental health and quality of life. The investigator had drawn the following implications (Pew ResearchCenter, 2018) from this study which is the vital concern to the field of nursing practice, nursing education, nursing administration and nursing research.

The youth use smartphones and other media in high numbers, which leads to chronic sleep deprivation, having a detrimental impact on cognitive ability, school performance, and socio-emotional functioning. Smartphone and social media use among teenagers are associated with an increase in mental distress, self-harming behaviours, and suicidality, according to evidence from numerous cross-sectional, longitudinal, and empirical studies (Shannon, et al 2022). The analysis revealed in the table 3 shows that the demographic variable ‘Which social media channels you are most active on?’ ( $\chi^2=13.726$ ,  $p=0.033$ ) had shown statistically significant association with level of mental health among adolescents at  $p<0.05$  level and the other demographic variables had not shown statistically significant association with level of mental health among adolescents. Hence the research hypothesis

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**CONCLUSION**

The focus of research on social media use is to identify individual experiences putting adolescent emotional well-being at risk. Individual user vulnerabilities and the effects of digital media on those vulnerabilities is suspected of causing them to engage with social media in adaptive or maladaptive ways. For example, adolescent tendencies toward depression, anxiety, and loneliness affect how they use social media. Additionally,



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# FINDING AN INDEX OF GIVEN ELEMENT OF A VECTOR USING *find\_vect()* SEQUENTIAL SEARCH METHODOLOGY WITH FINDING AN ELEMENT USING *index()* METHOD OF A LIST. FURTHER COMPARISON BETWEEN *find\_vect()* OF SEARCHING AN INDEX WITH FINDING AN ELEMENT USING *index()* METHOD OF LIST. - A CASE STUDY

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## ABSTRACT

The abstract of the comparison between *find\_vect()* sequential search methodology and the *index()* method of a list for finding the index of a given element is as follows:

Sequential search is a commonly used method to search for an element in a vector. The *find\_vect()* function employs sequential search to locate the index of a given element within a vector. On the other hand, the *index()* method of a list in Python provides a direct way to find the index of an element.

This comparative analysis focuses on the efficiency and performance of these two methodologies in terms of finding an element's index. The *find\_vect()* function iteratively searches through the vector until it locates the element, while the *index()* method directly returns the index of the element from the list.

In terms of time complexity, the *find\_vect()* sequential search methodology has a time complexity of  $O(n)$ , where  $n$  is the size of the vector. This means that as the size of the vector increases, the searching process becomes slower due to having to iterate through each element. On the other hand, the *index()* method of a list has an average time complexity of  $O(1)$ , but it can perform significantly faster, especially for large lists, due to its internal implementation.

However, the *index()* method is only available for lists in Python, whereas the *find\_vect()* function can be implemented for both vectors and lists. Additionally, if the vector or list is unsorted, the *find\_vect()* method can still find the index of the element, while the *index()* method assumes the list is sorted.

In conclusion, the *find\_vect()* sequential search methodology provides a versatile approach for finding the index of a given element, suitable for unsorted vectors or lists. On the other hand, the *index()* method of a list offers a direct and potentially faster option, especially for large lists or sorted data. The choice between these methods depends on the specific requirements and characteristics of the data being searched.

**KEYWORDS:** *find\_vect()*, sequential search, *index()*, vector and list.

## 1. INTRODUCTION

In this analysis, we aim to compare two methodologies for finding an index of a given element in a vector or a list. The first methodology is a sequential search approach called *find\_vect()* specifically designed for vectors, while the second methodology involves the use of the *index()* method of a list to find an element

## 2. SEQUENTIAL SEARCH METHODOLOGY USING *FIND\_VECT()*

Sequential search is a simple and straightforward algorithm that involves iterating through each element of a vector to find the desired element. The custom function *find\_vect()* implements this methodology by comparing each element sequentially until a match is found. The index of the matched element is then returned. If the element is not found, a specific value (e.g., -1) can be returned to indicate the absence of the element in the vector

## 3. COMPARISON WITH *INDEX()* METHOD OF A LIST:

Python's built-in *index()* method provides a convenient way to find the index of an element in a list. It returns the index of the first occurrence of the element, and if the element is not found, it raises a *ValueError*. This method internally applies a similar sequential search technique to locate the desired element efficiently.

## 4. PERFORMANCE & CONSIDERATIONS

While both *find\_vect()* and the *index()* method achieve the same goal, their performance may vary depending on the specific use case. *index()* is optimized for lists and offers a simpler syntax, which makes it a popular choice for locating elements. On the other hand, *find\_vect()* is a custom function that can be adapted for other data structures like vectors.



### PYTHON PROGRAM TO FIND INDEX OF A NUMBER IN A GIVEN LIST (CODE)

```
x=eval(input("enter a list="))
y=0
z=int(input("enter element to find="))
for i in x:
    if z==i:
        print(y)
        y+=1
        b=p
```

### PYTHON PROGRAM TO FIND INDEX OF A GIVEN NUMBER IN THE LIST(GENETALISED APPROACH)

```
x=eval(input("enter a list="))
y=int(input("index of the number you want="))
z=x.index(y)
print("index of the number is",z)
```

### 5. PYTHON'S BUILT IN FUNCTION

Python's built-in index() function is a useful tool for finding the index of a specific element in a sequence. This function takes an argument representing the value to search for and returns the index of the first occurrence of that value in the sequence.

### 6. ALGORITHM TO FIND INDEX OF A LIST

1. Initialize a variable `index` to -1 as the default value if the number is not found.
2. Iterate through the list and compare each element with the target number.
3. If the element matches the target number, set `index` to the current index and break out of the loop.
4. After the loop completes, check if `index` is still -1. If so, the number was not found in the list.
5. Return the value of `index`.

### WHEN THE CODE IS

def find\_index(number, lst):

```
index = -1
for i in range(len(lst)):
    if lst[i] == number:
        index = i
        break
return index
```

### 7. COMPLEXITY OF ALGORITHM

In computer science, analysis of algorithms is a very crucial part. It is important to find the most efficient algorithm for solving a problem. It is possible to have many algorithms to solve a problem, but the challenge here is to choose the most efficient one.[1]

There are multiple ways to design an algorithm, or considering which one to implement in an application. When thinking through this, it's crucial to consider the algorithm's **time complexity** and **space complexity**. [2]

### 8. SPACE COMPLEXITY

The space complexity of an algorithm is the amount of space (or memory) taken by the algorithm to run as a function of its input length, n. Space complexity includes both auxiliary space and space used by the input.[2]

Auxiliary space is the temporary or extra space used by the algorithm while it is being executed. Space complexity of an algorithm is commonly expressed using **Big (O(n))** notation.[2]

The Space complexity is ignored in this research paper, since the space complexity of particular problem is not considered so important.

### 9. TIME COMPLEXITY

The time complexity of an algorithm is the amount of time taken by the algorithm to complete its process as a function of its input length, n. The time complexity of an algorithm is commonly expressed using asymptotic notations:[2]

- Big O - O(n)
- Big Theta - Θ(n)
- Big Omega - Ω(n)

It's valuable for a programmer to learn how to compare performances of different algorithms and choose the best time-space complexity to solve a particular problem in the most efficient way possible.[2]

**Big O** specifically defines the worst-case scenario of an algorithm, and can be used to describe the execution time required or the space used (e.g. in memory or on disk) by an algorithm. here O stands for order of growth.

**Big Theta(Θ)** is used to represent the average case scenario of an algorithm and can be used to describe the execution time required or the space used (e.g. in memory or on disk) by an algorithm.

**Big Omega (Ω)** is used to represent the best case scenario of an algorithm and can be used to describe the execution time required or the space used (e.g. in memory or on disk) by an algorithm.

These three methods are the most common and very popular methods of design and analysis of an algorithm which are used for finding the efficiency of the program.

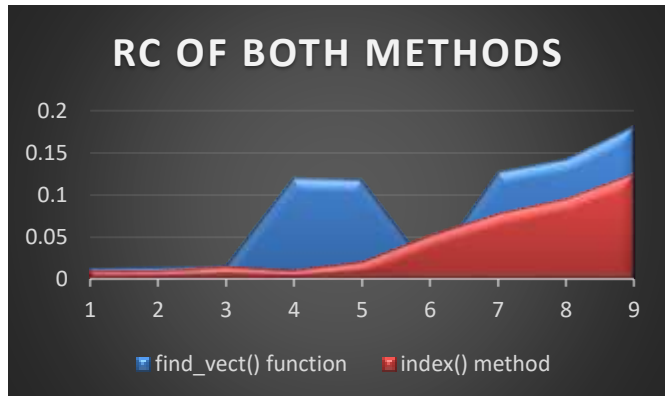
### 10. RUNTIME COMPLEXITY OF FINDING INDEX OF NUMBER IN A LIST

Input ( No of Digits)	find_vect() function	index() method
100	0.012575492	0.010575492
1000	0.013789515	0.010695421
10000	0.015637874	0.015637874
50000	0.119718418	0.010993957
100000	0.118007764	0.020989698
200000	0.011995544	0.052467088
300000	0.126982545	0.078321424
400000	0.141989564	0.095634537
500000	0.180964345	0.125586376





## GRAPHICAL REPRESENTATION OF RUNTIME COMPLEXITY OF BOTH THE METHODS



## 11. CONCLUSION

In conclusion, if you are looking for the index of a given element in a list, using the `index()` method is a straightforward and efficient way to achieve it. However, if you are working specifically with vectors (implemented as arrays) and do not have access to a list or its methods, implementing a custom `find\_vect()` function would be necessary. Keep in mind that `find\_vect()` would have similar performance characteristics to the `index()` method, but it would only work with vectors and require separate implementation.

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# IMPORTANCE OF PROCESS IMPROVEMENT IN MEDICAL DIAGNOSTICS – A LITERATURE REVIEW

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## ABSTRACT

Since last decade, Healthcare has been acknowledged as the most crucial service sector and even is reaching out remote areas to serve the needy and sick patients. Diagnostics Laboratories are the basic functional departments in hospitals meant to investigate on samples of patients and report about diseases that may be present. Available literature review reveals research being done in pathological aspects, disease management, procedures for biopsy, report formats etc. It is observed that not much of research has been done in the operational aspects of Diagnostics service. It is the need of the hour to lay emphasis on improving these processes. Hospitals and Diagnostics centres with well-defined processes would entail in increased level of customer satisfaction. Awareness of people about patient's rights, safety is demanding delivery of service with "quality". Hence the aspect of "Process improvement" needs deeper insight. Hospitals and Diagnostics Laboratories need to integrate people, process and productivity. The current study consolidates the findings in the literature from two perspectives: (i) evolution of healthcare and medical diagnostics (ii) process improvement in medical diagnostics. This study gives the direction for further research in improvisation of process aspects in healthcare in general and medical diagnostics in particular.

**KEY WORDS:** Process, Process Improvement, Operations, Customer Satisfaction, Operational Effectiveness, Diagnostics, Healthcare

## 1. INTRODUCTION

The Healthcare is one of the most crucial service sectors intended to serve patients with commitment and dedication. Though the terminology "Healthcare" is a recent one, the principles behind it have been in vogue since ages. The history of practice of Medicines dates back to ancient Babylonia, China, Egypt and India. These regions of the globe introduced the concept of medical diagnosis, Prognosis and advance medical ethics [1]. Public awareness became more evident in later part of 19th century. Early decades of 20th century witnessed establishment of more advanced research centers attached to hospitals. Practice of medicine got recognized as a prestigious profession in the later part of the 20<sup>th</sup> century. 21<sup>st</sup> century is becoming an era of more advanced researches in the concerned field.

Healthcare is a culmination of delivery of service of various departments and specializations. Diagnostics Laboratories are one of the departments, where the basic diagnosis of illness or diseases is reported. Based on diagnosis, further management of disease will be taken care of. It is observed that in Pathology, more research has gone about specific diseases, pattern of reporting, biopsies and other related pathological procedures. Functioning of Diagnostic center depends on pathologist, laboratory technicians, medical transcriptionists (typists, reporting staff), housekeeping staff and customer care executives. They all work as a team to deliver quality service to patients. It is noteworthy to mention that not much of research

has been carried out in the "operations" of diagnostic centers. As healthcare is a series of coordinated activities, operations of diagnostic centers assume a vital role.

Operation is an act of functioning and process is a series of steps involved to accomplish a particular task. Process improvement is an aspect aiming at improving processes and performance. If this is achieved, it entails in increased level of customer satisfaction. Customer satisfaction is a measure of the degree to which a diagnostic center or hospital meets the expectations of customers. Operational effectiveness is the utilization of available resources, implementing better practices and achieving the mission and goals. Thus, it can be said that all the above is oriented towards continuous improvement of functional performance.

Customers are aware about their rights and safety. Quality of Service (QoS) is the highlighted aspect in the service industry and more focus is being laid on the same by the top-management of hospitals and diagnostic centers. In the wake of all these circumstances, it is envisaged that process improvement needs more focus in research studies.

Even though the issues of waste management, adoption and implementation of Lean principles, essentials of housekeeping services and importance of human resources are addressed in the existing literature, research studies on importance of improving the processes are conspicuously absent. As a whole,



hospitals and diagnostic centers will have service-oriented issues, operations related challenges. Improving operations will substantially reduce the issues associated with customer service. Hence it is the need of the hour to lay emphasis on improving the processes of operations.

## 2. LITERATURE REVIEW

Healthcare being utmost important for individuals, families, societies and the humankind as a whole, it is necessary and important to review and retrospect the importance of process improvement in diagnostics laboratories of healthcare sector.

### 2.1 Evolution healthcare and medical diagnostics

#### 2.1.1 Saga of healthcare

Today's Healthcare industry is the result of gradual development seen through the journey of several milestones in the history of human civilization. Ancient Greeks, Babylonians, Egyptians, Indians and Chinese played significant role in the history of medicine. During prehistoric age, herbs were used as healing agents and tribal people recognized the importance of clay and soil in curing diseases. The first known trepanning operation was done in 5000 BCE in France. The first known surgery, an amputation, was also carried out in France in 4900 BCE. During early civilisation, Herodotus described that ancient Egyptians were practicing medicine in the name of supernatural elements. They cured diseases through observations and the details are written in the book 'Edwin Smith Papyrus' believed to be written in 1600 BCE. The 'Kahun Gynaecological Papyrus' written in 1800 BCE describes about women's health. The book 'Diagnostic Handbook' was written by Esagil-kin-ali of Babylon in the first half of 2nd millennium BCE. The book explains about the methods of therapy and etiology. Practice of Islamic medicine was seen during medieval period in Arab, Turkey and Persia.

Ancient Indians practised Ayurveda, Unani and Siddha medicine. 'Atharvaveda' which comprises 'Ayurveda' explains about prescription of herbs for various ailments. Two schools of thought belonging to Charakasamhita and Sushruthasamhita describe about examination, diagnosis, treatment and prognosis. Sushruthasamhita is notable for its description about surgical procedures and scientific classification. Another alternative form of medicine, Unani, got deep roots and royal patronage during medieval times.

In China, Taoist physicians practised medicine. The ancient medical text in China is 'Huangodi nejing', written between 5th and 3rd century BCE. During 2nd century BCE, 'Treatise on cold damage' was written. Traditional Chinese medicine is based on the use of herbal medicine, acupuncture, massage and other forms of therapy. The Hong Kong College of Medicine for Chinese was founded in 1887 AD by London Missionary Society. Dr. Mary Honnoah Fulton in 1902 founded the first medical college for women, Hackett Medical College in Guangghan.

Greeks dedicated temples to the healer God Asclepius. Alcmaeon of Croton has written a book between 500 to 450 BCE and argued that channels link sensory organs to the brain.

Hippocrates (460-370 BCE) is regarded as the father of Western Medicine. He invented the Hippocrates oath for Physicians, which is still relevant and in use today. Two great Alexandrians, Herophilus of Chalcedon and Elastratus, laid the foundations for science of Anatomy and Physiology.

Romans invented surgical instruments such as forceps, scalpels, cautery, cross-bladed scissors, and surgical needles. In Europe, after 400 AD, medicine got transformed into deep discipline. In Italy, during 9th century, medical schools were opened. During Renaissance, neurology was developed. University of Padua was established and concentrated more on autopsies.

During 19th century, hospitals began examining patients based on symptoms. Operation theatres became aseptic. Advanced procedures of chemistry and laboratory techniques revolutionised the medical field and epidemiology was replaced with bacteriology and virology. Vaccines were discovered. During civil war (1861-65), soldiers died of diseases and wound than as victims of war and medical supply was in shortage. John Hopkins hospital, founded in 1889, introduced the service of residency and rounds. Japan adopted European approach of open community of collaboration based on expertise on the latest scientific methods.

During 20th century, ABO blood group was discovered in 1901, facilitating blood transfusion. From 1917 to 1928, American Red Cross moved to Europe. The World Health Organisation (WHO) founded in 1948 as a United Nations (UN) agency to improve global health. Life expectancy has increased since then. Small pox has been completely eradicated in 1970s and Rinderpest has been completely wiped off in 2011. Eradication of Polio is underway. Tissue culture has become more important for the development of vaccines. Cancer treatment is being done with radiotherapy, chemotherapy and oncological surgeries. Oral rehydration therapy has been extensively used to treat cholera and other diarrhoea inducing infections. Family planning has promoted a demographic transition in most of the world. The struggle against Human Immunodeficiency Virus (HIV) is continuing with antiretroviral treatment. Ultrasound, Computerised Tomography (CT) and Magnetic Resonance Imaging (MRI) have evolved as the latest Radiological investigations. Genetics have advanced with the discovery of Deoxy-ribose Nucleic Acid (DNA) molecule, genetic mapping and gene therapy. Stem cell therapy has been invented as the promising method of treatment. Concept of evidence-based medicine has emerged. Prosthetics has improved and cardiac pacemakers are saving the lives of many. Though first open heart surgery was done in 1925, it became more common after 1948. Transplantation of Kidney, Heart, Liver and Pancreas is being done for almost a decade now. By the end of 20th century, Micro-Technology is being used to create tiny robotic devices to assist microsurgeries involving micro video and fibre-optic cameras to view internal tissues during surgery with minimal invasive practices. Laparoscopy and natural orifice surgery are based on the latest available technologies. Harvesting of organs is becoming very popular in developing countries.



### 2.1.2 Progression in Diagnostics

History says that documentation of diseases began with ancient Egyptian medicine practice. They had details of different types of bone injuries, trachoma, ulcerating lumps and other diseases. Mummies of Egypt have revealed the details of bone tumor, tuberculosis of Spine, arthrosclerosis, gallstones and abscesses [2]. It is observed that Alexandrian Greeks, influenced by Hippocrates, made significant contributions to anatomy and pathology. Hippocrates has defined about pathological features of wound inflammation, tumors, hemorrhoids, malaria and tuberculosis. They also did animal dissection. Human dissection was done by Herophilus (335-280 BCE) and Erasistratos (304-250 BCE). Celsus and Tertullian recorded that Alexandrians performed vivisection on living criminals, as a part of punishment. Herophelio pursued anatomy as a science and tried to correlate structures with diseases, while Erasistratos, his contemporary was a physiologist.

During Roman Empire, Cornelius Celsus (about 30 BCE-38 AD) practiced medicine. Being a physician, he educated people through his book "De Re Medicine", written in eight volumes. Classic definition of "inflammation" is given by him. During 2nd century, Galen (129 AD-201AD), considered as the greatest figure in the medical field, followed Hippocrates and Greek concepts and travelled extensively to contribute his knowledge to the field of healthcare. His famous books are "Seats of diseases" and "Abnormal Tumors".

Pathology in the period between Galen and the later middle ages was mainly influenced by Byzantine and Arab physicians. Aetius of Amida (502AD -575AD) has given descriptions of Carcinoma of Uterus, hemorrhoids, condylomata, fissures and ulcers of rectum. Well-known physician of Arab period, Avicenna (980 AD-1037AD) wrote "Canon Medicinæ" and it remained as the best single work in medicine till 15th century. A century later, his successor, Avenzoar (1070AD-1162AD) described cancer of Oesophagus and Stomach and other lesions. After the decline of Arabs, monasteries, across Europe, kept the work of Greek medicine intact. Bologna practiced human dissections as early as 1270 AD as regular part of teaching of medicine. Hence dissection became more common. By the end of 15th century, pathology grew as a specialized branch of medicine. Its evolution is well documented in the work of Florentine Antonio Benivieni (1443AD-1502AD) and gives the descriptions of case histories and autopsies. Details of post-mortems were published in "De Abditis Nonnullis Ac Mirandis Morborum et Sanationum causis" (About the hidden causes of diseases). During 16th century, anatomists gave brilliant ideas about pathological structures and details of abnormal features started accumulating in the works of pathology. Jean Ferner (1497AD-1558AD) became full-fledged pathologist. His work "Medicina" was a standard

throughout Europe. He classified diseases into general and special ones based on signs and symptoms. His successors were Swiss anatomist, Felix Plater (1536AD - 1614AD), Dutch anatomist, Volcher Coiter (1534AD-1576AD) and German Johann Schenk Von Graftenberg (1530AD - 1598AD).

The new dawn began when William Harvey (1578AD - 1657AD) published "De motu cordis et sanguinis" in 1628, which described about circulation of blood and disease causation. He also made important observations on the pathology of heart. During 18th century, more publications authenticated the procedures of autopsies. In Britain, Thomas Hodgkin (1798AD - 1866AD), general physician, described pathological changes in tissues. Richard Bright (1789AD - 1858AD) studied about the relation between kidney diseases and oedema and Thomas Addison (1793AD -1860AD) gave an elaborate account of pernicious anemia.

From the mid-19th century onwards, a new technology shaped future of pathology with the usage of Microscope. During this time, physiology and chemistry were done considerably and these studies led to more specific approach to study the pattern of disease. Johannes Muller (1801AD – 1851AD) of Berlin, was the first to use microscope in tissue analysis. His disciple, Schwann, pointed out that cellular growth is the basic principle of animal's life and this paved a way for a new era in the pathological science during second half of the 19th century. Discovery of microscope totally changed the concepts of diseases from whole organs to the focus on cells and enabled the practice of histopathology and it entailed in the new techniques of modern practice. Paraffin embedding was introduced in 1869 by Edwin Klebs (1834AD - 1913AD) and this type of embedding required hardening and dehydration. So, chromic acid, chrom-osmium-acetic acid and Zenker's fluid entered the routine practice. In 1893, Issac Blum (1833AD - 1903AD) introduced Formaldehyde and till today it is used as a fixative in histopathology. Nikolai Anitschkov (1885-1964) described histopathology of the heart and proposed the role of cholesterol in atherosclerosis. New understanding of kidney diseases stemmed from the work of Franz Volkard and Theodor Fahr and Paul Klemperec (1884AD – 1964AD). Karl Landsteiner (1868AD - 1943AD) provided the basis for modern blood typing (1901AD) and this led to the new field of blood transfusion and tissue transplantation. Ongoing research in the field of fixation, embedding, cutting immuno-histochemical staining, molecular methods, microscopy has contributed to yield better diagnostic tools and hence more precise diagnosis. These new techniques are describing, refining, classifying and re-describing the new concepts in the field of diagnostics. The milestones in healthcare and diagnostics are shown in Figure 1.



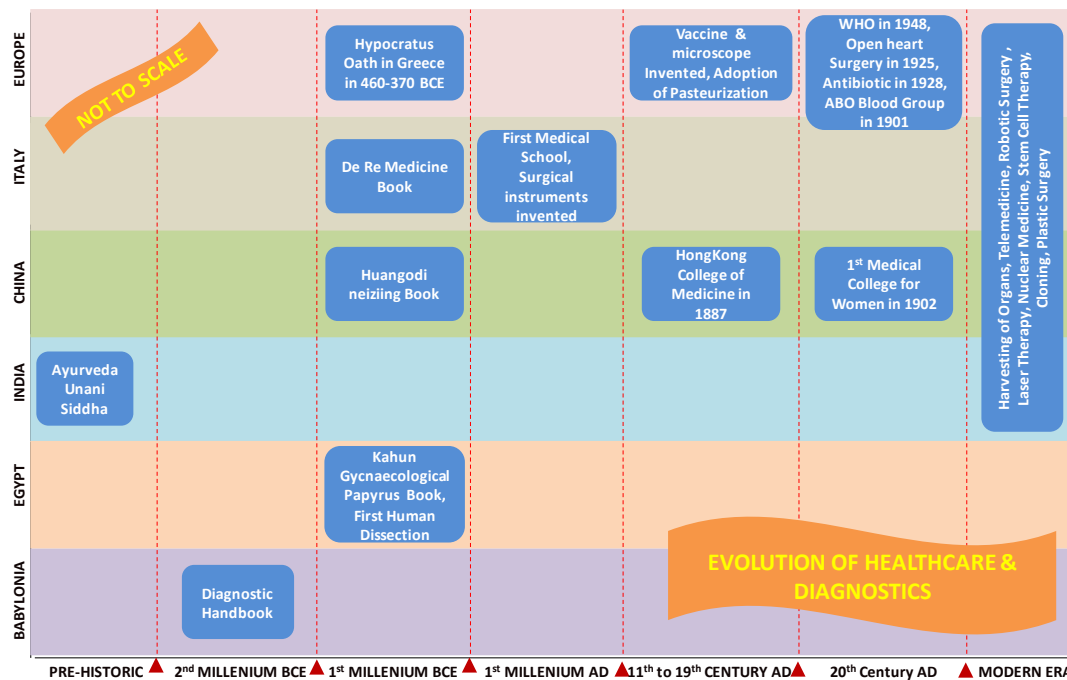


Figure 1 Milestones in healthcare and diagnostics

## 2.2 Process improvement in medical diagnostics

As operations hover around routine activities of day-today work, improving the operations assume a vital role. Operational activities need to be captured in Standard Operating Procedures (SOP) for each department for the benefit of staff. Success of implementing process improvement in one department can readily be adopted by another department. Hence there is a connectivity between quality of service with respect to customer satisfaction and importance of process improvement in departments.

Sublime aspects of care and attitude strongly determine the service quality and hence customer satisfaction [3, 4]. These research papers discuss about customer loyalty, reputation of hospitals, infrastructure, efficiency, accuracy and Turn-Around-Time (TAT). The hospitals should have a good customer relation management that will aid in accountability, accessibility and flow of apt information. Similarly, administrative procedures and importance of human and non-human factors that play an important role are explained in one of the research papers [5]. Aspects of emotional bonding and trust are the main focus of another research paper [6]. If all the mentioned aspects are taken care, an increased level of customer satisfaction will be achieved [7]. Communication, innovation and processes that are prevalent in the hospital will also have an impact on the satisfaction of customers [8]. Soft skills and competency of staff pave the way for improvement in the quality of service to the customers [9] and so also the aspect of managerial orientation [10]. Physicians rely on the accuracy of reports [11]. Patient safety is an integral part of service and hence errors related to the same need to be reduced [12]. Improved communication between staff and customers will further reduce errors [13]. Incomplete request forms may increase the possibility of committing errors and collecting

history of patients and reporting in the specific format will decrease errors [14, 15]. The factors of achieving customer satisfaction through operational excellence, adoption of models of service quality and assessing them are extensively discussed in the available literature [16-25].

Turn-Around-Time (TAT) is the buzz word of quality of service in service industry and more so in healthcare sector. It plays an important role in treating patients of emergency departments [26]. If the patient is served well within minimum turn-around-time, it entails in increased level of patient satisfaction [27].

Functioning of hospitals depend on staff. Recruiting and retaining the competent staff impact customer satisfaction [28]. Service is delivered to patients by various departments of the hospital and this parameter relies on existence of an excellent communication within the system. It is important to assess communication and display signs and symbols in the hospital premises [29, 30]. Patient's attenders need to be communicated about patient's condition often. Patient safety plays a vital role in communication and the onus of advocating effective communication rests on the management [31]. The role of communication assumes a major role in nurse-patient relationship [32]. Hence the top-management needs to implement a system involving patient safety and high level of quality of service [33]. Effective principles involving the implementation of the same are discussed in [34]. The role played by communication and collaboration in transforming the healthcare into a patient-centered organization is elaborately explained in [35]. Top executives need to keep the vital information in their dash boards [36]. Phenomenal role of lean concepts and display of the same in improving the communication are extensively discussed [37].



In today's world of technology, Information Technology (IT) is playing the pivotal role and healthcare is also utilizing IT services to leverage the processes involved. The application of IT in healthcare for leveraging processes for high quality is crucial [38]. The concepts of Digital technology have created a new wave in the field of healthcare and particularly in Pathology [39].

Training is an integral part of staff empowerment [40]. Healthcare has been implementing the concepts of Lean Management, which have already proved successful in manufacturing industries. The concepts which could be adopted in healthcare are now a days extensively discussed [41]. The impact of training could affect customer experience and hence the aspect of training is always measurable in terms of feedback of customers [42]. As training is itself a vast domain, healthcare has to focus on need-based training [43].

Quality is the measure of excellence and imminent challenges are invariably associated with it. This is particularly observed in developing countries [44]. As hospitals are segmented into various specialized streams, each department has to focus improving the quality of service and this is achieved only if there is a role-based quality management programs [45]. Quality influences on performance indicators and have to promote zero defect mentality [46, 47]. Adoption of Kanban and Just-in-Time (JIT) increases the working efficiency of staff [48,49] It demands inter-departmental co-operation different categories of quality namely high, intermediate and low could be recognized depending on the implementation of models of service quality [50]. The problems associated with the implementation of Lean in healthcare are discussed in [51]. 5S concepts, which are the foundation principles of Lean practice are being adopted [52] and it is observed that the combination of lean thinking and Six-Sigma (multidisciplinary approach) enhances the efficiency of the working of hospitals.

Waste Management is an important criterion for functioning of hospitals and the concept is gaining ground in the recent past. Unless done properly, waste disposal can lead to cross-infections and can become hazardous. As public awareness has increased about environmental pollution, greater responsibility is bestowed again on the top management to dispose medical waste in a socially responsible manner. At the same time, latest technology innovations should be adopted to manage medical waste and there should not be mixing of medical waste and general, domestic waste [53]. Standard Color codes should be followed while segregating different categories of medical waste [54].

A reference book by A.G. Chandorkar [55] describes about hospital administration and planning. As hospital functioning depends on both human and non-human factors, Human resource (HR) related issues play a vital role in the human factor area. Emotional well-being of staff will go a long way in interacting with patients [56]. An analysis of law of Wong and Law of Emotional Intelligence (WLEIS) revealed that staff with

high emotional intelligence experience positive moods often and also recognize and manage their problems, overcoming the obstacles. Hence, they exhibit job satisfaction [57]. People with high level of emotional intelligence also handle multi-tasking easily [58] and are inclined towards customer orientation.

Housekeeping is an essential part in the day-to-day service of hospital and the issues associated with it are discussed in paper [59]. The paper discusses about descriptions of various parameters of housekeeping, standards and protocols and concludes that good housekeeping is an essential part of healthcare industry. Thus, it can be said that having efficient housekeeping service also increases customer satisfaction.

The theme of organizational effectiveness is depicted through the corporate social responsibilities towards a sustainable future in [60]. If organizational efficiency is achieved, operational excellence would follow it [61]. Improving the processes of operations will also result in operational effectiveness [62]. Organizational effectiveness relies on relationship management and hence customer-relation management is vital for healthcare [63].

Measuring customer satisfaction always enhances reputation and competitive advantage for hospitals and the impact of variables namely customer service, product quality, customer satisfaction and customer loyalty is multi-fold and deserves a fresh insight into the aspects involved.

Diagnostic Laboratories are crucial department of hospitals as the plan of treatment relies on the reported diagnosis. Eventually, TAT of reports, accuracy, staff courtesy, hygienic environment, maintenance of adequate inventory level of lab accessories and materials, notification of critical values play a vital role in enhancing the satisfaction about laboratory service [64]. Against this backdrop, adequate staffing and inter-departmental communication assume a major role towards improving the processes involved [65]. In addition, technical skills of phlebotomists and their communication with customer come into the forefront. Price structure of investigations is also an important factor in assessing the customer satisfaction [66] as it aids in the decision-making of customer in opting the lab for undergoing the prescribed investigations [67]. Customers evaluate the mentioned aspects in framing the opinion about the service of the particular laboratory [68].

Considering the above aspects, a diagnostic lab can implement concepts of lean management. It is observed that Just-in-Time (JIT) principles help to achieve operational excellence [69]. It is felt that tools of quality management increase the efficiency of pathology laboratories [70]. Application of 5S concepts in the work system improve the clarity of work processes and reduces time of staff doing relevant and repetitive work and the same time could be used to interact with the customers [71].

Dr. M.V. Rao *et al.* captured the responses of customers in a questionnaire and concluded that waiting period and communication need to be improved. Dr. Asitava Debroy and



Dr. Jyotsna did a root-cause analysis of delay in despatch of reports and opined that lack of control over phlebotomy service and lack of Pneumatic Tubing Transport System (Ptt) are causing delay in reports [72]. Vaneer Kaur et al have discussed about advantages of Pneumatic Tubing System (PTS) in hospitals and mentioned that it helps in quick transport of samples from various departments to laboratory [73]. Incidentally, it is seen that delay in reports is causing delay in procedures related to discharge of admitted patients. Importance of communication is widely discussed in this regard [74]. The factor of effectiveness in pathology is also reiterated [75]. The role of leadership is extensively dealt with [76], thus indicating their proactive initiative in making quality programs a continuous one in hospitals and diagnostic labs. To make this happen, there should be a defined roles and responsibilities for all. As technology is getting advanced, the concept of digitisation and outsourcing is gaining ground in laboratory service also. Available literature review report [77] that medical laboratory service is an integral part of clinical service and there is an urgent need to train the young and fresh laboratory technicians as senior staff are getting retired and the younger generation is getting attracted to other professions. The essence of quality in service should be again given more focus [78]. Available literature also throws light on suitability of lean principles and tools to diagnostic laboratories, communication and customer satisfaction, need for training, pathology reporting format for specific diseases Toolkits for quality based service [79], manuals for laboratory test related steps [80], infrastructure of pathology services in developing countries

need to reshape the service of laboratory service in an era of personalised medicine [81]. Innovative methods to improve hospital efficiency [82], survey of customer satisfaction [83] and about the need to take collective action for feedback obtained through the survey of customer satisfaction [84] need to be given a fresh look.

Three quality standards in the field of diagnostic laboratories namely Indian Standard Organisation (ISO), National Accreditation Boards for Laboratories (NABL) and World Health Organisation (WHO) [85-87] recommend practice of specific standards for the prescribed quality. ISO and NABL accreditations are awarded to the particular laboratories which follow these guidelines. As these accreditations bring more popularity and reputation to diagnostic laboratories, there is an increased initiative from the top-managements to implement the quality aspects in their day-today operations. Importance of disposing medical waste is also discussed Process improvement is one such aspect of quality that can bring in phenomenal outcome in customer service. It may be summarised that achieving customer satisfaction is the prime focus in the service of both healthcare and diagnostic laboratories.

In view of all the discussed areas of healthcare, it is observed that not much of research has gone into the topic of process improvement in operations of diagnostic laboratories. It is envisaged that integrating people, process and productivity is the need of the hour. Hence this paper recommends more research in Process improvement of diagnostic laboratories which delivers the potential benefits given in Table 1.

Table 1. Potential Benefits of process improvement in diagnostics laboratories

Sl. No.	Potential Benefits of Process Improvement
1	Reduces Turn-around-time
2	Planning and asset utilisation
3	Demand Forecasting
4	Capacity Management
5	Schedule of Resources
6	Reduces expenses
7	Increases Customer satisfaction
8	Increases speed-throughput
9	Enhances strategic decision-making related to process-flow, patient-flow and facility design
10	Transfers knowledge from operational experts to patient-facing staff members [88,89]

3. CONCLUSION

In ever-changing scenario of healthcare service sector, it is important to retain popularity and reputation to compete with the potential competitors. Hence it is of tremendous importance to understand the value of “delivery of service with quality”. In this context, the tools adopted by a hospital should integrate its mission and vision with its operational activities, as more streamlined operational flow of activities drastically reduces variability and provide “Standard” for the way to do work and bring in continuous improvement within the organization. Process improvement should be envisaged as the journey of patients through the care delivery system. This helps in identifying constraints and bottlenecks, rework and unnecessary steps that are involved. It is highlighted as the single most useful diagnostic tool for determining the origin of

problems. Bottlenecks of Process could be further classified into Process bottlenecks and functional bottlenecks, which will help in setting the pace of each of the processes and overall co-ordination. In this context, it is relevant to state that an organization has to adapt to opportunities and threats of the immediate environment with specific focus of becoming process-centric through the concept of innovation and agility. At the same time, there should be a clear reflection of co-ordination between strategy and execution, thus promoting process innovation. Incidentally, process improvement could bring in enormous changes in the following aspects:

- Determining target in the area of consideration
- Understanding current situation
- Contemplating required situation, Implementing changes



Since healthcare is a complex socio-technical system, the following attributes of process improvements are highlighted:

- Reliability
- Robustness
- Maintainability
- Rapidity

Hence it could be concluded that the multi-fold benefits of process improvement can upgrade the diagnostic laboratory from the existing level to the next higher level.

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# SACRAL BONE METASTASES AS A PRESENTATION OF PAPILLARY THYROID MICROCARCINOMA: A RARE CASE REPORT

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## ABSTRACT

Thyroid carcinoma usually presents as a diffuse or nodular neck lump and it comprises 1% of all malignancies. Distant metastasis in Papillary carcinoma is uncommon like follicular thyroid carcinoma. We present a case of papillary thyroid microcarcinoma presenting as a pelvic bone metastasis. A 65-year old female was found on computerized tomography to have a finding of 6cm soft tissue mass in the left side of sacrum bone. Biopsy from the lesion confirmed metastatic follicular variant thyroid carcinoma. Head and neck examination was normal and there was no history of a neck swelling. Further imaging confirmed nodule in the left lower lobe of thyroid measuring 1x0.8cm. Ultrasound guided fine needle aspiration from thyroid nodule confirmed papillary carcinoma thyroid. And immunohistochemistry done on biopsy confirmed metastatic papillary carcinoma thyroid. The Papillary microcarcinoma is usually non-invasive. But this case report emphasised clinically significant bone metastasis can arise from papillary microcarcinoma (PMC).

**KEY-WORDS:** Thyroid, Papillary, Bone, Metastasis

## INTRODUCTION

Papillary carcinoma is the most common thyroid malignancy. It comprises 80% of thyroid malignancies. It occurs in all age groups, but most common in 3<sup>rd</sup> to 5<sup>th</sup> decade.

Papillary thyroid micro carcinoma is defined as less than 10 mm in size, and not detectable on clinical examination. They commonly detected on routine investigation such as ultrasonography or CT scan/ autopsy. It usually remains intra thyroidal and Metastatic risk is extremely low and generally affects pulmonary parenchyma.

