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CONTENTS

S.NO	TITLE	AUTHOR/S	PAGES
1.	CARDIAC REHABILITATION: THE VITAL ROLE OF NURSES IN CARDIOTHORACIC PATIENT RECOVERY	Sherin P Shaji	1-4
2	CLEFT LIP AND PALATE, SCOPING REVIEW	Nicolle Elizabeth Zumba Cabrera, Lady Janeth Macas Caamaño, Ronald Alexander Cueva Flores, Stefany Alexandra Sarmiento Ávila, Pablo Francisco Pillaño Franco, Ariel Stefany Moyano Ayala, Josue Javier Lombeida Arias, Mayra Alejandrina Viñan Montaña, Juan Diego Garzón Pacheco, Bryam Esteban Coello García	5-12
3	REVOLUTIONIZING E-COMMERCE: HARNESSING ONLINE REVIEWS AND RATINGS FOR INFORMED SHOPPING DECISIONS USING JAVA	Mrs.Shobha Rani B R, Ms. Ruchitha K	13-14
4	ADVANCING ROAD SAFETY AND DRIVER EXPERIENCE: A SYNERGISTIC FUSION OF LANE AND TRAFFIC SIGN RECOGNITION WITH HAND GESTURE-BASED MEDIA CONTROL IN DRIVER ASSISTANCE SYSTEMS	Dr.Indumathi S K, Ms. Sowmya C Y	15-16
5	WEBSITE DESIGN FOR FOOD WASTE DISPOSAL: A COMPREHENSIVE ANALYSIS AND SCENARIO-BASED APPROACH	Mrs.Shobha Rani B R, Ms.Hamsa M H	17-18
6	NAVIGATING THE EMOTIONAL TERRAIN OF SURGERY: THE CRUCIAL ROLE OF NURSES IN PATIENT WELL-BEING	Airin C Poulouse, Bincy Thomas, Sr Liji Thomas, Santhosh Kumar. J, Binu John, Dr. Jomon Thomas, Priyanka Rajak	19-21
7	EMPLOYEE ENGAGEMENT & IT'S EFFECTIVENESS AT AMAZON AND ACCENTURE	Yashaswini G.M , Dr. Leela M.H	22-24
8	DIGITAL ACTIVISM: A TOOL FOR EMPOWERING PEOPLE WITH DISABILITIES	Priya Sharma	25-27
9	STRESS ANALYSIS USING SOLIDWORKS SIMULATION	Yazeed Mohammed Ahmed Almashani, Abdullah Ahmed Alamri, Muhab Mohammed Faraj Al- Ghassani, Mithun V Kulkarni	28-35
10	REVIEW ARTICLE: ARDHAVABHEDA	Dr. Nidhi R B , Dr. Gururaj Anil Bhat, Dr. D Tharakesh	36-43
11	RACISM: CURRENT TRENDS, SITUATION AND STRATEGY	Dr.Anil C.Bankar	44-45
12	A STUDY ON EMPLOYEE ATTITUDE TOWARDS WELFARE MEASURES AND ITS INFLUENCE ON PERFORMANCE AT	Ms.Chandini R, Mrs Vidya R	46-51

	KSRTC, KOLAR		
13	A STUDY ON RISK AND RETURN ANALYSIS OF DEBT MUTUAL FUNDS WITH RESPECT TO ICICI PRUDENTIAL MUTUAL FUNDS	Honnesh, Dr. Shailaja M L	52-56
14	A STUDY ON PROBLEMS FACED BY WOMEN EMPLOYEES IN THE GARMENT INDUSTRY WITH SPECIAL REFERENCE TO COIMBATORE DISTRICT	Dr.S.Renugadevi, Ms.K. Sandhiya	57-64
15	SECURE SMART HOME DESIGN AND ANALYSIS FOR ELDERLY PEOPLE USING INTERNET OF THINGS (IOT) TECHNOLOGIES	Dr.D.Devi Aruna	65-67
16	A STUDY ON THE HEALTH AND NUTRITION EDUCATION FOR TEENAGERS	Mrs. Barthalomea Prathibha Dsouza	68-71
17	IMPACT OF COGNITIVE RESTRUCTURING ON STRESS TOLERANCE AMONG PARANOID COUPLES	Sunil K T, Aiswarya M	72-74
18	EXPLORING CHILD PROTECTION MEASURES IN SPECIAL EDUCATION SCHOOLS IN ZAMBIA	Moses Chisala, Daniel Ndhlovu, Joseph Mwape Mandyata	75-80
19	LIVED EXPERIENCES OF BUREAU OF FIRE PROTECTION OFFICERS OF DAGUPAN CITY	Cheryl A. De Castro, Cherry Cabarrubias	81-88
20	RISK TAKING BEHAVIOURS SUSCEPTIBLE TO PSYCHO-SOCIAL FACTORS: A STUDY OF ADOLESCENTS IN SOKOTO METROPOLIS, NIGERIA	S. Y. Tsagem, PhD, A. I. Gaata	89-95
21	A STUDY OF PROBLEMS FACED BY CLASS 8th STUDENTS IN ACQUIRING PRACTICAL SKILLS OF SCIENCE SUBJECT THROUGH ONLINE LEARNING	Anjali Namdeorao Chincholikar, Dr. Amardeep P. Asolkar	96-99
22	CONSUMER AWARENESS AND SATISFACTION TOWARDS ORGANIC FOOD PRODUCTS IN COIMBATORE CITY	Dr. S. Dharchana	100-105
23	A CANONICAL CORRELATED MULTI-AGENT REINFORCEMENT FOR E-HEALTHCARE MONITORING	V. Deepa, Dr .Rajeswari	106-108
24	GUARDIANS OF HOPE: PAEDIATRIC NURSES' VITAL ROLE IN CHILDREN'S MENTAL HEALTH SUPPORT	Gayathri N S, Mary Daniel, Thara Xavier, Finu M Paul	109-111
25	DISTRIBUTION OF SICKLE CELL ALLELE IN ETHNIC SUB-GROUPS OF THARU IN NEPAL	Manoj Kumar Tharu, Nanda Bahadur Singh	112-115
26	SELF-REPORTED, SELF-CARE ACTIVITIES AMONG TYPE 2 DIABETIC PATIENTS IN RURAL AREAS OF SRIKAKULAM DISTRICT, ANDHRA PRADESH: A CROSS-SECTIONAL STUDY	K. Satyanarayana, Saptarishi Bose, Paromita Roy	116-121
27	NAVIGATING THE ETHICAL COMPASS: LEGAL AND ETHICAL CHALLENGES IN OBSTETRIC AND GYNAECOLOGICAL NURSING	Dr.(Prof.) Meenu Paul, Reena Ashish Thomas, Amrita Singh	122-124
28	GENDER EDUCATION OF ADOLESCENTS IN GENERAL EDUCATIONAL SCHOOL AS A PEDAGOGICAL PROBLEM	Alibekov Dilshod Islomovich	125-128
29	ON THE PROBLEM OF TRAINING	Todjibayeva Komila Sobit qizi	129-131

	TEACHING STAFF IN THE FIELD OF INCLUSIVE EDUCATION		
30	A QUALITATIVE STUDY OF ENGLISH LANGUAGE INSTRUCTION IN A LOCAL COLLEGE	Donita May C. Valera	132-136
31	A STUDY ON THE EVALUATION OF FINANCIAL PERFORMANCE OF POST-MERGER AND PRE-MERGER OF CANARA BANK USING EAGLE AND CAMEL MODEL	Mr.Prasanna S, Dr. Shailaja M L	137-143
32	AWARENESS AND PREFERENCES FOR TOURISM AMONG PEOPLE IN COIMBATORE	Dr.Vennila Gopal , N Gayathri Devi	144-149
33	FRACTURES OF THE TIBIAL PILON - HORIZONTAL ARTICULAR SURFACE OF THE TIBIA	Bryam Esteban Coello García, Dubal Wladimir Fernández Ordoñez, Alba Estefanía Iza Román, Leyda Coralía Loor Martínez, Marlon Leonardo Ordóñez Ramos, José Luis Granizo Jara, Edgar Gabriel Pesántez Bravo, Daniela Lorena Barros Narváez, Mishell Estefanía Peñafiel Vicuña, Bonny María Montalván Nivicela	150-157
34	EVALUATION OF QUALITY TEACHING IN MAYPANGDAN NATIONAL HIGH SCHOOL: RESPONSE TO GLOBALIZATION	Mercy Marina T. Gallego	158-175
35	ISSUES AND CHALLENGES ON INDIGENOUS KNOWLEDGE RESEARCH	Dr. Jangkhohao Hangshing	176-179
36	SHINING A LIGHT ON FINANCIAL TRANSPARENCY: BIBLIOMETRIC INSIGHTS INTO SEGMENT REPORTING	Dilipkumar Suthar	180-188
37	ABOUT THE METHOD OF ACTUALIZATION OF WINGED WORDS	Isakova Guzalkhon Ne'matovna	189-191
38	WAYS OF ENTRY OF GREEK-LATIN TERM-ELEMENTS IN ENGLISH HISTOLOGICAL TERMINOLOGY	Daulanova Xolida Iskandarovna	192-195
39	THE CONTENT OF THE DEVELOPMENT OF LITERARY COMPETENCES OF STUDENTS ON THE BASIS OF EXAMPLES OF WORLD LITERATURE	Bobonazarova Gulnoza Tolibjonovna	196-199
40	A REVIEW ON LEAD TOXICITY AS PER AYURVEDA	Dr. Anaghashree S, Dr. Chaitra H, Dr. Ranjeetha K	200-204
41	FROM LIKES TO SALES: UNWRAPPING SOCIAL MEDIA'S CONTRIBUTION TO E-COMMERCE SUCCESS	Vishva Shah	205-209
42	A STUDY OF SOCIAL SKILLS OF SECONDARY SCHOOL STUDENTS IN RELATION TO THEIR ACADEMIC ANXIETY	Dr. Suman, Anjali Solanki	210-213
43	DECOMPOSING MULTIDIMENSIONAL POVERTY: A CASE STUDY OF MAMIT DISTRICT, MIZORAM	Dr.C.Lalnunmawia, Prof. Lalhriatpuii	214-218
44	A STUDY ON FINANCIAL EFFICIENCY AND WORKING CAPITAL MANAGEMENT OF TNPL INDUSTRY IN TAMILNADU	Dr.S.S.Muruganandam, Ms.S.Subhasini	219-223
45	IMPACT OF STARTUP ECOSYSTEM ON THE STARTUPRENEURS (With Special Reference to Tirunelveli)	Dr.Sheeba.E, Mr.S.Subbiah Vijayakanth	224-230
46	EFFECTIVENESS OF PERFORMANCE	Dr.M.Karthika, Dr.T.Chandrakala	231-237