Bone metastasis from Papillary thyroid microcarcinoma is extremely rare, and few reports concerning this entity. Here we present a case of sacral bone metastasis from Papillary thyroid microcarcinoma.

## CASE REPORT

A 65-year-old female presented with chronic lower back pain for past six months. On clinical examination there was a diffuse swelling over left sacroiliac region. CT scan of abdomen and pelvis showed lytic lesion of the sacrum. CT scan revealing large destructive left sacral mass of 4.5 × 3.5 × 6 cm in size involving S1, S2, and S3 vertebra expanding into presacral space with soft tissue component, expands upto D11 vertebra. (Figure 1).

CT guided Sacral biopsy showed metastatic carcinoma with morphology of thyroid gland primary tumor (Figure 2). And Immunophenotype suggestive of positive thyroglobulin and positive CK7 (Figure 3, 4). On thyroid examination both lobes appears normal. USG neck reveals small left lobe thyroid nodule measuring 1 x 0.8cm. Ultrasound guided Fine needle aspiration cytology from thyroid showed Papillary carcinoma thyroid (Figure 5). Patient was referred to the oncology center for palliative radiotherapy and surgery.

## DISCUSSION

Thyroid carcinoma commonly presents with a solitary nodule or multi-nodular neck mass. Papillary thyroid carcinoma is the most common histological subtype of thyroid carcinoma. Papillary thyroid carcinoma usually metastasise to regional lymph nodes, and it is the least likely subtype to show bone metastases(1.4 – 7%) (1,2). Papillary thyroid microcarcinoma (PTMC) is a term used if the tumour size is less than 1cm (8). Distant metastasis is very rare in papillary microcarcinoma and it generally have a good prognosis. In the medical literature, only few cases of distant or bone metastasis from papillary microcarcinoma have been reported. Present case illustrates how clinically significant bone metastasis, can arise from PTMC.

Papillary thyroid microcarcinoma should not be considered as a simple occult thyroid carcinoma, because this early stage can



eventually progress into papillary carcinoma thyroid (3). Most of the patients with PTMCs have good prognosis and it has mortality rate of 0.5% (4), but in some cases this tumour behave in an aggressive fashion. The prognosis is favourable in differentiated thyroid carcinoma with a survival rate of ten years in 80-95% of cases (5) but this is decreased to 50% when distant metastases are present.

A number of risk factors such as unfavorable histology, multifocality, tumour infiltration of capsule and evidence of metastasis is strongly associated with cancer-related mortality and survival of the patient(6,7). This case report has described an extremely rare case in which extensive bone metastases were the first sign of PTMC. This case highlighting the need for further research on PTMCs is required, and early detection of bone metastases is essential for early management and it may improve overall prognosis of the disease.

### CONCLUSION

Papillary thyroid micro carcinoma is most often diagnosed incidentally. Rarely it presents with distant or bone metastasis. Further research on PTMC is needed for early intervention and it may improve overall prognosis and patient survival.

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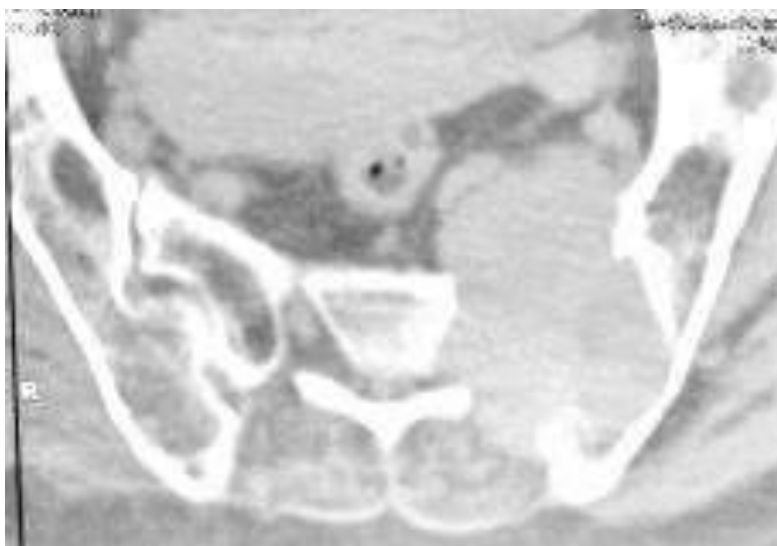
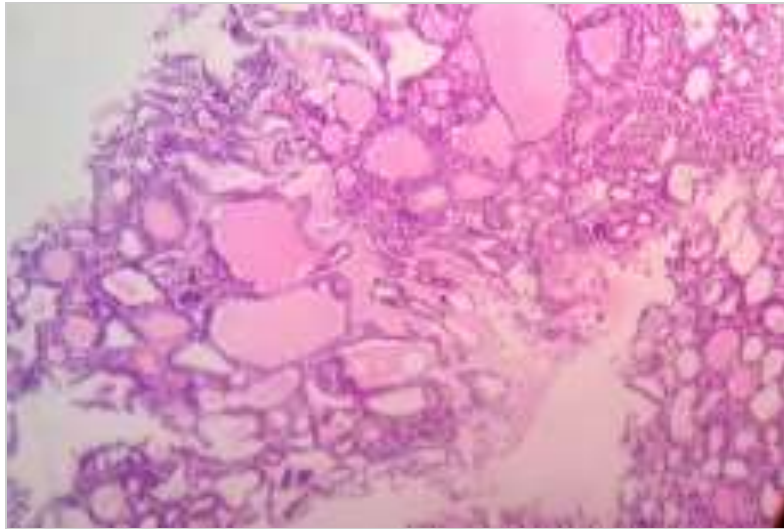
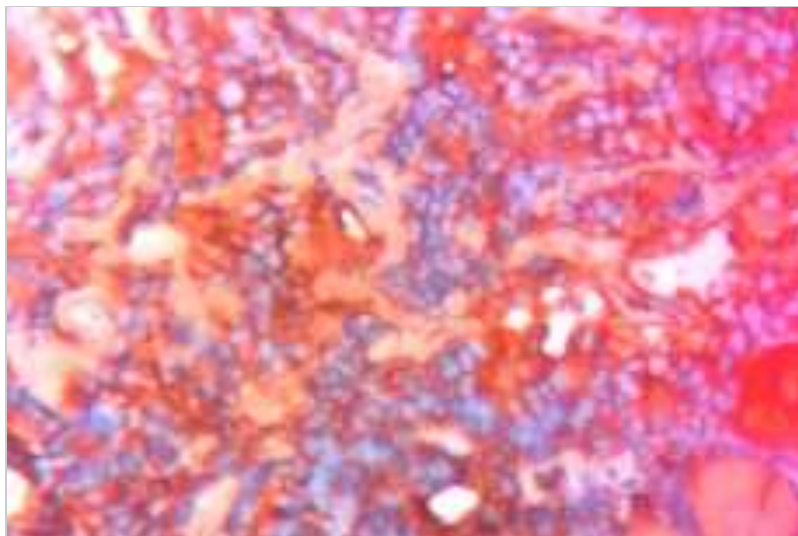


Figure 1: CT Show Left Osteolytic Sacral Lesion of 4.5 × 3.5 × 6 cm S1, S2, and S3 Vertebral Involvement.

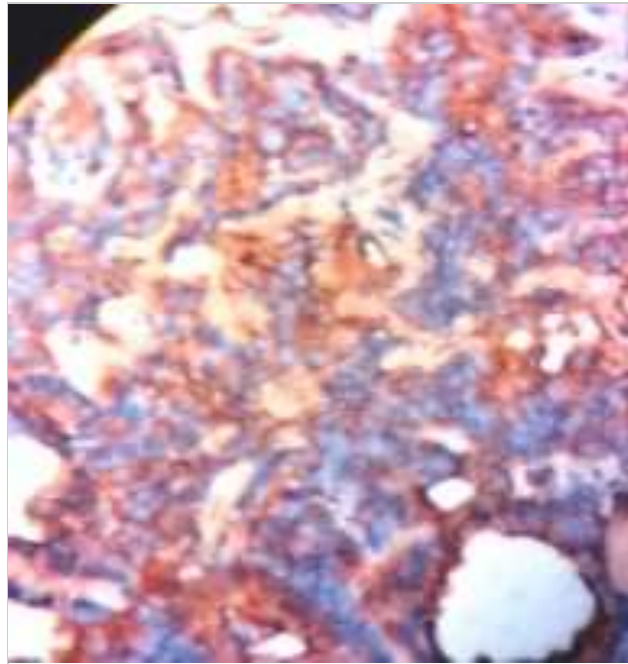




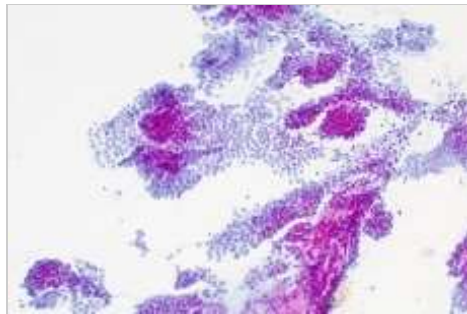
**Figure 2: HE ×4 Showing Tumor Invading Bone.**



**Figure 3: Tumor Cells Stain Positively for cyto keratin 7 (Biotin-Avidin method, X600)**



**Figure 4: HE ×4 Tumor cells stain positively for Throglobulin (Biotin-Avidin method, X600**



**Figure 5: Ultra Sound Guided Fine Needle Aspiration from Thyroid Nodule show Papillary Carcinoma Thyroid.**



# MACHINE LEARNING APPROACHES FOR CALORIE BURN ANALYSIS AND PREDICTION

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## ABSTRACT

**Aim:** It is widely acknowledged that running is the most effective activity for burning maximum calories per hour. Additionally, fixed bicycling, swimming, and HIIT (High-Intensity Interval Training) exercises are also excellent choices for calorie burning. HIIT exercises, in particular, have been shown to continue calorie burning for up to 24 hours after the workout. However, accurately predicting the number of calories burned during a specific exercise remains a challenge due to variations in individual physiology and fitness levels. To address this challenge, we utilized an exercise dataset obtained from the UCI Machine Learning repository to forecast the calories burned during different exercises.

**Methodology:** Many individuals are curious about the calories burned during their workouts and the effectiveness of their weight loss plans. To tackle this issue, we employed machine learning algorithms such as XGBoost regressor and Linear Regression.

**Results:** The results demonstrate that XGBoost regressor and Linear Regression outperform other approaches in predicting calorie expenditure during exercise.

**KEYWORDS**— Machine learning, precision, accuracy, classification, XGBoost regressor, Linear Regression.

## INTRODUCTION

As of now, Machine education is being utilized in vivid regions in the wellbeing industry, including the improvement of cutting-edge clinical cycles, patient records and information activity, and the treatment of constant circumstances [1]. Medical care ventures might utilize machine education to satisfy rising need, cut expenses, and improve activities. The activity of machine education in medical care isn't new, as digitization has assumed control over each business. Taking an interest, conveying, and obtaining information is getting decreasingly significant. Man-made consciousness, large information, and machine proficiency can all assist with the issues that gigantic volumes of information can bring forth [2,3,4]. Then again, machine education can assist translators with treating conditions all the more successfully by feting them previously and outfitting additionally customized care.

In this quick and occupied plan life, individuals aren't giving importance to the nature of food they're eating. They will generally disregard their eating examples and propensities. The cheap food utilization rate is alarmingly high, prompting unfortunate food contributions. This prompts brilliant medical problems comparable as stoutness, diabetes, an expansion in pulse and so forth. Subsequently, it has become genuinely fundamental for individuals to have a decent adjusted nutritive solid eating routine. Various tasks are thundering to help individuals so they can have command over their eating regimen and subsequently can lessen weight or assist them with keeping fit and sound. This plan centers around the calories consumed in concurrence with the length gave and pulse during

the activity time frame. It presents the substance of direct retrogression and its forecasting ability with the adequacy from the information gave. This investigation helps in outfitting the advantages of an AI calculation over anticipating the calories consumed [5,8,10].

Calories in the food sources we eat give energy as intensity so our bodies can serve. This implies that we really want to eat a specific number of calories just to support life. However, on the off chance that we take by too various calories, additionally, we risk putting on weight. Thus, there's need to consume Calories, for consuming calories we doing practices and further. for know-how significant calories we've consume Moment we will make a machine education model that forecast calories grounded on certain information.

The daily energy expenditure plays a crucial role in weight loss, weight gain, or weight maintenance. To achieve weight loss, individuals must consume fewer calories than they intake, creating a calorie deficit. However, accurately determining the number of calories burned each day is essential. Many people associate calories primarily with food and weight loss. It is important to note that a calorie is a unit of energy or intensity.

## LITERATURE SURVEY

The food recognition system initially divided the food images into different categories to create a feature vector based on size, shape, texture, normalized RGB values, and other contextual features. This feature vector was then augmented with Gabor

filter responses (texture), pixel intensity, and variation factors. The system exhibited good performance for food clones but showed less effectiveness with real images [6]. The variation in image sizes and capturing methods may contribute to the decline in performance. Interestingly, the system achieved better performance when dealing with a lower number of classes, despite having more images per class. The images contain common visual patterns that aid in determining food categories, reducing the complexity associated with direct image-matching approaches [7, 9, 13]. The system was evaluated using a real-world database of fast food images.

Hitherto the investigation has focused on gathering the sorts of datasets and proposed a new dataset to appraise calculations to fete food which assists with covering eats less carbs. The information base has been made for an additional number of instances of food pictures. A medium-measured dataset has been made to foster a portable grounded log framework. Profound Convolutional Neural Networks have been utilized for food acknowledgment recently which utilizes a blend of birth point birth and brain network adjusting [12,14]. Convolutional Neural Networks alongside a Maximum Pooling subcaste produces Activation Charts (heat graphs of food likelihood). Adjusting is finished Activation Chart age, which incorporates adding a convolutional subcaste with step, and setting a delicate greatest subcaste. Likewise, by means of edge, it is produced to bound boxes. The current work is to join above procedures together, that makes a food section framework that predicts the class of food the picture is in, and furthermore gives the calorie esteem grounded on the food weight or count given by the stoner [13,15,16]. This origination has a high compass in the wellbeing area, as individuals need to monitor what and how significant they eat and improving on the cycle into this type of execution expands activity and care of wellbeing related factors.

### EXISTING METHOD

Presently a day, individuals are having authentically bustling timetables because of changes in their day-to-day existence and work responsibilities. Individuals aren't gathering in their food propensities, henceforth, it prompts breadth. Breadth is getting a typical issue in second's ultramodern life. So, we want a framework which can pursue changes to the food decisions of individuals and furnishes them with guidance that prompts viable consequences of keeping up with their bodies. However, likewise individuals are appropriate to distinguish their diurnal contribution of calorie worth of their food specifics. If a framework advises the nutritive data regarding a food thing and characterizes it as sound or non-beneficial to the stoner. This proposed framework assists the stoner with controlling their food propensity framework and furthermore gives data on the most proficient method to consume calories in diurnal schedules that makes stoners solid. Convolutional Neural Network model is applied to arrange food things from the info picture and the proposed framework gives the delicacy of 91.65.

### PROPOSED METHODOLOGY

This paper focuses on developing a machine learning model to accurately predict the calorie intake of an individual. Before applying the learning algorithms, the data undergoes preprocessing to ensure its quality and compatibility. The data is then analyzed using visualization techniques to gain insights

and patterns. The dataset is divided into training and test sets for model evaluation. XGBoost regressor and linear regression are employed as machine learning models for analysis and prediction [11]. The tool used for this study is Google Collaboratory (Google Collab), which is a web-based platform and cloud service.

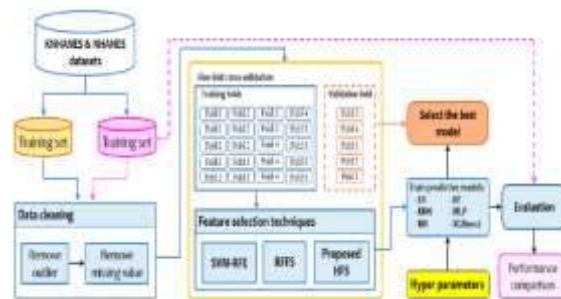


Fig. 1: Proposed Method Block Diagram

### Implementation

Then we're utilizing two sort of calculations on provided informational collection all together make out a valuable model for foreseeing the calories consumed during the drill grounded on the drill span, age, orientation, level and weight of the individual.

### Algorithms

#### RGBoost Regressor

RGBoost Regressor is a regression algorithm used to analyze the relationship between a dependent (target) variable and independent (predictor) variables with one or more independent variables. In the field of artificial intelligence, the XGBoost algorithm is highly effective due to its ability to handle various types of data, relationships, distributions, and the availability of multiple hyperparameters for fine-tuning. XGBoost regressor can be employed for regression, classification for both binary and multiclass problems, and ranking tasks.

#### Linear Regression

Linear Regression is a supervised learning algorithm in Machine Learning. It establishes a linear relationship between one or more independent variables and a dependent variable by fitting a specific set of data values (x) to the predicted output (y) using a linear equation of the form  $Y = a + bX$ .

### Steps

- Dataset Collection
- Data Preprocessing
- Data Analysis
- Machine Learning Model
- Evaluation

### Data Source

The dataset used for this study was obtained from Kaggle. It consists of two CSV files, comprising 15,000 instances and 7 attributes. The dataset obtained from the Kaggle repository includes various features related to each individual's characteristics, such as gender, age, exercise duration, heart rate, body temperature, height, and weight. This dataset serves as the training data. Additionally, the supplementary calories

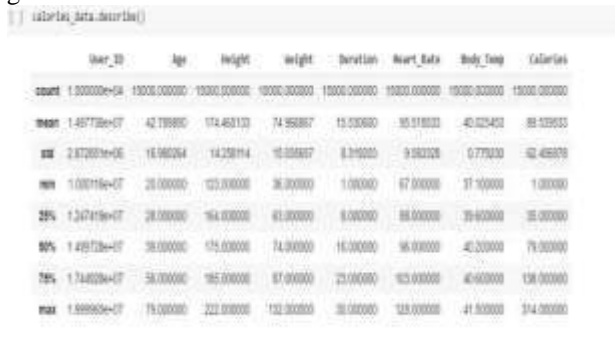


dataset contains the target class, which represents the corresponding calories consumed by each individual.

**Table:1 Attributes and its values**

Input Attributes	Function
gender	Gender (male:0, female:1)
age	Age mentioned in years
height	Height of the person
weight	Weight of the person
duration	The time taken to complete the exercising in minutes
heart_rate	Average heart rate during the workout (more than normal rate 75 beats/min)
body_temp	Body temperature during the workout (greater than 37 degree Celsius)
calories	Total calories burnt during the exercise.

There are two dataset csv lines which ought to be transferred to Collab which is utilized for handling. We use information outlines for investigation and handling. It gain a few factual measures about the information.



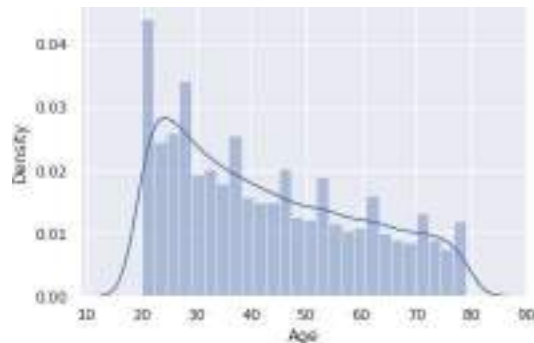
**Fig. 2: Dataset**

The average age of the individuals in the dataset is 42.7 years, and we have information on the standard deviation and percentiles. The body temperature is approximately 40 degrees. Individuals who engage in more physical activity tend to have higher body temperatures. The key variables of interest for this analysis are the heart rate and temperature. In order to better understand the data, we will visualize it using various plots and charts.



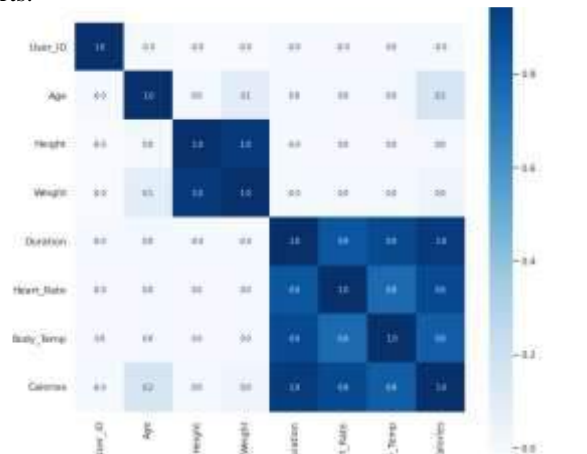
**Fig. 3: Gender Plot**

we have almost great indistinguishable conveyance of masculine and womanish pieces of information



**Fig. 4: Age plot**

The average age of the individuals in the dataset is 42.7 years, and we have information on the standard deviation and percentiles. The body temperature is approximately 40 degrees. Individuals who engage in more physical activity tend to have higher body temperatures. The key variables of interest for this analysis are the heart rate and temperature. In order to better understand the data, we will visualize it using various plots and charts.



**Fig. 5: Correlation Heatmap**

This implies that we can discern the endless weight with gratitude, and there is a thankful correlation between the terms pulse, internal heat level, and calories. Now, let's organize the information into training and testing data by separating the factors X and Y, which represent variables and the desired outcome, respectively.

Moreover, the XGB Regressor model is loaded to perform predictions on the test data. This model assesses the test data and estimates the calories consumed, utilizing the values from X\_test. Furthermore, a comparison is made between the predicted values generated by our model and the actual values. The mean absolute error metric is employed to evaluate the accuracy of the predictions, which measures the average magnitude of errors. The obtained mean absolute error is 2.71.

```

input_data = (0,68,199.0,94.0,29.0,185.0,48.8)
input_data_as_numpy_array = np.asarray(input_data)
input_data_resshaped = input_data_as_numpy_array.reshape(1,-1)
prediction = model.predict(input_data_resshaped)
print(prediction)

[230.33057]
    
```

**Fig-6: XGBRegressor output**

Next, we do this in linear regression model.  
 lin\_reg\_model=LinearRegression()  
 The mean absolute error getting is 8.38.

```

input_data = (0,68,199.0,94.0,29.0,185.0,48.8)

# change the input data to a numpy array
input_data_as_numpy_array= np.asarray(input_data)

# reshape the numpy array as we are predicting for only on instance
input_data_resshaped = input_data_as_numpy_array.reshape(1,-1)

prediction = lin_reg_model.predict(input_data_resshaped)
print(prediction)

[199.30038053]
    
```

**Fig. 7: Linear Regression Output**

**RESULT**

The purpose of analyzing this dataset was to estimate the calories consumed based on the exercise duration and factors such as gender, age, internal heat level, and pulse during the activity. We used advanced AI algorithms to find a machine learning model with a lower mean absolute error, indicating more accurate results. Comparing the XGB Regressor and Linear Regression models, we found that the XGB Regressor provides more precise calorie predictions with a mean absolute error of 2.71, surpassing the accuracy of the direct regression model.

**Table 2: Result of Mean Absolute Error**

Machine Learning Method	Mean Absolute Error
XGB Regressor	2.71
Linear Regression	8.38

**Table 3: Absolute Result**

Machine Learning Model	Input Data	Predicted Calorie	Expected Calorie
XGB Regressor	Male{0},68,190.0,94.0,29.0,105.0,40.8	230.33	231.0
Linear Regression	Male 0},68,190.0,94.0,29.0,105.0,40.8	199.38	231.0

**CONCLUSION**

Based on the analysis, the authors have determined that the XGB Regressor provides more accurate results compared to the Linear Regression model. The mean absolute error, which measures the discrepancy between the actual and predicted values, should ideally be kept as low as possible. In the case of the XGB Regressor, the mean absolute error value obtained is 2.71, which is considered good. The error values are significantly lower, indicating that the XGBoost Regressor is a reliable model for predicting calorie consumption. Therefore,

the study can confidently conclude that the XGBoost Regressor is the preferred model for predicting calorie consumption.

**ACKNOWLEDGEMENT**

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## HAIR SERUM MARKET – THE BOOM

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### 1.1 INTRODUCTION

The new generation concentrates more on grooming themselves. How they care for their skin and hair is a phase in their daily routine. The hair fashion industry has allowed them to try more hairstyles and keep their hair healthy. Numerous factors hinder the growth of hair. The common hindrances were dandruff, curly, oily scalp, dry hair, damaged hair, fall, and split ends. Specialized doctors and social media influencers provide many experienced hair growth tips. Those suffering from hair-related problems get too much information from digital media; a few try and others still have unclear doubts about which method to follow. But without any doubt, almost all Generation X, Y, and Z consumers use hair serum as the primary product to care for their hair.

### 1.2 HAIR SERUM MARKET IN THE WORLD

In 2021, the hair serum market reached 1,108.1 million USD. The hair serum market accounts for higher demand in Germany, Austria, Bangladesh, Brazil, Canada, China, Egypt, France and India. (Ruchi Tiwari 2021). The hair serum market is widespread all over the world. In Northern America, the high sale is accounted for in the U.S., Canada, and Latin America, and the high sale is made in Mexico, Brazil, Peru, and Chile. In Western Europe, the demand scatters in Germany, the UK, France, Spain, Italy, Nordic countries, Belgium, Netherlands, and Luxembourg. In the Asia Pacific, the demand shoots up in China, India, Japan, ASEAN, Australia and New Zealand. The demand is higher in the Middle East and Africa in GCC and Southern Africa. (Transparency market research.com). The global hair care product was valued at USD 75684.9 million in 2021. In 2022, the value was 79469.145 million USD; it is expected to grow to 111821.06 in 2030. Asia-Pacific hair products will account for 3466.68 million USD in 2021. This industry is predicted to have a compound annual growth rate of 5% from 2022 to 2030. (Market research future.com).

### 1.3 HAIR EXPORTS FROM INDIA

Thick and strong hair is in good demand abroad. India exported 246.7 million worth of hair in 2015. During 2016-2020, it exported up to 245.4, 228.4, 217.5, 254.1 and 367.3 million US dollars in earnings. (Statista. Com-Department of Commerce). In 2021-2023, the hair export accounted for 383.61, 770.26 and 607.85 million US dollars in earnings.

### 1.4 THE GLOBAL HAIR CARE MARKET

In 2020-2023, The global hair care market has steadily grown. In 2020, the market size accounted for 30.1 million; in 2021-2023, the market size was 31.2, 32.5 and 33.8 million, respectively.

### 1.5 AYURVEDIC HAIR CARE PRODUCTS EXPORTS FROM INDIA

The hair care products (Ayurvedic) exports from India during 2018-2021 show that the serum produced with herbs, fruits, and flowers is in great demand. In 2018, the exports accounted for 456.12 million USD; in 2019-2021, the value accounts for 446.13, 428.08, 539.87 million USD (Mordor intelligence.com).

### 1.6 HAIR SERUM MARKET IN INDIA

The hair serum market in India was valued at 850.7 dollars in 2018, and it is expected to reach 1,612.9 million dollars in 2026 (Allied market research.com). The hair serum ingredients are classified into conventional and organic, catering to both male and female consumers. These serums can be applied to primary treatment and aesthetics. The share of hair care products during 2012-2022 proves that the industry has vast potential in the next year. In 2012-2017, the percentage share was 28.26, 28.2, 28.14, 28.07, 28 and 27.92 per cent, respectively. In 2018-2022, the percentage share of business accounts for 27.84, 27.75, 27.64, 27.53 and 27.41 per cent, respectively. It is understood that the haircare business started to leap in 2017 (Statista.com).

### 1.7 AGRICULTURE AND BEAUTY INDUSTRY

India is accepted as the largest producer of plants, forties and herbs. These plants, fibre, and herbs have a beautiful red carpet with enormous vitamins and nutrition content. The vitamins extracted and embossed for face packs, shampoo, serums, and facials are in excellent demand.

### 1.8 THE BANANA AND ITS NUTRITIONAL CONTENT

The banana flower has a trove of nutrients: potassium, calcium, copper, phosphorus, iron, magnesium and vitamin E. This flower has a protein of 1.6gram, fat of 0.6garm, carbohydrate of 9.9 grams, fibre of 5.7 grams, calcium of 56 grams, phosphorous of 73.3 milligrams, Iron 56.4 milligrams, copper of 13 milligrams of, potassium of 553.3 milligrams,





Magnesium 48.7 milligram and vitamin E 1.07 milligram. (net meds.com). These flowers are majorly exported to the United Kingdom, Qatar and Japan. The banana flower exports during December 2023 were made to Bahrain, Ireland, the United States, Qatar, Germany, the United Kingdom, Kuwait, Saudi Arabia, the United Arab Emirates, Switzerland, Vietnam, Japan, Canada and Maldives. (Volza.com).

### 1.9 TYPES OF FLOWERS ADDED TO HAIR SERUM

- The jasmine flower serum helps treat frizzy, dry, and rough hair.
- The hibiscus flower serum helps in treating dull and damaged hair.
- The rose flower serum helps in treating scalp irritation.
- The rosemary serum treats baldness and provides enough nutrients to hair follicles.

### 1.10 CONCLUSION

As the banana flower has enormous nutritional and anti-microbial elements, adding it to the oil or hair serum will be more effective. In the coming days, Banana blossom will create practical and conjoint effects in hair growth, making the hair stronger and thicker. Thus, the lucrative serum industry will have an additional value-added product in its spectrum.

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# DRIVING CHANGE: EXAMINING MANAGERIAL ABILITIES AND SOCIOECONOMIC IMPACT IN WOMEN'S SELF-HELP GROUP ENTREPRENEURSHIP-A REVIEW

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## ABSTRACT

**Purpose:** Women entrepreneurs act as change agents and accelerators for the prosperity and economic growth of emerging and developing countries. Many women's self-help groups opened the path for the creation of self-employment and the reduction of poverty by engaging in entrepreneurial activities. The purpose of the research paper is to examine how women's self-help groups are empowered through entrepreneurial endeavors, focusing mainly on their managerial abilities and socioeconomic impact.

**Approach/Design/methodology:** The descriptive technique is used in this study to explain the existing condition and offer a reason. Secondary sources, such as journals, papers, books, and other relevant resources, are used to perform a complete evidence-based assessment of the managerial abilities of self-help group women entrepreneurs.

**Findings/result:** Despite the many obstacles they encountered, women entrepreneurs were able to advance socially, economically, entrepreneurial, and technologically due to entrepreneurship education, training, and supporting legislative frameworks. To improve the managerial abilities of women entrepreneurs in self-help groups, motivational programs, risk management, financial management, and awareness program should be offered.

**Originality /value:** Fewer studies have been done on the managerial skills of women self-help group entrepreneurs, even though many studies have been done on the empowerment of women through their entrepreneurial activities. This research article emphasizes and highlights the managerial skills of women self-help group entrepreneurs and contributes to the literature on the various conventional and nonconventional managerial skills adopted by women entrepreneurs of self-help groups.

**Type of paper/paper type:** Review

**KEYWORDS:** Women entrepreneurs, self-help groups, empowerment, managerial abilities, socioeconomic impact

## 1. INTRODUCTION

Empowerment involves financial, intellectual, skills, knowledge, and confidence for personal and societal growth. Economic empowerment is crucial for a country's advancement, and women's access to economic opportunities can lead to positive societal outcomes. India aims to have self-sufficient and independent women. Women can significantly contribute to a nation's development by improving families, society, and the economy. Women's empowerment has become a global policy agenda, and entrepreneurship is a crucial tool for women to gain self-confidence and support their country's growth, especially in countries with high unemployment rates.

Micro-enterprises, often managed by women, significantly boost a country's economy by creating job opportunities, increasing household income, enhancing purchasing power, reducing costs, and offering added convenience in accessing goods and services.

Self Help Groups (SHGs) provide microcredit for women to start micro-entrepreneurship, enabling them to overcome challenges and influence their environment. They are crucial in promoting economic independence among rural women,

generating income and financial independence.[1].Women's entrepreneurial development, particularly among rural women, benefits both the rural and national economies[2].

## 2. CONCEPT OF WOMEN EMPOWERMENT, WOMEN SELF-HELP GROUPS, WOMEN SELF-HELP GROUPS ENTREPRENEURSHIP WOMEN EMPOWERMENT

The Indian constitution upholds gender equality through its preamble, basic rights, fundamental duties, and directive principles. It grants the state the authority to enact laws that promote positive discrimination against males, as per the National Policy For The Empowerment of Women, 2001[3].

Women's empowerment is a continuous process that empowers women to resist oppressive forces, access resources and opportunities, and control resources. It involves enabling women to make strategic life choices, which they have previously been denied. The World Bank Report (2001) emphasizes the importance of enhancing individual and group women's capacity to make choices and translate them into desired actions. Women's empowerment transitions from being weak to powerful, disadvantaged to privileged, and



managing resources across social, economic, political, intellectual, and cultural domains[4].

### WOMEN SELF-HELP GROUPS

Self Help Groups (SHGs) are groups of fifteen members from the same class who work together to solve shared issues. They pool resources, establish voluntary thrifts, and lend money at interest. SHGs gain knowledge of financial intermediation, prioritization, term setting, and account maintenance. Banks can lend money to SHGs at market interest rates, without collateral, and up to a specified multiple of their total savings[5]. Microfinance aids women by offering independent income sources outside the home, reducing dependency on husbands' income, increasing women's assertiveness, and providing exposure to new ideas, values, and social support[6]. Self-help groups (SHGs) are voluntary gatherings of individuals who address unmet needs or problems not addressed by existing organizations. Their primary goal is to bring personal and social-economic change for members and society. SHGs empower rural people and improve their social and economic status. They are supported by governments or NGO's and focus on providing employment opportunities through training to generate income and employment[7].

A self-help group (SHG) is a voluntary group of low-income individuals, typically from the same socioeconomic background, providing microcredit to entrepreneurial individuals. These groups can be mixed-gender, all-women, or all-male, and are often linked to banks in India for microcredit [8].

### WOMEN SELF-HELP GROUPS ENTREPRENEURSHIP

Entrepreneurship is vital for economic development and progress. In India, women have become more aware of their rights and entered various business fields, establishing successful empires. The government has prioritized women's empowerment, introducing schemes to uplift them. The women workforce ratio in India is increasing due to increased literacy rates. Self Help Groups (SHGs) have been beneficial for rural women, raising their income and social status[9].

### 4. RELATED RESEARCH WORK

Table 1 : Review of Articles Related to women self-help groups.

Sr.no	Focus	Contribution	References
1	Impact of women self-help groups	Self-Help Groups (SHGs) have significantly impacted the living patterns and lifestyles of disadvantaged women, empowering them at various levels. They come together to solve common problems through self-help and mutual aid, making the "SHGs" approach more appealing and requiring less work. This approach is effective in alleviating poverty and promoting women's business and financial assistance in India.	Kondal, K. (2014). [12]
2	Information needs of women self-help groups.	Establishing an information center for women SHGs can enhance resources in education, healthcare, agriculture, marketing, and distribution techniques, bridging the urban-rural divide and improving productivity. This can be motivated by NGOs and serve as a training center.	Sornam, S. A., & Babu, P. B. (2007). [13]
3	The Role of Women Self – Help Groups in	Members of self-help group believes that joining the organisation has increased their awareness of the value of children's education, health, banks, and their role in society. They also believe that their confidence in	Manjunatha, S. (2013).[14]

Government and NGOs are encouraging women in Self-Help Groups (SHGs) to start self-employment using local resources. Microcredit has greatly benefited SHG women, leading to the creation of micro-businesses. NGOs and financial institutions are providing training programs to enhance the entrepreneurial abilities of rural women, enabling them to specialize in manufacturing or service industries, making microentrepreneurship increasingly popular among rural women[10].

UNICEF suggests that women possess entrepreneurial potential that can be cultivated with proper guidance and training. They emphasize the importance of creating an entrepreneurship incubator for women, considering the numerous opportunities for successful small businesses. This should be considered when formulating rules for Self-Help Groups (SHGs) and their female members[11].

### 3. OBJECTIVES OF THE STUDY

- Examine the empowerment of women's self-help groups through their engagement in entrepreneurial activities.
- Investigate the development of managerial abilities among women entrepreneurs within self-help groups.
- a comprehensive understanding of the transition of women in self-help groups to self-employment through entrepreneurship.
- Enrich the understanding of both conventional and unconventional managerial approaches adopted by women entrepreneurs in self-help groups.

### 4. RESEARCH METHODOLOGY

To explore a thorough and evidence-based assessment of the managerial skills of women entrepreneurs within self-help groups, the research methodology used is an inductive qualitative approach that is descriptive and draws on secondary data from sources, including academic journals, research papers, books, and other pertinent resources related to women's self-help groups, entrepreneurship, empowerment, and managerial skills.



	Rural Development	living better lives has increased.	
4	Empowerment of women help groups members through microfinance	The success of microfinance, a financial service offered to low-income people, in eradicating poverty and promoting rural development is acknowledged on a global scale. Self Help Groups (SHGs) benefit in particular because they empower women and raise awareness, which eventually results in sustained national progress. Members anticipate additional revenue-generating training sessions.	Gundappa, M. (2014). [15]
5	Role of women Self-Help Groups in Achieving Gender Equity	SHGs have significantly impacted women's gender roles and social dynamics by funding property and cattle ownership, challenging traditional rural norms, and empowering them as decision-makers in democratic, economic, and social arenas, thereby enhancing their equal status.	Samaddar, S. (2023).[16]
6	Challenges of women self - help group members towards marketing	Members of Self-Help Groups typically sell food items at fairs and exhibits, where they encounter difficulties with product selection, price negotiating, and income creation. Their ability to generate revenue is substantially influenced by their level of education, marital status, and income after joining SHGs.	Vasanth, S., & Thaiyalnayaki, M. (2015).[17].

**Table 2 : Review of articles related to women empowerment of self-help groups members**

Sr.no	Focus	Contribution	References
1	Economic empowerment	Women's economic empowerment may lead to increased engagement in decision-making and negotiating power. Education and awareness are needed for greater involvement and decision-making in society.	Swain, R. B., & Wallentin, F. Y. (2009). [18]
2	Social empowerment	Although enhanced self-confidence may not always lead to empowerment, it can make a significant difference in a woman's capacity and desire to resist the societal injustices and discriminatory institutions she faces. This suggests that as women's financial status improves, so does their self-confidence and negotiating strength inside the home, which leads to their social empowerment.	Vachya, L., & Kamaiah, B. (2015). [19]
3	Political empowerment	Through social events, SHG participation introduced women to women's rights, and through networking, it gave them access to political capital. Their SHG participation also encouraged them to speak out on political issues like accountability and transparency. Additionally, women who participated in local village governments said that SHG membership aided them in assuming leadership positions in the government.	Brody, C., Hoop, T. D., Vojtkova, M., Warnock, R., Dunbar, M., Murthy, P., & Dworkin, S. L. (2017). [20]
4	Financial empowerment	women's engagement in microfinance programs promotes social transformation and female empowerment. Women can start new businesses or grow current ones to generate more income when they have access to fundamental financial products like savings and loans. A woman's capacity to change her life through access to financial services depends on a variety of variables, some of which are related to her unique position and capabilities and others to her environment both inside and outside the family. women's microfinance programs are marketed as a means of empowering women as well as reducing poverty.	Sahu, G. B. (2015). [21]
5	Intrinsic empowerment	Women might become more empowered as a community or as an individual through time; empowerment is a process. It has nothing to do with a gift that one may give to others. Power cannot be given as a gift or entrusted; it can only be exercised via empowerment. Empowerment refers to the "power-within" and the "inner voice" for growth. Thus, the growth of internal empowerment occurs.	Mathur, P., & Agarwal, P. (2017). [22]
6	Psychological Empowerment	A person's internal strength is highlighted by psychological empowerment, also known as personal empowerment. It is characterised by enhanced self-confidence, self-reliance, self-esteem, decreased psychological suffering, questioning gender stereotypes, and other traits. Microfinance through self-help groups is thought to boost women's collective effectiveness, proactive mindset, self-esteem, and self-efficacy.	Khan, S. T., Bhat, M. A., & Sangmi, M. U. D. (2023). [23]





**Table 3: Review of articles related to entrepreneurial activities of women self-help groups**

Sr.no	Focus	Contribution	References
1	Women's entrepreneurship development through participation in self-help groups	SHGs empower marginal entrepreneurs by enabling self-reliance and participation in various activities. Members earn income by preparing mid-day meals in primary schools and starting private entrepreneurship at home. They engage in productive activities like agarbatti production and food preparation, with easy marketing available. SHGs serve as a platform for women to be role models for their families.	Mishra, S., & Sahoo, C. (2018). [24]
2	Marketing challenges of women entrepreneurs of self-help groups	SHG must be able to compete on a national and worldwide stage. Participating in exhibition events and creating an internet marketing system are two strategies for improving SHG's performance. Participation in exhibits increases the value of local wisdom, drawing members of the community both domestically and globally. While ensuring consumer transparency, online marketing platforms provide benefits such as time efficiency and product purchasing.	Andajani, N., & Ardini, L. (2023).[25]
3	Entrepreneurial motivation by women self help groups members	Women often pursue entrepreneurship for financial gain, economic independence, and social prestige. They often do so as a hobby alongside their family career. However, challenging market conditions and strict legal requirements pose significant challenges. Additionally, they often face personal obstacles due to lack of information and conflict between work and family life.	Rathna, C., Badrinath, V., & Anushan, S. S. S. (2016).[26]
4	Problems and challenges of women SHG entrepreneurs	Due to a lack of knowledge, poor training, and a lack of marketing expertise, SHGs fail to promote livelihood through government and bank initiatives. There are also less opportunities for rural women entrepreneurs. Due to time, financial, and familial commitments, SHG performance is hampered by low participation and irregular attendance. Other issues are the bank staff's uncaring attitude and lack of cooperation.	Iyer, R. [27]
5	Entrepreneurial activities of rural women	SHG is a rural poor women's organization that provides microcredit for entrepreneurial activities. Entrepreneurship development and income-generating activities create revenue while also providing flexible working hours to meet the demands of housewives. Rural women's self-confidence, self-reliance, and independence increased as a result of their participation in SHG entrepreneurship and other activities. Entrepreneurship education and training might be implemented at all levels, beginning with school days.	Sharma, P., & Varma, S. K. (2008). [28]
6	Entrepreneurs Development Programme for economic and social empowerment	The government should fund Entrepreneurs Development Programme (EDP). For a variety of reasons, it remains more theoretical than practical. Due to marketing issues, SHG members have not achieved self-sufficiency in entrepreneurial activities, which are catalysing these changes and contributing to their social, economic, and political activities. These are the primary issues confronting SHG members in the research region. Now, the NGOs must advertise themselves as a bridge between members and launch a skill development programme for SHG in Nithari Village.	Kapoor, S. (2019). [29]

### 5. ABCD LISTING ANALYSIS

The ABCD analysis framework, introduced in 2016, is a tool for analyzing various systems, concepts, ideas, strategies, products/services, and materials, using both qualitative and quantitative methods[30]. The ABCD Analysis is a strategic tool used to evaluate Women Entrepreneurial Development

within Self-Help Groups (SHGs) focusing mainly on their managerial abilities and socioeconomic impact.. It categorizes factors into four groups: Advantages (A), Benefits (B), Constraints (C), and Disadvantages (D). Advantages (A) highlights the positive aspects, Benefits (B) focuses on the outcomes, Constraints (C) identifies challenges, Disadvantages



(D): points out risks. This analysis helps to understand the complexities and potentials of women's entrepreneurial initiatives within SHGs.

ABCD analysis of women entrepreneurial development through self-help groups focusing on managerial abilities are as follows:

<p><b>A (Advantages)</b></p> <ul style="list-style-type: none"> <li>● SHG has helped women entrepreneur members develop public speaking skills, bank transactions, and confidence in leadership roles,</li> <li>● Female entrepreneurs in self-help groups have demonstrated strong management skills, including decision-making, leadership, and conflict resolution, which has positively impacted the group dynamics and the success of their firms.</li> <li>● When female entrepreneurs of self-help groups are successful, the unemployment rate is reduced because they provide new job opportunities for people in the community, which in turn boosts economic growth by encouraging local businesses to invest and support their growth.</li> </ul>	<p><b>B (Benefits)</b></p> <ul style="list-style-type: none"> <li>● Women's self-help groups have significantly empowered women by enabling them to engage in entrepreneurial activities, leading to financial independence and improved quality of life.</li> <li>● Women SHG members' involvement in entrepreneurial projects boosts self-confidence, decision-making capacity, self-identity, and psychological empowerment, leading to economic, social, and technological empowerment of self-help group entrepreneurs.</li> <li>● Female self-help group members serve as role models, encouraging others to pursue entrepreneurial dreams, challenging gender norms, and advocating for social change and equitable opportunities.</li> </ul>
<p><b>C (Constraints)</b></p> <ul style="list-style-type: none"> <li>● Many women lack knowledge and experience in advanced technologies and marketing strategies, affecting business efficiency due to inadequate education.</li> <li>● Sociocultural norms and gender prejudices hinder women entrepreneurs' confidence and decision-making abilities, making overcoming social expectations and stereotypes a significant hurdle in their entrepreneurial journey.</li> <li>● Urban SHG women entrepreneurs exhibit greater flexibility and dynamicity compared to their rural counterparts</li> </ul>	<p><b>D (Disadvantages)</b></p> <ul style="list-style-type: none"> <li>● Restricted microfinance in India prompts women in mature Self-Help Groups (SHGs) to continue relying on informal sources for financial assistance.</li> <li>● Women's commercial operations suffer from a lack of expertise and knowledge, resulting in a loss of income.</li> <li>● Women entrepreneurs face challenges in accessing capital, training, and technology, which can hinder their growth and sustainability in their entrepreneurial ventures despite progress.</li> </ul>

## 6. FINDINGS

Findings collectively highlight the multifaceted benefits of self-help groups for women entrepreneurs, ranging from economic empowerment and skills development to leadership, innovation, and cultural sensitivity. The findings are as follows:

1. Women in self-help groups experienced enhanced economic empowerment with increased financial independence and stability through entrepreneurial ventures, which allowed them to support their families, invest in education, and healthcare.
2. Women entrepreneurs in self-help groups experienced improved social status, gained community recognition, and served as role models, challenging traditional gender roles and stereotypes.
3. Participation in entrepreneurial activities enhanced women's skills in financial management, marketing, and negotiation, providing them with practical knowledge essential for business success.
4. Self-Help Group Participants in Female-Led Businesses exhibit exceptional leadership skills, team management, resource organization, and collaboration,

making critical business decisions and structuring their teams effectively.

5. Female Entrepreneurs in self-help groups manage teams, addressing conflicts, fostering teamwork, and ensuring a positive work environment, often acting as mentors to guide others in the group.
6. Women in self-help groups transitioned from dependency to self-reliance, embracing an entrepreneurial mindset that fostered ownership, control, innovative thinking, and problem-solving.
7. Self-help groups provided women with access to resources like microloans, training programs, and market linkages, facilitating a smoother transition to self-employment ventures
8. Women entrepreneurs in self-help groups (SHGs) employ various managerial skills, both conventional and non conventional, for successful business operations, financial management, and overall growth.
9. In order to interact with suppliers, clients, and other business owners and gain access to resources and



market prospects, women self-help entrepreneurs rely on networking.

10. Entrepreneurial Women Self-Help Group Participants actively pursue innovation by introducing distinctive products, services, or business models, in order to retain their venture's relevance and competitiveness.
11. Women Business Pioneers in Community Ventures deal with setbacks, but women entrepreneurs display resilience by learning from their mistakes and persisting in their pursuit of their goals.
12. SHGs operate in diverse cultural contexts, demonstrating cultural sensitivity by entrepreneurs who respect traditions and customs while conducting business activities.

## 7. SUGGESTIONS

1. To boost entrepreneurial activities among women in self-help groups, it is essential to address social constraints, enact supportive policies to alleviate household burdens, and instigate a fundamental change in men's attitudes toward women in business.
2. In order to empower SHGs women through business opportunities, it is crucial to remove cognitive, personal, organisational, infrastructural, and marketing barriers.
3. A Comprehensive Strategy is needed to change attitudes, increase legal protection, and support women's entrepreneurial development of self-help groups.
4. Government agencies and banking agencies must provide comprehensive training and guidance to women entrepreneurs, ensuring their success in business through periodic visits and proper guidance.
5. Women entrepreneurs of SHGs should be enhanced with the understanding of government policies, technical knowledge, and skills through literacy programs, financial awareness through credit facilities, technical training on labor-saving technologies, and entrepreneurship education at all levels to instill confidence in rural women.
6. Transitioning from self-help group membership to self-employment is crucial for women, but lack of advice can hinder progress, necessitating training and mentorship.

## 8. CONCLUSIONS

The transformative impact of entrepreneurial activities within women's self-help groups (SHGs) illuminates that women entrepreneurs within SHGs are not only agents of economic change but also catalysts for societal growth. Despite facing challenges such as limited access to resources, sociocultural norms, and technological gaps, the resilience and innovation displayed by these women emphasize the critical role of empowerment programs, education, and supportive legislative frameworks in enhancing managerial skills. Women's self-reliance through entrepreneurial endeavors reduces poverty, promotes economic independence, and challenges traditional gender roles. As they transition from dependency to ownership, they contribute to economic prosperity and serve as inspirational figures, challenging stereotypes and fostering

a culture of entrepreneurship. The insights gained from this research provide valuable contributions to the literature on women's empowerment through entrepreneurial activities, emphasizing the need for continued support, training, and policy interventions to amplify further the impact of women in self-help groups on both economic and societal fronts.

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# THEORETICAL BASIS OF THE DEVELOPMENT OF FOREIGN POLICY OF STATES

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## ANNOTATION

*This article described the priorities of the foreign policy of the republic of states. It also analyzed the International and inter-ethnic relations which play an important role in foreign policy. It is also explained that the foreign policy of the states can perform multifaceted tasks and in some aspects can be the basis of the internal stability of the states.*

**KEYWORDS:** *National interests, foreign policy, organization, Foreign Policy Bilateral Cooperation, Neighborhood, Economic Ties, aggression, Diplomacy.*

The national interests of the states are expressed in their foreign policy, which serves to show the nature of the political system, state system, and socio-economic relations of this or that country. At this point, the following opinions of the President of the Republic of Uzbekistan Sh.M. Mirziyoev are of urgent importance: "The main goals of the foreign policy of the Republic of Uzbekistan are to further strengthen the independence and sovereignty of the state, to further strengthen the place and role of the country as a full-fledged subject in international relations, and to ensure national and regional security, stable and rapid growth of the country's economy, to create the most favorable conditions to conduct an intensive policy in the direction of building an open and democratic state, and to take a place in the ranks of developed countries".

In general, foreign policy and related international policy, international relations issues have been researched by several local and foreign political scientists. From this point of view, their comparative analysis is appropriate.

For instance, G. I. Yuldasheva's work "Methodological Aspects of International Relations" defines foreign policy as follows: foreign policy is the state's activities aimed at ensuring its national and universal goals and security in interstate relations outside the country. In many cases, the concept of foreign policy is combined with the concept of diplomacy, and in some cases it is even viewed as a conflict with each other.

In the book "Political Science" by Kh.T. Odilkoriev and D.Kh. Razzokov, the concepts of foreign policy and international policy are distinguished: if foreign policy consists of the state's activities aimed at ensuring its national and universal goals and security outside the country, in interstate relations, then international policy - is an activity aimed at maintaining relations between states, entities, political parties and movements, political and non-political organizations, social groups and individuals participating in international relations based on international norms and values.

It can be observed that similar opinions to the above are given in the manual "Politology" by S.Otamurodov, I.Ergashev, Sh.Akromov: foreign policy is reflected in the relations of one state with another state outside of its national territory, while international policy is social relations between individuals or states includes not only social relations, but also relations and spheres of activity for the realization of the interests of a particular group or state.

In addition, the textbook "Politology" published in collaboration with TDIU (Tashkent State University of Economics) and TDIU (Tashkent State Institute of Law) under the editorship of S. Juraev in 2006, emphasizes that foreign policy is an objective process: One of the most important features of the states is determined by the fact that foreign policy has an objective nature. Foreign policy arises from the need to participate in the foreign relations of states, regardless of the will of any political power in one or another country. The objectivity characteristic of foreign policy is also manifested in the reaction of states to the changes taking place in the international arena. This attitude, on the one hand, depends on the desire of each state, and on the other hand, it arises from the need not to be left out of world politics.

Foreign policy relations appears in two forms:

1. Foreign policy relations in the internal form of states;
2. Foreign policy relations in external form.

Foreign policy relations in the internal form of states are usually carried out by the foreign policy agencies of a particular state. It should be noted that the internal foreign policy relations of the states have a regulatory nature, which always regulates the external foreign policy relations and determines its direction. It should be noted that in Uzbekistan and many other countries, foreign policy agencies are called the Ministry of Foreign Affairs. In some countries, this office has a different name, for example, the State Department in the United States, the Foreign Office in England, and the Que d'Orsay in France (Ministry of Foreign Affairs of France). It should not be forgotten that even



though the names are different, and their goals and tasks do not change with the change of their names.

External foreign policy relations in the external form are carried out through diplomacy on the part of the foreign policy agencies of a particular state. Therefore, in order to carry out this activity, the state must have its own diplomatic missions in other countries.

International and inter-ethnic relations also play an important role in foreign policy and related processes. In this regard, G. I. Yuldasheva's work "Methodological Aspects of International Relations" explains the concept of international relations as follows: international relations are economic, political, ideological, legal, diplomatic and other connections and relations between state systems and states, as well as the main classes operating in the world arena, the main social, economic, political forces, organizations and public movements, in general, is a set of relations between peoples in a broad sense.

In addition, a number of Western scholars have touched on the concept of international relations. Including, according to French philosopher and sociologist R. Aron, "International relations are relations between political units". Thus, for him, international relations are, first of all, the relations between states, or the interaction between "diplomat" and "military".

According to the French researcher M. Merle's theory, international relations are "a set of agreements and flows that cross borders or have a tendency to cross borders."

Studying the concept of international relations is also important in the process of foreign policy and international relations. V. Aliev, I. Ergashev, T. Hoshimov, O. Yuldashev explained this term in the Politology textbook as follows: inter-ethnic relations are one of the most basic areas of politics. The current population of the globe is made up of different nationalities, each of which has its own characteristics and interests. Regulation of relations between peoples and nations is the essence of national policy of the state. It is more extensive and important in multinational countries.

In this work, while commenting on inter-ethnic relations, the team of authors touched on the issue of national politics, which is important in this regard. According to their theory, national policy is a set of principles, norms, and rules, with the help of which national relations are managed. As long as the national policy is implemented by the state, it means that the relations between people and nations are regulated through political and legal documents.

The experience of the foreign policy of the states shows that in some cases there was an attempt of one state to impose its judgment on another. The consequences of such actions in many cases ended in wars of aggression. But this should not be considered as a characteristic feature of the foreign policy of all countries. Most countries in the world conducted their foreign political activities on the basis of equal cooperation with other countries. That is why most countries try not to transfer their

judgment to other countries in the field of foreign policy and support any initiative in this field. Currently, the Republic of Uzbekistan is gaining special prestige in the world community based on the unwavering adherence to this principle in its foreign policy.

As stated by the President of the Republic of Uzbekistan Shavkat Mirziyoyev, the modern foreign policy of Uzbekistan takes into account the rapidly changing international and political realities of the XX century, which require an active, proactive and pragmatic foreign policy course and timely and adequate response to emerging threats under construction.

The new strategy of Uzbekistan stated: "The important priority direction of our country in the field of foreign policy is the formation of a balanced system of strategic partnership and cooperation with the world's leading countries and international organizations".

In short, the foreign policy can perform multifaceted tasks and in some aspects can be the basis of the internal stability of the states. In this case, the states should implement their foreign policies with deep thought. Today, the foreign policy of each country requires special attention in international relations. The peace-loving foreign policy of each state, aimed at respecting the norms of international law based on its national interests, plays an important role in the enlightenment of today's international relations. According to some experts, it is possible to analyze how international relations are happening today by studying the foreign policies of several countries that have a great influence in international relations. Of course, with the giving of democratic colors to the foreign policy, the recognition of the states as donor states is lacking in the full understanding of their original goals. Studying the foreign policy of countries with different systems and interests, especially in the present era, means studying the future of international relations.

As seen above, foreign policy cannot be imagined without international politics, international relations, diplomacy and inter-ethnic relations. Although they are not the same concepts, one has the feature of complementing the other. In addition, the above-mentioned concepts related to foreign policy are directly involved in practical processes or in theory serve to study the concept of foreign policy more broadly and fully understand its essence.

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# FACTORS INFLUENCING UNDERGRADUATE COMPUTER APPLICATIONS STUDENTS TOWARDS LMS GOOGLE CLASSROOM

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## ABSTRACT

*The educational institutions at present are in a time of converging to online mode of teaching and learning. Academic institutions have to face new challenges every day to impart knowledge to the students. Educators are forced to apply new tools and techniques so the students can learn with ease with less resource. Higher educational institutions around the world are undergoing rapid changes as they adapt to the paradigm shift of the knowledge society. Information and Communication Technology (ICT) with the integration in education has given lot of benefits with the increase in quality of learning, technological skills, interactive and promoting teachers and students' performance. Many educational institutes have tried to bring in Learning Management Systems (LMS) to aid the face to face learning procedure. Google Classroom is a Learning Management System (LMS) which includes several tools that provide higher educational institute efficient and effectual means to support distance education and enhance their traditional way of teaching. This study with the sample of undergraduate computer applications students analyses the critical factors like perceived ease of use, perceived usefulness, attitude toward usage, behavioural intention to use, self-efficacy and access control which influenced students' towards Google classroom in higher education.*

**KEYWORDS:** Google classroom, LMS, Higher education

## INTRODUCTION

A lot of interest is shown at present in the field of E-Learning. E-Learning is not just the matter of keeping the course material in electronic form, and learner referring to that course material. Many tools are coming up for supporting the various activities of the e- learning process like communication, content creation, content delivery etc. In order to deal with the various activities of e- learning process a Learning Management System (LMS) with an integrated set of e-Learning features is required.

LMS is a portal where planning, implementing and assessing a learning process can be done. The student needs to register for the various courses, learn from the required learning material provided by tutor, undergo test, complete assignments, etc. The tutor can deliver learning materials, monitor student participation in quiz, assignment and also assesses the performance of student. In order to do this an instructor need to organize or plan a course based on prescribed syllabus and he/ she has to establish a course calendar to monitor student progress. Administrator plays the main role of the LMS, who has the privileges for creation of users, server management, etc. Currently there are number of Learning Management Systems available in the market like Ariadne, DLS, LearningSpace, Medit, Tool Book, Top-Class, BlackBoard, Sakai etc. These tools still could be improved to provide interoperability, scalability and conformance to standards (EduTools, 2006).

Google suite for education is one of the powerful tools for teaching and learning. It has Google App tools like Classroom, Drive, Gmail, Docs, Forms, Sheets and Slides, Meet etc (Sathyendra Bhat, 2018). Google Classroom is an internet-based service provided by Google as an e-learning system (Martínez-Monés et al., 2017). The Google Classroom facilitates teachers to post learning materials, create assignment, conduct test through Google forms and communicate with the students with ease. There are so many advantages of using Google Classroom as one of the Learning Management Systems (LMS) (Izenstark & Leahy, 2015). Learning through Google classroom uses technology to facilitate faculty and students in the learning process (Ocampo, 2017).

The Google classroom is a portal where the teachers can upload the learning materials in the form of ppt, doc, web links, video/audio etc (Fig.2). Students can view/download the materials whenever they need it. The teachers can give assignment (Fig.3), conduct online test through Google form (Fig.4). Grades can be seen by the students immediately for the assessment conducted. Google classroom is a cost effective platform because the uploaded files are in the format of ppt, doc and video/audio and there is no way for usage of stationery items. Classes can be conducted virtually with the help of Google meet.





Fig 1: Google Classroom Stream

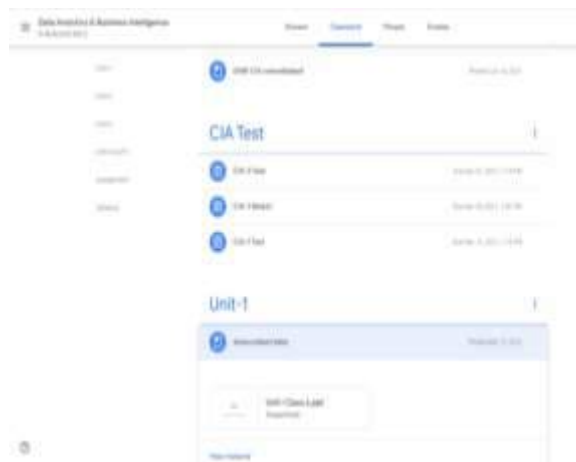


Fig 2: Materials Posted in Google Classroom

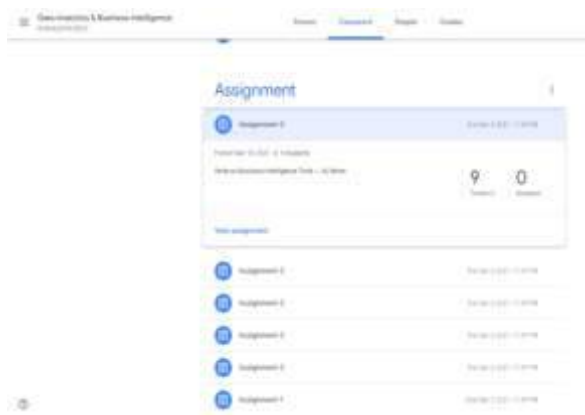


Fig 3: Assignment Submission by Students



Fig 4: Quiz through Google Form

### METHODS

The researcher used quantitative approach; an online questionnaire tool was prepared with the Google form (Fig.5) and distributed to the students through e-mail. A total of 49 final year undergraduate

students of computer applications were taken as the sample from Women's university in Coimbatore district and were using the Google classroom for learning computer applications subjects.

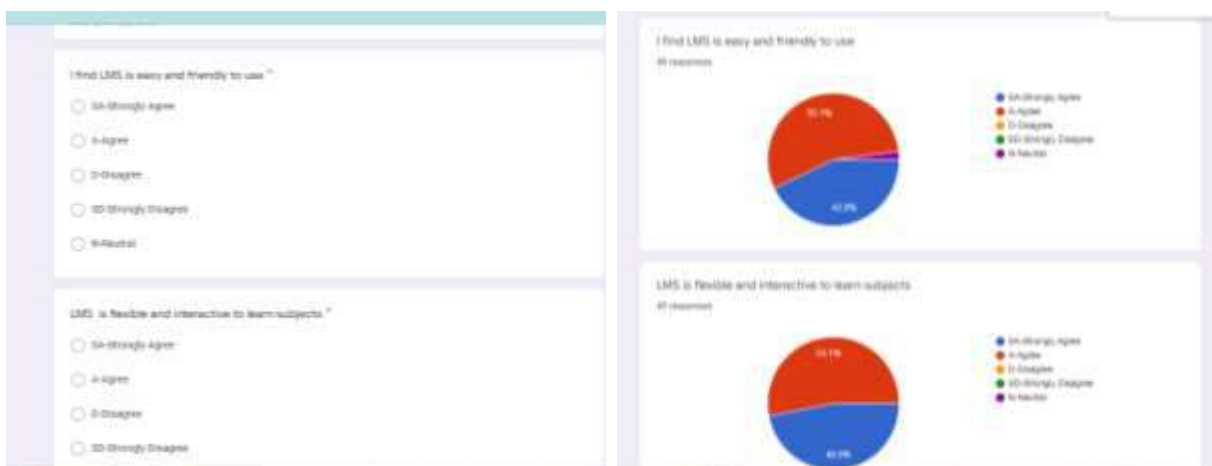


Fig.5 Questionnaire through Google form and Result Analysis



The findings of the descriptive analysis of students towards LMS Google classroom are discussed as shown below:

In **Perceived Ease of Use** there are 25 items which describes whether the usage of Google classroom is comfortable to the students. Majority of the students (38.7% and 54.7%) “strongly agree and agree” that LMS is easy to use. 2.20% of the students neither agree nor disagree that Google classroom is easy to use. Only 2.8% and 1.3% “disagree and strongly disagree” that LMS is not easy to use.

**Perceived Usefulness** with 15 items mentions how the usage of LMS has enhanced the performance of the student. Here also majority of the students (35.5% and 57%) “strongly agree and agree” that because of LMS their performance have enhanced. 4.48% of the students neither agree nor disagree that Google classroom has some benefits for their learning. Only few students “disagree and strongly disagree” (0.95 % and 2.04%) that it has not improved their performance.

**Attitude toward Usage** has 12 factors and tells about the interest in using the LMS. 27.04 % and 56.8% of the students “strongly agree and agree” that they have interest in LMS. 6.69% of the students neither agree nor disagree towards the usage of Google classroom. 6.63% and 2.55% of the students have “disagreed and strongly disagreed” that they have no interest in LMS.

**Behavioural Intention to Use** describes the reaction and communication towards the LMS. It has seven different items and 21.28% and 65.01% of the students have “strongly agreed and agreed” that their reaction is good towards LMS. 6.70% of the students neither agree nor disagree towards the intention in using Google classroom in future. Only 4.66% and 2.33% of the students have “disagreed and strongly disagreed”.

The efficiency of the student in using LMS is **Self-efficacy**. It has 4 different items and 26.02% and 57% of the students have “strongly agreed and agreed” whereas 8.67% and 2.55% of the students have “disagreed and strongly disagreed”. 5.61% of the students neither agree nor disagree towards the self-efficacy of Google classroom.

**Access Control** describes the privacy and security of the information stored in LMS. It has six different items and 54.08 % and 43.19% of the students have “strongly agreed and agreed” that LMS is secured. 1.36% of the students neither agree nor disagree that Google classroom has some privacy and security. 1.02% and 0.34% of the students have “disagreed and strongly disagreed” that there is no privacy and security in LMS.

Student felt Google classroom is friendly, flexible and pleasant. Most of the students have felt that more mental effort is not required to interact with LMS. Accessing the activities like assignment, quiz, Google forms, Google Meet were easy. They were able to easy download the learning materials, submit assignment, attend quiz through Google form. They were able to access Google classroom through their smart phones/ipad/tablet without any difficulty. Students are comfortable that they can submit assignment, attend quiz and

download learning materials from anywhere anytime. Immediate marks and feedback after attending quiz was very useful for the students so they were able to correct their mistakes. The attitude towards LMS was that the students needed all subject to be learned through LMS. They felt very positive towards LMS. Only 16% of the students have felt that learning the subjects through LMS is more difficult than learning in a traditional classroom. Because of LMS ease of use and perceived usefulness students feel that it is becoming more popular in universities and colleges. Most of the students intended to be a user of LMS frequently in their learning activities, recommend other students to use LMS, intend to use LMS as part of their daily learning activities and use LMS in the future if they get any opportunity. Students felt that they could use LMS without any manual for reference and feel confident using the LMS. Most of the students felt that LMS maintains privacy and security. The assignment material, quiz marks, feedback of a student by tutor is not accessible by other students. Google Classroom is very useful and effective in improving students' skills, abilities, discipline, and independent learning through teaching materials (Nur Alim et.al,2019).

## CONCLUSION

Google classroom is an effective LMS where the students can download the learning materials, submit assignment, attend quiz and also the teacher can handle classes through Google meet by presenting the learning materials. The current study showed that students accepted the new way of online learning and has a positive feeling towards Google Classroom. The result shows that the factors perceived ease of use, perceived usefulness, Attitude toward usage, Behavioural Intention to use, Self-efficacy and Access control influenced the undergraduate Computer Application students towards the LMS Google classroom. Students felt that the LMS has made a big impact on their learning.

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**QUESTIONNAIRE FORM**

Dear Respondent,

This is a research survey carried out on the usage of LMS Google Classroom. Please provide the data by completing the questionnaire. Thank you for your ultimate support.

-----  
**Read the items carefully and decide how you feel about it. To do this, you have to put a tick mark[√] in the relevant columns. Please do not omit any statement. The information you furnish will be confidential and will be used for research purpose only.**  
**[Note:SA-Strongly Agree,A-Agree,N-Neutral,D-Disagree,SD-Strongly Disagree]**

.No	Questions	SA	A	N	D	SD
<b>Perceived Ease of Use (PEU)</b>						
1	I find LMS is easy and friendly to use					
2	LMS is flexible and interactive to learn subjects					
3	The interface is pleasant					
4	It is easy to become skilful in using LMS					
5	Interacting with LMS requires much mental effort					
6	The language used in LMS is easy to understand					
7	Accessing the activities (Assignment, learning materials, Quiz-Google Form, Google Meet) are easy					
8	Activities such as assignment, learning material, Google Meet and Quiz-Google Form in LMS are clear and understandable					
9	LMS is a package where learning materials, assignment, Google Meet and Quiz-Google Form are all at one web portal					
10	It is convenient to download learning materials in .ppt, .doc. and .pdf format					
11	It is easier to listen to the audio based learning materials					
12	It is easier to view the video based learning materials					
13	Allows to access learning materials as many times as needed					
14	It is convenient to upload assignment as a file in any format (.doc, .pdf and .ppt)					
15	LMS helps to add images easily in assignment preparation					
16	Accessing links to the external web resources is easy					
17	It is convenient to attend Multiple Choice online quiz through Google Form					
18	Easy to participate in the survey through Google Form					
19	Easy to communicate with teacher through 'Stream' feature in Google classroom					
20	LMS can be accessed anytime through internet from inside the campus					
21	LMS can be accessed anytime through internet from outside the campus					
22	LMS can be accessed through smart phones					
23	LMS can be accessed through ipad/tablet devices					
24	It is easy to share materials(doc, pdf, ppt, video, audio, web page) in Meet for presentation					
25	The chat feature in Meet makes it easy to communicate with teacher					
<b>Perceived Usefulness (PU)</b>						
1	LMS improves my academic achievement(Internal/External marks)					
2	Has a positive effect on my learning					
3	LMS with the support of traditional teaching method through Google Meet helps me to learn better					
4	Learning materials uploaded are available throughout the semester and hence it gives flexibility to learn anytime					
5	LMS gives me learning materials and other information that I need at right time					
6	Helps in accessing unit wise 'learning materials' according to the syllabus					



7	The due date in LMS helps to know the assignment submission date					
8	Submission of assignment, attending quiz through Google form, downloading learning materials can be done from anywhere					
9	LMS allows me to complete assignment on time than would otherwise be not possible if submission done manually					
10	Feedback/Comments on assignment given by the teacher is very useful to learn further					
11	Attending Quiz through Google form helps to test the knowledge gained from learning materials distributed through LMS					
12	Attending Quiz through Google form helps to test the knowledge taught in traditional teaching					
13	Knowing the immediate answer(feedback) at the end of the quiz in Google form helps to correct the mistakes					
14	Helps to know the marks immediately after submission of quiz in Google form					
15	The doubts can be clarified immediately with the teacher in Google Meet which is very useful for learning					
	<b>Attitude Toward Usage (ATU)</b>					
1	Learning through LMS is a good idea					
2	LMS makes me to realize anywhere and anytime learning					
3	I feel positive towards LMS					
4	LMS has all the functions and capabilities required for a learning environment					
5	LMS has to be an essential part of this graduation programme					
6	LMS is useful only when teacher provides appropriate learning materials and relevant activities					
7	Believe I could become successful in using LMS					
8	Learning the subjects through LMS is more difficult than learning in a traditional classroom					
9	The organization of information on the screens of LMS is clear and understandable					
10	LMS requires proficiency in Information Technology (IT)					
11	Learning through LMS is acceptable					
12	LMS is becoming more popular in universities and colleges					
	<b>Behavioural Intention to Use (BIU)</b>					
1	I intend to be a user of LMS frequently in my learning activities					
2	I like to use new learning methods other than traditional way of learning					
3	I intend to learn more about the features of LMS					
4	I would recommend other students to use LMS					
5	I intend to continue using LMS every semester					
6	I intend to use LMS as part of my daily learning activities					
7	I will use LMS in the future if I get any opportunity					
	<b>Self-Efficacy</b>					
1	I could use the LMS if only I had the manual for reference					
2	I could access learning materials, upload assignment, attend Quiz through Google Form on the LMS even if there is no one around to show me how to use it					
3	I feel confident using the LMS					
4	I have the necessary skills for using LMS					
	<b>Access Control</b>					
1	The submission of assignment material by me is accessible only by the teacher					
2	I cannot see other student's assignment material					
3	I cannot see other student's assignment marks					
4	The feedback for assignment given by the teacher is accessible only by me					
5	I cannot see other's student's feedback given by the teacher					
6	I cannot see other student's quiz marks in Google form					





# UNVEILING CONSUMER SENTIMENTS: A STUDY ON FACTORS IMPACTING ONLINE GROCERY AVOIDANCE IN VIJAYAWADA

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## ABSTRACT

*This research explores the intricate landscape of online grocery shopping, drawing insights from a sample of 100 respondents with diverse demographic characteristics. Through a Likert scale analysis, the study delves into the attitudes, preferences, and concerns that shape individuals' decisions to abstain from online grocery purchases. Findings reveal a nuanced landscape, with respondents expressing strong preferences for hands-on grocery selection and enjoyment of traditional shopping experiences. Trust issues with online vendors and apprehensions about privacy and security emerge as key considerations. The study uncovers the top five drivers of grocery shopping preferences and underscores the robust reliability of the Likert scale employed. In sum, this research contributes valuable insights for both academic research and practical decision-making in the realm of online grocery shopping.*

**KEYWORDS:** Online shopping, ecommerce, Factors, barriers, influencing, grocery, Vijayawada.

## INTRODUCTION

The rise of e-commerce has transformed the retail industry, providing consumers with the convenience of purchasing for a wide range of things, including groceries, online (Sophiya Shaikh, 2022). Online grocery shopping has gained substantial popularity around the world, with an increasing proportion of consumers choosing this convenient alternative to traditional brick-and-mortar retailers. Despite its expanding popularity, a notable phenomenon known as online grocery avoidance has been seen in many places, including Vijayawada. This phenomenon refers to customers' unwillingness or resistance to engage in online grocery shopping despite the availability and accessibility of online platforms. Understanding the reasons that lead to this avoidance is critical for both entrepreneurs and governments to ensure the long-term growth of the online grocery industry in Vijayawada.

The study of online grocery avoidance in Vijayawada is particularly significant due to the unique socio-economic and cultural context of the city. Vijayawada, the capital of Andhra Pradesh, is a rapidly urbanizing city with a diverse demographic profile. Factors such as income levels, education, and cultural preferences play a crucial role in influencing consumer behavior towards online grocery shopping. Additionally, the presence of traditional retail markets and the historical significance of local markets in Vijayawada may contribute to the reluctance of consumers to transition to online platforms. Therefore, a comprehensive investigation into the factors impacting online grocery avoidance in Vijayawada will provide valuable insights

into the specific challenges and opportunities within this dynamic market.

Previous investigations into related phenomena in other geographic settings shed light on the fundamental causes of online grocery avoidance. A primary driver of avoidance behaviour, according to research carried out in urban centres around the world, is perceived danger, trust in online retailers, and contentment with traditional buying methods. The significance of elements like digital literacy, perceived convenience, and cultural preferences in influencing customer attitudes towards online grocery shopping has also been underlined by research conducted in the Indian setting. This study seeks to offer a detailed understanding of the factors promoting online grocery avoidance in this particular area by drawing on these previous studies and adapting their findings to the particular context of Vijayawada.

## METHODOLOGY

This study adopts a cross-sectional study design, in which information was gathered from a sample of people who lived in Vijayawada at a specific point in time.

The target population comprised individuals living in Vijayawada. A convenience sampling method was utilized to select participants due to the logistical constraints and the specific nature of the study.

## DATA COLLECTION

A structured questionnaire was designed to gather data on the reasons behind the reluctance to purchase groceries online. The



questionnaire was first prepared in English and subsequently translated into Telugu to accommodate the local language preferences.

The questionnaire was hosted on the SurveyCTO platform, a data collection tool. Participants were provided with a unique survey link to access and complete the questionnaire. The questionnaire link was distributed via WhatsApp, Facebook, and through personal contacts residing in Vijayawada. Participants were encouraged to independently fill out the questionnaire through the provided survey link. This self-administered approach was chosen to eliminate potential biases introduced by external influences. Data collection was conducted from the 10th of July to the 22nd of July, encompassing a 12-day period.

The study in question appears to be focused on a specific demographic in Vijayawada, India. The inclusion criteria for participants were set to ensure that the study gathered data from individuals who met certain eligibility requirements.

Firstly, participants must reside in Vijayawada, which indicates that the study is localized to this particular city. This choice might have been made to narrow down the sample to a specific geographical area, potentially for reasons related to the study's objectives or the availability of resources.

Secondly, participants must be at least 18 years of age. This age requirement likely reflects the legal age of adulthood in India, and it is a common inclusion criterion for studies that involve adult participants. This ensures that the participants are of an age where they can provide informed consent and are considered legally capable of making decisions about their participation in the study.

The sample size of 100 valid responses suggests that the researchers received and considered data from 100 individuals who met the inclusion criteria. This sample size is significant as it meets the minimum required for the study.

## DATA PREPARATIONS

The raw data, gathered via SurveyCTO, underwent a meticulous refinement process within SPSS. This procedure involved the meticulous curation and transformation of the dataset to eliminate

incomplete or erroneous responses. Through systematic data cleaning and processing, any anomalies or missing values were rectified, ensuring the dataset's integrity and reliability. This critical stage of data preparation, executed within SPSS, paved the way for meaningful statistical analysis and insightful interpretation. The resulting refined dataset is a robust foundation for extracting valuable insights and making informed decisions based on the information gathered through the survey.