	APPRAISAL SYSTEM WITH SPECIAL REFERENCE TO TAMILNADU POLICE CONSTABLES IN KANNIYAKUMARI DISTRICT		
47	IMPACT OF PERSONALITY TRAITS IN MUTUAL FUND SELECTION (With Special Reference to Tiruppur)	Dr.S.Kalaiyarasi	238-247
48	EFFECT OF CULTURAL INTELLIGENCE (CI) ON PATIENT CARE SERVICES IN PRIVATE HOSPITALS (With Special Reference to Qatar)	Dr. R.Geethalakshmi, Dr.M. Magheswari	248-256
49	BRIDGING DISTANCES, ENHANCING CARE: THE TELEHEALTH REVOLUTION IN OBG NURSING	Gisha Jose	257-259
50	REVOLUTIONIZING MENTAL HEALTH CARE: THE TRANSFORMATIVE POWER OF TELEHEALTH IN NURSING	Santhosh Kumar J, Megha Manjula Gaikwad, Shalini kumar, Arun James	260-262
51	THE IMPACT OF SOCIAL NETWORKING ON NIDRA(SLEEP): A REVIEW OF THE LITERATURE	Bilachi Sachin G, Kamath Nagaraj	263-266
52	IMPACT OF DEMOGRAPHIC FACTORS ON THE EMPLOYEE ENGAGEMENT OF EMPLOYEES IN THE IT INDUSTRY	Mrs.V V Sushmita R P	267-274
53	DIETARY MANAGEMENT IN POLYCYSTIC OVARY SYNDROME: REVIEW	Paula Bernarda Toledo Caguana, Jocelyne Karina Ordóñez Brito, Juan Sebastián Marca Cabrera , Tatiana Melissa Cárdenas Ávila , Ariel Andrés Quizhpe Montesdeoca	275-281
54	ASSESSMENT OF THE IMPLEMENTATION OF #BECYBERSAFE PROJECT OF THE DEPARTMENT OF EDUCATION IN SECOND CONGRESSIONAL DISTRICT IN THE PROVINCE OF TARLAC	Jan Vincent S. Carmen, RCrim., PhD Crim	282-291
55	PLAY WAY BASED ACADEMIC INTERVENTION ON PRE-ARITHMETIC SKILLS OF STUDENTS WITH INTELLECTUAL DISABILITY	Aiswarya, M., Dr. A. Hameed	292-295
56	PATTERN OF PUBLIC EXPENDITURE ON SOCIAL SECTOR IN MIZORAM	C.Sangthumluaia, Prof. Lalhriatpuii	296-300
57	ETHICAL REQUIREMENTS FOR EMPLOYEES OF INTERNAL AFFAIRS AGENCIES AND ITS PEDAGOGICAL ASPECTS	Gulyamova Gulnoz Bakhodirovna	301-303
58	RELATIONSHIP BETWEEN REPRESENTATIVE DEMOCRACY AND CIVIL SOCIETY	Nasimov Ozod Botir ugli	304-306
59	SPECIFIC FEATURES OF POLYPHONIC SPEECH STYLE	Dilorom Sabirova	307-308
60	METHODOLOGICAL FOUNDATIONS OF RAISING A HEALTHY GENERATION AND ORGANIZING PHYSICAL EDUCATION	Khatamov Farkhod	309-311
61	BODY MAPPING IN REPRODUCTIVE HEALTH RESEARCH	Pebam Krishnakumari	312-317
62	EFFICACY OF CO-TEACHING ON LEARNERS' PERFORMANCE IN ENGLISH LANGUAGE IN INCLUSIVE EDUCATION IN KADUNA STATE OF NIGERIA	Dr. Bila G. Jamila, Assoc. Prof. Sa'ad, M. Tajuddeen, Tauna Juliet	318-324

63	DEVELOPMENT AND QUALITY EVALUATION OF PROTEIN RICH BURFI WITH SOYA CHUNKS AND WHEAT FLOUR	Sallange Devi, Anil Bukya, Neeti Harshitha M	325-327
64	SYNTHESIS APPROACHES AND APPLICATIONS OF SILICON NANOPARTICLES FROM AGRICULTURAL WASTES: A REVIEW	Aleena Elizabeth Mathew	328-332
65	POSITION CONTROL OF ELECTRO-HYDRAULIC SERVO SYSTEM WITH FRICTION COMPENSATION	Michael Enyan, Luis Miguel Ruiz Pérez	333-343
66	PATHOLOGICAL ASPECTS OF SILENT HEART ATTACKS AND THEIR TREATMENT	Wali Rehman, Dr. Ajit Pal Singh	344-347
67	THE PROBLEM OF HUMAN VALUES IN THE DIGITAL SOCIETY	Soliev Ikromjon Komiljonovich	348-351
68	VIEWS OF THE MODERNS IN THE PRESERVATION OF CULTURAL HERITAGE	Mahmudov Mansurjan	352-354
69	THE MAIN FACTORS OF THE TERMINATION OF THE LEASE CONTRACT IN ISLAMIC LAW	Erkaev Mamurjon	355-357
70	EMPOWERED WOMEN ENTREPRENEURS IN VEDIC INDIA-A CASE STUDY	Dr.Kavita Shastri, Dr.Rajendra Mishra , Shambhavi Shastri	358-362
71	THE WRITING STYLE OF HIS WORK "AL-MUXTASARUL - VIQOYA"	Nabijanov Sirojiddin Abdumutalib ugli	363-365



CARDIAC REHABILITATION: THE VITAL ROLE OF NURSES IN CARDIOTHORACIC PATIENT RECOVERY

Sherin P Shaji

PhD Scholar (Nursing) Medical Surgical Nursing (Cardiothoracic Nursing) People's University, Bhopal

ABSTRACT

Cardiac rehabilitation (CR) plays a pivotal role in the recovery of cardiothoracic patients, with nurses at the forefront of this multidisciplinary effort. This article explores the multifaceted responsibilities of nurses in CR, emphasizing their vital contributions to patients' physical, psychological, and emotional well-being. Nurses are involved in patient assessment, education, exercise supervision, medication management, psychosocial support, and risk factor control. Their proactive involvement is supported by a robust body of evidence demonstrating the positive impact of nurse-led CR programs on exercise capacity, quality of life, and cardiovascular risk factors. Recognizing and valuing the indispensable role of nurses in CR is essential for enhancing patients' overall cardiovascular health and well-being.

INTRODUCTION

Cardiovascular diseases (CVDs) are a leading cause of death worldwide, accounting for millions of lives lost each year. Despite the significant advancements in medical science and technology, CVDs continue to pose a formidable challenge to healthcare systems globally. Cardiothoracic surgeries, including coronary artery bypass grafting (CABG), valve replacement, and heart transplantation, are often the last resort for patients with severe cardiovascular conditions. While these surgical interventions can be lifesaving, the success of these procedures relies heavily on post-operative care and rehabilitation.

Cardiac rehabilitation (CR) is a comprehensive and multidisciplinary approach aimed at optimizing the physical, psychological, and social well-being of patients with cardiovascular diseases. CR programs encompass risk factor management, exercise training, patient education, and psychosocial support. In this article, we will explore the vital role of nurses in cardiac rehabilitation and their contributions to the recovery of cardiothoracic patients. We will delve into the multifaceted responsibilities of nurses, the evidence supporting their involvement, and the importance of recognizing their role in improving patients' cardiovascular health.

CARDIAC REHABILITATION: AN OVERVIEW

Phases of Cardiac Rehabilitation

Cardiac rehabilitation programs are typically divided into phases, each serving a distinct purpose in the patient's recovery journey:

Phase I: In-Hospital Phase

The first phase of cardiac rehabilitation, also known as the in-hospital phase, begins immediately after cardiothoracic surgery. During this stage, patients are still recovering from their surgical procedures and may require intensive medical care and monitoring. Nurses in this phase play a crucial role in:

- Monitoring vital signs and post-operative complications.

- Administering medications and intravenous therapies.
- Providing emotional support and reassurance to anxious patients.
- Educating patients on the importance of early ambulation and respiratory exercises to prevent complications like deep vein thrombosis and atelectasis.

Phase II: Outpatient Phase

Phase II of cardiac rehabilitation typically begins after the patient is discharged from the hospital. This phase focuses on further recovery and the transition to a more active lifestyle. Nurses continue to provide essential care and support by:

- Conducting thorough assessments to identify patients' physical and psychological needs.
- Developing personalized exercise plans and closely supervising patients during their workouts.
- Educating patients about their medications, dietary guidelines, and lifestyle modifications.
- Monitoring and managing risk factors such as hypertension, diabetes, and high cholesterol.
- Offering psychosocial support to help patients cope with anxiety, depression, and the emotional challenges of living with cardiovascular disease.
- Collaborating with other healthcare professionals, including cardiologists, dietitians, physiotherapists, and psychologists, to ensure a holistic approach to patient care.

THE ROLE OF NURSES IN CARDIAC REHABILITATION

Patient Assessment

Nurses are often the first healthcare professionals to interact with cardiothoracic patients. They conduct comprehensive assessments that encompass not only the patient's physical health but also their emotional and psychological well-being. These assessments are essential for tailoring the rehabilitation



plan to the individual patient's needs. Nurses evaluate factors such as:

- Cardiovascular risk factors (e.g., smoking, obesity, family history).
- Comorbid conditions (e.g., diabetes, hypertension).
- Surgical history and recovery progress.
- Medication regimens and potential drug interactions.
- Psychosocial factors affecting the patient's mental health and emotional state.

By gathering this information, nurses can create a holistic picture of the patient's health and develop a personalized rehabilitation plan.

Patient Education

Education is a cornerstone of cardiac rehabilitation. Nurses are responsible for providing patients with the knowledge and tools they need to manage their condition and make informed decisions about their health. Education encompasses various aspects, including:

- **Medications:** Nurses explain the purpose, dosage, and potential side effects of medications prescribed to the patient. They ensure that patients understand how to take their medications correctly and adhere to their prescribed regimen.
- **Dietary Guidance:** Nutrition plays a pivotal role in cardiovascular health. Nurses work with dietitians to educate patients about heart-healthy diets, portion control, and strategies for managing conditions like diabetes and hyperlipidemia through dietary choices.
- **Lifestyle Modifications:** Patients are encouraged to adopt a heart-healthy lifestyle, which includes regular exercise, smoking cessation, and stress management. Nurses provide guidance on safe exercise practices and help patients set achievable goals for physical activity.
- **Symptom Recognition:** Patients learn to recognize the signs and symptoms of worsening cardiac conditions, such as angina or heart failure exacerbation. This knowledge empowers them to seek timely medical attention.
- **Self-Monitoring:** Some patients may need to monitor specific parameters like blood pressure, blood glucose levels, or weight at home. Nurses teach patients how to use monitoring devices and interpret the results.

By equipping patients with this knowledge, nurses empower them to actively participate in their own care and improve their overall cardiovascular health.

Exercise Supervision

Exercise is a fundamental component of cardiac rehabilitation. Regular physical activity has been shown to improve cardiovascular function, increase exercise tolerance, and enhance overall well-being. However, it is essential that exercise is tailored to each patient's individual capabilities and monitored closely to ensure safety.

Nurses, often certified in advanced cardiac life support (ACLS) and exercise physiology, play a crucial role in supervising exercise sessions. Their responsibilities include:

- **Exercise Prescription:** Nurses work with physiotherapists and exercise specialists to develop

exercise programs tailored to each patient's fitness level and medical condition.

- **Monitoring:** During exercise sessions, nurses continuously monitor patients' vital signs, electrocardiograms (ECG), and symptoms. This real-time assessment allows them to identify any adverse reactions promptly.
- **Safety:** Nurses are trained to respond to emergencies such as arrhythmias or chest pain that may occur during exercise. They ensure that exercise equipment is used safely and that patients are well-hydrated and not overexerting themselves.
- **Progress Tracking:** As patients progress in their rehabilitation, nurses adjust exercise plans accordingly, gradually increasing intensity and duration. They celebrate milestones and encourage patients to continue their efforts.

The supervision and guidance provided by nurses in the exercise component of cardiac rehabilitation contribute significantly to improving patients' physical fitness and cardiovascular health.

Medication Management

Many cardiothoracic patients require medications to manage their cardiovascular conditions. Nurses are responsible for administering these medications, monitoring their effects, and educating patients about proper medication management. This role is critical in preventing complications and optimizing treatment outcomes. Specific nursing responsibilities in medication management include:

- **Administration:** Nurses ensure that patients receive the correct medications at the prescribed times, often intravenously in the immediate post-operative phase.
- **Monitoring:** They monitor patients for potential side effects and assess the medication's effectiveness in controlling symptoms and risk factors.
- **Patient Education:** Nurses educate patients about the purpose of each medication, potential side effects, and the importance of compliance. Patients are encouraged to ask questions and express concerns about their medications.
- **Medication Reconciliation:** Nurses work closely with pharmacists and physicians to reconcile medications during care transitions, such as hospital discharge, to prevent errors or duplications.

By managing medications effectively, nurses contribute to the overall success of the patient's cardiac rehabilitation and post-operative recovery.

Psychosocial Support

The emotional well-being of patients is as important as their physical health, particularly in the context of cardiac rehabilitation. Cardiothoracic surgery can be a traumatic experience, and patients often grapple with anxiety, depression, and fears about their future. Nurses provide invaluable psychosocial support by:

- **Emotional Counseling:** They listen to patients' concerns, fears, and anxieties, offering a compassionate and empathetic presence. Nurses validate patients' emotions and provide reassurance.



- **Mental Health Assessment:** Nurses assess patients for signs of depression or anxiety and collaborate with mental health professionals when needed. Timely intervention can prevent the worsening of these conditions.
- **Support Groups:** Some cardiac rehabilitation programs include support groups where patients can share their experiences and learn from others facing similar challenges. Nurses may facilitate these groups or refer patients to them.
- **Stress Management:** Nurses teach stress-reduction techniques such as mindfulness, relaxation exercises, and coping strategies to help patients manage the emotional toll of their condition.

Addressing the psychological aspect of recovery is crucial, as mental health influences patients' motivation to adhere to their rehabilitation plans and make sustainable lifestyle changes.

Risk Factor Control

Cardiovascular diseases often coexist with other risk factors such as hypertension, diabetes, and dyslipidemia. Nurses assist patients in managing these risk factors to reduce the overall burden of cardiovascular disease. Their responsibilities include:

- **Blood Pressure Management:** Nurses monitor blood pressure and educate patients on the importance of blood pressure control. They may assist in adjusting medications or recommending lifestyle modifications.
- **Diabetes Management:** For patients with diabetes, nurses provide guidance on blood glucose monitoring, insulin administration, and dietary choices. They work closely with endocrinologists and diabetes educators to optimize glycemic control.
- **Lipid Management:** Nurses educate patients about lipid-lowering medications, dietary strategies, and lifestyle changes to manage cholesterol levels effectively.
- **Smoking Cessation:** Smoking is a major risk factor for CVD. Nurses play a pivotal role in counseling patients on smoking cessation and connecting them with smoking cessation programs if needed.
- **Weight Management:** For overweight or obese patients, nurses offer support and resources for weight management, which can significantly impact cardiovascular risk.

Addressing these risk factors in the context of cardiac rehabilitation helps patients reduce their overall cardiovascular risk and prevent future cardiac events.

Team Collaboration

Cardiac rehabilitation is a multidisciplinary endeavor that involves collaboration among various healthcare professionals. Nurses are essential team players who work closely with other members of the healthcare team, including:

- **Cardiologists:** Nurses collaborate with cardiologists to ensure that patients receive appropriate medical management and timely interventions.
- **Dietitians:** Dietitians and nurses jointly educate patients on heart-healthy diets, monitor nutritional status, and address dietary concerns.

- **Physiotherapists:** Nurses and physiotherapists work together to develop and implement exercise programs tailored to the patient's needs and abilities.
- **Psychologists/Psychiatrists:** In cases of significant psychological distress, nurses may collaborate with mental health professionals to provide specialized care.
- **Pharmacists:** Pharmacists help nurses manage medication regimens, ensure medication safety, and provide guidance on drug interactions.
- **Social Workers:** Social workers assist with patients' social and financial concerns, connecting them with community resources when necessary.

This collaborative approach ensures that patients receive comprehensive and holistic care that addresses all aspects of their health and well-being.

Evidence-Based Practice

The effectiveness of nurses' involvement in cardiac rehabilitation is supported by a body of evidence demonstrating positive outcomes for patients. Numerous studies have highlighted the impact of nurse-led cardiac rehabilitation programs on improving exercise capacity, quality of life, and cardiovascular risk factors.

One notable study by Taylor et al. (2017) conducted a systematic review and meta-analysis of exercise-based cardiac rehabilitation for heart failure. The researchers found that nurse-led CR programs led to significant improvements in exercise capacity, quality of life, and cardiovascular risk factors among participants. This meta-analysis underscores the substantial contribution of nurses to the success of CR programs.

CONCLUSION

Cardiac rehabilitation is an integral component of the continuum of care for cardiovascular disease patients, and nurses play an indispensable role in its success. Their multifaceted contributions encompass patient assessment, education, exercise supervision, medication management, psychosocial support, and risk factor control. Evidence-based practice underscores the importance of nurses in achieving positive outcomes for cardiothoracic patients.

As healthcare continues to evolve, recognizing and valuing the indispensable role of nurses in cardiac rehabilitation is essential. Collaboration between healthcare professionals and ongoing research should further enhance the quality of care provided to cardiothoracic patients, ultimately improving their overall cardiovascular health and well-being.

In conclusion, the role of nurses in cardiac rehabilitation extends far beyond the clinical tasks they perform; it encompasses compassion, education, and empowerment, making nurses a cornerstone of cardiovascular care.

REFERENCES

1. Taylor, R. S., Sagar, V. A., Davies, E. J., Briscoe, S., Coats, A. J., & Dalal, H. M. (2017). Exercise-based rehabilitation for heart failure. *Cochrane Database of Systematic Reviews*, 4(4), CD003331.



- Wenger, N. (Ed.). (1999). *Cardiac Rehabilitation: Guide to Procedures for the Twenty-first Century*. CRC Press.

BIBLIOGRAPHY

- Balady, G. J., Williams, M. A., Ades, P. A., Bittner, V., Comoss, P., Foody, J. M., ... & Wenger, N. K. (2007). Core components of cardiac rehabilitation/secondary prevention programs: a statement for healthcare professionals from the American Heart Association and the American Association of Cardiovascular and Pulmonary Rehabilitation Writing Group. *Circulation*, 115(20), 2675-2682.
- Anderson, L., Thompson, D. R., Oldridge, N., Zwisler, A. D., Rees, K., Martin, N., ... & Taylor, R. S. (2016). Exercise-based cardiac rehabilitation for coronary heart disease. *Cochrane Database of Systematic Reviews*, 1(1), CD001800.
- Halm, M., Penque, S., Doll, N., & Beahrs, M. (1999). Women and cardiac rehabilitation: referral and compliance patterns. *Journal of Cardiovascular Nursing*, 13(3), 83-92.
- Kunjumon, S. (2023). The role of telehealth in cardiothoracic nursing: advantages and limitations. *EPRA International Journal of Multidisciplinary Research (IJMR)*, 9(8), 325-327.
- Piepoli, M. F., Hoes, A. W., Agewall, S., Albus, C., Brotons, C., Catapano, A. L., ... & Sechtem, U. (2016). 2016 European Guidelines on cardiovascular disease prevention in clinical practice: The Sixth Joint Task Force of the European Society of Cardiology and Other Societies on Cardiovascular Disease Prevention in Clinical Practice (constituted by representatives of 10 societies and by invited experts) Developed with the special contribution of the European Association for Cardiovascular Prevention & Rehabilitation (EACPR). *European Journal of Preventive Cardiology*, 23(11), NP1-NP96.
- Arena, R., Williams, M., Forman, D. E., Cahalin, L. P., Coke, L., Myers, J., ... & American Heart Association Exercise, Cardiac Rehabilitation and Prevention Committee of the Council on Clinical Cardiology, Council on Epidemiology and Prevention, and Council on Nutrition, Physical Activity and Metabolism. (2012). Increasing referral and participation rates to outpatient cardiac rehabilitation: the valuable role of healthcare professionals in the inpatient and home health settings: a science advisory from the American Heart Association. *Circulation*, 125(10), 1321-1329.
- Mittag, O., China, C., Hoberg, E., Juers, E., Kolenda, K. D., Richardt, G., ... & Raspe, H. (2006). Outcomes of cardiac rehabilitation with versus without a follow-up intervention rendered by telephone (Luebeck follow-up trial): overall and gender-specific effects. *International Journal of Rehabilitation Research*, 29(4), 295-302.
- James, A., Thomas, J., Shaji, S. P., Kunjumon, S., & Augustine, S. J. (2023). Technology And Innovation In Nursing Education: Discussing The Use Of Technology And Simulation In Nursing Education To Train Nurses For Both Psychiatric And Cardiothoracic Care. *International Research Journal of Education and Technology (IRJEdT)*, 5(8), 357-362. Retrieved from [Publisher's Website URL]* (WWW.IRJWEB.COM)
- Dhir, A. (2023). Resistance of Multiple Stakeholders to E-Health Innovations: Integration of Fundamental Insights and Guiding Research Paths.
- Thompson, D. R., Bowman, G. S., Kitson, A. L., de Bono, D. P., & Hopkins, A. (1996). Cardiac rehabilitation in the United Kingdom: guidelines and audit standards. *National Institute for Nursing, the British Cardiac Society and the Royal College of Physicians of London. Heart*, 75(1), 89-93.
- Jomon Thomas | Sherin P Shaji | Santhya Kunjumon | Priyanka Rajak | Arun James "The Emotional Aspect of Cardiothoracic Nursing: Supporting Patients and Families" Published in *International Journal of Trend in Scientific Research and Development (ijtsrd)*, ISSN: 2456-6470, Volume-7 | Issue-4, August 2023, URL: <https://www.ijtsrd.com/papers/ijtsrd59809.pdf>
- Thomas, R. J., Beatty, A. L., Beckie, T. M., Brewer, L. C., Brown, T. M., Forman, D. E., ... & Whooley, M. A. (2019). Home-based cardiac rehabilitation: a scientific statement from the American Association of Cardiovascular and Pulmonary Rehabilitation, the American Heart Association, and the American College of Cardiology. *Circulation*, 140(1), e69-e89.
- Leong, J., Molassiotis, A., & Marsh, H. (2004). Adherence to health recommendations after a cardiac rehabilitation programme in post-myocardial infarction patients: the role of health beliefs, locus of control and psychological status. *Clinical effectiveness in nursing*, 8(1), 26-38.



CLEFT LIP AND PALATE, SCOPING REVIEW

**Nicolle Elizabeth Zumba Cabrera¹, Lady Janeth Macas Caamaño²,
Ronald Alexander Cueva Flores³, Stefany Alexandra Sarmiento Ávila⁴,
Pablo Francisco Pillajo Franco⁵, Ariel Stefany Moyano Ayala⁶,
Josue Javier Lombeida Arias⁷, Mayra Alejandrina Viñan Montaña⁸,
Juan Diego Garzón Pacheco⁹, Bryam Esteban Coello García¹⁰**

¹General Dentist in Independent Practice, Faculty of dentistry, Universidad Católica de Cuenca. Azuay- Ecuador
ORCID <https://orcid.org/0009-0006-0946-3871>

²General Dentist in Independent Practice, Faculty of dentistry, Universidad Católica de Cuenca. Azuay- Ecuador
ORCID <https://orcid.org/0009-0005-4986-5245>

³General Practitioner at "Hospital José Carrasco Arteaga", faculty of Medical Sciences, Universidad de Cuenca.
Azuay- Ecuador ORCID <https://orcid.org/0009-0007-6388-595X>

⁴General Practitioner at "Hospital Básico de Sucúa - MSP", faculty of Medical Sciences, Universidad Católica de Cuenca.
Sede Azogues-Ecuador ORCID <https://orcid.org/0000-0001-7658-5031>

⁵General Practitioner at "Hospital de Especialidades Carlos Andrade Marín IESS", faculty of Medical Sciences,
Universidad Católica de Cuenca. Ecuador ORCID <https://orcid.org/0009-0003-8218-6557>

⁶General Practitioner in independent practice, faculty of Medical Sciences, Pontificia Universidad Católica del Ecuador.
Ecuador ORCID <https://orcid.org/0009-0006-8435-5184>

⁷Medical Student, Faculty of Medical Sciences, Universidad Católica de Cuenca. Ecuador
ORCID <https://orcid.org/0000-0001-7344-0320>

⁸General Practitioner at "Ministerio de Salud Pública", faculty of Medical Sciences, Universidad Técnica Particular de
Loja. Azuay- Ecuador ORCID <https://orcid.org/0009-0008-0700-0392>

⁹General Practitioner at "Clínica Médica del Sur", faculty of Medical Sciences, Universidad Católica de Cuenca.
Azuay- Ecuador ORCID <https://orcid.org/0009-0003-8380-0926>

¹⁰Postgraduate Doctor in Orthopedics and Traumatology at Faculdade de Ciências Médicas Minas Gerais.
Belo Horizonte - Brasil. ORCID <https://orcid.org/0000-0003-2497-0274>

Corresponding Author: Bryam Esteban Coello García **Address:** Rua Tiradentes 266.Campo Belo. Minas Gerais. Brasil **Postal Code:** 37270-000

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ABSTRACT

Introduction: cleft palate cleft lip is the most common congenital craniofacial defect originated by a disturbed embryonic development of the soft and hard tissues around the oral cavity, as well as the surface of the face, resulting in severe limitations in chewing, swallowing and speaking, besides sometimes generating problems of insufficient space for teeth, adequate breathing and self-esteem problems due to facial appearance.