## DESCRIPTIVE ANALYSIS

Descriptive statistics such as frequencies, percentages, and averages were employed to summarize the data. Appropriate statistical tests, such as chi-square tests or t-tests, were applied to identify any significant relationships or differences between variables.

In a sample of 100 respondents, the age distribution was as follows: 13% were aged between 18-24 years, 49% fell within the 25-34 age range, 34% were between 35-44 years, 3% were aged 45-54 years, and 1% were aged 55 years or older. The gender distribution showed that 76% of respondents were male, while 26% were female. In terms of educational attainment, 58% held bachelor's degrees or higher, 37% were high school graduates, and only 4% had completed primary school. Notably, 92% of participants reported making online purchases. The average household size was calculated to be 4.43 persons.

In terms of occupational status, 52% were salaried, 20% were engaged in small businesses or trading, 10% were homemakers, and the remaining 18% comprised students, unemployed individuals, retirees, and others. Regarding residential tenure, 86% of participants had been residing in Vijayawada for more than 5 years, whereas 14% had lived there for 0-5 years. In relation to income levels, 5% reported earning less than Rs 10,000 per month, 28% earned between Rs 10,000 and Rs 20,000, 34% earned between Rs 20,000 and Rs 30,000, and 8% reported earning Rs 50,000 or more. Additionally, 9% of respondents chose not to disclose their income information. Table 1 provides an in-depth snapshot of the sample's demographic composition. Statistical analysis was conducted using IBM SPSS software, specifically version 25.

**Table 1. Distribution Sample Characteristics**

Characteristics		N	Percent
Age	18-24 Years	13	13.0%
	25-34 Years	49	49.0%
	35-44 Years	34	34.0%
	45-54 Years	3	3.0%
	55+ Years	1	1.0%
Gender	Male	76	76.0%
	Female	24	24.0%
Education	Primary education (elementary school)	4	4.0%
	Secondary education (high school)	14	14.0%
	Diploma/Intermediate	23	23.0%
	Bachelor's degree	44	44.0%
	Master's degree	14	14.0%
	Doctorate degree	1	1.0%
Occupation	Employed /Salaried	56	56.0%
	Self-employed/Business	20	20.0%
	Unemployed	6	6.0%
	Student	5	5.0%
	Homemaker	10	10.0%
	Retired	2	2.0%
	Agriculture	1	1.0%
Income	Below 10,000 INR	5	5.0%
	10,001 - 20,000 INR	28	28.0%
	20,001 - 30,000 INR	34	34.0%
	30,001 - 50,000 INR	16	16.0%
	50,001 - 1,00,000 INR	5	5.0%
	Above 1,00,000 INR	3	3.0%
	Prefer not to say	9	9.0%
Have you ever bought anything online (excluding groceries)?	No	8	8.0%
	Yes	92	92.0%

## RESULTS

The Likert scale analysis was conducted to assess the degree of agreement with statements pertaining to various dimensions, including Quality Concerns, Trust and Reliability, Privacy and Security Concerns, Return and Exchange Process, Cost Considerations, Convenience and Effort, Local Support and Preferences, and Awareness and Information Gaps, in the context of refraining from purchasing groceries online. This examination sought to uncover and quantify the respondents' attitudes, concerns, and preferences related to online grocery shopping, providing valuable insights for research and decision-making.

In this study, respondents' perspectives on various aspects of online grocery shopping were assessed using a Likert scale, a

commonly used tool for measuring attitudes and opinions. The mean scores, which ranged from 2.76 to 3.46, provide valuable insights into the level of agreement among participants regarding the statements related to online grocery shopping barriers.

One prominent finding is the preference for personal selection to ensure quality and freshness, with a mean score of 3.46. This suggests that a significant portion of respondents generally favors the hands-on approach of physically choosing their groceries. However, it's noteworthy that there is some variability in the level of agreement, as indicated by the standard deviation of 1.27. Similarly, the statement regarding the enjoyment of the physical store experience received a mean score of 3.16. This indicates that respondents, on average, find pleasure in the traditional shopping



process. Yet, there is variability in the level of agreement among participants, as reflected by the standard deviation of 1.24.

Concerns about the trustworthiness of online grocery vendors also emerged, with a mean score of 3.06. This implies that, on average, respondents find it challenging to fully trust the reliability of online vendors. Again, there is variation in opinions, evident from the standard deviation of 1.14.

Furthermore, respondents expressed reservations about privacy and security concerns when shopping online, with a mean score of 2.97. This suggests a notable level of apprehension regarding the safeguarding of personal information in the digital realm. The standard deviation of 1.30 indicates differing levels of concern among respondents.

Additionally, the perception of online shopping as time-consuming or requiring more effort received a mean score of 2.76. This indicates a tendency among respondents to view online grocery shopping as a potentially labor-intensive process. Variability in this perception is highlighted by the standard deviation of 1.29.

Overall, these findings unveil a nuanced perspective on online grocery shopping, with a range of sentiments and concerns among respondents. While there is a general trend towards agreement with certain statements, the variability in responses underscores the diverse viewpoints and experiences that influence individuals' preferences and reservations about this mode of shopping. For a comprehensive overview of the responses, please refer to Table 2.

Table 2

Statement	Mean	Std. Deviation
I prefer to select my groceries personally to ensure quality and freshness.	3.46	1.27
I enjoy the experience of physically going to the grocery store	3.16	1.24
I prefer to support local grocery stores and businesses	3.14	1.26
I believe the prices of groceries are better in physical stores	3.09	1.13
I find it challenging to trust the reliability of online grocery vendors.	3.06	1.14
I am skeptical about the accuracy of product descriptions and images online	3.04	1.21
I am unsure about the process of returning or exchanging groceries bought online	3.03	1.23
I am concerned about the privacy and security of my personal information when shopping online.	2.97	1.30
I am not aware of the online grocery shopping options available in Vijayawada	2.9	1.21
I find the delivery charges for online groceries to be expensive	2.89	1.26
I am concerned about the quality of groceries purchased online	2.86	1.25
I worry about receiving near-expiry or expired products when buying online	2.82	1.18
I am not confident in the timely delivery of online groceries	2.8	1.32
I perceive that online grocery shopping is time-consuming or requires more effort	2.76	1.29

In our research study, we have observed that individuals exhibit a preference for personally selecting groceries to guarantee quality and freshness, to relish the experience of physically visiting a grocery store, to support local grocery stores and businesses, and to perceive better pricing for groceries in physical stores. These constitute the top five reasons for their grocery shopping preferences.

To enhance the reliability and robustness of our research findings, we conducted a reliability assessment for Likert scale questions. This involved presenting respondents with a set of statements and a Likert scale to gauge their level of agreement. We evaluated the internal consistency reliability of our scale.

All items exhibited positive Corrected Item-Total Correlations, affirming their positive correlation with the total score, as anticipated. The Cronbach's alpha values were notably high, ranging from approximately 0.956 to 0.961. These values indicate an outstanding level of internal consistency reliability. This implies that the items in our Likert scale effectively measure the same underlying construct. The Scale Mean and Scale Variance if Item Deleted offer supplementary insights into how the removal of each item might impact the overall scale statistics. Table 3 below presents the reliability statistics.





Table 3: Reliability Statistics

Item	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
I prefer to select my groceries personally to ensure quality and freshness.	38.52	175.747	0.639	0.961
I am concerned about the quality of groceries purchased online	39.12	170.288	0.829	0.957
I worry about receiving near-expiry or expired products when buying online	39.16	176.075	0.685	0.96
I am skeptical about the accuracy of product descriptions and images online	38.94	173.006	0.769	0.959
I find it challenging to trust the reliability of online grocery vendors.	38.92	170.579	0.901	0.956
I prefer to support local grocery stores and businesses	38.84	170.116	0.823	0.957
I am concerned about the privacy and security of my personal information when shopping online.	39.01	172.394	0.726	0.96
I am unsure about the process of returning or exchanging groceries bought online	38.95	169.018	0.881	0.956
I find the delivery charges for online groceries to be expensive	39.09	171.78	0.769	0.959
I enjoy the experience of physically going to the grocery store	38.82	170.634	0.825	0.957
I believe the prices of groceries are better in physical stores	38.89	174.523	0.772	0.959
I am not confident in the timely delivery of online groceries	39.18	168.755	0.827	0.957
I am not aware of the online grocery shopping options available in Vijayawada	39.08	175.812	0.672	0.961
I perceive that online grocery shopping is time-consuming or requires more effort	39.22	168.577	0.855	0.957

Considering this item analysis, our Likert scale demonstrates robust reliability and effectiveness in assessing attitudes and perspectives pertaining to online grocery shopping. These findings affirm the sound construction of our survey instrument, affirming its suitability for our research objectives.

## DISCUSSION

This research presents a comprehensive exploration of consumer perspectives on online grocery shopping, shedding light on the multifaceted dynamics of this growing retail sector. The study's demographic composition, methodology, and key findings offer valuable insights into the preferences and concerns of individuals who abstain from online grocery purchases.

The sample, comprised of 100 respondents, provides a diverse cross-section of the population. The age distribution reveals a preponderance of individuals aged 25-34, reflecting the demographic trends of the digital age. A notable majority of respondents are male, and a substantial proportion hold bachelor's degrees or higher. These demographic features provide a holistic view of the sample.

Likert scale analysis was the primary tool employed to gauge

attitudes and opinions surrounding online grocery shopping. The mean scores obtained for various dimensions, such as Quality Concerns, Trust and Reliability, Privacy and Security Concerns, Return and Exchange Process, Cost Considerations, Convenience and Effort, Local Support and Preferences, and Awareness and Information Gaps, offer an insightful snapshot of the respondents' perspectives.

One striking finding is the strong preference for personally selecting groceries to ensure quality and freshness, emphasizing the tangible experience of traditional grocery shopping. Similarly, the enjoyment of the physical store experience suggests a continuing fondness for in-person shopping. However, variations in agreement levels within the sample underscore the diversity of viewpoints.

Trust and reliability concerns with online vendors are evident in the mean scores, indicating the need for greater assurances in this domain. Privacy and security apprehensions are also significant, emphasizing the importance of safeguarding personal information. Additionally, the perception of online shopping as time-consuming or labor-intensive raises considerations for the user-friendliness of online grocery platforms.



Intriguingly, the analysis identifies the top five drivers of grocery shopping preferences, encompassing a preference for personal selection, enjoyment of physical store visits, support for local businesses, and perceived better pricing in physical stores. These findings present valuable insights for retailers and policymakers.

To ensure the reliability of our research findings, a thorough assessment of the Likert scale was conducted. Exceptionally high Cronbach's alpha values validate the internal consistency reliability of our scale, reinforcing the robustness of our conclusions.

In summary, this research enriches our understanding of consumer behavior in the online grocery shopping landscape, emphasizing the diverse perspectives and concerns that shape individual preferences. The study's findings have practical implications for both industry stakeholders and decision-makers, offering a nuanced view of this evolving retail sector.

## CONCLUSION

In conclusion, this research offers a comprehensive exploration of consumer perspectives on online grocery shopping. Through a detailed analysis of a diverse sample of 100 respondents, we have gained valuable insights into the attitudes, preferences, and concerns that influence individuals' decisions to refrain from purchasing groceries online.

Our findings highlight a strong inclination towards the traditional, hands-on approach of personally selecting groceries to ensure quality and freshness. Additionally, a significant proportion of respondents expressed a fondness for the physical store experience, emphasizing the enduring appeal of brick-and-mortar shopping. Trust and reliability emerged as paramount concerns, with many participants expressing reservations about the credibility of online vendors. Privacy and security concerns further underscored the need for robust safeguards in the digital shopping landscape.

Notably, our research identified the top five drivers of grocery shopping preferences, shedding light on the factors that hold sway over consumer decisions. These insights provide valuable guidance for retailers and policymakers seeking to enhance the online shopping experience. Furthermore, the exceptional internal consistency reliability of our Likert scale analysis reaffirms the effectiveness of our research instrument in measuring the underlying construct. This attests to the robustness of our findings and the validity of our conclusions.

In essence, this research serves as a valuable contribution to the field of online grocery shopping, offering nuanced insights into consumer behavior and preferences. As the digital landscape continues to evolve, understanding these dynamics will be instrumental in shaping the future of grocery retailing. We hope that our findings will not only inform academic discourse but also provide practical guidance for industry stakeholders, ultimately

enhancing the online grocery shopping experience for consumers.

## LIMITATIONS

While this research provides valuable insights into consumer perspectives on online grocery shopping, it is important to acknowledge certain limitations.

Firstly, the study's sample size of 100 respondents, while representative of the population under investigation, may not fully capture the diverse range of attitudes and preferences that exist within the broader consumer base. Future studies with larger sample sizes could offer more comprehensive insights. Secondly, the data collection process relied on self-reported responses, which may be subject to response bias. Additionally, the study focused on a specific geographic location (Vijayawada), which may limit the generalizability of the findings to other regions.

Furthermore, the study primarily utilized a Likert scale analysis to measure attitudes and opinions. While this method is effective, it may not capture more nuanced or complex dimensions of consumer behavior. Lastly, the research focused primarily on barriers to online grocery shopping. Future studies may benefit from exploring facilitators and incentives that could encourage consumers to embrace this mode of shopping.

## FUTURE RESEARCH

Building on the insights gained from this study, several avenues for future research emerge.

**Cross-Cultural Perspectives:** Conducting similar studies in different cultural contexts can provide comparative insights into how consumer attitudes towards online grocery shopping vary across regions.

**Qualitative Exploration:** Incorporating qualitative research methods, such as interviews or focus groups, can offer deeper insights into the underlying motivations and emotions that influence consumer preferences.

By addressing these areas, future research endeavors can further enrich our understanding of consumer behavior in the evolving landscape of online grocery shopping.

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# UNMASKING THE IMPACT: ANALYZING THE FACELESS AND NAMELESS APPROACH IN MODERNIZED PHILIPPINE NATIONAL POLICE RECRUITMENT

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## ABSTRACT

*The influence of the Faceless and Nameless Approach (FNA) on the recruiting process of the Philippine National Police (PNP) is investigated in this study. It seeks to ascertain how FNA lessens nepotism, prejudice, and favoritism; comprehend applicants' viewpoints on openness, equity, and communication; measure public perceptions; and assess FNA's long-term sustainability in light of changing recruitment and law enforcement procedures in the Philippines.*

*Through the use of a qualitative methodology and in-depth interviews with candidates, police officers, and members of the public, the research explores subjective experiences. Results show that FNA greatly reduces name- and personal-based prejudices and promotes an impartial, open selection process based on qualifications and merit. Fairness and equity are promoted by FNA, even while unconscious prejudices are not eliminated. Ongoing initiatives including training, open communication, assessments, and a dedication to equity are advised in order to maintain efficacy.*

*To sum up, FNA represents a critical advancement in modernizing recruitment and fostering public confidence in organizations such as the PNP. It maintains the ideals of fairness and impartiality while striking a balance between anonymity and transparency, signaling a major advancement in hiring practices.*

**KEYWORDS:** *Faceless and Nameless Approach, Philippine National Police, Recruitment Process, Impact Analysis, Modernization*

## INTRODUCTION

"Faceless and Nameless Approach" in the Philippine National Police (PNP) is a notable departure from traditional recruitment methods, with the primary goal of addressing long-standing issues of bias, favoritism, and nepotism (Caliwan, 2023). This innovative approach has attracted significant attention among various stakeholders, reflecting a broader trend in law enforcement adapting to evolving societal norms (Jordan, 2021). This research aims to comprehensively examine the impact of this approach on PNP's recruitment practices, its effectiveness in achieving its goals, and its potential benefits and limitations for the future of Philippine law enforcement. This study provides valuable insights for policymakers, law enforcement professionals, and the Filipino population interested in upholding the integrity of the PNP's recruitment procedures as the Philippines continues its journey towards modernization and reform.

The adoption of the Faceless and Nameless Approach in the Philippine National Police (PNP) recruitment process signifies a notable deviation from customary procedures. The impact of this

novel technique is still up for discussion and investigation, despite its foundational goals of openness and equity.

This study holds substantial significance for the Philippine National Police (PNP) and the broader community, offering insights to enhance recruitment procedures, promote transparency, and merit-based selection. This approach benefits potential recruits by providing a more equitable and accessible process, instilling confidence in the criminal justice system and enhancing public trust in law enforcement. It also contributes to knowledge on creative recruitment strategies, fostering principles of justice and transparency. The study primarily focuses on the Philippine context, providing a comprehensive analysis of the entire recruitment process within the PNP, with an emphasis on practical implications and societal perceptions, making it a valuable resource for law enforcement and public service recruitment.

A comprehensive review of various studies highlights key themes and insights in the realm of police recruitment strategies. Williams and Sondhi's extensive evaluation (2022) identifies three major themes, including cultural considerations, well-being,



work-life balance, and skill harnessing, emphasizing the importance of portraying recruits as dedicated adult learners committed to public service and the need for leadership emphasizing cooperation and transparency. Lentz's research (2022) underscores the critical attrition issue in American policing, with insights into multifaceted recruitment and retention challenges. Aiello's work (2021) highlights the significance of fair and respectful treatment in recruitment materials and its uniform impact across diverse groups. Inzunza's study (2016) emphasizes clear selection criteria and method interpretation improvements for police candidate suitability. Wilson's synthesis (2014) provides insights into transferable recruitment strategies applicable to various fields. Stubbs (2022) suggests focusing on pastoral care and community interactions to enhance diversity in police recruitment. Cubitt's UK study (2023) calls for integrating police intelligence and criminal history data into screening procedures. Studies like Caliwan (2023), Peralta-Malonzo (2021), Casilao (2021), Matucan (2022), and Mascardo (2021) showcase various recruitment methods and initiatives, including 'faceless and nameless' recruitment, CORES adoption, efforts to eliminate the 'padrino system,' and equitable recruitment for specific affiliations, each providing valuable insights into improving the police recruitment process. These studies collectively offer crucial implications and recommendations for enhancing the effectiveness of police recruitment strategies.

This study highlights a global trend in law enforcement recruitment towards equitable and principle-based methods, emphasizing skill selection, fairness, and transparency. Cultural factors and evolving attitudes among recruits are recognized as essential, focusing on creating supportive environments that prioritize well-being and work-life balance. The study also underscores the importance of leveraging recruits' skills, improving screening methodologies, and the unique context of the Philippine National Police's (PNP) "Faceless and Nameless Approach." This innovative approach aims to ensure anonymity and merit-based selection, but its long-term sustainability is still being investigated. The research bridges global recruitment trends with the PNP's specific context, addressing local challenges, systemic issues, and the interplay between recruiting strategies and community dynamics. It employs the Procedural Justice Theory and the Organizational Culture and Change Theory to examine how fairness perceptions and organizational culture affect various stakeholders involved in the Faceless and Nameless Approach.

## OBJECTIVES OF THE STUDY

The Objectives of the study are as follows:

1. To determine the degree to which nepotism, bias, and favoritism have been eliminated from the recruitment process of the Philippine National Police (PNP) through the implementation of the Faceless and Nameless Approach and to determine whether the application of this technique has not eliminated all indications of unconscious prejudice;

2. To investigate applicants' viewpoints on matters including transparency, equity, and communication in the hiring process;
3. To investigate how the general public view the Faceless and Nameless Approach, and to ascertain if the public's trust in the recruiting process and the PNP overall has increased or decreased as a result of this strategy; and
4. To evaluate the Faceless and Nameless Approach's long-term viability in light of its impacts as well as the changing nature of law enforcement and recruitment practices in the Philippines.

## METHODS

The research technique employed in this study utilizes a qualitative approach through in-depth interviews. This method aims to gather comprehensive insights into the experiences, views, and opinions of participants regarding the Faceless and Nameless Approach (FNA) and its impact on police recruitment in the Philippine National Police (PNP). Purposive sampling was used to select participants with relevant information and expertise in PNP recruiting, including 10 PNP personnel, 10 PNP applicants, and 10 community representatives. Semi-structured interviews with open-ended questions were conducted in person or via video conferencing, recorded for accuracy, and supported by field notes. Thematic analysis was employed to systematically code and categorize data to identify recurring themes, patterns, and insights. Ethical considerations and anonymity protection were ensured through institutional review board approval and anonymization of participants. The study presents qualitative results in a narrative format aiming to provide a comprehensive understanding of this subject.

## RESULTS AND DISCUSSION

This section focuses on the outcomes and discourse arising from an extensive examination of the Faceless and Nameless Approach (FNA) as it is applied in the recruiting process of the Philippine National Police (PNP). The present study examines the effectiveness of this novel approach in tackling widespread issues pertaining to nepotism, prejudice and favoritism. By conducting a comprehensive analysis that incorporates the viewpoints of police personnel, police applicants, and the public, The objective is to reveal the genuine effects of the FNA on the recruiting process of the Philippine National Police (PNP). This paper examines the degree to which the FNA has addressed prejudices and promoted openness, and its consequences for applicants, recruit diversity, public trust, and the long-term sustainability of this revolutionary strategy inside the PNP.

**How much has nepotism, prejudice, and favoritism been eradicated from the PNP hiring process because of the Faceless and Nameless Approach? Does this strategy not eliminate the existence of traces of unconscious biases?**





### ***The Impact of Faceless and Nameless Approach on Mitigating Nepotism, Prejudice, and Favoritism***

The Philippine National Police (PNP) has largely adopted the Faceless and Nameless Approach (FNA) to reduce nepotism, bias, and favoritism in recruiting. Participants praise the FNA's ability to reduce personal ties, biases, and name-driven prejudices, making applicant evaluation more objective and transparent. The FNA has made progress, but unconscious biases remain, underlining the necessity for ongoing monitoring and awareness campaigns to combat recruiting biases.

### ***The Unveiling Face of Bias - Assessing the Efficacy of Faceless and Nameless Approach in the PNP***

The Faceless and Nameless Approach (FNA) in the Philippine National Police (PNP) has been widely praised for decreasing nepotism, bias, and favoritism during recruiting. The FNA has reduced personal networks and name-based prejudices, promoting an objective and transparent hiring process. Participants agree that the FNA has simplified evaluation and reduced personal biases, but it doesn't eliminate them. This consensus emphasizes the need for constant vigilance, monitoring, and awareness to ensure recruiting fairness and impartiality.

**How does the Faceless and Nameless Approach affect applicants generally? From the standpoint of the applicants, are there issues with communication, openness, and fairness in the process?**

#### ***Anonymity Promotes Equality***

Applicants often praise the Faceless and Nameless Approach for promoting equity and justice in the hiring process. Applicants like the strategy for reducing personal connection and name prejudices. Candidates believe the Faceless and Nameless Approach is a vital step toward evaluating candidates entirely on their merit. This topic emphasizes the belief that this strategy levels the playing field and makes selection fairer. By removing names and personal ties, candidates believe their ratings are more objective. Candidates agree that anonymity equalizes possibilities and strengthens the recruiting process.

#### ***Anonymity for Justice***

Applicants' comments emphasize the Faceless and Nameless Approach's support for fairness in the recruiting process. Many candidates praise the approach's ability to reduce personal connection and name prejudices. This topic underscores applicants' conviction that the Faceless and Nameless Approach is a substantial step toward assessing candidates exclusively on credentials and merit, demonstrating justice. Candidates say this technique levels opportunities and creates a fairer selection process. Names and personal links are removed to increase review impartiality. There is an agreement that anonymity promotes justice by equalizing opportunities and greatly improves recruiting integrity.

**What impressions does the Faceless and Nameless Approach have on the public? Does it strengthen or weaken public confidence in the hiring procedure and, thus, in the PNP?**

#### ***Transparency Builds Trust***

Participants consistently noted that the Faceless and Nameless Approach increased public trust and confidence in the PNP's recruiting procedure. Respondents regularly say this method upholds fairness, impartiality, and transparency. This development reduces recruiting biases, boosting stakeholder trust in the PNP's integrity. The theme emphasizes that anonymity symbolizes the Philippine National Police's dedication to fair and unbiased choosing.

#### ***Impartiality Builds Confidence***

Participants emphasized how the Faceless and Nameless Approach boosts public trust and confidence. Participants repeatedly say this novel method shows a deep dedication to fairness, impartiality, and openness. The PNP's credibility has increased as stakeholders see this development as a major step toward reducing recruiting biases. Anonymity sends a powerful message about the Philippine National Police's commitment to fair and unbiased selection.

**Given its effects and the way that law enforcement and recruiting procedures are changing in the Philippines, is the Faceless and Nameless Approach viable over the long term?**

#### ***Long-Term Sustainability Optimism***

Respondents were positive about the Faceless and Nameless Approach's longevity in police recruiting. Its ability to promote fairness and maintain relevance makes respondents confident in its compatibility with modern recruiting trends. Participants emphasize the significance of continuing review, modification, and improvement to ensure the strategy's efficacy despite changing recruiting hurdles. This subject emphasizes the Faceless and Nameless Approach's ability to change police recruiting procedures.

#### ***Public Trust and Continuous Improvement***

Respondents' comments emphasize the Faceless and Nameless Approach's long-term sustainability in police recruiting. Participants emphasize its relevance due to its congruence with current recruiting trends and ability to promote fairness. Continuous review, modification, and refining are essential to overcoming recruiting issues, according to respondents. This technique is also believed to rebuild and boost public trust in the Philippine National Police (PNP), improving the organization's image and credibility over time.

### **CONCLUSION**

In conclusion, the implementation of the Faceless and Nameless Approach (FNA) has brought significant improvements to the recruitment process of the Philippine National Police (PNP), addressing issues related to nepotism, prejudice and favoritism.



This has led to widespread agreement among police personnel, police applicants, and the public that the FNA has reduced the influence of personal connections and biases, fostering a more objective and transparent recruitment process. While the FNA has effectively tackled these issues, it hasn't eliminated unconscious biases, highlighting the need for continued efforts to raise awareness and mitigate such biases. Prospective police applicants appreciate the FNA for advancing principles of equality and justice. The FNA has enhanced diversity and representation, boosted public trust, and improved the PNP's reputation. Participants express optimism about the FNA's long-term sustainability, emphasizing the need for ongoing assessment, transparency, and adherence to fairness and ethical conduct to ensure its continued effectiveness. In summary, the FNA has significantly improved PNP recruitment, but maintaining its success requires a commitment to impartiality, openness, and adaptability.

### RECOMMENDATION

To enhance the effectiveness and long-term viability of the Faceless and Nameless Approach (FNA) implemented in the recruiting process of the Philippine National Police (PNP), several recommendations can be proposed. Firstly, it's essential to provide sustained training and education for personnel involved in the recruitment process, focusing on addressing biases, data security, and FNA protocols. Transparent communication should be promoted, allowing applicants to access information, ask questions, and understand their roles while striking a balance between anonymity and personal involvement. Consistently evaluating the FNA's efficacy and its impact on the recruiting process is essential. It's crucial to uphold an equilibrium between anonymity and transparency, prioritize equity, enhance public knowledge about the FNA, evaluate and modify recruitment policies to align with the FNA, and establish collaborative coordination mechanisms within the PNP units involved in the recruiting process. These recommendations aim to optimize the FNA's effectiveness and maintain public confidence in the PNP's recruiting processes.

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# THEORIZING TRANSITIONAL JUSTICE

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## ABSTRACT

*Transitional justice has been defined as a process of addressing gross human rights violations and encouraging democratic transitions. It embraces the mechanisms of prosecutions, truth-telling, reparations, institutional reforms, vetting and memorialization. The evolution of the concept has widened with democratic transitions and the developing theoretical contributions. The main objective of this study is to evaluate the theoretical discussion made on the concept of transitional justice. The relevant data has been gathered through journal articles, books, reports and other academic publications. The analysis has been done under content analysis, and it is a qualitative data analysis. The results and findings of the study depict that transformation justice theory aims at legal, psychological, socio-economic and political justice to foster the mechanisms of transitional justice. The social learning theory directly deals with repairing former relationships and socioeconomic concerns, avoiding unequal treatment. The justice continuum theory of transitional justice interacts with justice and reparations in building a combined process of reparation justice, restorative justice, civic justice and socio-economic justice.*

**KEYWORDS:** *Transitional Justice, theories, reparations, justice*

## 1. INTRODUCTION

The term transitional justice gained momentum as an umbrella term with the association of different theoretical approaches in post-conflict societies. Transitional justice is a heterogeneous concept in which applying the common forms of theoretical approaches is irrelevant. As a new field of study, it is oriented in more practical perspectives. In recent years many critical studies were initiated to understand the role of transitional justice mechanisms at the international level and changes with the localities of operation. The theories of transitional justice can be mainly discussed under transformative justice theory, social learning theory of transitional justice and the justice Continuum theory of reparations for Transitional Justice.

## 2. LITERATURE REVIEW

The term "Transitional Justice" has been defined and discussed in the field of international relations to reconstruct the post-war scenarios of the world. After the end of the Cold War, transitional justice gained momentum as an essential framework for conflict-ridden areas of the world. The concept of transitional justice has attached many valuable definitions from its antiquity. The United Nations defines the concept of transitional justice as "The whole range of systems and actions connected with a society's attempts to come to terms with an account of large-scale past violations, and to assure accountability, serve justice and accomplish reconciliation". A narrow down definition has been put forward by Teitel (2003), "Transitional justice is a notion of justice blended with stages of political transformation distinguished by significant feedbacks to confront the wrongdoings of authoritarian predecessor governments." Transitional justice is performed in the circumstances of a process of transformation from violence or mass violation of human rights to numerous nonviolent and democratic nations; from the aspect of a civil society reaching from mass destruction, justice may have endeavored as

retribution for crimes, but also as a mode of getting into positions with the history and establishing a different expectation (Lambourne, 2009).

The development of the notion of transitional justice can be explained in three stages of its history. Transitional justice begins back in Athens 411 and 403 BC and presents particular discussion through the French reconstructions of 1814 and 1815. In 412-11 and then in 403 B.C. Athenians experienced two short oligarchic events, and Athenians took punishment measures against the oligarchs and compensation to their victims (Elster, 2003). Most scholars argue that transitional justice came into existence with the results of the 2nd World War. The first generation of transitional justice is reflected in the post-World War II model of justice. The Nuremberg trial was the first birth moment of transitional justice, which took the perpetrators of genocide, war crimes and human rights violations to international law's surface. With the horrendous crimes committed by Hitler's totalitarian regime, the United States, Great Britain, France and the Soviet Union wanted more than just the negotiation of a ceasefire and a peace agreement (Bothmann, 2015). When the military and authoritarian regimes emerged in Latin America and Greece in the 1970s, a more significant debate on transforming these kinds of regimes into democratic structures was initiated. The post-war transitional period was attracted towards retributive justice, in which the critical concern was punishing the perpetrators, eliminating the occurrence of future crimes and publicly confessing or begging for forgiveness. The post-Cold War period was a global political transition, with the breakdown of the Soviet Union, the bipolar system, and the establishment of new democracies worldwide. Most of the new democracies that emerged after following military coups and questions were raised regarding the methods of prosecuting perpetrators and finding ways to heal the victims. Moreover, the term transitional justice or



transitional justice became an official concept with in-depth valued definitions due to various actors' involvement in handling the peace agreements of prosecuting human rights violators. After the 1990s, the concept of transitional justice underwent more significant expansion due to non-judicial concepts, neo-traditional and domestic approaches. The South African Truth and Reconciliation Commission's primary outcomes further motivated the multi-faceted nature of transitional justice. The South African Truth and Reconciliation Commission's mechanisms led to the vast literature on reconciliation and concepts like apology and forgiveness. The experiences of the South African Truth and Reconciliation Commission and the international tribunals for Rwanda and Yugoslavia further enhanced the developments of transitional Justice. With the expansions of the concept, transitional justice embraced restorative justice instead of retributive justice. Restorative justice is a victim-centered concept which consists of reparations, truth-telling and apologies. The process of transitional justice can be implemented at various levels: international level, national level, and local level. The purpose of implementing transitional justice will decide the implementation level with other possible requirements. The mechanisms of transitional justice are deeply related to retributive justice and restorative justice. It mainly consists of prosecutions, truth-telling procedures, reparations or compensations and institutional reforms.

### 3. METHODOLOGY

The study is entirely based on secondary data and qualitative data analysis. The relevant data has been gathered from journal articles, books, reports and other academic publications. The collected data has been analyzed through content analysis to address the research objectives of the study.

### 4. DISCUSSION AND ANALYSIS

#### 4.1. Transformative Justice Theory

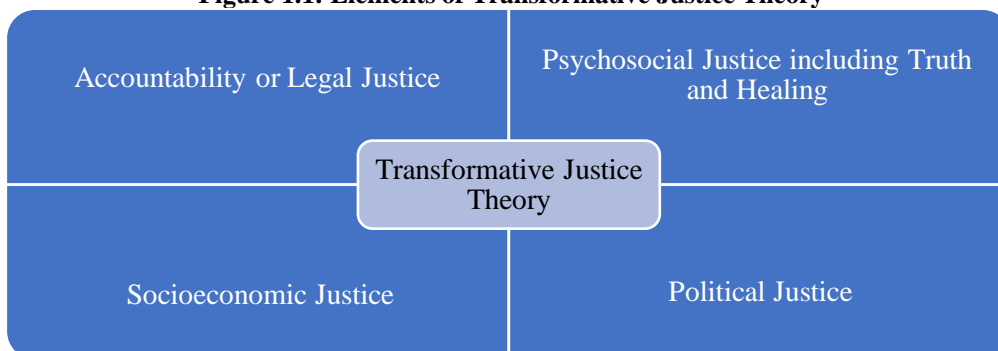
The enrichment of transitional justice into the peacebuilding process of post-conflict societies is holistic due to its close relationship with the reconciliation and peacebuilding mechanisms. Therefore, theorizing transitional justice usually falls into the model of justice-based reconciliation and peacebuilding frameworks. The retributive justice model inspired by the liberal tradition and prosecution may lead through ad hoc international criminal tribunals, hybrid courts, international courts, and ICC. Contrary to the prospects of

retributive justice, restorative justice is aimed at using truth and reconciliation commissions to rebuild relations within a society that suffered drastically due to violence. Nowadays, the international community has realized that the incorporation of retributive and restorative justice components can be regarded as the best clarification for transitional societies. It is a combination of approaches of retributive and restorative justice. However, this mutual framework is also inadequate in the so-called world to address transitional justice standards and methods driven by external interventions. The difference between retributive justice in the Western formal legal system and restorative justice in indigenous informal justice mechanisms is oversimplified and serves to mask rather than illuminate the multiple, complex human needs, expectations and experiences about justice and reconciliation. However, restorative and retributive justice acts respectively in frameworks like “Gacaca” community justice in Rwanda. It is more relevant to incorporate locally applicable mechanisms with restorative and retributive justice.

Moreover, it is crucial to clarify the relationship between transitional justice and peacebuilding. Peacebuilding contains a broad spectrum of political, economic, humanitarian, and human rights spheres and intends to ensure short-term and long-term goals. These objectives include democracy, development, governance, security, political spheres, the rule of law and justice. Justice, as a component of peacebuilding, has more transitional means to support sustainability in post-war societies. Sustainable peace requires the need to preserve negative peace into positive peace. It explains how transforming physical violence into social engagement implies the combination of legal, political, economic and social necessities. Considering these psychosocial preferences, Wendy Lambourne has put forward a theory of transformative justice.

This model was accompanied by the mass atrocities in Cambodia, Rwanda, East Timor, and Sierra Leone. Wendy Lambourne has reviewed the steps taken by the government of the states mentioned above and how the international community address those issues. Based on the conducted case studies of those countries, Wendy Lambourne has proposed a model for transformative justice, which consists of four major elements.

**Figure 1.1: Elements of Transformative Justice Theory**



Source: Created by Author, 2023





The model identified accountability and legal justice as the main elements of transitional justice within the framework. The majority of the victims of those countries preferred accountability and punishments for the perpetrators and have criticized the dissatisfaction of limited retributive justice in their countries' reconciliation process. Therefore, Wendy Lambourne suggested that retributive and restorative justice should be components of accountability and legal justice. Moreover, the study model indicated that only the prosecutions could not rebuild post-conflict societies. It expects the settlement of societal divisions that badly strengthen the mass atrocities of many states. Psychosocial justice, including the truth and healing, which is the second principal component of the model, contributes to victims' betterment in dealing with their sufferings. Wendy Lambourne pointed out that the word "truth" is misleading in a transitional justice context, including victims and perpetrators. Victims who contributed to this paradigm wanted to know the truth rather than have justice because they believed truth is a part of justice. Truth-telling of victims consisted of knowledge and some sense of acknowledgement of people's sufferings. In this process, NGOs' involvement significantly improved the participation of victims to reveal the truth in a greater capacity. Most TRC programs of the states contributed to peacebuilding, and they were more concerned with the immediate needs of socio-economic and political justice as a way of promoting peacebuilding. It reveals that accountability, legal justice and psychosocial justice are not sufficient to strengthen transformative justice. However, the model proposed by Wendy Lambourne emphasized the importance of victims, survivors and perpetrators acknowledging as part of the fundamental aspect of transitional justice. The truth-telling of perpetrators convinces what they have done and what kind of suffering the victims have gone through. The details of that truth-telling are more important for the justice and reconciliation process of the country.

The concept of socio-economic justice is associated with financing and other tangible elements like compensation, restitution, and reparation. It aims at reviewing the occurred violence and reducing the future reoccurrence of such crimes and violence. According to the proposed transformative justice theory model, victims tend to focus on historical reparations rather than future socio-economic justice as a conflict preventive measure. Moreover, the government's inability to secure the basic needs appropriate for peace and reconciliation. The 4<sup>th</sup> component of the model explains how political justice uplifts the concept of transitional justice. Likewise, with the socio-economic justice majority of the victims of Wendy's study criticized the government's inability to provide for their basic needs. Lack of commitment to good governance, lack of democratization and lack of political justice are the main factors that undermine the peacebuilding process. Political justice should be more complicated in handling institutional reforms. Institutional reforms are essential for the better improvement of transitional justice under the platform of political justice. Political justice requires political identity, cultural justice and institutional reforms. Moreover, the executive, legislative and judiciary should be more accountable to support the political

justice of a state. Eliminating corruption and fair representation is more applicable to political justice to foster the transformative justice theory.

#### 4.2. Social Learning Theory of Transitional Justice

Nevin T. Aiken put forward the social learning theory of transitional justice to examine the importance of serving social learning as a mediating feature between transitional justice and reconciliation in divided societies. He claimed that this initiative is not an effort to interpret that transitional justice mechanisms do not just foster reconciliation in divided societies. This theory explains how social learning creates necessary conditions for reconciliation and sustainable peace. The first element of social learning theory, 'instrumental learning,' refers to building relationships between divided groups of societies. There should be positive intergroup communications and transformative dialogues to maintain the quality of the interactions to foster instrumental learning. Upholding positive intergroup contact leads to improved relations among groups and reduces the occurrence of misperceptions. To achieve that end, the intergroup contacts should be in a non-adversary manner, through an extended period within a collaborative framework to reconstruct the group divides. Most of the scholars indicated that the inherent benefits of developing friendships and indirect contacts across groups might have ripple consequences that can spread throughout a group. Positive contact has the opportunity to establish intergroup relations and avoid prejudice, misperceptions and other rigid perceptions. It can be considered as the first step to initiate mutual trust between the victims and enemies after the conflict.