Objective: to detail the current information related to cleft lip and palate, description, incidence, epidemiology, etiology, embryology, clinical characteristics and surgical treatment.

Methodology: a total of 42 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: cleft lip, cleft palate, cleft palate, malformations, congenital anomalies.



Results: the overall incidence of cleft lip and palate is about 1 in 600 to 800 live births (1.42 in 1,000) and cleft palate only occurs in about 1 in 2,000 live births. The incidence is high among Asian individuals at 0.82 - 4.04 per 1,000 live births, intermediate in Caucasians at 0.9 - 2.69 per 1,000 live births and low in Africans at 0.18 - 1.67 per 1,000 live births.

Conclusions: Cleft lip and/or palate occur in such a strategic area of the orofacial region, at an essential time prior to birth making it a complex congenital deformity. Clefts appear in the fourth stage of embryonic development. The individual affected with orofacial cleft deformity should be treated at the right time and at the right age to obtain functional and esthetic well-being. Clefts of the lip and palate can be solitary or linked in different combinations and/or linked with other congenital deformities. The etiological factors of cleft lip and palate can be associated with genetic and non-genetic factors. Correction consists of surgically fabricating a face that does not attract attention, a vocal apparatus that achieves intelligible speech and a dentition that maintains high quality function and esthetics. To achieve success for the child born with cleft lip and palate requires coordinated collaboration by different specialties, including oral/maxillofacial surgery, plastic/reconstructive, otolaryngology, genetics/dysmorphology, speech/language pathology, orthodontics, prosthetics and others. Currently the use of autogenous bone is the most frequently used type of graft in bone regeneration defects. However, the availability of autogenous bone is limited. Robotic surgery, the use of stem cells and tissue engineering are in development and present a promising vision of the future.

KEYWORDS: cleft, cleft lip, cleft palate, malformation, congenital.

INTRODUCTION

The anomalies of craniofacial bone defects involve both soft and hard tissues and can be originated by different reasons such as bone resections due to tumors or cysts, trauma, as well as congenital origin. Cleft palate-cleft lip is the most common congenital craniofacial defect originated by a disturbed embryonic development of the soft and hard tissues around the oral cavity, as well as the surface of the face, resulting in severe limitations in chewing, swallowing and speaking, also sometimes generating problems of insufficient space for teeth, proper breathing and self-esteem problems due to facial appearance(1).

Orofacial clefts, especially cleft lip (CL) and cleft palate (CP), as mentioned above, are the most common craniofacial birth defects; affected individuals initially experience difficulty swallowing food, speech, hearing and dental problems. Although the clefts can be surgically restored, individuals often undergo multiple craniofacial and dental surgeries, as well as speech and hearing therapy. Individuals become psychosocially disturbed, sometimes lifelong, because of the malformation, and have a higher incidence of mental health problems, as well as a higher mortality rate in all stages of life. Clefting is also associated with a higher risk of different types of cancer, including breast, brain and colon cancers, both in those affected by clefting and in their family members. Clefts of the lip and palate are currently showing great success in the application of modern molecular genetic techniques.

Major advances have been shown in sequencing Mendelian shapes to characterize causal variants and in performing genome-wide linkage and clustering perspectives to identify genes and regions involved in NSCL/P(2).

METHODOLOGY

A total of 42 articles were analyzed in this review, including review and original articles, as well as cases and clinical trials, of which 32 bibliographies were used because the information collected was not of sufficient importance 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: cleft lip, cleft palate, cleft palate, malformations, congenital anomalies.

The choice of the bibliography exposes elements related to cleft lip and palate in addition to this factor, description, epidemiology, etiology, embryology, clinical characteristics and management and surgical treatment are presented.

DEVELOPMENT

Description

These are the most important congenital anomalies that affect the mouth and related structures. The roof is integrated by the palate and the floor by the constructions of the floor of the mouth. Laterally, it presents a boundary from the cheeks. We refer to a cleft as the congenital abnormal space or place in the upper lip, alveolus or palate, usually the colloquial term for this alteration is cleft lip, however it should be kept in mind that the use of this term may represent a degrading connotation of inferiority that can lead to a major social problem. Cleft lip and cleft palate can be defined as:

- Cleft lip can be referred to the alteration of the fusion of the frontonasal and maxillary processes, resulting in a cleft of different extension crossing the lip, the alveolus and the nasal floor; a complete cleft implies lack of connection between the alar base and the medial labial element, as well as an incomplete cleft does not extend through the nasal floor.
- The term cleft palate refers to the altered fusion of the palatal shelves of the maxillary processes resulting in a cleft of the soft and/or hard palate.

Clefts appear in the fourth stage of embryonic development. The precise site where they appear will be determined by the specific regions where the fusion of multiple facial processes did not occur; influenced by the period of embryological life in which some interference in the development was generated(3,4).

Clefts of the lip and palate can occur alone or linked in different combinations and/or linked with other congenital deformities, especially congenital heart disease. Many authors report that clefts occur due to a combination of genetic and environmental factors, in some countries, especially developed countries, CL/P



is identified before birth through ultrasound. Early detection allows for parental education regarding the possible origins of CL/P and the procedures that the affected individual may require after birth. In countries where prenatal care is less developed, a CL/P may be unexpected, and in some regions medical answers for clefting are distrusted and instead cultural, religious answers are more accepted to explain the deformity. For example, in some regions a CL/P is thought to be the result of sins from a past life; some other beliefs include witchcraft, God's will and engaging in behavior related to causal power such as closely observing a child with a facial deformity during pregnancy(3,4).

Epidemiology

The overall incidence of cleft lip and palate is about 1 in 600 to 800 live births (1.42 in 1,000) and cleft palate only occurs in about 1 in 2,000 live births. The typical distribution of cleft types is as follows:

- 1) Cleft lip and palate - 45%.
- 2) Isolated cleft palate - 40%.

3) Cleft lip alone - 15%.

Among the potential disadvantages of this condition are social disadvantages such as breastfeeding problems and thus growth retardation, malocclusion, severe facial deformity, speech difficulty, deafness and major psychological problems. Cleft lip and/or palate occur in such a strategic area of the orofacial region at an essential time prior to birth, making it a complex congenital deformity(3,4).

Therefore, the individual affected with orofacial cleft deformity should be treated at the right time and at the right age to obtain functional and esthetic well-being. Management is complex, so it must have a multidisciplinary approach. To achieve success in the child born with cleft lip and palate requires coordinated collaboration by different specialties, including oral/maxillofacial surgery, plastic/reconstructive, otolaryngology, genetics/dysmorphology, speech/language pathology, orthodontics, prosthodontics and others. Successful reconstruction requires multiple stages of surgical intervention on an ongoing basis(3,4).

Figure 1. Examples of Nonsyndromic Cleft Lip and Cleft Palate. 1A. Bilateral Cleft Lip Alone. 1B. Unilateral Cleft Lip plus Cleft Palate. 1C. Cleft Palate Alone.



Figure 1A.



Figure 1B.



Figure 1C.

Source: Leslie EJ, Marazita ML. Genetics of cleft lip and cleft palate: AMERICAN JOURNAL OF MEDICAL GENETICS PART C(2).

Other bibliographies report an overall incidence of orofacial clefting of about 1.5 per 1000 live births, representing about 220,000 new cases every 12 months, with a wide variation among geographic areas, ethnic groups and the nature of the cleft itself. The incidence is high among Asian individuals at 0.82 - 4.04 per 1,000 live births, intermediate in Caucasians at 0.9 - 2.69 per 1,000 live births and low in Africans at 0.18 - 1.67 per 1,000 live births. Chinese showed 1.76 per 1000 live births, on the other hand Japanese reported 0.85 - 2.68 per 1000 live births of orofacial clefting. Solitary CL accounts for approximately 25 % of all clefts, while CL/P together makes up approximately 45 %. CL/P occurs mostly in boys relative to girls. Unilateral clefts are more frequent than bilateral clefts by a ratio of 4 to 1. Unilateral clefts occur about 70% on the left side of the face. Cleft palate is notably more noticeable in females than in males. CL/P is often related to other developmental anomalies and many of these cases are shown as part of a syndrome. Syndromic clefts make up

approximately half of all cases in various reports with approximately 300 syndromes described.

All clefts are intended to show an associated familial behavior, however the percentage of cases directly linked to genetic factors is around 40%. Multiple epidemiological publications show that if one of the parents has cleft, there is a 3.2% chance of having a child with cleft lip and palate, and a 6.8% chance of having a child with cleft palate alone. Having cleft in one parent, in addition to a sibling, is linked to a 15.8% chance that the next child will have cleft lip and palate characteristics, as well as a 14.9% chance that the next child will have cleft palate only. Other literature indicates that parents of a cleft child have a 4.4 percent chance of having another child with cleft lip and palate and a 2.5 percent chance of having a child with cleft palate alone(4-6).

Embryology

Over time, the essential morphology of the face is formed through the combination of the five fundamental facial prominences. CLP



occurs as a result of a combination and partial integration of the rectal protuberances, producing delicate and strong tissues that integrate the palate. Cleft lip occurs due to an alteration between the fourth and sixth month of pregnancy and cleft palate occurs between the sixth and twelfth month of pregnancy. In the first month of pregnancy, and the embryology of the palate is fundamental, this is the period during which human craniofacial morphogenesis is usually vulnerable to the agents that create congenital or teratogenic alterations(4).

Etiology

The etiology of cleft lip and palate is multifactorial and is thought to involve genetic influences with interactions of different environmental factors. The etiological factors of cleft lip and palate can be associated as:

Non-Genetic.

Where it is integrated to multiple environmental-teratogenic risk factors that can develop CL/P, among which we have:

Alcohol consumption : abusive consumption by the mother, in addition to causing fetal alcohol syndrome, also increases the possibility of CLP. Research showed a dose-dependent increase between 1.5 and 4.7 times. However, mild alcohol consumption showed no increase in the risk of orofacial clefts. The relationship between alcohol consumption and genotypes in the risk of CLP has not been demonstrated at this time.

Smoking: the association between maternal smoking and CLP is statistically significant, but lacks strength, with multiple studies consistently presenting a relative risk of about 1.3 to 1.5. When analyzing maternal smoking indexed to positive genetic history, a significant association was found. Other studies showed that maternal smoking and infant MSX1 genotypes acted equally to increase the risk of CLP by 7.16 times.

Other factors that could be related to the condition are:

- Maternal illness.
- Stress in pregnancy.
- Chemical exposure: fetal exposure to drugs such as retinoids can cause severe craniofacial anomalies.
- Reduced blood supply to the nasomaxillary region.
- Age: Increasing maternal and paternal age increases the risk of cleft lip with and without palate, while advanced parental age has been related only to cleft palate.

Genetic Factors

Can be divided into:

Syndromic form of cleft lip and cleft palate: here the cleft is related to another malformation. Usually with monogenic or Mendelian cause there are more than 400 known syndromes and several of them present the classic Mendelian inheritance pattern. Some of the syndromes with cleft lip and palate are listed in Table 1.

Table1. Syndromic form of cleft and palate.

Syndromes	Gene name (symbol)	Location on chromosome	Inheritance
Waardenburg syndrome, type II A	Microphthalmia associated transcription(MLTF)	3p14.1-12,3	AD
Di George syndrome	Di George syndrome chromosome region (CATCH 22)	22q11	AD
Treacher - Collins mandibulofacialdysostosis	Treacle (TCOF1)	5q32-q33,1	AD
Van der woude syndrome	Interferon regulatory factor - 6 (IRF 6)	1q32-q41	AD
CLP-Ectodermal dysplasia syndrome	Poliovirus receptor related-1(PVRL-1)	11q23,3	AD
Ectrodactyly, ectodermal dysplasia orofacial cleft syndrome	P 63	3q27	AD
Zollinger syndrome-3	Peroxisomal membrane protein-3 (PXMP3)	8q21,1	AD
Diastrophic dysplasia	Diastrophic dysplasia sulphate transporter(DTDST)	5q32-q33,1	AD
Gorlin syndrome (Basal cell nevus syndrome)	Patched (PTCH)	9q22,3	AD

Source: Vyas T, Gupta P, Kumar S, Gupta R, Gupta T, Singh H. Cleft of lip and palate: A review. J Fam Med Prim Care(4).