Apart from instrumental learning, the concept of justice is considered one of the most controversial requirements in both conflict transformation and transitional justice in divided societies. Justice is incredibly connected with sustainable peace in transformative communities, and reconciliation among former enemies may classify positive and negative peace through justice. Furthermore, the most controversial issue regarding the forgive-and-forget criteria is whether the victims are willing to forgive those who committed severe grievances for their lives. Injustices prevailing from the root causes can damage future generations, and it may continue to grow hatred tendencies with the apparent mistrust between the parties. Most academic scholars tend to believe that partial justice mechanisms should be implemented to foster reconciliation programmes in ridden areas. They have introduced several socio-emotional learning to advance the reconciliation process. The most special procedure acknowledges the injustices done to victims and makes the perpetrators accountable for their crimes. This initiative serves justice as a bridge to compromise the issues between the future and the past. Secondly, the indication of the use of violence and other coercive methods is not a productive long-term solution to prevent the occurrence of conflicts.

Nevertheless, the promotion of justice in divided societies can foster the process of truth recovery, which is an essential part of achieving sustainable peace and reconciliation. Adam and



Moodley (2005) illustrate that uncovering a factual record of the past can bring about more peaceful relations and suggest that truth recovery is a required element of the broader transitional justice process and reconciliation. Truth recovery plays a vital role in reconciliation as it narrows down the permissible lies and approaches to overcome future conflicts and antagonisms. Most scholars who put greater importance on reconciliation pay little attention to the positive impact of truth recovery in conflict transformation. Collective memories are usually maintained by groups throughout the conflict and transformed into future generations, forming antagonistic group behaviour through cultural and political channels. Besides, biased beliefs can prevent intergroup reconciliation and limit the social learning required to develop new understandings. Truth recovery processes can provide the space for the dissemination of new information needed by former enemies to transcend existing antagonisms and their own preoccupations with victimization and begin a process of redefinition of the identity of a negotiated settlement. Therefore, truth recovery is considered as an integral component of the reconciliation process of a post-conflict society. Transitional justice institutions are essential in this stage to specify the legitimacy of the truth recovery. Most truth commissions' procedures are solely employed to discover, clarify and compose the post-violence with the involvement of all parties involved in the past violence. Involving all the parties responsible for post atrocities may build reliable truth, recovering in a legitimate nature.

However, social learning requires the implementation of reconciliation, which cannot be overcome with transformation in social interactions, truth recovery and instrumental learning. Apart from the primary factors supporting the reconciliation, unequal distribution and inequality appear as a dominant phenomenon that should be upgraded to foster long-lasting reconciliation. Unequal distributions in economic wealth, social status, material infrastructure and basic human needs are influential when the other required elements are achieved. It implies that fair distribution within the post-conflict societies is more significant in shaping the reconciliation-based transformation. Johan Galtung argued that fostering reconciliation and a sense of lasting sustainable peace among the former enemies in divided societies may require not only the end of physical violence but the creation of a more positive peace addressing the more profound structural violence underlying such conflicts. The presence of social inequalities also affects the perceptual and ideological changes expected in transformative societies. Moreover, it may spread biased views and myths quickly. The main organ in achieving

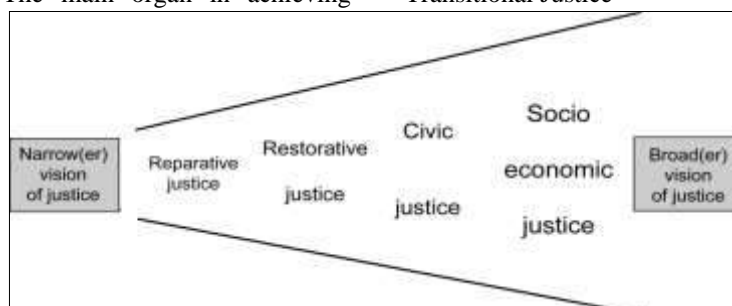
instrumental learning is better communication and contacts. To achieve this end, there should be no material inequalities. When people interact in a highly unequal stand, they will further categorize themselves with social disparities. It may badly influence the communication channels as well as the contact building within the post-conflict societies. Therefore, conflict transformation to advance social learning in divided societies requires ameliorating the structural systems of dominance, dependence, and inequality that produce antagonistic intergroup identifications. The structural contribution to inequality should be coupled with transitional justice mechanisms or transitional justice interventions, and much consideration should be given to material inequality. There are two specific mechanisms to incorporate transitional justice interventions within a post-conflict society to proceed with the distribution procedures to eliminate disparities. The first mechanism is reparations, which formalize the distribution of material elements to those who experienced severe socio-economic and political effects during the conflict. The second mechanism is to initiate the distributive mechanisms as a part of the transitional justice institutions.

However, the social learning theory of transitional justice offers a new understanding of utilizing transitional justice mechanisms to foster reconciliation and legitimacy in transitional justice. It introduces a new avenue for assessing transitional justice through instrumental, socio-emotional and distributive forms of social learning. Socio-learning theory facilitates the most wanted requirement of the society of post-conflict backgrounds and maintains the long process to achieve sustainable peace. It offers a new theoretical framework to perform best practices of transitional justice. This theory mainly focuses on truth and justice, which are the most potent reconciliation and transitional justice factors. It concludes with creating equitable partnerships and rebuilding the platforms to transform the divided societies.

### 4.3. "Justice Continuum theory" of reparations for Transitional Justice

The founder of the justice continuum theory, Lisa. J. Laplante focused on the interaction between justice and reparations. The theory of justice continuum is based on the broader nature of reparations under four theories of justice: reparation justice, restorative justice, civic justice and socio-economic justice. These main theories incorporate a narrow vision of justice and a broader vision of justice.

Figure 1.2: "Justice Continuum theory" of reparations for Transitional Justice



Source: (Laplante, 2014)



The concept of reparation is closely linked with economic compensation. According to the teachings of Aristotle, the person who caused harm by violence should pay reparations for the relevant victims who underwent severe damage and the consequences of the damage. Reparations can be illustrated as determining the magnitude of the correction imposed on the particular offence and the amount of compensation to be paid. In the present correction, justice is practised through civil remedies and tort law. International human rights tribunals are focusing on individual cases in which the compensations are applicable or not. There are a variety of methods for restoring the victims to their statuses, such as rehabilitation, satisfaction, compensation, restitution and other kinds of guarantees of non-repetition. Reparation justice usually interacts with the domestic counterparts to measure the damage and the harm caused by victims. Nevertheless, the most common and traditional judicial strategies may not provide effective remedies to crop up with the harm victims and reparation building. Traditional domestic reparation procedures, most of the time, set a unified package for all victims rather than examining them individually. Basically, reparations are defined as a way of treating the victims with financial compensation to overcome the bitter experiences of crime and harm. Therefore, the reparations mechanisms have been criticized for lack of investigation, lack of trustworthiness and limited mandate towards violations of rights.

Just like reparation justice, restorative justice theory also focuses on repairing the harm and facilitates the shortcomings of reparative justice. It provides new ways of achieving the expected outcome by monitoring the damage and rebuilding it from a broader perspective. Restorative justice describes a process whereby all the parties with a stake in a particular offence come together to deal with the outcome of the offence and its implications for the future. Some scholars define restorative justice as the precise opposite of retributive justice, which allows punishments for offenders and makes them equal to victims' pain. Even though restorative justice historically focused on interpersonal suffering and harm, restorative justice further emphasized its framework on mass violence and mass suffering of a large group of people after the new transformation. Traditional theories of restorative justice prefer state-sponsored initiatives to protect the people from external threats. Despite the historical evolutions, restorative justice usually contributes to promoting transitional justice and questions the beneficiary on what and how the harm should be repaired and restored. This process restores the wounds and self-respect of safety and empowerment. Allowing the victims to participate in the reparation process may make them confident enough to redefine their status in society, and it will transform the wrong in the right direction. Restorative justice always focuses on eliminating the shortcomings of the reparation process. It helps to respect the dignity of the beneficiaries and avoid unfair treatment to repair the non-material harms associated with human rights violations. In some instances, the restorative justice mechanisms motivate the victims to define the parameters of reparations, which have the possibility to lead to micro-reconciliation frameworks. The positive methods of involving victims in the restorative justice

process clearly address the most sensitive issues, such as repairing victims' social status and restoring dignity.

The 3rd justice mechanism of the “Justice Continuum theory” of reparations for Transitional Justice, “Civic Justice”, refers to the relationship between the government and the governed. Civic justice is connected with the central democratic values, and every citizen is allowed to participate in the public realm. It encompasses democratic politics in which decisions and policies are justified in the process of discussion among free and equal citizens and their representatives. It motivates the government of the state to make the victims and survivors engaged in the reparation process as stakeholder partners. While initiating this process, the government may face problematic frontiers due to the victim’s perception that they are not treated equally. Their status is less than human due to the severe human rights violations they faced during the war-torn periods. Therefore, governments should take appropriate measures to ensure the status of the victims and repair their perceptual thinking. The macro-level reconciliation seeks to address these issues and strengthen the relationship between the government and the governed. Moreover, civic justice clarifies that violent conflicts may occur when the government fails to manage the marginalization of underrepresented constituencies. Civic justice promotes the democracy-building of transitional justice to overcome these grievances. On the other hand, civic justice can be utilized as an alternative to avoid conflicts before their emergence and build up discussions and non-violent discourse to encourage the people to come together and discuss the most controversial facts. This process can lead to a large-scale societal transformation and institutional transformation.

Reparations are essential in the sense of building the principle of the rule of law to reinforce a right-based counter-culture to hold the government accountable for human rights violations as an official policy. On the other hand, it motivates the government to respect and protect fundamental rights. In this way, civic justice may encompass modified retributive justice theory in the civic penalties serve to deter future transgression. This continuum theory facilitates the social, political and judicial reform process, which leads to social reconstruction. Governments use reparations as a method of transferring the previous societal system of the country to get adjustable for a more human rights-oriented one. However, culture plays a dominant role in transforming societal structures. This vision of transitional justice procedures was implemented in Peru and demanded reparations that stand for social and political facts to achieve macro-reconciliation. The Peruvian mechanism is solely related to the factors of civic justice. The interaction between transitional justice and development put forward the concept of socio-economic justice. It implies the causes of conflict, which leads to severe human rights violations. These causes of conflicts mean social and economic inequalities, leading to malpractices of human rights and other crimes. Lambourne (2009), argues that socio-economic justice can combine financial and material compensation while providing reparation for past violations and distributive justice in future attempts.



## 5. CONCLUSION

The theoretical and conceptual analysis of transitional justice and reconciliation represents significant contributions interacting with a wide variety of concepts. The theories of transitional justice gained significance as a new field associated with international relations. The transformative justice theory of transitional justice was proposed in reference to the atrocities committed in Cambodia, Rwanda, East Timor and Sierra Leone and the measures that were taken against such atrocities. Transformative justice theory mainly aims at legal justice, psychological justice, socio-economic justice and political justice. The combination of these various types of justice can forge a strong prosecution procedure, psychological healing for victims and relevant reparation and institutional reforms. The social learning theory of transitional justice revives the importance of social learning and serves as a mediatory fact between transitional justice and reconciliation. The social learning theory is coupled with instrumental learning, socio-economic learning and distributive learning. It directly deals with repairing former relationships and socio-economic issues and minimizing inequalities. The justice continuum theory of transitional justice emphasizes the interaction between justice

and reparations. It includes reparation justice, restorative justice, civic justice and socio-economic justice.

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# A SYSTEMATIC LITERATURE REVIEW ON WORK LIFE BALANCE

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## ABSTRACT

*This article on work life balance literature review is focused on identifying and analyzing what all the factors are directly and indirectly affecting the performance of the employees in their work place. There is a greater need to know about the performance of an employee because of the competition increasing in the market. In olden days as there was no much education awareness, growth in number of organization was found. But because of vast growth in today's science and technology, education, awareness in market etc are making the human beings to increase their performance. It has received greater importance to have good understanding in society and fulfilling the needs and wants of employees and further for the growth of the organization also. This literature review found other various conditions like turnover, absenteeism, stress, job satisfaction, career growth, competitive market etc. As of in today's society more number of deaths, suicide, illness, unhappy were found more in present working employees. When an attempt has made to know why these greater changes are taking place then it found various parameters. This article is prepared on collecting secondary sources data like books, journals, research articles, magazines, newspaper which were shown as references in the last.*

**KEYWORDS:** *Competitive market, work life balance, growth and development, unhappy, deaths, career growth.*

## 1. INTRODUCTION

Human resource is one of the challenging and complex natured resources which need to be maintained in every organization. All other resources are non living beings but the human resource is the only one living being to be found in the working environment. As human resource is living being, it is found some different characters like needs, wants, interests, stress, feeling unhappy, tiredness etc. In this sort of conditioned resources managing in the work place is very difficult. As we already know that persons differ, perception differs. So in the working organization we need to have different mindset employees in different levels of work place in the organizations. As in this paper it is found of literature review considering various aspects place important role in the work life balance.

## 2. LITERATURE REVIEW

There are various literatures available in recent years on work life balance with different parameters. It has been found that there is a greater importance studies taking place in human resource management literatures. Many studies were focused on these issues from different angles. In 2009, Rebecca and Bundhun says, men and women have different perceptions about what life consists of. For men it fills with completion of personal interests and for women it is sacrificing more to her family. Dr. Katty Marmemout research scholar said in his words "Work life balance is not simply dividing employees time equally on their

work and personal life, but creating a good environment on individuals needs also. This made to accepting of happy work place and satisfied mother and father. "How to evaluate or measure work life balance? The best indicator will be feeling right" she said. And Murphy and Doherty in (2011) said that it is highly impossible to evaluate work life balance in a particular way because those were so many personal parameters which have impact on creating a good environment which focus on individual needs and also employees must have fixed firm distance from their house and work life and that distance must be with confident in the right place (Harvard Business review, page 184).

In (1985), Greenhaus and Bentell and Greenhaus et. Al in 1989 brought the studies of unhappy between work and family. In (1994) Goodstein and Ingram and Simous in (1995) said about organizations management responses to work and family issues. Along with this in (1994) Campbell and Kennard studied input of families issues on commitment to work and women job performance. In (1997) Foley and Powell still emphasized on bondage between business-marriage partners. In (2004) Hyman and Summers highlighted 7 important problems concerned with work life balance like organizational level there is not proper formalization of policies, unevenness of adoption across different organizations and sectors, organizations policies are to meet management needs but not employees need, restriction to voice



of employees for framing of policies in organizations, no proofs for decreasing employees working hours. Domestic life is covered with tangible and intangible work life, irrespective of employment ration responsibilities are carried out primarily by women only.

In (2002) Mr. Vloeberghs a research scholar traced that there is a most importance of an instrument to evaluate the current situation of work life balance. However in (2007) research scholar Mr.Eikhof et. Al said that the policies of work life balance are narrow minded in bringing out the needs and wants of employees, but there is a need for its understanding focused in emerald article, issue7, Human resource management, International digest volume 12 (2004) which focused that employees are understanding for responsiveness and to take inventive to meet expectation of employees for good benefits that motivates with work life balance.

Thompson and Walker in (1989), Hochschild (1989), Kelley and Voydanoff (1985), Higgins et.al (1992) expressed that women who are working in society are facing more problems than the men working in society as women are the primary and important persons to take care of their elder parents, children and homes. However Milkie and Peltola (1999), reveals that one will have less success in achieving their family work balance if wife has to do smaller home work. In 1992 Higgies and Duxbury said working problems are main source for family problems. In (2005) Researcher Reynolds said personal lives interfere with work are connected for fewer hours but work that interferes with life matters a lot.

In (1978) Miller focused that for most of the working employees work life starts at age of 16 and ends at the age of 70. In earlier days and in present, it starts at 20 and ends by 62. Over last 80years restrained effects of the increase in average length of life may be associated with some changes in history of work life. Moreover marriages also affect work life balance as many women are not finding understanding lifelong partners. In (1999) Levis researcher stated that women consequently stressed for the importance of acquiring Qualification and skills but in (1999), Milkie and Peltola to the above contradicted that happy marriages gives a greater serve of success in balancing both family and work.

### **2.1 WORK PLACE STRESS WITH WORK LIFE BALANCE**

In (2011), Mohan and Ashok said that "Stress is created to an individual when he is given with greater responsibilities without any suitable authority and powers". Internal factors like groupism, frequency in communication, dependency in functions etc. In (2008) Aziz and Cunningham said irrespective of gender, workplace stress and work life imbalance are related with work holism. In (2010) Baral and Bhargava says supervisor support and family work culture gives more commitment to Job and Job satisfaction. In (2005) Kasper et al. expressed that career of individual employee impacted with work family

tensions. There is a greater association between Work place, Job satisfaction and Stress. In (2003) Fair brother and Warn said there is no theory to give conceptual understanding between these relationships. In (2002) Greenhouse et al says work life balance is associated with Quality of life when there must be sufficient time, involvement and satisfaction to distribute across roles. In (1997) Halford and Kanter in 1977 said work place and family life are separate domains which were not having any bearing on each other. Now it is understood that domestic issues and responsibilities sometimes enter into work place and that organizational issues and responsibilities often enter into home life. In (2005) Reynolds says personal or family lives interference with work place is connected for few hours but work place connection with life matters a lot. In (2007) Robert explains that employees' attitude towards their houses for work, complaints and perception about their work life imbalances actually deals with work time and complaints with time pressure are unrelated to worked actual hours. In (2007) Hyman and Summer said there is prevalence in management's discretion in the operation of work life issues and management control of work life balance agenda. In (2008) Buddeberg-Fischer et al expressed that a good balanced professional and personal life with lots of integrity is an important goal for future generation. In (2007) Burgers et al says informal arrangements and management discretions are very important in understanding work and care balance.

### **2.2 WORK LIFE POLICIES/ PRACTICES AND WORK LIFE BALANCE**

In (2011) Ratzon et al states that Business productivity can be affected by many numbers of ways and one among them are Work life balance policies and practices in current scenario of labor market. Company employers can have best recruitments by giving work life balance policies with having good competitive remuneration packages. It reduces cost by reduction in employee turnover, reducing negative spill over, decreasing extended hours and fatigue to reduce negative impact on productivity also enhances in reducing stress and motivates to a safer and healthy work place. In (2007) Blooms et al expressed that larger firms are globalised to have best work life balance practices and also employers are motivated to implement work life balance policies to enhance their organizational productivity. In (2003) Wise and Bond said that in recent days employers focus more on implementing work life balance policies as they bring good productivity in organization. In (2003) Wise and Bond said companies which are recruiting more number of professionals are suppose to introduce best work life balance policies as there is scarcity to attract valuable employees to recruit and retain than low paid employees and also there are less available of work life balance practices and policies for low group skilled workers. In (1998) Galinsky and Bond reveals that in the US companies which are recruiting more number of hourly workers, employees in less paid jobs were not to implement work life balance policies. In (2008) Margarita Mayo, Ana Isabel Sanz and Juan Carlos pastor says that by implementing flexible organization policies neutralizes or reduces effects of employees stress on their family



satisfaction. In (2008) Collan states that organizational climate change is one idea to bring good work life balance for employees and increasing its values for bringing revitalization in organizational culture. In (2007) Straub states that there is a positive influence of work life balance practices and policies on women's career. Again in (2007) Straub said that "A flagship Public Sector Company ONGC found positive result that by having women engineer to their company by bringing new cultural paradigm in offshore operations expressed in an article "Breaking the glass ceiling in high seas". Bringing changes in working employees' mindset is most important to establish their unity. Women employees are also equally capable in bringing lots of value in cultural changes and different perspectives.

### **2.3 EMPLOYEES APPRECIATION AND WORK LIFE BALANCE**

In (2013) Ceniza Levine quoted that in employees' productivity T. Jinsite a division of Time jobs.com found that more than 35% of employees were saying that lack of recognition to their work is the biggest hindrance to their productivity. According to them rewards and recognition to their employees' achievement at work place acts as a morale booster which increases their productivity. In (2010) Paille et al expressed in an article "Forbes Woman" that if you are thinking undervalued. Decide 1<sup>st</sup> what you represent the appreciation you are seeking is it words of praise? Is it a promotion? Is it a raise? For their well being concern and contribution appreciation is required.

### **2.4 EMPLOYEES COMPETITIVE ENVIRONMENT AND WORK LIFE BALANCE**

In (2010) Curson and Skidmore found that staying in competitive and managing career can be very difficult in a challenging economy. In (2008) Bloom and Reeness found that through improvement in management practices though in a toughest market competition it will help to sustain successfully by driving highest productivity. In (2007) Bloom et al said that having established co-operation in work life balance with several factors on competition and productivity.

### **2.5 EMPLOYEES TURNOVER, ABSENTEEISM AND WORK LIFE BALANCE:**

In (2007) Dunne said in 21<sup>st</sup> century it is very difficult to have highly skilled staff in attraction, selection, developing and retaining of employees in order to have required staff, business achievements and societal weeds. So it is necessary to have strategic approaches in competitive market. In (2003) Murphy said it is important and becoming difficult to preserve organization's intellectual capital due to employees turnover. In (2005) Bigliardi et al said that if organizations were filled with work life balance approaches there will be less percentage of turnovers in the organization. In (1992) Levis and Kleiner expressed that turnover and absenteeism is observation on employees' dissatisfaction towards job. In (2010) Dawley, Andrews and Bucklew in their studies said that if there is mismatch between management and employees then it leads to greater turnover. In (2013) Muhammad Sajjad et al said

employees will not enjoy in their job if they are working with tactless and inflexible managers. In (2010) Curson J. Y and Skidmore T. said that with the help of work place flexibility, its able to enhance empowerment and it reduces turnover. Further Mr. Balasubramanian L. said that professional women employees quitting their job are due to relocation after marriage or the call of being a mother. In (2003) Comfort et al said employees will be less absent and affect positively to their work when employees feel satisfaction in their work place. In (2003) Clutter buck D. states that over work will cause absenteeism, stress, poor retention levels, less creativity and unethical employees behavior, also quoted that companies practicing positive policies on work life balance also benefit in reducing absenteeism by people on maternity leave.

### **2.6 JOB SATISFACTION AND WORK LIFE BALANCE**

In (1997) Spector said Job satisfaction is the degree with which employees like their jobs. Some employees enjoy work and find it as important to their center part of life and others hate to work and do so only because of inevitability. It is an attitudinal variable. In (2012) Borab stated that Job satisfaction is referred to as pleasurable or positive emotional feeling of an employee and reaction of an individual towards job. In (2012) Gupta A and Sethi J. A. said it is a reaction of an individual towards job. In (2003) Garber, (1999) Middlebrook, (2003) Murphy emphasized that employees were also attempting a lot to focus on employees' job satisfaction considering that there is a greater relationship between the survival of organization and the continual intellectual drain resulting from employee departure. In (2001) Reed, scholar said that sometimes company leaders and key leaders leave a revolving door of knowledge and skills. In (1998) Harkins stated that estimation on turnover can cost 3-5 times the salary of employees involved. In (2003) Hacker and (2000) Joinson said employees' turnover is a significant profit killer in the organization. In (2007) Aquinas emphasized that balancing demands of work family are related with employees' mental health and physical and other occupational variables as job satisfaction, performance, absenteeism, turnover etc. In (2005) Voydanoff emphasizes on work life balance and evaluates on appraisal of individual levels of satisfaction or achievement in balancing work and family. In (2000) Konrad and Mangel said that by implementing Work life Balance policies, it is possible to reduce conflict between work and family and leading to job satisfaction. In (1998) Tietjen and Myers say that job satisfaction brings confidence, loyalty and improves output of the employees. In (2000) Green says to organizational psychology that there are various theories and concepts given for job satisfaction by various experts from time to time. In (1954) Maslow, (1996) Herzberg, (1998) Glisson and Durick explained job satisfaction divided into 3 like, content theorists, process theorists, situational theorists. In (2000) Green focused that it is a predictor of behavior of job such as performance, absenteeism, turnover etc.





## 2.7 EMPLOYEE MOTIVATION AND WORK LIFE BALANCE

In (2012) Bansal and Sharma concluded that it is very important to have effective motivation for employees in work place. In (2009) Hall et al stated that influencing motivation leads to success and tendency to minimize failures. In (1966) Atkinson and Feather said, some researchers have found masculinity and femininity affects motivation. In (1959) Herzberg et al develops two distinct factors of list, they called as motivation, they are recognition, growth, work itself, Responsibility, advancements, achievements and others indirectly related to job itself and condition named as hygiene factors: salary, job security, status, factors in personal life, working conditions, technical supervisors, peers, subordinates etc.

## 2.8 EMPLOYEES CAREER GROWTH AND WORK FAMILY CONFLICT

In (2011) Tymon states that by balancing short and long term goals, improving competency, communicating openly with managers can improve the employees to reach their perceived career success. In (2009) Rasdi et al specified 4 factors for career success matters like person environment fit, organizational related managerial competencies related and individual related. In (2004) Scott Ladd and Marshall focused that career growth can be formed by participative decision making which leads to performance effectiveness. In (2008) Ballout mentioned that the employers and employees have to find suitable strategies for balancing work life balance. In (2001) Cunningham stated that present working men seek dual objectives like getting successful career and being involved in children lives. In (2008) Callan specified, work life balance can be found by employees on cultural revitalization rather than cultural change. In (2005) Mc Donald et al stated that there 5 dimensions that affect organizational work life culture like lack of managerial support, negative career consequences, organizational time expectations, gender nature of policy utilization, perceptions of unfairness by employees.

## 3.CONCLUSION

In 2006 Jones et al emphasis has moved towards the investigation of positive interactions between work life and family life roles and also roles performed outside the family lives. Scholars started to conduct research deliberately on the essence of work life balance. In (1996) Rapoport Bailyn stated that "Separation of work life from family life has existed from Industrial revolution era and remain largely intact today even though it has never reflected the way most people live.

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# THE JOB SATISFACTION OF EDUCATORS IN DEVELOPING NATIONS - A LITERATURE REVIEW

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## ABSTRACT

*The purpose of this research project is to identify, investigate, and evaluate the variables influencing teachers' and teacher educators' satisfaction with their jobs in developing nations. The research articles for this study were gathered and chosen using the literature review as a guide. This study contained the research papers that were mixed, quantitative, and qualitative. Numerous criteria, including those related to demographics and socioeconomics, possibilities for advancement, equitable compensation, a positive work environment, support from the community, coworkers, and friendships, were shown to be similar in determining teachers' job satisfaction. The primary causes of job discontent were determined to be administration and management mistrust, a non-transparent system, an unbalanced work-life schedule, a dysfunctional teaching and learning environment, a lack of resources, and meddling from governing bodies and pressure organizations.*

**KEYWORDS:** *Job satisfaction, Teachers, Imbalance Life, Non-transparent system and Mistrust*

## INTRODUCTION

The modern era is seen as the century of increased literacy and high-quality education, scientific and technological advancement through postsecondary education, and monetization of scientific and technological discoveries to maximize benefits for humankind's global survival. In order to bring intellectual minds together to generate novel products through inventions and advancements, many countries around the world, particularly China, the United States of America, Australia, France and many other countries tried their hardest to open calls for doctoral study. Higher education institutions are doing a good job of carrying out their mandates and obligations in order to broaden the breadth of research among staff and students in order to improve their efficiency and effectiveness. According to where they are located, universities can be divided into two primary categories: those in advanced and emerging economies. There are significant differences between these two types of universities in terms of their educators, resources, finances, working conditions, overall goals, faculty hiring and selection, leadership and management styles, management of time and discipline, publication systems and forums, compensation packages, staff autonomy, chances for academic growth, and support from the state and estate. Rules, regulations, and laws occupy a paramount place in developed country universities, with the belief and practice that nobody has any power over the law. In developing nations, on the other hand, things work the other way around, with people breaking the law for their own selfish interests. The largest obstacle to these nations' progress is that most of its citizens do not think that there are benefits to all of them.

Higher education institutions are crucial to the growth of any nation, and their faculty members are regarded as academics, scientific experts, and authorities in their fields whose work, particularly in the areas of innovation and invention, transforms departments, organizations, universities, and entire nations. Owing to their significance and labor, it is crucial to investigate perception, attitude, behavior, interest, fulfillment, and inspiration in order to gain an in-depth knowledge of the phenomena of motivation as well as job fulfillment. In order to introduce factors and causes that contribute to inspiration and demotivation, as well as the root causes of pleasure and discontent, through appropriate investigation and the performance of genuine research investigations. Therefore when the root causes and explanations for both positive and negative events are known, the phenomena can be easily comprehended. Whereas poor practices should be avoided and replaced, good practices should be used to produce high-quality output. It is essential to grasp a few fundamental definitions and descriptions of the basic terms associated to the phenomenon before delving deeply into knowledge.

According to J García-Bernal, A Gargallo-Castel, M Marzo-Navarro & P Rivera-Torres, (2005), job satisfaction is a final agreement that revolves around psychological conditions and a process to work in a competitive system for an organizational achievement. It is also directly related to employees' mental and physical well-being (IAN Donald & OL Siu, 2001) and the working environment (E De Croon, J Sluiter, PP Kuijer & M Frings-Dresen - Ergonomics, 2005; KE Charles, KMJ Farley &



GR Newsham, 2007; MM Wells, 2000). According to C. Naylor (2001), job satisfaction demonstrates how intensely employees work. It can also be understood in relation to other important factors like overall wellbeing, quality of life, stress at work, stress related to organizational matters, control over one's surroundings, and work and social life (N Tomažević, J Seljak & A Aristovnik, 2014). The aspects of job fulfillment that have a significant impact on motivation and overall degree of satisfaction (TW Smith, 2007). Teachers are satisfied to generate favorable feelings for their career because they believe that their job satisfaction and motivation are essential to providing high-quality instruction and meeting academic performance criteria (MK Alderman, 2013; EU Inguw & EN Ekefre - Nigeria, 2006; NA James, 2004). (EF Sirin, 2009). Through their inspiration and fulfillment at work, which have an important and beneficial connection (C Bordin, T Bartram & G Casimir, 2006), employees gain empowerment and independence (SA Carless, 2004; MR Haas, 2010).

## OBJECTIVES

- 1) To know the level of job satisfaction among teachers in the developing nations.
- 2) To analyse the factors affecting the job satisfaction of teachers in the developing countries.
- 3) To review the concept of job satisfaction of teachers.
- 4) To focus on the problems and challenges faced by Teachers in the developing countries.
- 5) To find ways to increase the level of job satisfaction among teachers.

## METHODOLOGY

The two primary parts of the study's methodology are its process and its purpose and research synthesis. The two components' details are listed below.

## PURPOSE AND RESEARCH SYNTHESIS

Through a combination of a review of the literature and research synthesis, this study aims to read, investigate, and gain a deeper understanding of the job contentment of teachers and educators in education. The terms "research review," "systematic review," and "research synthesis" are frequently used synonymously, with no agreement on the distinctions between them that would help one comprehend their true meanings. In order to illustrate the intellectual legacy and arrive at study outcomes through recommendations, inventions, and discoveries, investigators and social scientists participate in a systematic review process known as research synthesis. In the research synthesis procedure, studies and subjects are sampled, the material to be used is coded and indexed, the studies are integrated, and the report is written at the end. It is a process that involves organizing around the chosen theme(s) to provide readers with an easier time understanding the phenomenon and to combine overviews of the research papers in an insightful or meaningful way, embellished with the writer's or researcher's unique views and thoughts. In order to compare, contrast, and analyze the sources that the researcher uses for its research, the writer and researcher must engage in a higher level of cognitive labor.

Prewriting, Writing, and Conclusion are the three phases that make up the research synthesis. The engaged reading exercises that begin the pre-writing process involve reading numerous articles to gain knowledge about the authors, titles, and subject matter; reading and annotating each article, underlining key terms and concepts in each section; and summarizing the goals and claims made by the authors regarding the title and research. The thesis, or research statement, which establishes the relationship between each article and synthesis, comes first in the introduction. The body paragraph should contain concluded summaries that are given and related to one another. These summaries should emphasize the major ideas and how they support and relate to one another through concluding remarks. The four elements of the synthesis process are as follows: combining ideas and viewpoints; creating links between sources; drawing conclusions from sources; and developing concepts in a way that makes them easy to comprehend and relies on consensus or disagreement, addition, and classification. Phases of research synthesis, including problem conceptualization, publication search, evaluation of data, statistical analysis, results interpretation, and public dissemination of results, support this entire process (H Cooper, LV Hedges, JC Valentine, 2019). According to DN Caulley (1992), a literature review is an approach that involves researching any topic in a field and includes comparing and contrasting the opinions and points of view of various authors; highlighting areas of disagreement among authors in the same field; criticizing methodological aspects; focusing on and highlighting exemplary studies and research gaps; relating the current study to earlier studies and the general literature; and, finally, concluding and summarizing what the literature declares about the phenomenon that is under study.

## PROCESS OF THE STUDY

Using keywords like "teachers' job satisfaction," "teachers' job satisfaction," "teachers' job satisfaction and motivation," and "teachers' job satisfaction and motivation across developing countries," a hunt was conducted on Google, Google Scholar, and the websites. The reports, theses, and publications were located by using various search methods. Without any sort of intervention, the doctoral dissertations and reports were eliminated, but the written works were arranged according to the nation in which the study was done as well as the year it was conducted and published, starting in 2010 and going forward. The work fulfillment, its levels, parameters, and factors; satisfaction with work and inspiration; job satisfaction, performance at work and academic achievement of students; job satisfaction, both financial and non-financial remuneration job satisfaction, psychological wellness and behavioral intelligence; job fulfillment, self-efficacy, happiness, and well-being; and job satisfaction, innovation, leadership, and organizational commitment are just a few of the thirty selected studies that identified the four main themes.

## REVIEW OF LITRATURE

**NP Ololube, (2006)** His research will serve as a roadmap and a means of resolving instructors' unfavorable attitudes toward their jobs and their discontent with them. It is therefore strongly advised to adopt a fresh viewpoint on job fulfillment and dissatisfaction as well as the motivating elements that influence



them. This perspective should not only take into account the special qualities of the variables employed in this study, but also their societal and environmental origins.

**MM Abdullah, J Uli & B Parasuraman, (2009)** Their research conclude that the majority of the secondary school instructors that were part of their study are happy with their jobs as teachers. Their results do not support the widespread interpretation of this survey, which holds that teachers in our nation are not happy in their line of work. The secondary school teachers' dissatisfaction with their remuneration and working circumstances was also discovered by their study.

**Z Demirtas, (2010)** According to his study, teachers who have twenty years of professional experience nevertheless feel unsatisfied with their jobs, just as they did when they first started. Giving the instructors the expert support they require could improve their job happiness.

**GR Baluyos, HL Rivera & EL Baluyos, (2019)** According to their research, school administrators should focus more on their teachers' welfare and less on monitoring their performance as teachers. at order to guarantee job security at public primary schools, officers in charge of the school human resources department must incorporate into their retention tactics the supply of basic comforts, welfare packages for teachers, and timely salary payments.

**Z Sahito & P Vaisanen, (2020)** It was discovered in their research that incentives, support, conditions, success and performance, self-realization, prestige and respect, and connections were the key factors influencing teachers' job happiness.

## THE ASPECTS, REASONS, AND LEVELS OF JOB SATISFACTION

Since teachers are a vital component of educational opportunities, structure, and success, their job happiness is key to the global education system's continued expansion. Teachers' job satisfaction was shown to be mostly influenced by their improved working conditions and pleasant working environment (LCN Sirima & MW Poipoi, 2010). There was variation in the job satisfaction of instructors in the public sector. The degree of job satisfaction was significantly influenced by socioeconomic and demographic parameters. For example, the level of job satisfaction among female and young instructors was shown to be statistically significant. Since the hygiene elements and motivators have a significant impact on teachers' job happiness, our findings support Herzberg's (1959) two-factor theory (OW Msuya, 2016). The study revealed no noteworthy correlation between the job satisfaction of educators and their demographic characteristics, including age, gender, marital status, level of education, and professional grade. On the other hand, it was discovered that the best indicators of a teacher's job happiness were age and teaching experience, which had a strong correlation with job satisfaction levels (WS Murage & WL Kibera, 2014). In order to maximize job satisfaction, demographic variables including age and place of employment were shown to be the elements that affect job burnout. Since the detrimental effects of job exhaustion are too expensive for organizations to bear, teachers' job satisfaction levels and educational standards are immediately impacted (M Goswami, 2013).

A clearly established individual assessment system, possibilities for career development, workplace friendships, cooperative colleagues, and the community's respect for its members, students' success and cooperation, a sense of obligation and accountability, and monetary and non-monetary incentives were all found to be satisfactory among teachers. These all examined elements related to the three primary themes of the community and its customs, education and the workplace, and satisfaction with financial incentives (GJ Nyamubi, 2017). It was discovered that aspects such as labor safety, human relations, administrative assistance, pay, and professional development were closely linked to teachers' job satisfaction. The key to raising work performance and preventing the risk associated with teacher burnout is to improve teachers' motivation and job satisfaction (LW Wang & TT Tran, 2015). According to Sahito, Z., & Vaisanen, P. (2016), more than half of teacher educators ranked financial and fringe benefits, work and sympathetic connections, work, assignments, and workload as the most important aspects of their job satisfaction. According to S Parveen, Z Sahito, AS Gopang & MA Khamboh (2015), the primary positive factors of teachers' job satisfaction were high job security, attractive market-based salaries, professional growth, development, and training, as well as fringe and other benefits. These factors contributed to the 55% of high school teachers who were found to be extremely satisfied with their jobs. The main components of teachers' job satisfaction were flexible curricula, moderate working hours, involvement in decision-making, stable employment, interpersonal and intrapersonal relationships, and a strong network of communication (C Nganzi, 2014). Through the use of questionnaires, the relationship between institutional endeavors and teacher job satisfaction in Karachi, Pakistan's public and private educational institutions was investigated. Teachers' job satisfaction was found to be strongly and positively correlated with their working conditions, the principal's leadership style, their collegial support system, financial rewards, and career progress (N Rahim & S Razzak, 2013).