Non-syndromic form of cleft lip and palate: in this form the cleft is essentially a solitary feature and occurs in the vast majority of individuals who have cleft lip or palate in approximately 70% of cases of CL/P and 50% of all cases of CPO. So here a cleft is not a recognized pattern of malformation nor can an explanation for

the disorder be known for certain. Related studies have identified several genes responsible for clefting, because a mutation in them can generate non-syndromic cleft lip and palate, as shown in Table 2(4,7-10).

Table 2. Possible genes whose mutation may result in non syndromic clefting

Name of gene	Symbol	Chromosome location
Transforming growth factor - alpha	TGFA	2p13
Transforming growth factor - 133	TGF 133	14q24
Methylene tetra - hydrofolateReductase	MTHF3	1p36,3
Blood clotting factor XIII gene	ET1	6p24
Endothelin - 1 gene	ET1	6p24
Proto-oncogene BCL3	BCL3	19q13,2
Retinoic acid receptor alpha gene	RARA	17(t15/17)
MSX-1	MSX-1	4q25

Source: Vyas T, Gupta P, Kumar S, Gupta R, Gupta T, Singh H. Cleft of lip and palate: A review. J Fam Med Prim Care(4).

Clinical Characteristics

At the moment there are not several studies evaluating the knowledge and experience of primary care physicians regarding the physical, dental and behavioral and emotional needs of an individual with cleft mouth.

Dental Problems in Cleft Lip and Palate

Natal and neonatal teeth: Several studies report that the presence of neonatal teeth does not appear to influence the primary or secondary dentition in clefts. Most of the natal teeth with clefts are located on the lateral margin of the premaxillary and maxillary segments, unlike in newborns without clefts.

Microdontia: Small teeth or microdontia are largely shown with CL/P. It tends to be more common in patients with missing lateral incisors. Peg-like upper lateral incisors are commonly seen.

Taurodontism: reported to be related to some syndromes and disorders of dental development.

Ectopic eruption: primary lateral incisors may erupt palatally adjacent to or within the cleft side, while the permanent canine on the side of the alveolar clefts may erupt palatally. Delayed eruption of the permanent incisors may be noted.

Enamel hypoplasia: occurs mostly in individuals with CL/P compared to populations without clefts, primarily in the upper central incisors.

Related Conditions

Speech difficulties: phonation dysfunction due to involvement of the levator palatini muscle, as well as delayed consonant sounds (p, b, t, d, k, g) which is most common. Abnormal nasal resonance and complexity in the articulation of words are another characteristic in individuals with cleft lip and palate.

Ear infection: due to dysfunction of the tensor muscle of the palatine velum, which opens the Eustachian tube. Otitis media can be seen, if they occur repeatedly they can generate hearing loss. However, the incidence increases when there is submucous cleft palate.

Feeding problems: due to difficulty sucking on a regular nipple. A baby's ability to suck is essentially associated with 2 factors, the first is the ability of the lips to do the necessary sucking and the second the ability of the palate to allow the required agglomeration of pressure inside the mouth so that food can be propelled into the mouth. Most babies need a customized or special nipple for feeding. Infants usually learn to feed quietly with a cleft palate nipple(4,15-17).



Cleft lip and palate treatment.

Correction consists of surgically fabricating a face that does not attract attention, a vocal apparatus that achieves intelligible speech, and dentition that maintains high quality function and esthetics.

The correction is to surgically fabricate a face that is inconspicuous, a vocal apparatus that achieves intelligible speech and a dentition that maintains high quality function and aesthetics. The concept of the cleft palate team has evolved from that need, as excellence in care is obtained through multiple types of clinical expertise, the team may be comprised of:

Dental specialties: pediatric dentistry, orthodontics, oral surgery and prosthodontics.

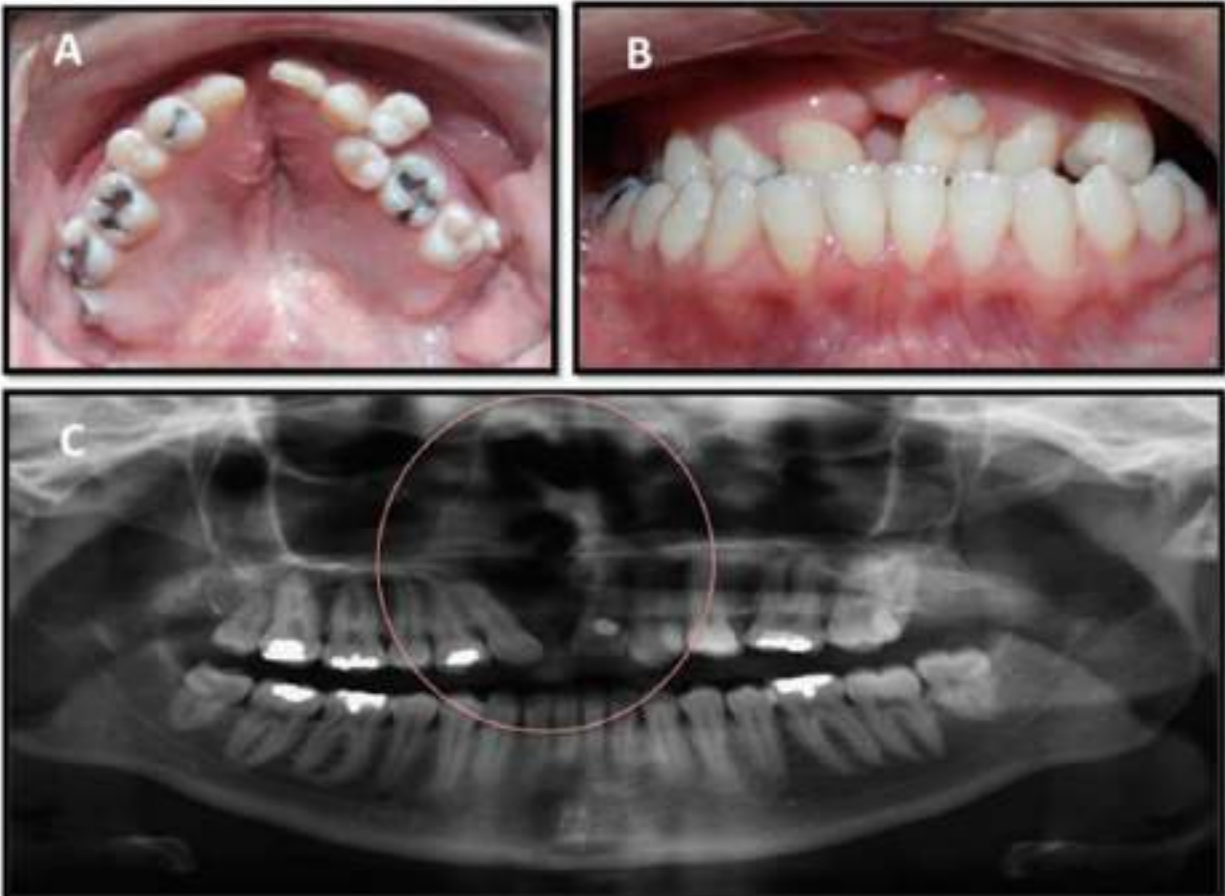
Medical specialties: pediatrics, plastic surgery, genetics, otolaryngology, and psychiatry.

Related health care fields: psychology, social work, audiology, nursing and speech pathology(4).

Several tissues, such as bone, dental organs and soft tissues of the respiratory system, are greatly altered in CL/P reconstruction, so there is a need to standardize the perioperative management of these individuals. In the reconstruction of alveolar cleft defects,

the most accepted approach is secondary alveolar cleft osteoplasty in the mixed dentition phase, whose mission is to obtain a normal facial appearance, as well as the ability to feed, speak and hear without affecting the final facial shape of the affected individual. For this the most frequently accepted palatoplasty techniques currently used are the von Langenbeck technique, Veau-Wardill-Kilner closure, Bardach 2-flap palatoplasty, 2-stage palatoplasty and Furlow palatoplasty. There is variability in the best time to do the palate repair. Because transverse facial growth is not completed until 5 years of age, several surgeons have opted to delay cleft palate repair until 8 to 10 years of age, reducing the potential risk of midface hypoplasia; however, other surgeons use an earlier repair, with the goal of improving speech development and achieving greater integration into society, as well as decreasing the psychosocial impact on both the affected individuals and their families. Using an intermediate option, there are those who obtain cleft palate repair in 2 steps, with soft palate repair between three and six months and hard palate repair between 15 and 18 months, as well as those who opt for a single-step repair, simultaneously repairing the soft and hard palate(1,18-20).

Figure 2. Deformation of the arch and dental crowding (A), crossbite dental malposition (B), and the deviated nasal septum (C) as revealed by panoramic radiographs showing the maxillary defect (circle).



Source: Martín-del-Campo M, Rosales-Ibañez R, Rojo L. Biomaterials for Cleft Lip and Palate Regeneration(1).



Surgery

Contrary to the artistic nature needed for cleft lip repair, cleft palate repair should be more functional in its approach, as well as maintain good teamwork, which reduces morbidity and secondary deformities caused by the cleft and focuses especially on speech quality. Soft palate repair techniques can be used separately on their own or in conjunction with other hard palate procedures, and some variant of an intravelar veloplasty is frequently performed in place of a two-flap palatoplasty with an opposing double z-plasty to obtain a repositioning of the levator muscle. Maxillary distraction is increasingly used for the correction of severe maxillary retrusion in individuals with cleft lip and palate. The literature suggests that children with cleft lip and palate with nasoalveolar molding (NAM) benefit from the special treatment requirements of the team approach. Published studies on NAM present evidence of benefits to the individual, caregivers, surgeon and society, such as documented decrease in the severity of the cleft deformity prior to surgery and consequently better surgical outcomes, as well as less burden on caregivers. Robotic cleft surgery is a new area, which offers several advantages, but the use of surgical robots currently presents economic challenges for its implementation due to the longer surgical time and high costs, although this will probably not be a drawback in the future(4,21-25).

Currently the use of autogenous bone is the most frequently used type of graft in bone regeneration defects. However, the availability of autogenous bone is limited and not without major drawbacks. Thus, it may not be the ideal graft for alveolar bone reconstruction. The method is often invasive and can generate significant morbidities at the donor site, such as paresthesia, postoperative pain, infection and healing problems. tissue engineering strategies offer the possibility of using individualized artificial carriers for tissues and cells with the mission of applying them to the affected site to promote the regeneration of missing or lost tissues(1,26-28).

Current bioartificial tissues designed for cleft palate reconstruction are essentially based on isolated inserted granules with a single layer of tissue; however, the alveolar cleft defect traditionally constitutes a 2-walled bony defect in which mucoperiosteal flaps are sutured in 2 layers to form a new nasal floor and a continuous oral mucosa. Therefore, the free movement of the inserted granules adversely affects the dimensional stability and biomechanical qualities of the reconstructed sites, conflict with the adequate closure of these mucoperiosteal flaps and retraction of microorganisms that could infect the graft(1,29-31).

Adult stem cells are considered a cornerstone in cell therapy because of their remarkable ability to self-renew and differentiate into different phenotypes, as well as to be derived from different tissues. They have been used for the regeneration of craniofacial defects in tissue engineering. Adipocyte stem cells (ADSCs) are especially desirable candidates for musculoskeletal tissue engineering applications, such as cleft lip and palate. Biomaterials

have a unique role in tissue engineering for reconstruction of missing tissue in addition to their function. Advances in bone regeneration by means of 3D biomimetic scaffolds made of polymers, bioceramics and composites, using various fabrication strategies such as 3D printing, cryopolymerization, synthesis, and others allow us to delve into new alternatives for tissue restoration in CL/P treatment(1,29).

Finally, regarding the impact of cleft lip and palate repair on maxillofacial growth and development, several bibliographies show that early palatoplasty leads to inhibition of maxillary growth in all dimensions; furthermore, secondary alveolar bone grafting had no influence on sagittal maxillary increment. Cleft lip repair inhibited the sagittal length of the maxilla in individuals with cleft lip and palate. We can also say that some authors evidenced that Veau's retrograde palatoplasty and Langenbeck's palatoplasty with relaxing incisions became more detrimental to growth and Furlow's palatoplasty resulted with less detrimental effect on maxillary growth(32).

CONCLUSIONS

Cleft lip and/or palate occur in such a strategic area of the orofacial region, at an essential time prior to birth making it a complex congenital deformity. Clefts appear in the fourth stage of embryonic development. The individual affected with orofacial cleft deformity should be treated at the right time and at the right age to obtain functional and esthetic well-being. Clefts of the lip and palate can be solitary or linked in different combinations and/or linked with other congenital deformities. The etiological factors of cleft lip and palate can be associated with genetic and non-genetic factors. Correction consists of surgically fabricating a face that does not attract attention, a vocal apparatus that achieves intelligible speech and a dentition that maintains high quality function and esthetics. To achieve success for the child born with cleft lip and palate requires coordinated collaboration by different specialties, including oral/maxillofacial surgery, plastic/reconstructive, otolaryngology, genetics/dysmorphology, speech/language pathology, orthodontics, prosthetics and others. Currently the use of autogenous bone is the most frequently used type of graft in bone regeneration defects. However, the availability of autogenous bone is limited. Robotic surgery, the use of stem cells and tissue engineering are in development and present a promising vision of the future.

BIBLIOGRAPHY

1. Martín-del-Campo M, Rosales-Ibañez R, Rojo L. Biomaterials for Cleft Lip and Palate Regeneration. *Int J Mol Sci.* 2019 May 2;20(9):2176.
2. Leslie EJ, Marazita ML. Genetics of cleft lip and cleft palate: AMERICAN JOURNAL OF MEDICAL GENETICS PART C (SEMINARS IN MEDICAL GENETICS). *Am J Med Genet C Semin Med Genet.* 2013 Nov;163(4):246-58.
3. Mednick L, Snyder J, Schook C, Blood EA, Brown SE, Weatherley-White RCA. Causal Attributions of Cleft Lip and Palate across Cultures. *Cleft Palate Craniofac J.* 2013 Nov;50(6):655-61.



4. Vyas T, Gupta P, Kumar S, Gupta R, Gupta T, Singh H. Cleft of lip and palate: A review. *J Fam Med Prim Care*. 2020;9(6):2621.
5. Nguyen DM, Suzuki S, Imura H, Niimi T, Furukawa H, Ta T, et al. Family based and case-control designs reveal an association of TFAP2A in nonsyndromic cleft lip only among Vietnamese population. *Mol Genet Genomic Med [Internet]*. 2021 Sep [cited 2023 Aug 23];9(9). Available from: <https://onlinelibrary.wiley.com/doi/10.1002/mgg3.1754>
6. Vanderas AP. Incidence of cleft lip, cleft palate, and cleft lip and palate among races: a review. *Cleft Palate J*. 1987 Jul;24(3):216–25.
7. Kohli S, Kohli V. A comprehensive review of the genetic basis of cleft lip and palate. *J Oral Maxillofac Pathol*. 2012;16(1):64.
8. Bille C, Skytthe A, Vach W, Knudsen LB, Andersen AMN, Murray JC, et al. Parent's Age and the Risk of Oral Clefts: *Epidemiology*. 2005 May;16(3):311–6.
9. Sousa A, Devare S, Ghanshani J. Psychological issues in cleft lip and cleft palate. *J Indian Assoc Pediatr Surg*. 2009;14(2):55.
10. Lorente CA, Miller SA. Vitamin A induction of cleft palate. *Cleft Palate J*. 1978 Oct;15(4):378–85.
11. Tan EY, Yow M, Kuek M, Wong H. Dental maturation of unilateral cleft lip and palate. *Ann Maxillofac Surg*. 2012;2(2):158.
12. Kadam M, Kadam D, Bhandary S, Hukkeri R. Natal and neonatal teeth among cleft lip and palate infants. *Natl J Maxillofac Surg*. 2013;4(1):73.
13. Jamal GAA, Hazza 'a AM, Rawashdeh MA. Prevalence of Dental Anomalies in a Population of Cleft Lip and Palate Patients. *Cleft Palate Craniofac J*. 2010 Jul;47(4):413–20.
14. Qureshi WA, Beiraghi S, Leon-Salazar V. Dental anomalies associated with unilateral and bilateral cleft lip and palate. *J Dent Child Chic Ill*. 2012;79(2):69–73.
15. Mitchell JC, Wood RJ. Management of cleft lip and palate in primary care. *J Pediatr Health Care*. 2000 Jan;14(1):13–9.
16. Sharma R, Nanda V. Problems of middle ear and hearing in cleft children. *Indian J Plast Surg*. 2009;42(3):144.
17. Timmons MJ, Wyatt RA, Murphy T. Speech after repair of isolated cleft palate and cleft lip and palate. *Br J Plast Surg*. 2001 Jul;54(5):377–84.
18. De La Pedraja J, Erbella J, McDonald SW, Thaller S. Approaches to Cleft Lip and Palate Repair: *J Craniofac Surg*. 2000 Nov;11(6):562–71.
19. Moreau JL, Caccamese JF, Coletti DP, Sauk JJ, Fisher JP. Tissue Engineering Solutions for Cleft Palates. *J Oral Maxillofac Surg*. 2007 Dec;65(12):2503–11.
20. Zhang Z, Stein M, Mercer N, Malic C. Post-operative outcomes after cleft palate repair in syndromic and non-syndromic children: a systematic review protocol. *Syst Rev*. 2017 Dec;6(1):52.
21. Susami T, Mori Y, Ohkubo K, Takahashi M, Hirano Y, Saijo H, et al. Changes in maxillofacial morphology and velopharyngeal function with two-stage maxillary distraction-mandibular setback surgery in patients with cleft lip and palate. *Int J Oral Maxillofac Surg*. 2018 Mar;47(3):357–65.
22. Sitzman TJ, Marcus JR. Cleft Lip and Palate: Current Surgical Management. *Clin Plast Surg*. 2014 Apr;41(2):xi–xii.
23. Agrawal K. Cleft palate repair and variations. *Indian J Plast Surg*. 2009;42(3):102.
24. Al Omran Y, Abdall-Razak A, Ghassemi N, Alomran S, Yang D, Ghanem AM. Robotics in Cleft Surgery: Origins, Current Status and Future Directions. *Robot Surg Res Rev*. 2019 Dec;Volume 6:41–6.
25. Esenlik E, Gibson T, Kassam S, Sato Y, Garfinkle J, Figueroa AA, et al. NAM Therapy—Evidence-Based Results. *Cleft Palate Craniofac J*. 2020 Apr;57(4):529–31.
26. Seifeldin SA. Is alveolar cleft reconstruction still controversial? (Review of literature). *Saudi Dent J*. 2016 Jan;28(1):3–11.
27. Al-Ahmady HH, Abd Elazeem AF, Bellah Ahmed NE moataz, Shawkat WM, Elmasry M, Abdelrahman MA, et al. Combining autologous bone marrow mononuclear cells seeded on collagen sponge with Nano Hydroxyapatite, and platelet-rich fibrin: Reporting a novel strategy for alveolar cleft bone regeneration. *J Cranio-Maxillofac Surg*. 2018 Sep;46(9):1593–600.
28. Berger M, Probst F, Schwartz C, Cornelsen M, Seitz H, Ehrenfeld M, et al. A concept for scaffold-based tissue engineering in alveolar cleft osteoplasty. *J Cranio-Maxillofac Surg*. 2015 Jul;43(6):830–6.
29. Pourebrahim N, Hashemibeni B, Shahnasari S, Torabinia N, Mousavi B, Adibi S, et al. A comparison of tissue-engineered bone from adipose-derived stem cell with autogenous bone repair in maxillary alveolar cleft model in dogs. *Int J Oral Maxillofac Surg*. 2013 May;42(5):562–8.
30. Martín-Piedra MA, Alaminos M, Fernández-Valadés-Gómez R, España-López A, Licerias-Licerias E, Sánchez-Montesinos I, et al. Development of a multilayered palate substitute in rabbits: a histochemical ex vivo and in vivo analysis. *Histochem Cell Biol*. 2017 Mar;147(3):377–88.
31. Janssen NG, de Ruiter AP, van Hout WMMT, van Miegem V, Gawlitta D, Groot FB de, et al. Microstructured β -Tricalcium Phosphate Putty versus Autologous Bone for Repair of Alveolar Clefts in a Goat Model. *Cleft Palate Craniofac J*. 2017 Nov;54(6):699–706.
32. Shi B, Losee JE. The impact of cleft lip and palate repair on maxillofacial growth. *Int J Oral Sci*. 2015 Mar;7(1):14–7.

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REVOLUTIONIZING E-COMMERCE: HARNESSING ONLINE REVIEWS AND RATINGS FOR INFORMED SHOPPING DECISIONS USING JAVA

Mrs. Shobha Rani B R¹, Ms. Ruchitha K²

¹Assistant Professor, Department of MCA, Dr. Ambedkar Institute of Technology

²Student, Department of MCA, Dr. Ambedkar Institute of Technology

ABSTRACT

In the digital age of e-commerce, online consumers depend heavily on product reviews and ratings to steer their purchasing choices. In this research paper, we introduce a comprehensive methodology, harnessing the power of Java-based technologies, for mining and analysing reviews and ratings. We present a real-time, real-world scenario to illustrate the practicality and efficacy of our approach. Additionally, we offer references to pivotal studies that have contributed to the development of our research.

1. INTRODUCTION

In the burgeoning realm of e-commerce, consumers are faced with an overwhelming array of products. To aid their decision-making journey, product reviews and ratings have risen to paramount importance. In this paper, we unveil a Java-based solution designed to automate the analysis of online product reviews and ratings, with the ultimate goal of providing consumers with more trustworthy insights to inform their purchasing decisions.

2. METHODOLOGY

Our methodology comprises three pivotal steps:

- Data Harvesting:** We employ web scraping techniques to gather product data, including reviews and ratings, from various online marketplaces.
- Natural Language Processing (NLP):** Leveraging Java libraries for NLP, we preprocess and dissect the textual content of reviews, distilling sentiment and highlighting salient product features.
- Rating Analysis:** Utilizing statistical methods, we dissect product ratings, uncovering trends and patterns that unveil valuable insights into product quality.

3. A REAL-TIME ODYSSEY

Envision a scenario where a discerning consumer is in the market for a new smartphone. Armed with our Java-powered system, the consumer enters the product's name, triggering the system to retrieve the latest reviews and ratings from diverse e-commerce platforms. The system subsequently crafts a concise sentiment overview of the reviews, pinpoints common pros and cons, and unveils an overarching rating trend. Armed with this information, the consumer is equipped to make an enlightened decision.

4. IMPLEMENTATION

Our Java-driven system harnesses an array of cutting-edge libraries. These include Jsoup for web scraping, Stanford NLP for sentiment analysis, and Apache Commons Math for statistical prowess. Moreover, we employ JavaFX to construct a user-friendly interface that ensures a seamless user experience.

Content-Based Filtering

Content-Based Filtering operates within the feature space, where products are represented as vectors. These vectors encapsulate the salient features of products, enabling the algorithm to gauge their similarity to the user's preferences. The items with the highest similarity scores to the user's profile are ranked higher, and the user receives recommendations for the top N items with the highest similarity scores. To enrich personalization, the algorithm considers factors like the user's historical interactions, giving higher weight to recently interacted items. To introduce diversity, it balances between popular and niche items, preventing over-specialization.

Advantages of Content-Based Filtering:

- No Cold Start Problem:** Content-Based Filtering can provide recommendations even for new users as it relies on item characteristics.
- User Independence:** Recommendations are tailored to the user's preferences, irrespective of the choices of other users.