Across the globe, teaching is one of among the most stressful occupations. Because there was a strong positive link between senior teachers' job satisfaction as well as their duration of service - a finding shared by both male and female instructors - the teachers were found to be content with their jobs (M Shafi, 2016). Because education is essential to the healthy growth and development of society, teachers have a responsibility to utilize their influence to mold the future generations of the children in their country. For this reason, it is the duty of teachers to provide their students with a high-quality education. Due to the fact that effective instruction and the growth of education as a whole are closely related to teachers' attitudes toward their work, which should always be high and constructive in order to produce positive outcomes. The degree of job satisfaction among teachers was shown to be positively connected with success, and there was a substantial correlation between their pleasure with the teaching profession and teaching success. Teachers' job satisfaction was found to be primarily influenced by the teaching profession, working environment, authority, and the educational organization itself (R Sharma, 2013).





## JOB DISSATISFACTION

The primary causes of teachers' job discontent were determined to be workplace conditions, teachers' lives, the learning environment, a lack of instructional materials, a lack of laboratory supplies, non-competitive remuneration, delayed promotions, and no career advancement (GJ Nyamubi, 2017). Teachers' job unhappiness was significantly influenced by socio-demographic factors such as age, sex, marital status, and work experience (OW Msuya, 2016). The poor pay, absence of various facilities, lack of accommodation, delay in promotion, work-life imbalance, and bad planning for teacher recruitment and posting were the main reasons why nearly half of the educators was found to be unsatisfied with their jobs (M Shafi, 2016). Teachers' primary grievances were with inappropriate policy creation and its opaque implementation (LW Wang & TT Tran, 2015). The most important dimensions and reasons of job discontent among teacher educators were determined to be support from managers, permission and free hand, accessible amenities and working settings, and possibilities for growth and development (Sahito, Z., & Vaisanen, P, 2016). Positive, diligent, sincere, committed, and dedicated teachers' job dissatisfaction was found to be caused by a variety of factors, including workload, scheduling, attendance, consistency, reliability, connections and adherence with teacher unions, political parties, and other pressure groups (S Parveen, Z Sahito, AS Gopang & MA Khamboh 2015). Teachers' job unhappiness was found to be significantly influenced by characteristics such as career satisfaction, income augmentation, and working circumstances (WS Murage & WL Kibera, 2014). The primary causes of teachers' job discontent were found to be a rigid school schedule, a lack of ancillary benefits, a lack of independence to carry out their own responsibilities without intervention, and teacher transfers by school administrators (C Nganzi, 2014). Non-government teachers' job discontent was shown to be mostly caused by unpredictability and uncertainty in their line of work (R Sharma, 2013). According to N Rahim & S Razzak, (2013), the primary causes of teachers' job unhappiness at Karachi's schools were determined to be their workload and level of autonomy. Teachers' job burnout has a detrimental impact on their job satisfaction, which in turn raises their level of dissatisfaction (M Goswami, 2013). Job discontent was found to be caused by a lack of resources, professional training, and promotional approaches and techniques (LCN Sirima & MW Poipoi, 2010).

## SUGGESTIONS AND RESOLUTIONS

In order to keep teachers happy and motivated to stay in their jobs, private as well as public educational institutions should guarantee competitive salaries for their faculty. Additionally, work atmospheres should be improved and timely promotions and advancement in their careers should be handled in a transparent and priority manner (GJ Nyamubi, 2017) since it was discovered that job happiness was not uniform. Consequently, in order to ensure that their teachers are content and motivated, department heads, managers, and other leaders in educational institutions must employ practical measures including diverse management philosophies and motivating techniques (OW Msuya, 2016). Teachers should be given accommodations with enough facilities to motivate them to

work with extreme attention, dedication, hard work, and commitment in the best interests of academic quality and high-quality education. The salary and advancement policy should be reviewed and improved. Contemporary workshops ought to take place to improve and expand the academic and educational expertise and abilities of teachers (M Shafi, 2016). In order to boost job satisfaction at work and encourage teachers who love their careers to enhance the quality of their instruction, it was also recommended that policymakers take the facts into consideration before creating and enacting new policies in a transparent manner (LW Wang & TT Tran, 2015).

It was recommended that all relevant parties, including heads of departments, decision-makers, educational administrators, managers, teacher educators, and government officials, thoroughly comprehend this phenomenon and provide teachers and teacher educators with the tools they need to deal with their issues and become contented workers who can implement policies, rules, regulations, and procedures in a way that will lead to radical reforms (Sahito, Z., & Vaisanen, P, 2016). In order to stop illegal, unethical, and unsocial activities and improve the teaching-learning system of high-quality education, it is necessary to create employee-friendly policies regarding the amount of work, timing and attendance, regularity and reliability, relationship and connection with teacher unions, political parties, and other pressure groups (S Parveen, Z Sahito, AS Gopang & MA Khamboh 2015). In order to satisfy the materialistic needs of highly qualified and experienced teachers to improve their public image and self-esteem and stay in schools to maximize revenue and minimize burnout, it was suggested that the government, educators, institutions, and leaders in education ensure an elevated degree of career satisfaction, enhance earnings and working conditions, and so on (WS Murage & WL Kibera, 2014). To boost, improve, and enhance teachers' satisfaction with their work and inspiration as they develop an interest in their chosen field for better required results, the government and the Ministry of Education, Science, and Technology should provide adequate funding, human resources, and enable heads to do so (C Nganzi, 2014). To ensure teachers' job security and stability, the government should establish appropriate and stable regulations for dealing with nongovernmental educational organizations (R Sharma, 2013). In order to help teachers feel more satisfied with their work and to help them develop organizational citizenship behaviors toward the school, students, and their success, N Rahim & S Razzak (2013) proposed policy recommendations for schools to address the factors that have a positive and negative impact on job satisfaction. To improve teachers' satisfaction with their work life and performance, appropriate plans must be developed to lessen the effects of job fatigue in order to measure and regulate this problem (M Goswami, 2013). To provide teachers with up-to-date knowledge, in-service teacher training should be offered, and the Ministry of Education should be given additional funding for innovative and cutting-edge interventions to close the achievement gap and enhance promotion strategies (LCN Sirima & MW Poipoi, 2010).





## JOB SATISFACTION AND MOTIVATION

The main determinants of teachers' satisfaction with their jobs were extrinsic factors like students' interest, the working environment, their boss's recognition, adequate favorable evaluations, and appropriate pay/salary, as opposed to intrinsic factors like responsibility and positive relationships with coworkers (P Ghenghesh, 2013). JA Seniwoliba (2013) did a study in Ghana and discovered that the most significant elements influencing teachers' motivation were their compensation, workplace conditions, incentives, healthcare allowance, safety, recognition, accomplishment, growth, students' behavior, school policies, and their position. Additional research indicates that work motivation and job satisfaction have a significant impact on teachers' performance (MT Iaffaldano & PM Muchinsky, 1985; D Van Knippenberg, 2000). The study revealed a statistically significant positive correlation among job satisfaction, reward, recognition, supervision, and intrinsic motivation. It was discovered that job satisfaction leads to intrinsic motivation (MJ Shah, G Akhtar, H Zafar & A Riaz, 2012).

## JOB DISSATISFACTION AND DEMOTIVATION

The key causes of teachers' job discontent and demotivation were determined to be market-based remuneration, college policies and administration, a lack of a favorable evaluation system, a lack of personal time for home and family life, and job insecurity (P Ghenghesh, 2013). According to Adams' equity theory of motivation, teachers are generally dissatisfied with their remuneration in relation to their inputs, such as skills, ability, and workload, and they believe they are mistreated as professionals when compared to their colleagues in non-teaching organizations (JA Seniwoliba, 2013). However, it was discovered that a major contributing cause to teachers' job dissatisfaction and demotivation was their work itself (MJ Shah, G Akhtar, H Zafar & A Riaz, 2012).

## SUGGESTIONS AND RESOLUTIONS

If both intrinsic and extrinsic aspects were integrated into their work routines, teachers would feel content and motivated (P Ghenghesh, 2013). The upper management of the establishments should address concerns pertaining to intrinsic de-motivating causes by implementing collaborative decision-making processes (JA Seniwoliba, 2013). Engaging educators in decision-making, rewarding their efforts, and allocating tasks based on their areas of competence can foster greater courage and enthusiasm among them to work at their institution. To improve teachers' motivation and job satisfaction, management should concentrate on developing a transparent, equitable, and competitive remuneration plan (MJ Shah, G Akhtar, H Zafar & A Riaz, 2012).

## ACADEMIC ACHIEVEMENT OF PUPILS, WORK HAPPINESS, AND JOB PERFORMANCE

According to B Bozeman & M Gaughan (2011), satisfaction with work can be inferred from one's impression of compensation, as it is a significant factor in shaping an employee's motivation and job satisfaction. According to MM Muguongo, AT Muguna & DK Muriithi (2015), the primary factors that have a significant impact on teachers' job

satisfaction and incentive to improve their performance are their basic wage, allowances, and work environment. When compared to teachers in private schools, government school teachers were found to be more flexible and generally happier with their schedules and working conditions (FD Chughati & U Perveen, 2013). Teachers' satisfaction with work and inspiration are greatly impacted by pay because, as a result of unemployment and economic instability, people in developing nations tend to think with their stomachs rather than their brains (ME Malik, RQ Danish & Y Munir, 2012).

## ACADEMIC ACHIEVEMENT OF PUPILS, WORK PERFORMANCE, AND JOB UNHAPPINESS

Teachers expressed extreme dissatisfaction with every facet of the pay they are now receiving (MM Muguongo, AT Muguna & DK Muriithi, 2015). Every teacher should have a manageable workload because it has a direct and detrimental impact on their motivation, job satisfaction, and the standard of instruction (FD Chughati & U Perveen, 2013). According to ME Malik, RQ Danish & Y Munir (2012), promotions had less of an impact on Pakistani faculty members' inspiration and happiness at work.

## SUGGESTIONS AND RESOLUTIONS

In order to encourage teachers to provide their services with happiness, the government should immediately evaluate the teacher compensation plan and provide adequate allowances. Education planners could use these recommendations to assist creates employee-friendly remuneration practices (MM Muguongo, AT Muguna & DK Muriithi, 2015). Administrators, educators, and researchers can use the study results to further their careers in their specialized fields. Heads of Departments should push their instructors to perform better since accomplished educators produce high-achieving students who merit rewards to sustain their motivation and job satisfaction (FD Chughati & U Perveen, 2013). Aside from compensation and advancement, additional elements that affect university instructors' job satisfaction, motivation, and performance include work atmosphere, supervision, benefits, and job security. Thus, a larger sample and population of instructors from other universities may be used in future study on these aspects (ME Malik, RQ Danish & Y Munir, 2012).

## ACADEMIC ACHIEVEMENT OF PUPILS, WORK HAPPINESS, AND JOB PERFORMANCE

The degree of job satisfaction based on students' and teachers' self-evaluations of their job performance may be the cause of the important t-test score difference between dissatisfied and satisfied teachers in regards to their job performance (HS Afshar & M Doosti, 2016). Students' achievement test scores showed strong positive and substantial correlations, and these correlations were directly and significantly correlated with teachers' higher performance and work satisfaction. All components of job satisfaction, however, showed strong positive relationships with one another. For example, work had a somewhat favorable link with coworkers, promotion, working circumstances, and monitoring (A Iqbal, A Fakhra, TK Farooqi & ALI Shabbir, 2016). The study conducted by MAB Pilarta (2015) revealed that the factors that influence teachers' job satisfaction include their position of employment and



interpersonal relationships, financial resources, employment, responsibility, achievement, upward mobility, physical resources, their professional development and growth, students' academic achievement, and the positive evaluations of their teachers by their peers at their respective educational institutions. The job satisfaction and performance of central board school instructors was shown to be much higher than those of graduation and state-certified school educators. Their job satisfaction was shown to be most influenced by improved facilities, friendlier relationships, and a better working atmosphere (S Chamundeswari, 2013).

### **ACADEMIC ACHIEVEMENT OF PUPILS, WORK PERFORMANCE, AND JOB UNHAPPINESS**

The primary causes of job unhappiness were determined to be inadequate subject or subject matter pedagogical expertise, uneven attention to individual pupils, a lack of professional dedication, issues with interpersonal relationships, and demotivation (HS Afshar & M Doosti, 2016). Teachers' unhappiness was shown to be influenced by factors such as pay and supervision, which did not significantly correlate with most aspects of job achievement and satisfaction with work (A Iqbal, A Fakhra, TK Farooqi & ALI Shabbir, 2016). The main reasons behind teachers' dissatisfaction with their jobs were their salary, recognition, and supervision. On the other hand, MAB Pilarta (2015) found no evidence of a substantial association between instructors' performance, students' accomplishment, or job satisfaction and work success. Teachers' job dissatisfaction was found to be primarily caused by a lack of control over their place of employment, minimum period contracts, employment conditions, organizational policies, and organizational functioning. These factors had a negative impact on teachers' performance, organizational functioning, output, and productivity (S Chamundeswari, 2013).

### **SUGGESTIONS AND RESOLUTIONS**

Making employee-friendly rules motivating for teachers was proposed (HS Afshar & M Doosti, 2016). To maximize job performance and satisfaction and to retain instructors, schools should create recruitment and selection criteria as well as host and organize refresher courses (A Iqbal, A Fakhra, TK Farooqi & ALI Shabbir, 2016). The administration ought to establish policies that offer tenure and job security, recognition, and more possibilities for professional growth. Additionally, it ought to investigate additional elements that may impact teachers' and students' job satisfaction and performance (MAB Pilarta, 2015). Authorities, decision-makers, and members of the public are responsible for ensuring that the other elements that maximize and improve teaching effectiveness to the highest degree are also contributing to teachers' job satisfaction (S Chamundeswari, 2013).

### **DISCUSSION AND SUGGESTIONS**

This study's analysis of the literature on job fulfillment in developing nations revealed deficiencies in the body of knowledge. The majority of investigations were carried out using quantitative research methods, and the results were analyzed using conventional procedures. The largest weakness in research on the developing world is that none of the authors of the twenty-two quantitative studies employed contemporary

methods for quantitative data processing. Two of the six studies used qualitative research methods, while the other five used mixed research methods. All of the studies produced results that were somewhat appropriate, and the instruments, procedures, and techniques for gathering data to discover reality and truth appeared to be well-executed. But, in order to gather data and handle sample participants, researchers in poor nations must pay closer attention to how to use research methodology and be mindful of research ethics. The majority of the sample studies concluded on the good and negative aspects of job satisfaction as well as other relevant indicators and variables, and they offered recommendations to various relevant stakeholders. This is a positive aspect of all the studies.

The following were the main keywords that were used to select a sample for this study: the government or public-sector organizations, universities or schools, private sector organizations or schools, the government or public sector teachers, private sector teachers, administration, departments as well as departments, higher educational institutions, secondary schools, and teachers in secondary schools. Job satisfaction, inspiration, the teaching profession, burnout, compensation, job stress, pay and promotion, teachers' performance, teachers' mental health, teachers' emotional intelligence, teachers' self-efficacy, religious sense of wellbeing, happiness, commitment to the organization, leadership style, innovation, executive leadership style, teachers' self-efficacy, teachers' mental wellness, teachers' self-efficacy, teachers' self-efficacy, teachers' self-efficacy, teachers' self-efficacy, teachers' self-efficacy, teachers' self-efficacy, teachers' mental well-being, and students' academic performance.

### **CONCLUSION**

It is determined that the majority of developing nations share similar working conditions, human and material resources, and the mentalities of those involved in and connected to educational institutions - politicians, bureaucrats, educational administrators and officers, legislators, curriculum designers, regulations implementers, and teachers. The main source of intervention and input for major reforms will come from politicians. Nonetheless, they operate under the divide and conquer theory, which is why they have never adopted any kind of forward-thinking, realistic, or progressive action to update their nation's educational system. By breaking all the regulations, they typically meddle in the hiring, selection, and administration processes of colleges, universities, and schools in order to install their own individuals. Similar to Pakistan, political considerations play a role in the appointment of district managers and leaders of all educational organizations, encouraging corruption of all kinds.

Excellent educators, chosen via a competency-based selection process, consistently put in a great deal of effort to meet the needs of both their pupils and themselves—not the administration. Because of this, they were rejected from all progressive roles and prevented from applying for department head positions. Consequently, incompetent individuals who never say "no boss" will be appointed, regardless of whether the directives are lawful or not. Since most people in poor nations lack access to essential amenities like health care, clean water,



language proficiency, and sanitary facilities, corruption is the main cause of these problems. In many countries, poverty is also the biggest issue. For those who do have jobs, however, job happiness is their main concern, which makes it difficult for them to work toward improving both their personal and professional lives. It would not be incorrect to conclude that in developing nations, corruption is the main and most prevalent activity of politicians, bureaucrats, and educational managers. This has a detrimental impact on the systems, the capacity of human resources, and the motivation of teachers to put in long hours and provide high-quality education.

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## DIGITAL INCLUSION OF RURAL INDIA

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### ABSTRACT

*It is a widely acknowledged truth that numerous breakthroughs and technological advancements have led to the creation of digital India. These have a positive impact on people's lives and will better empower society. The 'Digital India' program, spearheaded by the esteemed Prime Minister, Mr. Narendra Modi, is poised to usher in novel developments across all domains and inspire inventive ventures for the next generation. The idea is to create a system that is transparent, responsive, and participatory. The process of transforming analog materials into digital files through scanning or other means is known as digitalization. It is the driving force behind the current era of change. It is significant to our day-to-day existence. The writers of this piece talk about Digital India and the initiatives being taken to digitalize rural India.*

### INTRODUCTION

The government initiative known as "Digital India" envisions a seamless, effective internet technology network that involves the public in the advancement of the nation. Broadband highways, mobile connection, public internet information availability, Wi-Fi access, and other features are all part of Digital India. Another ambitious government effort is Made in India. It remains to be seen how creatively global behemoths like Facebook and Google can contribute to the Digital India program as it is.

One of the things driving this new era of change is digitalization. It is important to our day-to-day existence. It's clear that tasks are becoming faster and more accurate as a result of digitization. With the introduction of computers five decades ago, the process known as "digitalization" got underway. These days, digitalization plays a part in our daily lives. For example, it affects how we interact and conduct business in numerous domains, including manufacturing and communication. Digitalization is also growing extremely quickly. It is critical to comprehend and value the ways in which these factors are influencing contemporary business. Our period can be referred to as the "digital era."

### OBJECTIVES OF THE STUDY

1. To research the idea of digitalization in rural India.
2. To talk about the different Digital India initiatives that the government has introduced.
3. To determine the degree to which this program has improved the lot of rural residents.
4. To list the main challenges that rural residents are facing as they implement Digital India.

### DIGITALIZATION OF INDIAN RURALS

India currently has a population of around 1.21 billion people,

69% of whom live in rural areas. The use of mobile phones is contributing significantly to the daily increase in internet penetration. Research carried out by IAMAI reveals some intriguing trends. Eighty percent of people who accessed the internet did so for communication, seventy percent for leisure, sixty percent for online services, sixty-five percent for e-commerce, and sixty percent for social networking. By June 2024, there will likely be over 85 million Internet users in rural India, making it the second largest Internet user market in the world.

Several fascinating stories originate from "NewDigm Healthcare Technologies" Rural Health Connect initiative, which has taken the initiative to make use of the sizable pool of "Village Health Workers" (VHWs) who offer a wide range of health care support to rural India's last mile areas. establishing a mobile platform to gather, evaluate, provide medical guidance, and suggest potential courses of action to the VHW. The outcomes have extensive documentation. In a field study run by the "National Rural Health Mission," Tamil Nadu saw a 20% decrease in outpatient costs, including medication costs, 95% of pregnancies documented and tracked, and 75% of VHWs reporting an improvement in diagnostic efficiency and operational simplicity. The target market penetration will rise dramatically over the next three years, affecting rural and hospital communities alike.

Even though India is becoming known throughout the world as a technological and innovative powerhouse, rural areas continue to face significant challenges related to the digital divide. The complex effects of the digital divide on rural Indian communities impede social inclusion, healthcare, education, and employment prospects in addition to limiting their access to information and services.

Numerous government and corporate sector-led projects are launched with the goal of empowering rural populations with



digital access and literacy. Let us examine the ways in which these initiatives for digital inclusion are promoting digitization and reducing the digital divide in rural India.

### INITIATIVES LED BY THE GOVERNMENT

The Indian government has launched a number of initiatives to guarantee that people living in rural areas have access to digital resources because it understands how important it is to close the digital divide in these places.

#### 1. BharatNet: Filling the Gap in Connectivity

The Indian government's main project, BharatNet, seeks to provide high-speed broadband internet access to even the most rural areas of the nation. Known as one of the largest rural telecom projects globally, its goal is to build a strong optical fiber network that will provide broadband connectivity to more than 250,000 rural Indian Gram Panchayats, or local administrative entities. BharatNet aims to enable mobile operators, Internet service providers (ISPs), cable TV operators, and content producers to deliver a range of services, including e-health, e-education, and e-governance in rural areas, by supplying last-mile connection.

#### 2. Digital Services at Your Doorstep with Common Service Centers (CSCs)

A key component of the National e-Governance Plan (NeGP), which was authorized by the government in September 2006, is the Common Service Center (CSC). In rural and isolated places, these physical establishments act as access points for digital services.

These centers provide many services, such as online form filing, printing of official documents, utility bill payment, and internet browsing. In rural India, there were 4,13,999 operational CSCs as of May 2023.

#### 3. Enabling Digital Access and Literacy through the Digital India Campaign

The goal of the July 2015 launch of the Digital India Campaign is to make India a knowledge economy and society enabled by digital means. Three main areas are the focus of this campaign: digital services, digital infrastructure, and digital literacy.

A number of projects have been launched by the government as part of the Digital India effort. Among them are BHIM (a UPI payment app), E-Hospitals (a platform that aims to connect patients, hospitals, and doctors), DigiLockers (which gives citizens access to their authentic digital documents), and E-Pathshala (which has textbooks, audio, video, periodicals, and a variety of educational materials).

#### 4. Mastering Digital Skills through Pradhan Mantri Gramin Digital Saksharta Abhiyan (PMGDISHA)

The PMGDISHA program, which was introduced as part of the Digital India Campaign, aims to teach rural residents digital literacy skills. By covering one member from each eligible home, it aims to reach around 40% of rural households by bringing six crore individuals in rural areas across States and Union Territories

digitally literate.

More than 6.15 crore candidates have been registered, 5.24 crore have received training, and 3.89 crore have received the necessary certification under the PMGDISHA Scheme, according to a government press release dated July 20, 2022. Also, the program has approved more than 4.13 lakh common service centers.

### NON-GOVERNMENTAL ORGANIZATIONS (NGOS) AND THEIR ENGAGEMENT WITH THE PRIVATE SECTOR

The advancement of digital inclusion in rural India is largely dependent on government programs, although non-governmental organizations (NGOs) and private sector entities have also demonstrated significant impact through their coordinated efforts. These players effectively support governmental initiatives by bringing innovation, regional strategies, and corporate social responsibility (CSR) to the fore.

#### 1. NGOs' Function in Digital Inclusion at the Local Level

NGOs frequently function at the local level, giving them a deep awareness of the particular difficulties that rural people experience. They organize awareness campaigns, training sessions, and workshops that enable rural communities to confidently navigate the digital world.

#### 2. CSR Efforts by the Private Sector for Digital Empowerment

A number of private corporations have launched corporate social responsibility programs to support digital infrastructure and education in rural areas, realizing their role in social development. Through Project Dhruv, a Mensa India project, the smartphone manufacturer OPPO India provided digital literacy tools to assist first-generation learners' academic performance last year. 45 OPPO pads, styli, and internet dongles were given to kids at a Gurgaon school as part of the association. Two remote Karnataka schools now have computer laboratories thanks to a project by Atkins India called the Digital Learning Enabling Programme (DLEP). Global companies' contributions only serve to amplify the effects of digital empowerment. For example, we partnered with the Digital Empowerment Foundation (DEF), a local NGO, to establish a digital classroom in a town in Haryana through the manufacturing company Wartsila, which is headquartered in Finland.

#### 3. Joint Ventures for Durable Effect

The pooling of resources, knowledge, and networks made possible by collaborations and partnerships between NGOs, businesses, and government agencies results in more successful and long-lasting projects that promote comprehensive digital inclusion. Their participation guarantees that digital literacy and access are community-driven initiatives as well as top-down strategies.

For example, to address the digital divide, OctaFX, an international broker, partnered with Community Action for Rural Development (CARD) in August 2023 to establish a computer lab



at a rural school in Tamil Nadu. These modest yet important actions frequently spark widespread attention and involvement.

### IMPACT OF RURAL INDIA'S DIGITALIZATION

The digitalization of India's rural areas has had a significant economic impact. As a journalist named Kane J. Shore once said, "What a difference five years can make." During that period, a project to introduce the Information Age to rural villages in southern India has provided high-speed wireless phone and Internet connectivity to 50,000 "information shop" users across twelve communities. Additionally, it has enhanced more conventional Indian communication channels like neighborhood newspapers and public speaker networks.

1. Increase in Employment prospects: The main advantage of digitalization for rural areas is a rise in employment prospects. A significant number of small business owners are employed in the installation of Internet kiosks in rural locations.
2. Improvement in standard of living: The second advantage is the rise in people's level of living brought about by an increase in income. These amenities are helping a great deal of individuals. They are learning about new farming techniques, plant diseases, and other topics by using the internet and other resources offered by various schemes such as Lifelines India. Additionally, they are receiving information on numerous farm animal ailments and how to keep them healthy, which boosts productivity.
3. Reduction of Risk and Uncertainty: By accessing online market information, the rural community is lowering risk and uncertainty by fully utilizing the strategies at its disposal. Before going out to sea, fishermen are monitoring the weather. Additionally, they have cell phones with them so that they may call authorities or family in the event of an emergency and receive assistance.
4. Raising e-literacy in rural areas: A significant portion of young people in rural areas are receiving computer, Microsoft Office, and internet training. Online Youth in rural areas are receiving instruction and training from kiosks. Village knowledge centers are used to train a huge number of rural kids under various initiatives. Growing awareness of Spoken English: Since English is the primary language needed to access the Internet, rural residents are now cognizant of the significance of spoken English.

### DIFFICULTIES WITH DIGITALIZATION

1. The digitization process requires a large amount of capital; this money could be lost or put at danger due to a bad record selection. that it's possible to underestimate the expenses of digitization.
2. How people are aware of new technology: In rural areas of India, where many people lack literacy and are unaware of technology, it can be challenging to

introduce and get acceptance of new technology.

3. The digital equipment has a high initial cost. This includes a training program to introduce technology to the public, and the equipment's ongoing costs are also costly.
4. Nearly all of the equipment required must be purchased from outside India because it is a developing nation incapable of creating new technology, hence the equipment is imported from other nations.
5. Overcoming Linguistic Barriers and Creating Localized Material. India is known for its linguistic diversity, and removing linguistic obstacles is essential to full digital inclusion. It is ensured that rural communities can access and comprehend information, services, and educational resources by producing customized digital content in regional languages. Enhancing digital access and engagement can greatly benefit from efforts in this regard, such as localizing applications and translating web content.
6. Emerging Technologies' Potential for Digital Inclusion. There are many exciting opportunities to advance digital inclusion with emerging technology. For example, educational service providers can provide tailored learning that meets each student's unique learning needs by utilizing AI. Novel techniques, such as utilizing low-orbit satellites to deliver internet access to isolated regions, are also being

### CONCLUSION

Prime Minister Narendra Modi launched the Skill India Mission on Wednesday in an attempt to build a sizable pool of trained workers needed to fuel the "Make in India" drive. However, according to S. Ramodarai, Chairman of the National Skill Development Corporation (NSDC), "each feeds into the other to make it a productive nation and create the 21st century jobs rather than the 19th century jobs," the Make in India, Digital India, and the Skill India Mission will need to work together. Our goal is to realize the vision of "Digital India," in which all Indians have access to digital resources and are empowered by technology. Government agencies can become digital businesses with the help of Digitize India Platform, which also provides incentives for Digital Contributors to complete easy data entry tasks.

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# INTERACTIVE STRATEGIES IN TEACHING FILIPINO AND FORMALISTIC NOVEL ANALYSIS SKILLS

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## ABSTRACT

*The study of literary works is already shouldered by the students in their academic work in the Filipino subject. Some of these, particularly the novel, often receive little attention and are not comprehensively analyzed. This research was conducted to find out the level of acceptance of the students in using the interactive method and to determine their skill in analyzing the formalistic novel. The researcher tried to find out if there is a significant relationship between the interactive method and the skill of analyzing the formalistic novel. This research also found out if there is a significant difference in the skills of the respondents in analyzing the formalistic novel before and after using the interactive method. The descriptive-correlational method was used in this study. In this regard, the researcher used a questionnaire to find out the level of acceptance of students in the Tenth Grade of Ulango Integrated School and created lesson plans that were used in teaching. The collected data were presented through tables and interpreted using Mean, SD, Frequency, Percentage, Pearson-r and T-test. It was discovered in this research that the students fully accept the interactive methods of teaching Filipino. The study also revealed that with the help of interactive methods, the students fully understood the novel and they analyzed it efficiently. The researcher suggested to adopt the use of interactive method for a better understanding of the Filipino lesson.*

**KEYWORDS:** *Interactive Methodology, Skills, Novel Formalism, Analysis, Teaching*

## INTRODUCTION

Each teacher has his own goals, objectives, methods, strategies and instructions to fill the image that is needed to teach the students as the center of wisdom. A method to achieve a goal must be learned and discovered by teaching different methods because it serves as a way to achieve the same goal. There is a big role that education plays in each person's life from childhood to adulthood. It is important to shape what you want to think about, how to live, how to achieve what you want to achieve, what you want to live. What will be taught is a challenge, so it is expected that the teacher will improve, motivate, plan and decide on a method to use and adapt a result to learn the subject being taught. The best way to teach is to challenge a student so that they will cooperate and help each other in a task.

The method is to discover one to study, to weigh to change one to look at everything and to program to educate. The best thing to do is to bring together those who believe in growing and changing the students. This is a systematic way to discover one to develop more knowledge one to teach a student to realize the goal of education. This is the way to judge the way to teach the youth, to respect everything, to learn, to base, not to know, to learn, but to believe, to change, to be a person, to be with others, to love, to

see, to learn to think, to do, and to adapt to each other. One way to assess learning is through summative tests and performance.

## OBJECTIVES OF THE STUDY

This study focuses on using interactive methods, teaching Filipino and practicing, and analyzing the informalistic novel. Tried to answer the research questions: 1. What is the level of acceptance of the answers using the interactive method? 2. What should the student learn to analyze the novel informally, change it and then use the interactive method based on Content, Form or structure and Method of writing? 3. There is a significant relationship between the two levels of accepting images and answering them using interactive methods and teaching Filipino and practicing and analyzing the informalistic novel? 4. Is there a significant difference between the practice of imga to be answered and to analyze the novel informalistic to change and then to use the imga interactive method?

## METHODS

This will be studied using descriptive-correlation method, one will be researched to know the level, one will use interactive method, one will teach Filipino and its relationship, one will practice the language, one will analyze the informalistic novel. iDescriptive to describe the level of acceptance of the image to be responded to using the interactive method and Correlation to find out the significant correlation of the practice they analyzed the



novel informalistic change and finally using the interactive method. The response to the research consists of one hundred (100) selected students in the tenth grade of the Ulango Integrated School, Academic Year 2022-2023. Random sampling was used to research the data to be researched by one hundred students from one to two hundred and fifty in total. The instrument used to be studied is to be questioned and the group to be answered is to be answered based on an appropriate number and a variable, Highly Acceptable (4), Acceptable (3), Less Acceptable -acceptable (2), Not Acceptable (1). This method will be used to collect the data that will be implemented to ensure that the building is being studied. The researcher believe that research is the most effective instrument on how to obtain accurate and correct information. The question is clarified and determined by an answer that the researcher wants to discover. Create an introductory and concluding activity to analyze what is being researched to determine the level of ability of the students to practice and analyze the novel, modify it and finally use the interactive method.

The researcher gave the criteria for researching and analyzing the novel, this is the rubric that students need to follow when writing. It is intended to be researched through this to assess the level of understanding of the students to analyze the novel. The following formula is used for statistical analysis. The formula is used to get the computed imeans to discover the level of acceptance. The Frequency and Percentage formulas are used to help the students to analyze the novel and then use the interactive method based on the content, structure and structure of the novel. The Pearson Correlation Coefficient formula was used to find out if there is a significant correlation between the levels of acceptance and response, one using the interactive method, one teaching the Filipino language, and practice one analyzing the formalistic novel. The T-test formula is used by the researcher to determine the difference in the level of practice, to analyze the novel informalistically, and then to use the interactive method to teach the novel.

## RESULTS AND DISCUSSION

### Antas ng Pagtanggap ng mga Tagasagot sa Paggamit ng Interaktibong Pamamaraan

#### Talahanayan 1 Antas ng Pagtanggap ng mga Tagasagot sa paggamit ng Brainstorming bilang Interaktibong Pamamaraan sa Pagtuturo ng Filipino

INDIKEYTOR	Mean	Std. Deviation	Verbal Interpretation
1. mas madaling nauunawaan ang paksa ng linalakay ng guro	3.50	0.54	LK
2. nagiging madali ang pagtasagawa ng mga gawain nitas ng guro	3.39	0.50	K
3. mas maayos ang mga resulta ng gawain tinagawa	3.60	0.59	LK
4. naipapakita ang husay sa pakikipagpaliwanag ng impormasyon mula sa mga magkakatiwalaang datos	3.57	0.62	LK
5. mas naipapakita namin ng may kaalwagan ang pagbabahagin ng idea	3.48	0.66	K
6. mas nabibigyan ang bawat isa sa amin ng pagkakataon magbahagi ng ideya hinggil sa gawain	3.57	0.59	LK
7. mas malaya naming nalalahad ng hindi iniisip ang panghuhusga ng iba	3.55	0.64	LK
8. nakabubuo ng isang maayos malamang ideya mula sa bawat isa	3.49	0.67	K
9. mas magaan ang isang gawain tinalaga ng guro sa klase	3.49	0.70	K
10. mas akiba at napapaangat ang kumpiyansang magbahagi sa pangkat	3.45	0.63	K
<b>Mean</b>	<b>3.51</b>	<b>0.43</b>	<b>LK</b>

Parawala: 3.50-4.00 Lubos na Katanggap-tanggap (LK) 2.50-3.49 Katanggap-tanggap (K) 1.50-2.49 Hindi Katanggap-tanggap (HK) 1.00-1.49 Lubos na Hindi Katanggap-tanggap (LHK)

Table 1 shows the level of accepting respondents to using Brainstorming as one interactive methods on teaching Filipino. The fourth and sixth can be seen which indicator says skill is shown exchanging information from on reliable data and each of us is given more an opportunity to share ideas regarding work with a mean of 3.57 and there is an interpretation that is quite acceptable.

Implications only that they understand the subject better if they exchange that information from reliable data and if they are given a chance share their ideas about the topic in question. The second indicator is already known which says it becomes easy carrying out tasks assigned by teachers with a mean of 3.39 with acceptable interpretation. It can be seen that although the information exchange, no it is still enough to perform the all the work required by the teacher to them.

In the outcome, the total mean obtained by the respondents at level of acceptance of the use of brainstorming as interactive method of teaching Filipino is 3.51 with an interpretation that is quite acceptable. Showing off It's just brainstorming, more they understand the topic being discussed and are given a opportunity to share with the class the their idea.



**Talahanayan 2 Antas ng Pagtanggap ng mga Tagasagot sa paggamit ng Think-Pair-Share bilang Interaktibong Pamamaraan sa Pagtuturo ng Filipino**

INDIKEYTOR	Mean	Std. Deviation	Verbal Interpretation
1. nahihikayat ng kalayaang makapag-awit ng maibahagi para sa mga makababagang paksa sa pagpapalaganap ng gawain.	3.64	0.52	LK
2. mas madali kung makatutulong ang mga bagong balimbawa bilang gabay.	3.60	0.57	LK
3. mas maunawaan at may kahusayan ang pagpapalaganap ng mga gawain.	3.58	0.57	LK
4. mas magiging makababagang ang resulta ng gawain kung hinahayaan na makipag-ugnayan sa mga katuwang.	3.40	0.75	K
5. mas napapakita ang kahusayan sa pakikipag-ugnayan at pakikipagpalitan ng impormasyon.	3.33	0.80	K
6. nahihikayat ng mataas na kompanyansang maibahagi sa klase ang awitput.	3.49	0.58	K
7. mas madali ang pagpapalaganap ng awitput kung ang magkakaibang ay nagkakaibang.	3.65	0.58	LK
8. nagiging malaya at mayroon ang pagbabahaginan ng ideya.	3.62	0.55	LK
9. madali at mahusay na nababasa ang ideya kung may katuwang.	3.51	0.61	LK
10. mas may kahusayan na makapagbahagi sa klase.	3.44	0.59	K
<b>Mean</b>	<b>3.52</b>	<b>0.43</b>	<b>LK</b>

Penanda: 3.50-4.00 Lubos na Katanggap-tanggap (LTK) 2.50-3.49 Katanggap-tanggap (K) 1.50-2.49 Hindi Katanggap-tanggap (HK) 1.00-1.49 Lubos na Hindi Katanggap-tanggap (LHK)

The Table shows the acceptance level of the respondents using Think-Pair-Share as one interactive methods in teaching Filipino. The first indicator is now visible that it is easier for them to perform output if the partner is agree with a mean of 3.65 there is a complete interpretation acceptable. Showing off it's just that through think pair-share, it is greatly facilitated conducting students of their output if it is executed on through the reconciliation of colleagues. Also seen in table is the fifth indicator which says that the communication skills and information exchange the with a low mean of 3.33 with acceptable interpretation. This is just an implication though it's easy for them to do things partner, still not quite the they show excellence in interaction and exchange of information. In the outcome, the total mean obtained by respondent level of acceptance to think-pair-share as interactive method of teaching Filipino is 3.52 with an interpretation that is quite acceptable. This result the one who says it's very welcome of think-pair-share respondents as an interactive method to teaching Filipino and made it easier the students' practice of their output if it is can be done together. Like Dimaunahan just said (2015) in his study, indeed making it easier to perform those work of a student if he is leaning on someone and asking questions partner. Much better two brains compared to doing the work alone. The result of the work is also good if it comes from the help of together Therefore, it is shown only the result that the level of accepting think-pair-

share as interactive teaching method of Filipino is very acceptable to students.