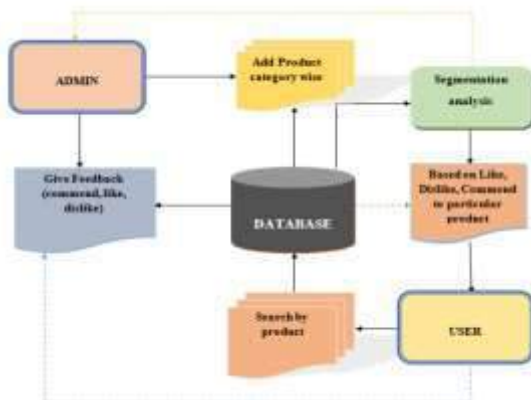


Fig: 1

c) **Interpretability:** Recommendations are grounded in understandable item features, enhancing the transparency of the system's reasoning.

Limitations of Content-Based Filtering

- a) **Limited Serendipity:** Content-Based Filtering may not recommend items outside a user's established preferences, potentially limiting the discovery of new interests.
- b) **Limited Exploration:** It may not uncover items that a user hasn't previously shown a preference for.
- c) **Feature Engineering:** Effective features must be defined and extracted for accurate recommendations, posing a challenge for system developers.

Feature Engineering

The effectiveness of Content-Based Filtering hinges on the meticulous engineering of features that encapsulate the essence of products. Researchers and practitioners must invest time and effort in defining and extracting these features to improve the accuracy of recommendations.

7. REFERENCES

1. Hu, M., & Liu, B. (2004). Mining and Summarizing Customer Reviews. In *Proceedings of the Tenth ACM SIGKDD International Conference on Knowledge Discovery and Data Mining* (pp. 168-177).
2. Pang, B., Lee, L., & Vaithyanathan, S. (2002). Thumbs Up? Sentiment Classification Using Machine Learning Techniques. In *Proceedings of the ACL-02 Conference on Empirical Methods in Natural Language Processing* (pp. 79-86).
3. Manning, C. D., Raghavan, P., & Schütze, H. (2008). *Introduction to Information Retrieval*. Cambridge University Press.
4. Sharma, A., Rangwala, H., & Ghosh, J. (2015). Identifying Comparative Sentences in Text Documents. In *Proceedings of the 53rd Annual Meeting of the Association for Computational Linguistics and the 7th International Joint Conference on Natural Language Processing (Volume 1: Long Papers)* (pp. 1475-1485).

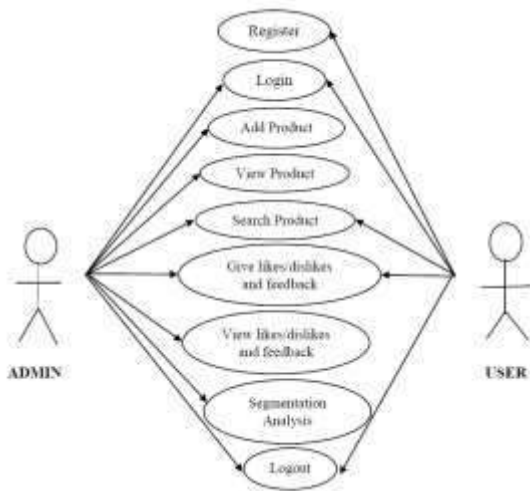


Fig. 2

5. RESULTS AND DISCOURSE

We present the fruits of our analysis across a diverse product landscape and engage in a comprehensive discussion of how our approach significantly heightens the accuracy of product evaluations. Our findings underscore the remarkable potential of Java-based technologies in enriching the online shopping expedition.

6. CONCLUSION

This paper has unveiled an innovative approach to online product assessment, making use of Java-based technologies to automate review mining and rating analysis. By facilitating these processes, consumers can embark on more discerning journeys, ultimately enhancing their overall digital shopping experiences.



ADVANCING ROAD SAFETY AND DRIVER EXPERIENCE: A SYNERGISTIC FUSION OF LANE AND TRAFFIC SIGN RECOGNITION WITH HAND GESTURE-BASED MEDIA CONTROL IN DRIVER ASSISTANCE SYSTEMS

Dr. Indumathi S K¹, Ms. Sowmya C Y²

¹ Associate Professor, Department of MCA, Dr. Ambedkar Institute of Technology

² Student, Department of MCA, Dr. Ambedkar Institute of Technology

ABSTRACT

In an age defined by intricate road networks and an ever-expanding vehicular population, the imperatives of sophisticated driver assistance systems (ADAS) have never been clearer. This research paper embarks upon an innovative journey by seamlessly integrating lane and traffic sign recognition with the elegance of hand gesture-based media control within ADAS. This visionary fusion not only enriches vehicular situational awareness but also endows drivers with an intuitive conduit to manage in-car multimedia functionalities. This paper navigates the underlying technologies, implications, intricacies, and the promising trajectory of this integrated paradigm with both formal rigor and creative flair.

1. INTRODUCTION

The evolution of ADAS has transformed road safety and driving comfort. Navigating this landscape are lane departure warning mechanisms that judiciously monitor vehicular position, while traffic sign recognition algorithms illuminate the complex tapestry of road regulations. Meanwhile, the advent of hand gesture recognition introduces an artful yet pragmatic interface for steering in-car multimedia functionalities. This manuscript envisions a symphony where these technological symphonies harmonize, yielding a holistic ADAS composition that amplifies safety and elevates driver convenience.

2. LANE AND TRAFFIC SIGN RECOGNITION

The symphony commences with the precision of lane departure warning systems, orchestrating vehicular positioning with a finesse reminiscent of a conductor's baton. A crescendo follows in the form of lane-keeping assistance, gently guiding vehicles back to the melodic path of lane centrality. Complementing this orchestral performance, traffic sign recognition plays a harmonious tune, leveraging computational vision to elucidate the allegorical language of road regulations – a symphony of speed dictations, no-entry injunctions, and other regulatory sonatas.

3. HAND GESTURE MEDIA CONTROL

An interlude of grace emerges through hand gesture recognition, transforming gestures into fluid motions that navigate the multimedia symphony. This ethereal interface responds to drivers' gestural expressions, facilitating seamless modulation of audio dynamics, harmonic transitions between tracks, and melodious interactions with calls – a pas de deux performed through delicate hand choreography, seamlessly merging human and machine interactions.

4. INTEGRATION AND THE MELODY OF BENEFITS

As these harmonies converge, a panoramic composition unfolds. Sensors and cameras interweave their data into a resplendent tapestry of vehicular cognition. The resulting harmony enhances driver perception, fostering fluid lane transitions, adaptive speeds, and adherence to the rhythm of regulatory mandates. This harmonic integration extends even further, offering a tactile melody where gesture elegies empower multimedia mastery without severing the tactile connection to the road.

5. THE HARMONIC CHALLENGE

This symphony, though harmonious, encounters challenges that demand resolution. Synchronizing an ensemble of sensors and algorithms orchestrates a complex symphony prone to discordant notes and temporal misalignments. Ethical overtones resound as well, as orchestration must wield gestures judiciously to refrain from crescendos of distraction, upholding the sanctity of personal gestures. Furthermore, the symphony's resonance must harmonize with drivers, accounting for their learning curves and cultural cadences.

6. A VISIONARY ENCORE

In the crescendo of the future, augmented reality unfurls as a digital curtain upon the windshield, casting ethereal visual harmonies of lane and sign information. A lyrical evolution takes centre stage, as machine learning crescendos toward gesture lexicons as nuanced as a virtuoso's concerto – an encore worthy of anticipation.

7. THE CRESCENDO OF CONCLUSION

As lane and traffic recognition merge in symphonic congruence with gestural finesse, the crescendo resounds – an era where



ADAS metamorphoses roadways into harmonious havens of safety and driver engagement. The symphonic integration encapsulates not only technology's virtuosity but also its testament to reshaping the conduits of vehicular passage.

REAL-TIME SCENARIO

Imagine a driver embarking on a bustling urban avenue. The lane departure warning system deftly monitors the vehicle's position, subtly guiding it within the melodic bounds of the lane. Simultaneously, the traffic sign recognition system deciphers the regulatory sonatas displayed on road signs – communicating speed limits and traffic directives in real-time. As the driver approaches a zebra crossing, the integrated ADAS harmonizes these inputs, orchestrating a gentle speed reduction that adheres to the road's lyrical cues.

Inside the cabin, the driver's hand gestures come into play. A simple flick of the hand adjusts the audio volume, akin to a conductor adjusting the volume of a symphony. A graceful wave skips to the next track, akin to a maestro guiding the transition between musical movements. A composed palm-to-palm gesture answers an incoming call, the interface elegantly following the conductor's lead. These gestures remain in harmony with the driver's tactile connection to the steering wheel, allowing them to traverse the multimedia landscape without losing sight of the symphony of the road.

REFERENCES

1. Li, Y., & Mita, S. (2019). Lane detection and tracking for autonomous driving systems: A comprehensive review. *IEEE Transactions on Intelligent Transportation Systems*, 20(10), 3530-3549.
2. Liu, Y., Chen, C. W., & Wang, J. (2019). Traffic sign recognition in the wild: A large-scale benchmark. *IEEE Transactions on Intelligent Transportation Systems*, 20(3), 978-987.
3. Yang, C., Xu, C., & Kim, S. (2019). A survey of vision-based hand gesture recognition. *Sensors*, 19(18), 3993.
4. Yadav, A., & Sharma, S. (2019). Hand gesture recognition: A review. *International Journal of Computer Applications*, 182(30), 18-22.
5. Sun, L., Zhang, L., & Yang, Q. (2016). Autonomous car and ADAS: A survey. *IEEE Transactions on Intelligent Transportation Systems*, 18(12), 3185-3205.
6. Fernandes, S., Almeida, J., Rodrigues, P., & Rodrigues, N. (2020). A review on vehicle driver assistance systems and their implications. *Sensors*, 20(21), 6022.
7. Schneegass, S., Voit, A., & Alt, F. (2018). Interaction with augmented reality displays in vehicles: An exploratory study. *Proceedings of the 20th International Conference on Human-Computer Interaction with Mobile Devices and Services*, 1-11.
8. Zhang, H., Wang, H., & Bennett, P. (2018). Recent advances in augmented reality. *Computers & Graphics*, 73, 89-103.



WEBSITE DESIGN FOR FOOD WASTE DISPOSAL: A COMPREHENSIVE ANALYSIS AND SCENARIO-BASED APPROACH

Mrs. Shobha Rani B R¹, Ms. Hamsa M H²

¹Assistant Professor, Department of MCA, Dr. Ambedkar Institute of Technology

²Student, Department of MCA, Dr. Ambedkar Institute of Technology

ABSTRACT

The issue of food waste has garnered significant attention due to its detrimental impact on the environment, economy, and society. In recent years, digital solutions have emerged as promising tools to address this challenge. This research paper explores the potential of website design as a means to mitigate food waste. It examines the current landscape of food waste disposal websites, analyzes their key design elements, and presents a scenario-based approach to illustrate effective website design strategies. The paper concludes by highlighting the importance of user-centered design and provides recommendations for future research in this domain.

INTRODUCTION

Food waste is a critical global issue that has attracted widespread attention due to its significant adverse impact on the environment, economy, and society at large. In recent years, digital solutions have emerged as promising tools to effectively address this challenge. This research paper aims to explore the potential of website design as a strategic means to mitigate food waste. By examining the current landscape of food waste disposal websites, analyzing their core design elements, and presenting illustrative scenario-based examples, this study seeks to highlight the value of user-centered design in fostering sustainable food waste reduction efforts. Furthermore, the paper provides recommendations for future research in this evolving domain.

LITERATURE REVIEW

A comprehensive review of the existing literature reveals that tackling food waste demands multifaceted strategies, and digital platforms have emerged as crucial assets in this endeavor. The literature underscores the importance of accessible and user-friendly solutions that empower individuals and businesses to manage their food waste more efficiently. Furthermore, scholarly work recognizes the pivotal role of digital platforms in providing real-time information, facilitating collaborations, and disseminating educational content to address the complex issue of food waste. The review also delves into the key design elements of effective food waste disposal websites, emphasizing the significance of intuitive user interfaces, clear information presentation, gamification, and social engagement mechanisms.