**Talahanayan 3 Antas ng Pagtanggap ng mga Tagasagot sa paggamit ng Pagsasagawa ng Eksibit bilang Interaktibong Pamamaraan sa Pagtuturo ng Filipino**

INDIKEYTOR	Mean	Std. Deviation	Verbal Interpretation
1. mas nahihikayat na magsagawa ng gawain may kaugnayan sa paksa-inalakay	3.67	0.55	LK
2. naililang ang karagdagan kaalaman sa pagkuha ng mga larawan o mga guhit na makatutulong sa pagpapalaganap ng kasanayan	3.54	0.54	LK
3. napapakita ng may kahusayan ang sariling gawa bilang patunay na may natutunan sa pagsusuri.	3.51	0.63	LK
4. nahahasa ang kakayahan sa pagpapakita ng sariling likhang awitput	3.56	0.67	LK
5. mas nagiging madali ang presentasyon ng awitput	3.44	0.67	K
6. mas napabataas ang tiwala sa sarili at maipakita ang kakayahan sa harap ng iba	3.61	0.58	LK
7. mas nagkakaroon ng pag-nilay sa mga naka display na likhang awitput	3.46	0.73	K
8. nakahihikayat na lalo pang pagbutihin ang mga gawang awitput.	3.59	0.62	LK
9. nakapagbibigay ng pagkakataon na maibahagi sa iba ang natapos na gawain	3.35	0.80	K
10. nakakakalat ng mga bagong kaalaman sa mga awitput na naka-display	3.54	0.67	LK
<b>Mean</b>	<b>3.53</b>	<b>0.46</b>	<b>LK</b>

Penanda: 3.50-4.00 Lubos na Katanggap-tanggap (LTK) 2.50-3.49 Katanggap-tanggap (K) 1.50-2.49 Hindi Katanggap-tanggap (HK) 1.00-1.49 Lubos na Hindi Katanggap-tanggap (LHK)

The Table shows the level of acceptance of respondents to use of performing the exhibit as an interactive method to teaching Filipino. Can be found at result that the first indicator that says more encouraged perform related work on the topic discussed with highest mean of 3.67 and there is a complete interpretation acceptable. Showing only its by doing of the exhibit, becomes easily persuaded the students to perform activities related to the subject discussed. The ninth can also be seen indicator that says gives the opportunity to share the finished work with others the one with the lowest mean of 3.35 that there is an interpretation that acceptable. Implications only this is in the making of the exhibit, although those are highly encouraged student to perform the task, it's still not enough to persuade either they can share their finished that work with others, both of them students. In the outcome of the total mean that 3.53 with an interpretation that is quite acceptable, it can be said the performing the exhibit is quite helpful and facilitating those work required by the teacher answerer. It's also methodical is shaped and developed students are confident that generate more meaningful output regarding the topic discussed.





This can be related to what Clemente said (2013), helps a lot performing the exhibit to more be able to show what should be understood of a student. More impressive their minds are the drawings so, they carry theirs for a long time think about their information understood from the exhibit. In summarizing, only shown by this result is the level of acceptance of the respondents regarding the practice of the exhibit as interactive their teaching methods are very good endorsed and approved it helps a lot to more facilitate the exchange of information and education to those student.

**Talahanayan 4 Antas ng kasanayan ng mga mag-aaral sa pagsusuri ng nobelang pormalistiko batay sa nilalaman bago at pagkatapos gamitin ang mga interaktibong pamamaraan.**

Antas ng Kasanayan	Bago gamitin ang Interaktibong Pamamaraan		Pagkatapos gamitin ang Interaktibong Pamamaraan		Interpretation
	f	%	f	%	
90-pataas	4	4.0	59	59	Nakamit ang higit na inaasahan
85-89	40	40	41	41	Nakamit ang inaasahan
80-84	45	45	--	--	Bahagyang nakamit ang inaasahan
75-79	11	11	--	--	Hindi nakamit ang inaasahan
74-pababa	--	--	--	--	Walang napatunayan
<b>Kabuuan</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	

Pananda: 90 and above- Nakamit ang Higit na Inaasahan (HI) 85-89- Nakamit ang Inaasahan (NI) 80-84- Bahagyang Nakamit ang Inaasahan (BNI) 75-79- Hindi nakamit ang Inaasahan (HNI) 74 and below- Walang Napatunayan (WN)

Table 4 contains students' skills in analysis of the formalistic novel based on the content before and after use the interactive method. It can be seen that before using the interactive method, in one hundred (100) reviewed the novel, 4 or 4.0% scored "90-and above". with the interpretation "achieved more which is expected", 40 or 40% is getting "85-89" with interpretation "achieved the expected", 45 or 45% got the "80-84" with interpretation "partially met expectations" and 11 or 11% scored "75-79". with the interpretation "did not achieve the expected". This is just an implication although there are quite a few able to provide content to formalistic novel analysis, high number of students who the content is not entirely clear on the content when they review the novel. As Bernales said (2018), in the review of the work, more big points if given by examiner the content of the work and here the whole analysis revolves. Content arguably the most important material in the analysis of the work.

Meanwhile, it will be noticed after using the interactive method, the became big change the result when it comes to analysis of the formalistic novel based on content. There are 59 or 59% scored "90-and-above" with interpretation "achieved more expected"

and 41 or 41% got of "85-89" with interpretation "expectation achieved". Indication it just helped a lot more the interactive method to students can better understand the content of the novel. Complement this in Gojo's study (2019) that the purpose of interactive learning is generate higher levels of understanding acceptable to all members of the group in through collective and effective content that presents more meaningful and efficient results.

**Talahanayan 5 Antas ng kasanayan ng mga mag-aaral sa pagsusuri ng nobelang pormalistiko batay sa kaanyuan o kayarian bago at pagkatapos gamitin ang mga interaktibong pamamaraan.**

Antas ng Kasanayan	Bago gamitin ang Interaktibong Pamamaraan		Pagkatapos gamitin ang Interaktibong Pamamaraan		Interpretation
	f	%	f	%	
90-pataas	--	--	41	41	Nakamit ang higit na inaasahan
85-89	10	10	59	59	Nakamit ang inaasahan
80-84	58	58	--	--	Bahagyang nakamit ang inaasahan
75-79	32	32	--	--	Hindi nakamit ang inaasahan
74-pababa	--	--	--	--	Walang napatunayan
<b>Total</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	

Pananda: 90 and above- Nakamit ang Higit na Inaasahan (HI) 85-89- Nakamit ang Inaasahan (NI) 80-84- Bahagyang Nakamit ang Inaasahan (BNI) 75-79- Hindi nakamit ang Inaasahan (HNI) 74 and below- Walang Napatunayan (WN)

Table 5 contains of the result of the students' skill in analyzing the novel based on shape and texture after use the interactive method. Can be seen in one hundred (100) checked the novel before using the interactive method, 10 or 10% got "89-85" with interpretation "achieved the expected", 58 or 58% got the "80-84" with interpretation "partially met expectations" and 32 or 32% scored "75-79". with the interpretation "did not achieve the expected".

This is just an implication that when it comes to students' ability to analyze formalistic novels based on form and structure, their knowledge is not complete. Even though they have a great idea in terms of content, they still lack form and structure.

While it can be observed that after using the interactive teaching method, there was a change in the score obtained by the students in the analysis of the formalistic novel based on the form and structure. 41 or 41% scored "90-above" with the interpretation of "achieving more than expected" and 59 or 59% scored "85-89" with the interpretation of "achieving expectations". This is just an indication that after using the interactive method, the analysis of





the formalistic novel based on form and structure was completely understood and became easy for the students.

**Talahanayan 6 Antas ng kasanayan ng mga mag-aaral sa pagsusuri ng nobelang pormalistiko batay sa paraan ng pagkakasulat bago at pagkatapos gamitin ang mga interaktibong pamamaraan.**

Antas ng Kasanayan	Bago gamitin ang Interaktibong Pamamaraan		Pagkatapos gamitin ang Interaktibong Pamamaraan		Interpretation
	f	%	f	%	
90-pataas	--	--	6	6	Nakamit ang higit na inaasahan
85-89	4	4	80	80	Nakamit ang inaasahan
80-84	64	64	14	14	Bahagyang nakamit ang inaasahan
75-79	32	32	--	--	Hindi nakamit ang inaasahan
74-pababa	--	--	--	--	Walang napatunayan
<b>Total</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	

*Pananda: 90 and above- Nakamit ang Higit na Inaasahan (HI) 85-89- Nakamit ang Inaasahan (NI) 80-84- Bahagyang Nakamit ang Inaasahan (BNI) 75-79- Hindi nakamit ang Inaasahan (HNI) 74 and below- Walang Napatunayan (WN)*

It is shown in Table 6 that contains the skill level of students in analyzing the formalistic novel based on the way it is written.

From those who tested before using the interactive method, 4 or 4% scored “85-89” with the interpretation “met expectations”, 64 or 64% scored “80-84” with the interpretation “partially met the expected”, and 32 or 32% scored “75-79” with the interpretation “did not meet expectations”. This is just an indication that when it comes to the evaluation, the students' knowledge of determining the way of writing is not yet complete and their knowledge is not that wide to express their evaluation when it comes to the way of writing. This complements what Managay (2015) said regarding the writing method and its importance. It was mentioned in his study that one of the important goals of an examiner is how he expresses his examination more than the way it is written.

Whereas it can be seen that after using the interactive teaching method, the score obtained by the students who analyzed the formalistic novel changed and increased more. 6 or 6% scored “90-above” with the interpretation “achieved more than expected”, 80 or 80% scored “89-85” with the interpretation “achieved expectations”, and 14 or 14% scored “80-84” with the interpretation “partially met expectations”. It just goes to show that by using interactive teaching methods, students can express their examined work more comfortably and express it in a better way. This is just an indication that students can think of a way

better if they can better understand the novel through interactive methods.

**Makabuluhang Kaugnayan ng Paggamit ng Interaktibong Pamamaraan sa Patuturo ng Filipino at Kasanayan sa Pagsusuri ng Nobela**

**Talahanayan 7 Makabuluhang Kaugnayan ng Paggamit ng Interaktibong Pamamaraan sa Patuturo ng Filipino at Kasanayan sa Pagsusuri ng Nobelang Pormalistiko**

Interaktibong Pamamaraan sa Pagtuturo ng Filipino	Kasanayan sa Pagsusuri ng Nobelang Pormalistiko		
	Nilalaman	Kaugnayan o kuyanan	Paraan ng Pagkakasulat ng akda
Brainstorming	-.015	1.42	.008
Think-Pair-Share	.098	.007	.050
Pagpapagawa ng Exhibit	.109	.032	-.031

\* Correlation is significant at the 0.05 level (2-tailed).

The "degree of relationship" of the interactive method in teaching Filipino (Brainstorming, Think-Pair-Shair, Making an Exhibit) can be seen in the level of skill in the analysis of the formalistic novel based on the content, form or structure and method of writing. The result shows that the use of interactive methods in the teaching of Filipino has no significant relationship with the evaluation of the formalistic novel. This is just an indication that having a high level of acceptance of tenth grade students in the interactive method of teaching Filipino is not related to having a high and good skill in analyzing the formalistic novel. According to what Dimaunahan (2015) said, the use of interactive teaching methods is a big factor in order to develop and improve the ability of students. According to Ignacio (2011), the ability to express clearly and efficiently by following the students' goals in the analysis of the work will produce excellence in the outcome of their work.



**Makabuluhang pagkakaiba sa antas ng kasanayan sa pagsusuri ng nobelang pormalistiko bago at pagkatapos gamitin ang interaktibong pamamaraan sa pagtuturo ng Filipino**

**Talahanayan 8 Makabuluhang pagkakaiba sa antas ng kasanayan sa pagsusuri ng nobelang pormalistiko bago at pagkatapos gamitin ang interaktibong pamamaraan sa pagtuturo ng Filipino**

Kasanayan sa Pagsusuri Nobelang Pormalistiko	Pretest		Posttest		T	Sig. (2-tailed)
	Mean	Std. Deviation	Mean	Std. Deviation		
Nilalaman	83.0800	3.84203	90.2700	1.96872	18.402	.000
Kaanyuan ng kayarian	78.1300	8.18308	88.9300	1.22479	12.942	.000
Paraan ng Pagkakasulat ng akda	77.8200	8.10833	86.4800	8.66023	7.551	.000

Table 8 shows the paired-differences of the mean scores in the initial and final analysis of the formalistic novel.

The formalistic novel analysis skill in content-based initial training achieved a mean of 83.08 and a sd of 3.84. The final training achieved a mean of 90.27 and sd of 1.97. It also showed t-value of 18.40 and p-value of 0.000 which is more than 0.05 so, it only means that there is a significant difference in the level of formalistic level evaluation skill based on the content before and after using the interactive teaching method of Filipinos.

Meanwhile, the students' skill in analyzing the formalistic novel in the preliminary training based on the form or structure achieved a mean of 78.13 and a sd of 8.18. The final training had a mean of 88.93 and a sd of 1.22. A t-value of 12.94 and a p-value of 0.000 were also observed which is more than 0.05 so, it only indicates that there is a significant difference in the students' skill in analyzing the formalistic novel based on form or structure.

The table also shows the students' skill in analyzing the formalistic novel based on the way it is written. In the initial training, it achieved a mean of 77.82 and sd of 8.11. The final training achieved a mean of 86.48 and sd of 8.66. This is just an indication that there is a significant difference in the students' skill in analyzing the formalistic novel based on the way it was written before and after using the interactive method in teaching Filipino. Therefore, it can be seen in the result that the students' score obtained in the final exercise in the analysis of the formalistic novel is significantly higher after using the interactive method in teaching Filipino. This is just proof that by using the interactive method in teaching Filipino, students can better cultivate their skills in analyzing the formalistic novel based on following its goals, content, form or structure and writing method.

According to Macan (2019), it has been proven in a study that the development of interactive teaching methods will be successful in developing the skill of analyzing the work.

Clemente (2013) also indicated that the interactive method is an effective way to better understand what is being discussed and help the student perform tasks that can improve their skills.

**CONCLUSION**

Based on the results, the following are the conclusions of the study.

1. There is insufficient statistical evidence to reject the conclusion that there is no significant relationship between the level of acceptance of the use of interactive Filipino teaching methods and formalistic novel analysis skills.
2. There is enough statistical evidence to not accept the conclusion that there is no difference in the students' skill level in analyzing the formalistic novel before and after using the interactive method in teaching Filipino.

**RECOMMENDATION**

Based on the analysis of the results and conclusions, the following are the recommendations of the study.

1. The use of a random sampling technique in the selection of the respondent is suggested in order to gather more solid information to find out if there is a significant relationship between the level of acceptance of the students in the use of interactive methods in the teaching of Filipino and the level of skill in analysis of the formalistic novel.
2. Teachers are also encouraged to use the interactive teaching method to facilitate students' learning and facilitate their analysis of the novel. They need to be able to apply it in their teaching to use it correctly and explain to them its importance. It is also necessary to emphasize in the teaching every meaning and step using the interactive method of brainstorming, think-pair-share and making an exhibit. It is also important to make them understand the objectives of analyzing the formalistic novel such as the content, form or structure and the way the work is written.
3. For teacher-researchers, it is suggested to do a more in-depth and extensive study about this research topic. Pay attention to the variables that are not mentioned in the study so that the students' skills can be fully developed.

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# A CONCEPTUAL STUDY ON THE SKILL DEVELOPMENT OF STUDENTS AT THE GRADUATION LEVEL

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## ABSTRACT

*Industrial expectations from fresh graduates from premier reputed institutes are increasing day to day. As trends in employment change, new skill sets are recognized and demanded. It is observed in the years that every year lakhs of graduates pass out of the institutes, but not everyone fits into the industry. This creates huge employment gap. Very often people(candidates) remain unprepared to face competitions and hence they miserably fail in finding right employment and startup their respective careers. This study totally considers in throwing light on role of institutions in reducing skill and employment gaps and also the necessary practices initiated by them to put forward excellent practices to impart quality education to our youths which is in par with present industrial expectations.*

**KEYWORDS:** *Premier, Unprepared, Miserably, Practices and Expectations.*

## INTRODUCTION

Our 21<sup>st</sup> century is deeply connected about the management of all knowledge and information which we have obtained and the other value additions which we inculcate to improve and upgrade our competency levels which will enable candidates to have a firm stand in the industry. Learning from the vast sea of knowledge must be continuous, it must come across development of skill, focus on growth, recognition of inner talents and strengths and must enable student to live at present in this competitive world. Technology has a very wide role to play when it comes to skill development and making candidate fit to the real-life situations. Industry basically expects three important things from a fresh college passed out candidate they are

- Ability to pick up and willing to learn new things.
- Punctuality and humbleness.
- Creativity and deeper focus.

Passionate learners and enthusiast candidates can really grow faster if they are made up with a proper base and directions are imparted from the institutiolelevel. t is up to the institutions to recruit the right human resources to study and understand present industry expectations and to see that there is hardly any gap between corporate or industry expectations and institutional focus on imparting quality education.

## The Need and Necessity of Skill Development in Higher Education

We survive in economy which is knowledge driven, here industries are strong, progressive and evaluates progress of each resource from time to time in its own methods. Our country has close to one third of the population that are young, proficient, tech savvy and passionate to learn. But real strength of our country depends not on the size and density of its population but the

scientific and technological capacities of the people which is nurtured only at good institutes. World class institutes people the industrial development. These institutes can and have built in the past competent leaders in engineering, industry, trade and commerce. But most of institutes have remained mediocre performers and just offer degrees to their students. Now it is the time to think out of box and bring in changes and reforms. This is possible by focusing on the following core areas

- MOU (Memorandum of understanding) with industrial training institutes, providing training from industry experts.
- Teaching new courses essential for industry.
- Enriching their communication skills, soft and inter personal skills, permutation skills etc.
- Industrial visits on regular basis to be in touch with industrial expectations.
- Collection of feedback on time for necessary improvements from students.

## Institutional Initiatives for Skill Development

There are a lot of interfaces between industry and institutes; both are interdependent on one another. On one side, institutes supply human capital to address the problems of industries; if these problems are not addressed properly, industries are forced to import technology from abroad at a heavy cost. If institutions provide quality candidates capable of performing up to the industry's expected standards, they can intake local talents and train them. To kick-start initiatives and provide solutions to these burning issues, the following are the excellent practices taken up by prestigious institutions till now:

- Focus on basic skill development, which includes improving their hold on language and communication,





better people handling skills, living skills, negotiating and bargaining skills, problem analysis and solving skills, etc. This is the basic expectation of the industry today at the root level. Someone who can very well interact with outside customers and get the deal for the industry.

- Use of e-learning: E-learning resources are available easily today and most of them are technological literates. Access to technology can reduce knowledge gap, skill gap and dependency on others. Instant solutions are found on internet and the same can be used for learning. Access to you tube videos, etc. can help to recollect better. Recorded e-lectures from college faculties on different subjects can be listened again and again, in case if student gets absent on a day or is assigned any other work, other than studies he/she can listen any number of times so that they will not lose grip over the subject. Useful videos relating to courses, empowerment, startups and other areas imparting knowledge can be watched from time to time.
- Certificate course: These are additional supplements provided to the students as a learning platform where students are free to choose any subject/area other than what they study at their regular curriculums. The basic idea behind this is getting a clear-cut exposure on their interested area and making them grow in the same. These are options provided in different certificate courses to the students.
- Research culture has to be promoted from base level, continuous search for knowledge, working on new area getting into deeper taught, focusing on new innovations, better taught and thoroughly become part of solution to the societies problem is clearly possible when there is a research culture. Research culture requires funding to some extent and well-equipped resources such as library, laboratory etc. which is the present focus of institution.
- Providing specialization courses in their area is practiced presently at university levels, specialization may be from within or outside their regular streams. For example, commerce student will get a chance to study a paper in physics and vice versa. This is to impart student basic knowledge of inter disciplinary area. This specialized is purely credit based and is a part of curriculum.
- Interaction with industry owners and entrepreneurs through guest lectures helps students analyze the real expectations of industry professionals. Moreover, students can think about which industry will be suitable for them in the future.
- Internship courses or programs are one of the effective tools that can effectively bridge the gap between industry and academia. It is an opportunity to apply knowledge learned in classrooms. This will improve their interpersonal skills, make them more confident, and also help them remain better prepared for their future careers. Internship programs are not a luxury but necessary in all degrees today.
- MOU with startups (established and new ones) will make students strong leaders and not strong followers as they can

better understand the crux of the real industry problems. It will also give boost to high-tech, high-income employment for younger minds. Basic hallmark of idea starts with colleges and universities. This will improve local talent utilization and will help in reducing the migration of local talents to outside the country.

- Innovative methods adapted such as student teacher series TED talks on subject matters and contemporary issues, video talks, student faculties where senior student take class for juniors, faculty exchange programs, where faculties come from different colleges run by same institutions, provide them with different ideas, will bring out changes in educational system. Providing coaching (additional) for competitive exams at various national and state level government jobs etc. can improve performance and skills of students as well as awareness level of various departments and unfilled vacancies for various different parts can also be focused.

## REVIEW OF LITERATURE

Literature is collected from books, newspapers, and related sites. Ideas from various authors on the same or different ideas are taken from various magazines. The summary of the literature review is as follows:

According to **Bala V. Balachandran**, all of us have special skills, and when we use our skills to the optimum, we will benefit, no matter how indigenously we do it. Playing with our strengths and adding to our core competencies has a very instrumental role in climbing the ladder of success. Cultivating core competencies helps one have an edge over others and make a strong mark in their field of interest.

Source: The Hindu July 10, 2017,

According to **Naik B. M.**, Indian universities lack academic culture and a mindset in favor of professors, especially their growth opportunities. It is the professors who bring a name to an institution, and hence they need to be enabled to excel to reach global standards.

According to **Nagendra Parshar B. S.**, education in India, in particular technical education, has been criticized for not being able to cater to the needs of the industry or country as a whole. Universities have been trying to revise their curricula and course contents in order to make them more purposeful and relevant to industry. Nevertheless, most of these efforts have not resulted in any widespread change in making students globally competitive or industry-ready. One of the several reasons is that those who were trying to reexamine and refine the courses were unable to make themselves free from the traditional way of thinking that improvements can only be brought about in classroom education. They have a strong feeling that anything and everything can be (or should be) taught inside the classroom. And thus often they were unable to think in the direction of revising program structures and discarding portions of the course contents that could be avoided or that deserved less attention. Hence, though



our education system today is being constantly reshuffled, there is a complete absence of meaningful innovation. Whatever the claims made by the institutions, it is all old wine kept in a new bottle.

According to **Hegde S. N.**, for 'make in India' to be a reality, 'skill India' is alchemy. About 45% of our work-free population engaged in agriculture as unskilled and less productive. Only about 2% of our work-free population is trained in formal skills. The corresponding figures are 96% in South Korea, 80% in Japan, 75% in Germany, 68% in the UK, 64% in Singapore, and 52% in the USA. Our system of education is indeed large, comprising lakhs of schools, thousands of colleges, and hundreds of universities. Traditionally, education is imparted to provide knowledge—basic to begin with and advanced later on.

According to the **economic survey of the Karnataka report (2016)**, the growth of government degree colleges has changed the scenario of higher education in Karnataka and led to a reduction in inequality by making higher education affordable. The performance of these government degree colleges is proving that public sector institutions, if properly guided, financed, and empowered, can not only survive the competition from the private sector but can also create a new niche in their way towards social and economic inclusion in higher education at the graduation level. Unplanned expansion of postgraduate courses in government first-grade colleges may prove fatal, not only for the quality but also for the survival of public-sector universities.

### METHODOLOGY USED

This study is purely descriptive in nature and is also a source study. Only secondary data is used in this study, and no primary data is collected. Opinions of various authors from respective journals are taken out and expressed in clear-cut words. Whatever is presently felt to be taught at this moment for making students competent, enterprising, creative, vision-oriented, and completely focused is the total taught for the hour. Indian higher education must be transformed and made acceptable by our industries, failing which top education itself can become a ground for underemployment.

### Objectives of Study

- To understand the expectations of students and faculties.
- To study the important areas that can be included in the regular curriculum
- To give necessary suggestions for further improvements

### SCOPE OF HIGHER STUDY

Talents are born as well as developed; this should be on par with skills acquired in the curriculum. Since today's industry focuses on complex challenges, it needs human capital that can manage intense challenges through wide exposures. Careers should be started at an early age, along with learning. In other words, learning and earning should go hand in hand. A study can be initiated by taking out important metrics underlying both industry

and academia. A survey can be made with a selected audience (students or faculties) and can find situations related to current burning issues in higher education.

### SUGGESTIONS

The following are suggestions worth implementing for further improvements:

- Our present education system aims only at imparting technical courses; the system completely should be geared up to supply skilled technical people desperately needed for the industry. The employment gap should be reduced.
- Skill-oriented and skill-development courses should be compulsorily taught at no cost without any burden on additional charges to all students and prepare them to be fit for the industry.
- Institutes and universities should concentrate not only on building infrastructure; their focus should be on appointing quality professors and changing the academic culture, which is extremely necessary to be world-class.
- To make our nation and regions prosperous, we need people with the latest knowledge and ideas who are on a quest for innovations in various fields. These people are initially produced by the skills taught by institutions and universities. Therefore, it is necessary to strengthen our institutes and universities.
- Inculcating research culture and practices among faculties and also proving them with the required financial budget from time to time and also with other necessary assistance.
- What is urgently needed for our universities and institutes is a faculty with an enterprising culture, autonomy, growth, and innovation opportunities. Teaching and research should go together for better upcoming practices. Faculties should become innovative and not teach in a routine manner. Due to routine methods of teaching, some of our brilliant students lack creativity and thinking skills.
- The prime role of our universities should be lacking idea generators. Their growth and prospects can continue to grow only when they give birth to new knowledge, new technology, and spin-off hi-tech startups in new technology.

### CONCLUDING REMARKS

In developed continuous areas where area and geography are small, we today find world-class universities. This university offers upgraded courses that are fit for the purpose of employment, where students find an ocean of opportunities to learn and excel in any fields they opt for after their degrees along with their academics. After coming across discussions, we must be very clear about the fact that there is no fault with our students who are brilliant enough, faculties who are dedicated and committed, and the infrastructure of the campus that is fairly good. The focus should be totally on skill development and upgrading, not on old, traditional methods. Rules and regulations designed by the management should be such that they must emphasize control over students to some extent in order to make



them learn; faculties should be empowered; autonomy should be provided to a certain extent; and the learning culture of the campus should be totally changed. Only then can we achieve the goals of skill development, zero unemployment, better prosperity and progress, and a better civilized society.

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# HISTORY OF THE INDIAN KNOWLEDGE SYSTEM

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## ABSTRACT

*Indian ancient traditional knowledge system is unique and has many roots of learning relevant to any time. It has evolved, and different chapters of ancient Indian Knowledge are classified into various sections. It has its history. Recently, interest in diagnosing such Knowledge to find out the most relevant forever is increasing and is necessary for sustainability. That would help us to improve our efforts to enhance human welfare. Therefore, there is a need to analyze the nature and history of those Knowledge, philosophy and values related to human welfare. Such an attempt to analyze the history of the ancient Indian knowledge system is made in this paper.*

*The primary purpose of this paper is to analyze the evolution of the ancient Indian knowledge system and related philosophy relevant to human welfare.*

*The paper reviews different sections of the ancient Indian knowledge system, the associated philosophy, and how they evolved. Indian ancient Knowledge and education system was strongly built by philosophy for human welfare. In fact, it was more concerned with seven Janmas (Births) rather than the current living in the world. The Indian knowledge system had two critical concepts, "Jnana" and "Ajnana" which may be referred to as concurrent with Vedanta and Vyavahara (Business). All these issues are discussed in the paper.*

**KEY WORDS:** Ancient Knowledge, Birth and Rebirth, Vedanta and Business, Philosophy

## INTRODUCTION

Indian ancient traditional knowledge system is unique and has many roots of learning relevant to any time. It has evolved, and different chapters of ancient Indian Knowledge have been classified into various sections over time. It has its history. Recently, interest in diagnosing such Knowledge to find out the most relevant forever is increasing and is necessary for sustainability. That would help us to improve our efforts to enhance human welfare. Therefore, there is a need to analyze the nature and history of those Knowledge, philosophy and values related to human welfare.

India is the land where the hopes and aspirations of humankind have always been nurtured. Science, medicine, mathematics, philosophy, religion, and astronomy may all trace their roots to India. India is often referred to be "the cradle of human civilization," "the mother of speech," "the grandmother of stories and customs," and similar titles.

India is a very unique country. Each state has its culture, attire, food, environment, nature etc. However, something is still familiar in the entire Indian religion, and that common factor is the culture of India. Indian culture is the oldest living culture in the whole world. Many civilizations and cultures were at their prime at some point but are no more there. Either they are not living or have not been practised. Then what makes it the oldest living culture in the whole world? The

foundation or base makes Indian culture strong. The basis of Indian culture or civilization is Knowledge. Knowledge is abundant in our Indian culture.

**Objectives:** The primary purpose of this paper is to analyze the evolution of the ancient Indian knowledge system and related philosophy relevant to human welfare. The specific objectives are;

1. To review the literature on the ancient Indian knowledge system.
2. The philosophy of the Indian ancient knowledge system. (Ethics)
3. To identify the relevance of the potentials of the Indian knowledge system in the present context.

The paper reviews different sections of the ancient Indian knowledge system, the associated philosophy, and how they evolved. Indian ancient Knowledge and education system was strongly built by philosophy for human welfare. It was more concerned with seven Janmas (Births) rather than the current living in the world. The Indian knowledge system had two critical concepts, "Jnana" and "Ajnana" which may be referred to as concurrent with Vedanta and Vyavahara (Business). all these issues are discussed in the paper.





Some important places of Knowledge (Vidyastanas): There are 14 places of Knowledge. They are called Chaturdasha Vidyastana.

### Vedas

It is well known that the Vedas are the oldest surviving literary works in the whole world. The experiences of the *Rishis* (sages) poured out in the form of poetry came to be known as *Mantras*, which make up the content of the Vedas. Veda means 'knowledge'. 'Veda' is derived from the Sanskrit word 'vid'. As knowledge Veda is one. Vedas are called 'Apaurusheya, which means not created by men. These are revelations of different *Rishis* (Sages-Whom we can refer to as subjective scientists) to students.

Vedas are also called *Shruthi* and *Smriti*. Shruti means heard, and Smriti means memory. From generation to generation, this Knowledge is handed over orally. When he found it to be written, Veda Vyasa met different *Rishis*, received this Knowledge orally, and began to write it. It may be the right time to preserve Knowledge because of reduced memory capacity. His work helped in the preservation of Knowledge. It helped in the production of Textbooks which are called Vedas. There are four Vedas: *Rig Veda*, *Sama Veda*, *Yajur Veda* and *Atharvana Veda*. All this effort in preserving the Vedas shows how much our ancestors cared for Knowledge and tried to preserve every letter. Due to such perfect preservation of the Vedic texts, the Vedas may be considered good archaeological sources of evidence for conducting research.

**Vedangas:** They are six beautiful sciences that must be studied to understand Vedas correctly.

**Puranas:** They are 18 in number.

**Mimamse:** One of the six systems (Darshanas) of Indian Philosophy.

**Dharmashastras:** A Brahmanical collection of rules of life often in the form of metrical law book.

**Darshanas:** The six principal Hindu Darshanas are Samkhya, Yoga, Nyaya, Vaisheshika, Mimamsa, and Vedanta.

**Upavedas** (When Upavedas are added with this Knowledge, it is called Ashtadasha Vidyasthana.

Every place of Knowledge is beautifully documented and taught as a formal education.

When we speak about the Indian knowledge system and education, we see Knowledge by itself, which deals with a different aspect of Life or which is necessary information or subjects to be studied by one individual. However, the deep purpose of it was human welfare.

### Indian Ancient Philosophy

Indian ancient knowledge system was value-based and more philosophical. One of the most notable aspects of the ancient

Indian philosophy of Life is that despite attaching slight importance to physical beings, the significance of action in this material world is not undervalued. The physical universe serves as the laboratory of the human soul, where the person must receive methodical instruction to promote self-development. Life's simplicity and moral education's value for one's development are most highly valued in India's ancient civilization.

### Karma Yoga

The Indian philosophy was more concerned about the seven *Janmas* (Births) than the present birth or Life. So Indian philosophy emphasizes the theory of Karma. The *Purusharthas* are mentioned in the section on Karma. The term *Purusharthas* means "man's property" in the original Sanskrit. It is central to Hindu thought and describes the four noble pursuits one should make throughout their lifetime. *Dharma* (righteousness), *Artha* (wealth), *Kama* (desire), and *Moksha* (liberation) are the four *Purusharthas* (Liberation). Our Karma is dependent on these *Purusharthas*. It means all human endeavours are certainly meant for ultimate liberation. To find true freedom, we must cultivate a profoundly and comprehensively rewarding life. The *Purusharthas* offer a way to evaluate our Life and make good decisions. When we do our deeds, we should be harmonized between the three *Purusharthas*, which would help us achieve the ultimate goal of *Moksha* or Liberation.

Karma or deeds decides our lives to come. If our *Karma* were evil in previous *Janma* (Births) then we suffer in our present *Janma* (Births). So in the present *Janma* (Births) itself, we must prepare for the next *Janma* (Births) by doing good deeds. Our deeds or Karma are responsible for *Athma* or soul suffering in the cycle of Life and death cycle.

### Jnana and Ajnana: (Knowledge and Ignorance)

Along with the seven *Janma* (Births) theories, our Indian Knowledge also speaks about *Jnana* (Knowledge) and *Ajnana* (Ignorance). These two aspects are concurrent with *Vedanta* and *Vyavahara* (*Business*). We need a guru there when we try to know about his *Jnana* and *Ajnana*. With the help of a guru, we can destroy the *Ajnana*, which is ignorance and attain *Jnana*, that is, Knowledge, proper Knowledge.

Let us try to differentiate between *Jnana* and *Ajnana* in the light of *Vedanta*. Lord Krishna in *Geeta* speaks about *Deham* and *Dehi*. The concept of *Deham* is ignorance, and the concept of *Dehi* is Knowledge. For example: If an individual thinks he is a body, that is called *Ajnana*; that is ignorance. Moreover, if he thinks I am the *Dehi* who resides in the *Deha*, that is *Jnana*. Let us know the usefulness of *Jnana*. Whenever there is a thought that I am the body in us, we shall have birth and death, sufferings, miseries, difficulties, worldly bondage, and everything. We should liberate our souls from the circle of suffering. Just like we shall discard old clothes, we shall put on new ones. We enjoy changing clothes. The weapon cannot pierce through the body, fire can't burn it, water cannot do anything, and air cannot do anything. *Panchabhutas* cannot do anything to *Atman*. *Panchabhutas* are powerless. When we realize we are the *Dehi*, not *Deham* that is called *Jnana*. *Jnana*



is covered by Ajnana. That is why all are being deluded. People fall into delusion because of this. The person who removes Ajnana with the help of *Jnana* attains *Atma Jnana*. To attain this, Ajnana should be removed. To get rid of Ajnana, the light of Jnana is essential. So here the question arise which should be first? Is either going or coming? To remove or to get rid of *Ajnana*, light is essential. Moreover, that light is '*Jnana*'. Moreover, for this, we need one person's help, and he was called a Guru ("Gu" means ignorance and "Ru" means destroyer).

Ignorance is seen as an obstacle to freedom in all schools of Hindu thought (Moksha). This lack of understanding is due to people confusing their sense of identity with their physical bodies. Our immoral, self-centred actions and the resulting pain result from our inability to break the cycle of enmity and dependence. Absolute freedom from the bonds of the senses and relief from all pain is only possible upon realization of the actual self (God, Brahman, Consciousness). It is believed that under the light of Vedanta, one can remove ignorance and liberate one's soul from the circle of Life and death. Not only that one can reform the society in which he lives and the religion which he follows.

The three Acharyas- Shanakaracharya in his Advaita (absolute Monism) philosophy, Madwacharya in his *Dwaita* (Dualism) philosophy and Ramanujacharya in his Vishistadvaita (qualified Monism) philosophy speaks about the relationship between Atman and Paramatman, that is the individual soul and supreme soul and suggests a different path for the Moksha or salvation. (Karma Marga, Jnana Marga, Bhakthi Marga). Salvation or Moksha is either the complete merging of Athman (individual soul) with Paramathma (Supreme soul) or attainment of nearness with Supreme soul in which the relationship between Athma and Paramathma will be like Guru, his disciple or like master and his servant. One of the socio-religious reformers of 19<sup>th</sup> century India, Swami Dayananda Saraswathi, gave a call 'Go back to the Vedas' to say that the light of Vedas will help in the reformation. Vedantists believe that there is only one Purusha (Sanskrit for "spirit," "Person," "Self," or "awareness") and that everything else, including the mind and its many permutations, is only a superimposition onto this one Reality. Superimposition, also known as Maya, is the cause of the one seeming as many. This is because of the inherent ignorance (avidya) associated with it (illusion).

### Importance of the study of Indian ancient Knowledge

What can we learn about an inquiry from India's ancient texts? How exactly? If so, how much? The finest method of learning—inquiry into a topic of interest—has been supplanted in modern classrooms by organizing knowledge content (or "What to know"). How, rather than what, has always been the primary emphasis of India's knowledge heritage. Humanity has gotten itself into many problems because of all this new technology. The very survival of humanity is in jeopardy. Humanity's innate abilities are in jeopardy. To effectively deal with this challenge, a new educational system must be implemented that emphasizes the development of relevant new skill sets. Life skills that allow

one to put Knowledge to practical use are just as crucial as the technical abilities necessary to access and utilize that information. The balancing act relies heavily on ancient Indian Knowledge. The principles of "Vasudhaiva Kutumbakam," which translates to "the entire world is a family," and "Sarve Bhavanthu Sukinah," which translates to "may everyone be happy," may be traced back to the Vedas. Since our forebears went to such lengths to protect it, maybe we should shift our focus from preservation to use. The mission of establishing Bharat as a hub for cutting-edge research will be realized. Indian Knowledge encompasses a vast array of disciplines, including but not limited to astronomy, ayurveda, yoga, mathematics, computing, language and linguistics, metalworking, Rashi shastra (the science of Indian astrology), public administration, military technology, management science, and many others.

Indians have made significant contributions to many different areas of study, including astronomy (through their understanding of planetary motions, the solar system, and the Earth's shape and diameter), botany (through their understanding of the properties of plants and herbs), medicine (through their discovery of zero and the decimal system, as well as approximation algorithms for computing Pi), linguistics (through their mastery of steelmaking), administration (through their grasp of taxation), and statistics (through their grasp of grammar).

The fast expansion of human Knowledge, thanks to scientific and technological progress, has had far-reaching consequences for civilization. India has broken new ground in every sphere, including trade, technology, and development. However, this success has come with a price: a loss of spiritual connection and a decline in moral standards. Keeping the Upanishads' philosophy on Brahman (the global soul) and Atman (the individual soul) and the Bhagavad Gita's teachings on Karma yoga, Bhakti yoga, and Gyan yoga (the yoga of Knowledge) intact is crucial at such a time and place. The world looks to India for leadership, and we must find our identity in that tradition.

As it is, our educational system is affected by Westernization ideas, too privatized and stripped of its traditional beauty. We focus only on literacy goals in the existing educational system. However, this alone is not enough to bring about proper intellectual illumination in a person. Education must include Indian culture and history so that it may be internalized as a way of Life. By providing engaging courses on the Indian knowledge system to kids at a young age, the Indian educational system can ensure that all students get a high-quality education and a solid moral foundation from which to make ethical choices.

We may fortify our feeling of who we are as Indians by learning about our ancestors via the study of India's ancient knowledge system and using that Knowledge in the modern world. Culture is significant in the larger social context. Our culture is heavily influenced by the books we read and the information we learn from them; "accepted wisdom" benefits greatly from the insights of the past. This is the continuity of



ideas and values from generation to generation. It also includes concepts developed by appreciating our history, heritage, and primary cultures. Having this information inspires original thinking and fresh approaches. It makes sense for a nation like India, which has preserved much scientific Knowledge from the ancient world, to adopt this approach.

The 2020 National Education Policy seeks to reorganize India's educational infrastructure within the context of the country's indigenous knowledge system. Values like modesty, honesty, discipline, independence, and respect for everything were stressed in our old educational system, which sought to nurture a whole person. All areas of Life were considered in the classroom as students were taught according to the Vedas and the Upanishads precepts. India's educational system has a long history of being user-friendly, realistic, and relevant.

The New Education Policy 2020 acknowledges ancient India's illustrious history and calls attention to the current curriculum's integration of the works of ancient Indian academics like Charaka, Susruta, Aryabhata, etc.

## CONCLUSION

India should provide serious attention to preserving and promoting its cultural heritage, which is essential to the country's sense of self. India's new education policy aims to give pupils a sense of independence and a deep appreciation for India's complex and fascinating history, cultural heritage, and contemporary knowledge base and practices. The policy's goal is to help students become "true global citizens" by helping them gain the information, skills, values, and attitudes necessary to commit responsibly to issues like human rights, sustainable development and living, and global well-being.

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# EXPLORING COMPENSATION MANAGEMENT STRATEGIES: A COMPREHENSIVE ANALYSIS ACROSS DIVERSE INDUSTRIES

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## ABSTRACT

*This study goes into the complicated world of compensation management strategies and how they affect employee success and happiness in a wide range of fields. The study aims to give a more complete picture of the difficulties and subtleties connected with pay practices by looking at different industries, including banks, manufacturing, digital marketing, insurance, and pharmaceuticals. Using both quantitative and qualitative methods, the study aims to find patterns, trends, and the best ways to handle pay that affect employees' job satisfaction and the general performance of the company. By looking at real data, this study hopes to give HR professionals, business leaders, and lawmakers useful information that they can use to improve pay structures and make the workplace a better place to be. Through this study, we hope to add to what is already known about compensation management and give useful advice to companies that want to improve their human capital management plans.*

**KEYWORDS:** Compensation Management, Employee Satisfaction, Performance, Diverse Industries, Human Resources, Organizational Strategies, Best Practices.

## INTRODUCTION

In today's fast-paced, globally interconnected business environment, the significance of effective compensation management solutions cannot be emphasized enough. In addition to being crucial in attracting and retaining top personnel, pay is a significant component in determining employee happiness and organizational performance. The multi-sectoral nature of compensation management is the driving force behind this study's determination to delve deeply into the subject. The modern corporate landscape is made up of a diverse range of industries, each with its own set of challenges and opportunities. This study takes place in a variety of settings, including the complex financial systems of the Central Bank of Nigeria, the digital frontiers of marketing firms, the risk-laden corridors of insurance, the precision-driven pharmaceutical industry, and the dynamic field of information technology. The need for a thorough understanding of how compensation management affects employee performance and satisfaction is what motivated this study. Combining empirical data from several industries allows us to uncover general patterns, industry-specific difficulties, and best practices. Legislators, business executives, and human resource professionals can all benefit from these results while making judgments. This study aims to transcend sectoral boundaries by providing a holistic perspective on pay management that contributes to the advancement of both academic research and business strategy creation. We hope to find solutions to crucial questions regarding compensation management by delving into the details that make each industry unique. Our goal is to provide companies with a practical resource that will help them

streamline their compensation plans and create work environments that foster both short- and long-term success for their employees. We hope that this interdisciplinary effort will help advance strategic organizational development and human capital management, two relatively new yet promising areas of study.

## OBJECTIVES

1. To assess the variability of compensation structures.
2. To analyze the impact of compensation on employee satisfaction.
3. To explore industry-specific challenges and best practices in compensation management.

## PROBLEM STATEMENT

Pay management is known to affect employee happiness and organizational performance, but less is known about how different compensation approaches affect different industries. Because businesses operate in many environments, from the inventive world of digital marketing to the regulated world of financial institutions, compensation management must be tailored to each organization. Without a comprehensive study of multiple firms, academic research and real-world applications suffer. Recent research focuses on specialized industries, leaving out broader general trends and cross-sectoral insights that could inform best practices. Without a broad perspective, businesses, decision-makers, and human resource professionals cannot adapt compensation plans to sector-specific challenges and opportunities. Global market shifts, employee expectations, and technological advancements make





today's workplace dynamic, necessitating current pay management knowledge. Thus, the main issue is a lack of understanding of how compensation practices promote long-term employee happiness and organizational performance while meeting industry goals. This research intends to fill this information vacuum by examining compensation management strategies and their consequences across multiple industries. The study intends to shed light on this topic to help companies optimize their pay plans for a happy, productive staff.

## RESEARCH GAP

Even though compensation management literature is abundant, there is still a study gap in examining compensation approaches in many industries. Pay policies in certain industries have been studied, but not cross-industry. Lack of awareness of how compensation plans develop to match industry possibilities and restrictions is especially obvious. Most industry-focused research provides insight into compensation practices in a specific setting. Lack of cross-industry comparisons hinders the finding of cross-sectoral patterns, best practices, and concerns. A thorough examination is needed as more enterprises operate in complicated environments with different labor demands and industry dynamics. Moreover, the current research often fails to address how technology and changing employer-employee relationships are transforming the workplace. The gig economy and remote work's effects on pay techniques in different industries are poorly studied. This paper analyses compensation management methods in various firms to fill this research gap. This is done to add to current knowledge by giving insights that apply to a larger range of organizational contexts and are not sector-specific. The research proposal lacks a literature review. To set the background, uncover gaps, and prove your study's relevance, you must incorporate a thorough literature review. Using the proposal's information, I'll offer a literature review outline.

## LITERATURE REVIEW

There has been a great deal of study conducted on the topic of pay management and employee satisfaction (Milkovich & Newman, 2020). This research has focused on the intrinsic relationship that exists between employee job satisfaction and compensation management. It is necessary to have a well-designed compensation plan in order to retain and motivate people in a number of industries (World at Work, 2021). This is in addition to the fact that it is essential for attracting top talent. The satisfaction that is derived from remuneration components, such as base wage, bonuses, benefits, and non-monetary incentives, is a significant factor in determining overall job satisfaction and engagement (Heneman et al., 2019).

Structures of Compensation Tailored to Specific Industries: The modern business environment is comprised of a wide range of industries, each of which presents its own unique set of opportunities and problems. A few examples of industries that have diverse pay scales include the pharmaceutical industry, the banking industry, the manufacturing industry, the insurance industry, and the information technology industry. According to Armstrong and Taylor (2017), empirical research suggests that factors specific to particular industries have an impact on the development and implementation of compensation plans. One

example of a factor that can have an effect on compensation practices is the contrast between the creative and dynamic nature of digital marketing organizations and the controlled environment of financial institutions.

Obstacles in Compensation Management There are a number of challenges that must be overcome in order to achieve successful compensation management, and these challenges vary from industry to industry. Regulatory contexts, market dynamics, and organizational cultures are all important factors that have a significant impact on compensation practices, according to the research that has been conducted (Martocchio, 2019). When contrasted with the precision-driven pharmaceutical industry, the Central Bank of Nigeria's intricate financial operations present a unique set of challenges. It is necessary to appreciate and address these challenges if compensation systems are to be optimal in a range of scenarios. This is because these issues are essential.

Exceptional Methods for the Administration of Compensation: Organizations that are looking to increase the overall performance of their employees as well as the satisfaction of their workforce should place a significant emphasis on locating and implementing the best practices in pay management. The findings of the study indicate that effective compensation plans are complementary to the cultures of organizations and the objectives of various industries (World at Work, 2021). According to Heneman et al. (2019), optimal practices may include a variety of compensation approaches, including competitive base pay, performance-based bonuses, and personalized benefit packages. The literature focuses on the ways in which companies need to adjust their tactics in order to accommodate the specific conditions that are present in their respective industries.

Strategies for Changing Compensation in a Workplace That Is Constantly Changing: The advent of the gig economy, technological breakthroughs, and the increase in the prevalence of remote work are all examples of dynamic transformations that have occurred in the workplace in recent times. On the other hand, the literature does not provide a comprehensive investigation into the ways in which these modern factors influence compensation patterns in a variety of businesses. According to World at Work (2021), organizations that are attempting to adapt to shifting workforce patterns need to have an understanding of how the gig economy and remote work could potentially impact compensation practices.

## RESEARCH METHODOLOGY

A mixed-methods research methodology will be used to address the research objectives of investigating compensation management systems across various sectors. This methodology was selected due to its capacity to integrate both qualitative and quantitative data into a full understanding.

### The Sampling Plan

- **Population:** A wide range of businesses, including but not limited to banking, manufacturing, insurance, digital



marketing, pharmaceuticals, and information technology, will be the focus of the study.

- **Sample Technique:** To guarantee representation from every industry sector, a stratified random sample approach will be used. Then, randomly chosen organizations will be chosen from each stratum.

## DATA COLLECTION

• **Quantitative Data:** To collect quantitative data on pay structures, employee satisfaction, and perceived organizational performance, surveys will be given to employees in a selection of firms. The responses will be quantified using Likert scales and structured questions.

• **Qualitative Data:** To obtain qualitative insights into the contextual elements driving compensation schemes, in-depth interviews and focus groups will be held with important stakeholders, such as HR practitioners and organizational executives. We'll utilize open-ended questions to encourage detailed, narrative answers.

## DATA ANALYSIS

• **Quantitative Analysis:** Survey data will be analyzed using statistical software, such as SPSS. To find patterns and relationships, regression analysis, correlation research, and descriptive statistics will be employed.

• **Qualitative Analysis:** To identify important themes, obstacles, and best practices, focus group and interview data will be subjected to thematic analysis.

## HYPOTHESIS

1. **To evaluate compensation structure variability:** Compensation arrangements in various businesses do not differ significantly from one another.
2. **To examine how compensation affects employee satisfaction:** Employee satisfaction and remuneration systems do not significantly correlate across industries.
3. **To examine industry-specific difficulties and top compensation management techniques:** Compensation administration is not beset by industry-specific difficulties.

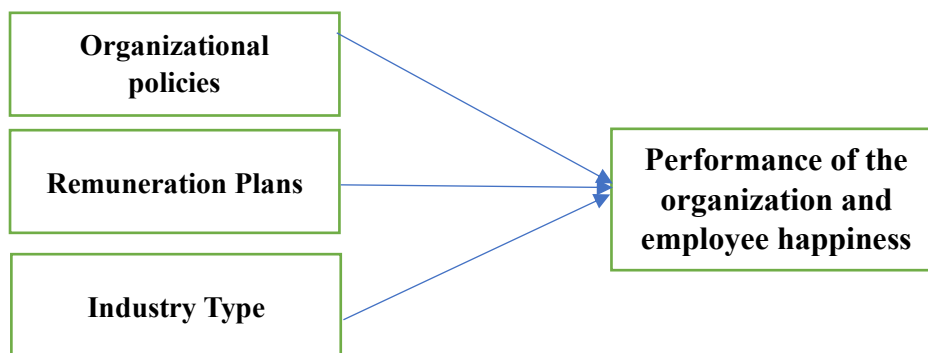


Fig: Conceptual Model

## RESULTS AND DISCUSSIONS

Reliability Statistics	
Cronbach's Alpha	N of Items
.921	12

### Regression

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.866 <sup>a</sup>	0.778	.657	0.0249

The model summary presents key statistics for assessing the fit of a regression model. With an R value of 0.866, there is a strong positive correlation between the predictors and the dependent variable, indicating a substantial linear relationship. The R Square value, standing at 0.778, suggests that approximately 77.8% of the variance in the dependent variable is explained by the model, signifying a good explanatory power. However, when adjusting for the number of predictors, the Adjusted R Square drops to 0.657. This lower value implies that when considering the number of predictors in the model,

the explanatory power decreases, but it still accounts for around 65.7% of the variance in the dependent variable, which is considerable. Lastly, the Standard Error of the Estimate at 0.0249 indicates the average distance that the observed values fall from the regression line. The smaller this value, the closer the data points are to the fitted regression line, suggesting a good fit of the model to the observed data. Overall, these statistics indicate that the model has a strong and reliable predictive power, but the impact of including multiple predictors should be carefully considered.



## Hypothesis Testing

Hypothesis	P-Value	Result
H <sub>1</sub> : Organizational policies → Performance of the organization and employee happiness	0.00	Significant
H <sub>2</sub> : Remuneration Plans → Performance of the organization and employee happiness	0.00	Significant
H <sub>3</sub> : Industry Type → Performance of the organization and employee happiness	0.00	Significant

- The p-value indicates that organizational policies have a statistically significant impact on both the performance of the organization and employee happiness. This suggests that changes or variations in organizational policies are strongly associated with changes in these outcomes.
- Similarly, a p-value for confirms that remuneration plans significantly influence the organization's performance and employee happiness. This implies that the structure and effectiveness of remuneration plans are crucial factors affecting these aspects.
- The p-value demonstrates a significant relationship between the type of industry and both organizational performance and employee happiness. This indicates that the industry context plays a critical role in shaping these outcomes.

## CONCLUSION

This study seeks to improve pay management in digital marketing, manufacturing, banking, insurance, pharmaceuticals, and IT. The study focuses on compensation structure disparities, how compensation affects employee satisfaction, industry-specific compensation management difficulties, and best practices. We wish to investigate the complicated relationship between organizational dynamics and compensation practices using focus groups, qualitative interviews, and quantitative surveys. The conceptual model for this research shows how important variables interact with theoretically investigated relationships. As we analyze the data, we will examine pay systems for similarities and differences across industries. HR experts and corporate executives who want to create engaging and retaining cultures should study how salary affects employee satisfaction. This research also examines business-specific concerns and best practices to provide relevant information. Industry-specific issues will affect tailored techniques, and best practices will give organizations a road map for pay management optimization. The research findings can influence organizational decisions, HR policy, and compensation management scholarship. After reviewing the research aims and hypotheses, we want to provide a comprehensive and nuanced picture of pay schemes in different industries to improve employee satisfaction and organizational effectiveness.

## LIMITATIONS

The findings of the study may not be able to be generalized to a wider population because the study was conducted with a

specific sector in mind. This is one of the major drawbacks of the study. In spite of this, an effort will be made to select a sample that is representative of a wide range of industries. In addition, the dynamic nature of certain organizations may present challenges when it comes to the collection of data in real time. The research makes an effort to handle the complexity that is present in a variety of industry contexts by employing a mixed-methods approach. Additionally, it offers a thorough and nuanced perspective on the solutions that are available for compensation management.

## FUTURE SCOPE OF RESEARCH

Future research may use a longitudinal strategy to capture compensating patterns' dynamic nature. This would allow researchers to study how company changes affect employee satisfaction and compensation. Global studies would help us understand compensation practices. Comparisons between nations and localities may show how culture affects compensation and provide a more complete view of the global workforce. As technology is integrated into the workplace, future studies may examine how automation and artificial intelligence are altering pay plans and worker happiness. Technologically, fast-changing industries need this. More industry-specific research may reveal details not included in this exhaustive investigation. A comprehensive study inside certain businesses can reveal challenges, best practices, and emerging patterns. Future research should study how employee factors like age, gender, and tenure affect pay scales. Understanding how various demographic groups view and affect pay can help with targeted methods for various workforce segments. As work changes, wage management should be examined from the perspective of the gig economy and remote labor. This may involve investigating flexible work schedules and pay rules. A deeper study of how pay influences workers' well-being and how total incentive programs work may provide holistic techniques for employee happiness that go beyond money. Future research may emphasize the importance of employee perspectives in pay plan design. Employee preferences may assist in designing better employee-focused remuneration procedures. How corporations utilize external benchmarking for pay may reflect market competition. Keeping top talent demands understanding how firms compare their compensation plans to external benchmarks.



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# CONDITION OF THE THYROID GLAND IN FORMATION DYSHORMONAL DISEASES OF THE MAMMARY GLAND

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## SUMMARY

*The thyroid gland is one of the organs of the neuroendocrine system, which has a significant influence on a variety of physiological and cellular functions, including growth, development and metabolism in general. Thyroid diseases are among the most common endocrine disorders in clinical practice, which determines their general pathological significance. It is known that all forms of thyroid diseases occur in women 4–5 times more often than in men. Recent years have been marked by an increase in the prevalence of both thyroid pathology and associated pathology of the reproductive system.*

**KEYWORDS.** *t thyroid hormones, functional state of the thyroid gland, mastopathy, dyshormonal diseases of the mammary gland, fibrocystic disease.*

## RELEVANCE

The mammary glands, as an integral part of the reproductive system of the female body, are a kind of target for the active influence of ovarian sex steroid hormones, tropic hormones of the pituitary gland and, indirectly, hormones of other endocrine glands. Among various hormonal-dependent diseases of the reproductive system, damage to the mammary gland is the most common (according to various sources, up to 60–95%) and, as a rule, is the first to manifest such disorders. This is due to the anatomical and physiological features of the structure of mammary gland tissue and the predominance of the glandular component in the structure. Pathological changes in the mammary glands should be considered as a marker of emerging general hormonal disorders in the regulatory system of the reproductive organs, which, of course, require corrective therapy [5–7, 11–13, 18, 21].

Mastopathy (as defined by WHO, 1984) is a fibrocystic disease characterized by a violation of the relationship between the epithelial and connective tissue components, a wide range of proliferative and regressive changes in the tissues of the mammary gland.

The etiology and pathogenesis of mastopathy is currently not fully understood, although the fact that this pathology is hormonally determined today is considered irrefutable. This is reflected in the fact that in recent years the term “ dishormonal diseases of the mammary glands” has been used more often in the literature, since it better reflects the essence of the pathological processes occurring in the organ and explains the increasing interest in this problem on the part of gynecologists and endocrinologists [6, 15, 16, 21].

The relevance of the problem of dishormonal diseases of the mammary gland is due to both their high frequency in the population and the fact that some proliferative forms with epithelial hyperplasia are considered as increased risk factors

for the development of breast cancer . The risk of developing breast cancer against the background of mastopathy increases 4–9 times, and according to some literature sources - even 37 times, and the frequency of malignancy increases with cystic changes, calcification , as well as with proliferative processes in the epithelium lining the ducts and cyst walls [11–13, 21, 32].

Several levels of regulation of the functional and morphological state of the mammary glands can be distinguished: a) hormonal, represented by influence pathways through the hypothalamic-pituitary system, adrenal glands and gonads; b) metabolic, associated with disruption of all types of metabolism; c) neuroregulatory , influencing through changes in the state of the central and autonomic nervous system ; d) immunological, caused by disturbances of immune homeostasis, affecting the systems of nonspecific and specific immune response. However, a decisive role in the development of mastopathy, according to a number of sources, is assigned to disorders of the reproductive system, which are manifested by progesterone deficiency conditions against the background of relative or absolute hyperestrogenism [6–8, 18, 21, 24].

It is interesting to note that no direct relationship was found between the content of sex steroids in the blood serum and the condition of the endometrium and mammary glands in women of childbearing age. It remains unclear why dysplastic processes do not affect the entire mammary gland, but only certain parts of it. Since mastopathy is formed against the background of a preserved menstrual cycle and reproductive ability, the determining significance in the development of dishormonal processes in the mammary glands, as in other target organs of sex hormones, is not the absolute value of the level of hormones in the plasma, even in free form, but the local state of the receptors for sex steroids in gland tissue. It is believed that it is the activity of the receptor apparatus that determines the occurrence of the pathological process. Hormonal imbalance causes morphofunctional restructuring of



the mammary glands, but in some women these changes may not go beyond physiological options, while in others, under conditions of activation of the receptor apparatus of the glands, they can turn into a pathological process [9, 16, 24].

There is no doubt that the normal activity of the thyroid gland is a necessary condition for the harmonious functioning of the body. In this regard, the question naturally arises about the influence of the functional state of the thyroid gland on the condition of the mammary glands. A sufficiently large amount of clinical data has been accumulated, confirmed by the results of laboratory studies, indicating a combination of impaired thyroid status with pathology of the mammary glands.

A number of sources indicate the direct influence of thyroid hormones on the process of proliferation of epithelial cells of the lobular-alveolar structures of the mammary gland through regulation of the level of epidermal growth factor receptors [29, 36].

Most authors agree in determining the indirect influence of altered thyroid status on various levels of regulation of the functional and morphological state of the mammary glands indicated above. The functional interaction of the hypothalamus-pituitary-thyroid and hypothalamus-pituitary-gonad systems comes to the fore in the implementation of this influence. It is believed that the highest links in the multi-stage system of endocrine regulation are the suprahypothalamic structures (acting through neurosteroids, neurotransmitters and neuropeptides) and the hypothalamus (influencing the underlying structures through the production of releasing hormones) [9, 18, 20–23].

The function of the reproductive and thyroid systems is regulated by tropic hormones of the anterior pituitary gland: luteinizing hormone (LH), follicle-stimulating hormone (FSH), prolactin, thyroid-stimulating hormone (TSH), which, in turn, are influenced by the hypothalamic-cortical synchronizing system [1, 2, 15–17, 23, 26]. Many scientific studies have proven that stressful situations, immune disorders, infectious diseases, as well as structural and functional disorders in the hypothalamic-pituitary system can lead to disruption of the biosynthesis of both thyroid and sex hormones, but the mechanisms of these relationships have not yet been clearly defined and represent an object of interest for study.

Analyzing the mechanisms of interaction between the thyroid and reproductive systems, as well as the ways of their joint influence on the condition of the mammary gland, several main points can be highlighted.

Dysfunction of the hypothalamic-pituitary system can lead to changes in the level of gonadotropic hormones and prolactin. This is due to the similarity in the structure of gonadotropic hormones (LH, FSH) and TSH, which are complex glycoproteins consisting of two subunits. An interesting fact is that the structure of the  $\alpha$  - subunits of LH, FSH and TSH is the same, and  $\text{thyre } \beta$  - subunit is specific for each hormone and determines its luteinizing, follicle-stimulating or thyroid-stimulating activity only after combining with the  $\alpha$  - subunit.

The discovered similarity allowed us to draw a conclusion about the emergence of these hormones in the process of evolution from one common predecessor and, accordingly, about the possibility of influence of changes in the content of one on the other.

It is known that  $\text{thyre } \langle$  - subunit, identical in gonadotropic and thyroid-stimulating hormones, protects  $\text{thyre } \langle$  - subunit from the action of proteolytic enzymes, and also facilitates its transportation from the pituitary gland to peripheral target tissues, that is, to a certain extent determines the biological activity of hormones. The significance of this fact is extremely important, since it is known that dysfunction of one or another part of the endocrine system is determined not only by hyper- or hypoproduction of hormones, but also by a decrease in their biological activity against the background of normal levels in the blood serum [16, 23].

In recent years, research *in vitro* and *in vivo* it has been proven that hypothalamic thyrotropin-releasing hormone (THH) is a potential stimulator of the pituitary gland's release of not only TSH, but also prolactin. Although the mechanisms of the releasing effect of TL on thyrotrophs and lactotrophs are different (under the influence of TL, the synthesis of TSH is stimulated by thyrotrophs and its release, and the release of prolactin by lactotrophs, which has already been synthesized previously under the influence of other mediators), the concentrations of thyroxine and triiodothyronine circulating in the blood serum determine the level of prolactin by the mechanism feedback by influencing the production of TL.

Increase in triiodothyronine content ( $T_3$ ) and thyroxine ( $T_4$ ) above normal has an inhibitory effect on prolactin levels. Reduced levels of  $T_3$  and  $T_4$  in plasma (for example, in primary hypothyroidism) increase the TL-induced release of prolactin and, accordingly, cause the development of hyperprolactinemic conditions. It is possible that thyrotropin-releasing hormone exerts its stimulating effect on the secretion of prolactin through an increase in the expression of prolactin-releasing genes and receptors for it directly in the adenohypophysis. The condition of hyperprolactinemia in primary hypothyroidism is called Van Wyck–Hoeness–Ross syndrome. Adequate replacement therapy for hypothyroidism with thyroid hormones in this situation leads to normalization of prolactin secretion [2, 10, 16, 30].

Prolactin plays a significant role in the hormonal regulation of morphofunctional changes in the mammary gland. In synergy with other hormones, it controls not only the formation, but also the functional activity of the mammary glands, stimulating lactation. In a number of studies *in vitro* It has been shown that prolactin promotes the active growth of mammary epithelial cells, especially acting in conjunction with progesterone [3, 16, 21, 29].

The lactogenic effect of prolactin increases sharply after childbirth, i.e. against the background of a physiological decrease in the level of estrogen and progesterone. A pathological increase in prolactin levels, leading to increased formation of connective tissue and dilatation of the milk ducts,



can cause tension, pain, and an increase in the volume of the mammary glands [21].

Research in recent years has established that the cause of the development of dishormonal processes in the mammary gland can be not only an absolute increase in the level of prolactin, but also a disturbance in the rhythm of its daily secretion. The development of the latter is largely due to the high sensitivity of the prolactin secretion system to various kinds of influences. Thus, most pharmaceuticals that have a central effect affect dopamine metabolism and stimulate the secretion of prolactin [16]. This mechanism allows us to explain the fact that the course of mastopathy worsens while taking antidepressants, antipsychotics, etc. We must not forget that hypothyroidism, including subclinical hypothyroidism, often occurs under various "masks", one of which is depressive states. At the same time, inadequate treatment of undiagnosed thyroid pathology with antidepressants and other centrally acting drugs leads to the progression of mastopathy.

In addition to influencing the secretion of prolactin, thyroid hormones can affect the condition of the mammary glands, changing the level of sex hormones.

Normally, cyclic changes in the levels of sex steroid hormones during the menstrual cycle significantly affect the morphofunctional state of the mammary glands. Ovarian hormones (estrogens, progesterone, androgens and inhibin) have a mainly stimulating effect on the proliferation of mammary gland cells [4, 9, 16, 29].

In the follicular phase of the cycle, under the influence of estrogens, cell proliferation occurs in the terminal sections of the ducts. In the luteal phase, due to the influence of progesterone, lobular -alveolar development and cellular differentiation are ensured. The number of estrogen receptors in the epithelium of the mammary glands decreases in the luteal phase, while the density of progesterone receptors remains high throughout the entire cycle. While estrogens increase the size of the mammary ducts by hypertrophy of the lining cells, progesterone causes hyperplasia of these cells by increasing the chemical activity of pre-lactation compounds in the terminal ducts.

Thus, the first peak of proliferation of the mammary gland epithelium occurs during the follicular phase under the influence of FSH, LH and increased estrogen levels, and the second peak occurs in the middle of the luteal phase at maximum progesterone concentrations. This fact contributes to the fact that in the late luteal phase of the cycle there is a maximum increase in the volume of the mammary glands. However, it should be noted that the peak of mitosis in the luteal phase is replaced by apoptosis.

The ability of thyroid hormones to change the level of sex steroids is due to their effect on the protein-synthesizing function of the liver and stimulation of the production of testosterone- estradiol-binding globulin (TEBL) in the liver, which in the literature is also called sexsteroid-binding globulin, or sex steroid-binding globulin (SHBG) [22]. This

protein has the ability to bind estradiol, testosterone and 5-dehydrotestosterone.

Thus, in thyrotoxicosis, an increase in the concentration of thyroid hormones leads to an eightfold increase in the concentration of TESH. Accordingly, an increase in the hormone-binding capacity of plasma causes a decrease in the rate of metabolic clearance (the time for testosterone removal from the body is 50% of the norm), an increase in the total concentration of testosterone in plasma and an acceleration of its conversion to androstenediol. In this case, as a rule, clinical signs of hyperandrogenism are not observed, since the above hormones are in a bound state due to the high level of TESH.

This condition is accompanied by activation of the extragonadal conversion of testosterone to androstenediol, androstenediol to estrone and estrone to estradiol. The resulting hyperestrogenemia via a feedback mechanism leads to a decrease in FSH concentration. Under conditions of FSH deficiency, the sensitivity of ovarian tissue to LH decreases, which leads to a decrease in progesterone levels. A decrease in progesterone, in turn, leads to an increase in LH secretion. An increase in LH levels is also facilitated by a decrease in free testosterone levels. Such a combined increase in the level of estrone and estradiol against the background of a decrease in the level of progesterone in hyperthyroidism leads to the development of proliferative processes in target organs, oligo- and opsomenorea, dysfunctional uterine bleeding [14, 16, 19, 21, 22, 34, 35].

In the mammary gland, a decrease in the antiestrogenic effect of progesterone in combination with hyperestrogenemia also leads to proliferative changes. Of interest is the fact that, despite the frequent presence of mastopathy in women with thyrotoxicosis, it is characterized by a relatively benign course with a predominance of diffuse forms in combination with leveling and even often a complete absence of clinical manifestations of mastopathy after relief of hyperthyroidism.

At In hypothyroidism, under conditions of thyroid hormone deficiency, the level of TESH decreases and, accordingly, the SMC of testosterone increases. As a result, the conversion of androstenediol is accelerated to testosterone and then testosterone into estradiol. With hypothyroidism, the metabolism of estradiol also changes: instead of normal 2-hydroxylation with the formation of active catechol estrogens, predominantly 16-hydroxylation occurs with the formation of estriol. Estriol, being the least active estrogen fraction, does not provide an adequate feedback mechanism in the regulation of gonadotropin secretion, which leads to a decrease in the concentration of LH and FSH. Clinically, this is manifested by chronic anovulation, dysfunctional bleeding, or even the development of hypogonadotropic amenorrhea in hypothyroidism. On the part of the mammary gland, this condition, accompanied by progesterone deficiency against the background of relative hypoestrogenemia (decrease in the level of metabolically active estrogen fractions), leads to the development of involutive processes associated with both changes in the state of receptors for sex steroids and with the characteristics of local hormonogenesis [10, 14, 16, 19, 21, 22, 25, 27, 34, 35].



It was stated above that the effect of prolactin on breast tissue reaches its maximum when the level of estrogens and progestins decreases. Thus, with hypothyroidism, one can expect the summation of two effects: a change in prolactin secretion due to central mechanisms and the formation of a background of greatest sensitivity to hyperprolactinemia due to a deficiency of sex steroids.

The mechanisms of desynchronization of sex steroid synthesis in hypothyroidism are similar to those in perimenopause. It is known that it is during this period that more than 60% of breast cancer cases are detected. Taking this into account, it can be argued that the hypothyroid state, as a unique model of hormonal changes in the reproductive system characteristic of menopause, is more dangerous from the point of view of malignant degeneration in breast tissue than hyperthyroidism.

In addition to the fact that disruption of the functional activity of the thyroid gland acts as a kind of trigger for the development of pathological changes in the reproductive system and thereby contributes to the development of dishormonal processes in the mammary gland, a number of other mechanisms of the possible influence of altered thyroid status on the formation of mastopathy can be identified.

Thus, hormonal changes in hypothyroidism, leading to an increase in body weight, the development of insulin resistance and hyperinsulinemia, contribute to the development of mastopathy, which is associated with the stimulating effect of insulin, which has its own receptors on the epithelial cells of the lobules and stimulates their proliferation [17, 29].

It is possible that the influence of the level of thyroid hormones on the condition of the mammary glands can be carried out through the central and autonomic nervous systems. There is evidence that sympathicotonia, characteristic of hypothyroidism, as an adaptive response to a decrease in the level of stress hormones, contributes to an increase in the severity of the pathological process in the mammary gland [17].

According to a number of authors [39, 40], one of the metabolic aspects of the interaction between The thyroid and mammary glands are responsible for the peripheral exchange of iodine and thyroid hormones. Experimental evidence shows the ability of iodine and an iodine-rich diet to protect against breast tumor development, as demonstrated by the markedly lower incidence of breast cancer among Japanese women whose diets are rich in iodine-containing seafood. On the other hand, it is in areas with a sufficient supply of iodine that a more favorable situation is observed, in terms of the prevalence of thyroid pathology. Although there is no direct evidence, there is an opinion that it is iodine, iodinated components or a combination of iodine and selenium, which is part of antioxidant enzymes, that is the element of the Japanese diet that has a protective antitumor effect [39, 40].

Basic studies examining the role of iodine and peripheral thyroid hormone metabolism in the mammary gland have shown decreased expression of 5-deiodinase type 1 (D-1) in

breast cancer cells. Type 1 (D-1) and type 2 (D-2) 5-deiodinases catalyze the peripheral conversion of the thyroid prohormone thyroxine to its active form, triiodothyronine. Normally, D-1 expression occurs in organs such as the liver, thyroid gland and lactating mammary gland. The production of this enzyme is regulated in an organ-specific manner by multiple factors such as carbohydrates, triiodothyronine, thyrotropin, and catecholamines. However, experimental studies have shown that in some types of breast cancer, D-1 expression is reduced, lost, or regulated by other components. When studying the expression and regulation of 5-deiodinases in two lines of malignant cells - MCF-7 (sensitive to the action of ovarian hormones) and MDA-MB-231 (insensitive to the action of ovarian hormones) - it was revealed that MCF-7 cells are characterized by active expression D-1 (approximately 10 pmol I(-)/mg protein per hour), which is stimulated by the administration of retinol acetate (vitamin A), but not triiodothyronine or a  $\beta$ -adrenergic agonist isoproterenol. In MDA-MB-231 cells, deiodinase activity was not affected by any of the above treatments. The results obtained support the assumption that D-1 expression may be a differential marker of estrogen-sensitive malignant breast tissue [33].

Recently, a number of studies have been conducted to study the expression of receptors for the Na (+)/I(-) symporter (NIS) on infiltrating ductal breast cancer cells. The function of this membrane protein, which is a mediator of iodine transport into cells, has been well studied for the thyroid gland. NIS is also found in lactating breast cells and breast cancer tumor cells. Among the examined 50 patients with invasive ductal breast cancer, NIS expression was detected in 45 (90%) cases [37]. Perhaps further study of the mechanisms of peripheral metabolism of iodine and thyroid hormones in breast tissues that have undergone malignant degeneration will make it possible to understand more subtle pathogenetic mechanisms of the formation of combined pathology and find new approaches to diagnosis and treatment.

In studies aimed at determining the prevalence of various thyroid pathologies among patients with breast cancer compared with the control group, a significant predominance of both autoimmune diseases (38 vs. 17%,  $p = 0.001$ ) and non-autoimmune diseases was revealed thyropathies among patients with malignant neoplasms in the mammary gland (26 vs. 9%,  $p = 0.001$ ). The average level of antibodies to thyroid peroxidase was noticeably higher in the group of breast cancer patients compared to the control group ( $p = 0.030$ ), which allows us to consider autoimmune damage to the thyroid gland as an increased risk factor for malignant degeneration of the hyperplastic process in the breast epithelium [41].

Analyzing the literature data on the problem of searching for the relationship between pathological conditions in the thyroid and mammary glands, the lack of a single point of view and sometimes ambiguous data from reports on research on this topic become obvious. Thus, in one of the studies [36], various combinations of pathological conditions of the mammary and thyroid glands were studied in 120 women. Women in menopause were excluded from the study; all patients had a





regular menstrual cycle. The examination was carried out in the early follicular phase of the menstrual cycle and included an ultrasound examination of the mammary and thyroid glands with determination of the structure and volume of these organs, as well as hormonal studies. The data obtained were compared with the results of a study of a group of healthy women of similar age. Among patients with malignant breast lesions in combination with thyroid cancer, a study of hormonal status revealed a greater prevalence of subclinical hypothyroidism or a combined increase in the average levels of free T<sub>3</sub> and T<sub>4</sub> and a decrease in TSH levels (which is characteristic of hyperthyroidism) than in the control group. In the second group, represented by patients with breast cancer and any non-malignant lesions of the thyroid gland, a decrease in the average level of TSH and an increase in the average level of free fractions of thyroid hormones was detected compared to the control group. In the third group, consisting of patients with thyroid cancer in combination with benign breast diseases, a slight increase in prolactin levels was noted compared to control results. Patients with any non-malignant diseases of the mammary and thyroid glands, who made up the fourth group, were characterized by a sharp change in estrogen levels, often below the average level in the control group [36].

Another study compared the results of a thyroid examination in 97 patients diagnosed with breast cancer (first group), 61 patients with mastopathy (second group) and 60 healthy women who made up the control (third) group. Thyroid enlargement was detected in 47, 49 and 22%, respectively. Treatment with thyroid hormones was received by 9.2% (first group), 8.2% (second group) and 5.0% (third group) of patients. The level of thyroid-stimulating hormone in patients with breast cancer was noticeably higher - ( $5.4 \pm 2.2$ )  $\mu\text{mol} / \text{ml}$  than in the group with benign breast diseases ( $3.9 \pm 1.9$ ;  $p < 0.01$ ) and in group of healthy women ( $4.0 \pm 1.8$ ;  $p < 0.001$ ). The level of antibodies to thyroid peroxidase (Ab to TPO) exceeded the norm in 13.4% of women in the first group, in 9.1% in the second group and in 1.7% in the third group. The levels of serum triiodothyronine and thyroxine did not differ significantly in all groups of women examined. The results of this study confirm the existence of a certain, albeit nonspecific, relationship between the presence of thyroid pathology in patients and the development of both mastopathy and breast cancer. There is a tendency towards greater severity of proliferative changes in the mammary gland in patients with autoimmune diseases. thyroiditis in a state of hypothyroidism [31].

Similar results, indicating the influence of the functional state of the thyroid gland on the formation of mastopathy, were presented in a study of the levels of T<sub>4</sub>, TSH and prolactin in patients with mastopathy compared with the control group. Despite the fact that all the examined women were clinically in a euthyroid state, the level of thyroxine in patients with mastopathy was noticeably lower - ( $78.25 \pm 15.27$ )  $\text{ng} / \text{ml}$  than in the group of healthy women ( $88.73 \pm 15.27$ )  $\text{ng} / \text{ml}$ . Levels of thyroid-stimulating hormone and prolactin in women with mastopathy were characterized by a slight increase. This study also demonstrated that changes in thyroid status toward

hypothyroidism are accompanied by a tendency toward pathological proliferation in the mammary epithelium [42].

Thus, various disturbances in hormonal status in women with thyroid pathology can lead to changes in the state of the receptor system in the mammary glands and the development of dys-hormonal hyperplasias in them. The severity of proliferative changes does not always correlate with the severity of thyroid dysfunction. Even subclinical forms of thyroid status disorders can lead to pathological changes in the lobular-alveolar structures of the mammary gland, which will have certain clinical manifestations. At the same time, one can expect a tendency for the severity of these changes to increase when a larger number of regulatory factors (hormonal, metabolic, neurological, etc.) are involved in the process of their formation, which dictates the need for further study of this issue.

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