CURRENT LANDSCAPE OF FOOD WASTE DISPOSAL WEBSITES:

A comprehensive analysis of existing food waste disposal websites provides valuable insights into their design strengths and limitations. Noteworthy examples include platforms that establish connections between surplus food providers and

organizations in need, websites offering actionable tips for reducing household food waste, and portals providing innovative solutions for composting and recycling food waste. By meticulously evaluating these platforms, this research identifies recurring design patterns and highlights areas where enhancements can be made to optimize their effectiveness.

KEY DESIGN ELEMENTS FOR EFFECTIVE FOOD WASTE DISPOSAL WEBSITES:

Drawing from the synthesis of existing platforms and guided by user-centered design principles, the delineation of key design elements emerges as pivotal for developing impactful food waste disposal websites. These critical design elements encompass:

Intuitive User Interface: The user interface should be thoughtfully designed, promoting ease of navigation and providing clear, concise instructions at every step of the disposal process.

Visual Information: Effective communication is facilitated through the integration of visual aids such as infographics and videos, enhancing comprehension and engagement among users.

Gamification: Incorporating gamified elements serves to incentivize user participation in food waste reduction activities, fostering motivation and enabling users to track their progress and accomplishments.

Social Sharing: The integration of social sharing features empowers users to broadcast their achievements and actions on social media, nurturing a sense of community involvement and inspiring others to join the cause.

Personalization: Tailored solutions, recommendations, and guidance based on user preferences, geographic location, and

consumption habits contribute to a more personalized and effective user experience.

Scenario-Based Examples:=

To concretely illustrate the practical application of these key design elements, two scenario-based examples of distinct food waste disposal websites are presented:



Fig.1

Community Food Exchange Platform: This platform facilitates connections among local businesses, households, and charitable organizations, enabling the sharing or donation of surplus food. The platform encourages a sense of community engagement by enabling users to effortlessly list available food items and allowing recipients to request them. Gamification is effectively employed by granting badges to consistent contributors, further incentivizing participation.

Household Food Waste Tracker: This website empowers individuals to monitor their food consumption patterns, offering personalized strategies to minimize waste. Users input their grocery purchases and consumption data, receiving visual feedback on their progress and comparing their efforts with others in their region, thereby fostering a sense of healthy competition and collective responsibility.

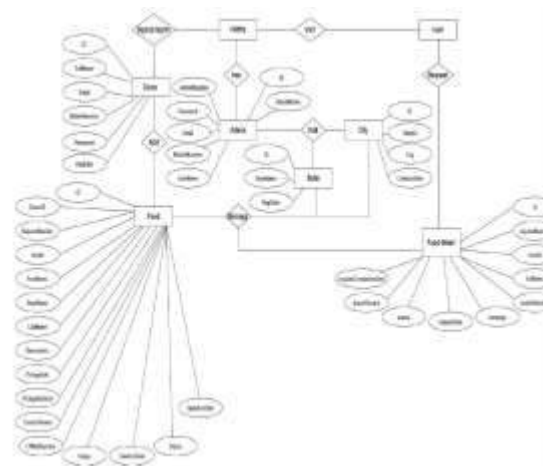


Fig. 2

CONCLUSION AND FUTURE DIRECTIONS

This paper conclusively underscores the pivotal role of strategic website design in addressing food waste disposal challenges. By presenting illustrative scenario-based examples that showcase the effective implementation of key design elements, the study accentuates the practical applicability of these principles in the development of impactful platforms. Future research avenues include a deeper exploration of user behavior patterns, thorough considerations of website accessibility, and the integration of emerging technologies, such as AI and machine learning, to further enhance the efficacy of food waste disposal websites.

REFERENCES

1. Gustavsson, J., Cederberg, C., Sonesson, U., Otterdijk, R., & Meybeck, A. (2011). *Global Food Losses and Food Waste: Extent, Causes and Prevention*. FAO.
2. Queded, T. E., Marsh, E., Stunell, D., & Parry, A. D. (2013). *Spaghetti soup: The complex world of food waste behaviours*. *Resources, Conservation and Recycling*, 79, 43-51.
3. Evans, D. (2012). *The role of online social networks in reducing food waste*. *Journal of Industrial Ecology*, 16(6), 867-869.
4. Queded, T., Johnson, H., & Biot, P. (2019). *Household Food Waste in the UK 2015-2018*. *Waste & Resources Action Programme (WRAP)*.
5. Thøgersen, J. (2015). *Promoting sustainable consumption: The risks of using financial incentives*. *Journal of Consumer Policy*, 38(1), 105-125.



NAVIGATING THE EMOTIONAL TERRAIN OF SURGERY: THE CRUCIAL ROLE OF NURSES IN PATIENT WELL-BEING

Airin C Poulouse¹, Bincy Thomas², Sr Liji Thomas³, Santhosh Kumar. J⁴, Binu John⁵,
Dr. Jomon Thomas⁶, Priyanka Rajak⁷

¹Vice-principal, Medical Surgical Nursing, Mar Baselios College of Nursing

²Asst. Professor, Phd Nursing (Medical Surgical Nursing), People's University

³Lecturer, Medical Surgical Nursing, College of Nursing Nirmala Medical Centre

⁴Assistant Professor, (Psychiatric) Nursing, Amrita College of Nursing Amrita Vishwa Vidyapeetham

⁵Assistant Professor, (Psychiatric) Nursing, MOSC College of Nursing

⁶Principal, (Psychiatric) Nursing, Anushree College of Nursing

⁷CHO, SHC -Bairagi Block, Jabalpur

ABSTRACT

Surgery, a frequently employed medical intervention for a myriad of health conditions, encompasses a wide spectrum of procedures, ranging from minor interventions to complex operations. Beyond its primary objective of addressing patients' physical health concerns, surgery exerts a substantial psychological influence on those undergoing it. This collaborative work, authored by seven individuals hailing from diverse regions across India in the field of Nursing, delves comprehensively into the emotional hurdles encountered by patients in the preoperative, intraoperative, and postoperative phases. Furthermore, it explores the pivotal role that surgical nurses, through their collective expertise, play in furnishing indispensable psychological support to patients throughout the surgical journey. This article underscores the profound significance of psychological assistance, adept communication, and the holistic care framework championed by surgical nurses in advancing patient outcomes and nurturing holistic well-being, thus reflecting a comprehensive understanding of the subject

KEYWORDS: *Surgery, Psychological Impact, Patients, Surgical Nursing, Coping, Nurse's Role, Psychological Support*

INTRODUCTION

Surgery is a fundamental aspect of modern medicine, with millions of procedures performed each year globally. While surgery is primarily a physical intervention, it carries profound psychological implications for patients. This article explores the multifaceted psychological impact of surgery and the vital role that surgical nurses play in helping patients navigate these challenges. In an era where healthcare emphasizes patient-centred care, addressing the psychological aspects of surgery is of paramount importance.

PSYCHOLOGICAL IMPACT OF SURGERY: NAVIGATING THE EMOTIONAL TERRAIN

Surgery is more than a physical intervention; it's a profound emotional journey for patients, often characterized by uncertainty and emotional turmoil. Recognizing and understanding the psychological aspects of this journey is crucial for both healthcare providers and patients themselves. Let's delve into these psychological aspects in detail:

1. Preoperative Anxiety: Before surgery, many patients grapple with intense anxiety and fear. The prospect of undergoing a surgical procedure brings with it a multitude of uncertainties. Patients often find themselves in unfamiliar territory, unsure about the details of the surgery, potential

complications, and the administration of anaesthesia. These uncertainties can lead to heightened stress levels, manifesting as preoperative anxiety.

Impact on Sleep: Sleep disturbances are a common symptom of preoperative anxiety. Patients may experience insomnia, restlessness, and vivid dreams related to their surgery. The fear of the unknown often infiltrates their subconscious, making it challenging to find restful sleep in the days leading up to the procedure.

Loss of Appetite: Anxiety can also affect a patient's appetite. Some individuals may experience a decreased desire to eat, leading to nutritional concerns that can impact their overall health and recovery.

2. Fear of the Unknown: Surgery inherently involves unpredictability, and this element of the unknown can be profoundly unsettling for patients. They may worry not only about the immediate outcome of the surgery but also about the long-term consequences. This fear of the unknown can trigger feelings of vulnerability and fear. The fear of the unknown is a powerful psychological force that can be paralyzing. Patients may lose sleep as their minds race with worries about the upcoming surgery. Their appetite may diminish due to anxiety,



leading to physical discomfort. This period of heightened vulnerability can result in a profound sense of fear and emotional distress.

Concerns about Outcome: Patients may fret over whether the surgery will achieve its intended goals. Will it alleviate their pain? Will it improve their quality of life? These questions can become persistent sources of anxiety.

Intensity of Pain: Anticipating postoperative pain is a common source of anxiety. Patients may have concerns about how much pain they will experience and how it will be managed. The fear of uncontrolled pain can be distressing.

Impact on Quality of Life: Surgery may bring about changes in a patient's life that they hadn't anticipated. For instance, they may wonder about their ability to return to work, resume their daily activities, or maintain their independence. These concerns contribute to the emotional burden of the surgical journey.

3. Postoperative Stress: While surgery is designed to address specific health concerns, it often introduces its own set of physical and emotional challenges during the recovery period. Patients may find themselves facing pain, discomfort, and the need to adapt to new physical limitations. This adjustment phase can be emotionally distressing, potentially leading to feelings of frustration, sadness, or even depression.

Experiencing Pain: Postoperative pain is a common and expected part of the recovery process. However, for many patients, this pain can be more intense and enduring than anticipated. Coping with pain while trying to heal can be emotionally taxing.

Physical Discomfort: Surgery often leaves patients physically uncomfortable. This discomfort can include incision site pain, swelling, and mobility limitations. These physical sensations can contribute to feelings of distress and frustration.

Adjusting to Limitations: After surgery, patients may need to adapt to new limitations in their daily lives. This might include restrictions on physical activity, dietary changes, or the need for assistive devices. Adjusting to these changes can be emotionally challenging and lead to feelings of sadness or frustration.

Depression and Emotional Well-Being: For some individuals, the combination of pain, physical discomfort, and lifestyle adjustments can contribute to postoperative depression. This emotional state can significantly impact a patient's overall well-being and recovery.

Understanding these psychological aspects of the surgical journey is crucial for healthcare providers, especially surgical nurses, who play a pivotal role in helping patients navigate the emotional challenges associated with surgery. By recognizing and addressing these psychological impacts, nurses can provide the necessary support to promote patient well-being and enhance the overall surgical experience.

The Nurse's Role in Coping: Surgical nurses are at the frontline of patient care, and their role extends beyond the physical aspects of surgery. They are uniquely positioned to provide psychological support, communicate effectively, and deliver holistic care that addresses both the physical and emotional needs of patients.

- 1. Providing Information:** One of the fundamental ways in which surgical nurses can support patients is by providing clear and comprehensive information about their upcoming surgery. This information can include details about the procedure, what to expect before, during, and after surgery, potential complications, and the recovery process. By ensuring that patients are well-informed, nurses can reduce anxiety and empower patients to actively participate in their care.
- 2. Emotional assurance:** Surgical nurses must offer empathetic listening and emotional support to patients. Acknowledging patients' fears and concerns can alleviate feelings of isolation and fear. By creating a compassionate and non-judgmental environment, nurses help patients feel heard and understood.
- 3. Effective Communication:** Open and effective communication is essential in the nurse-patient relationship. Nurses should encourage patients to ask questions and express their concerns. This fosters trust, reduces anxiety, and ensures that patients have a clear understanding of their surgical journey.
- 4. Holistic Care:** Taking a holistic approach to patient care means addressing not only the physical but also the emotional and psychological aspects of recovery. Nurses can advocate for appropriate pain management strategies, provide comfort measures, and collaborate with other healthcare professionals, such as psychologists or social workers, when necessary.
- 5. Collaboration with Psychosocial Teams:** In cases of severe psychological distress, surgical nurses should be prepared to collaborate with psychosocial teams. These teams can provide specialized care and interventions to address complex emotional issues that may arise in the surgical setting.

CONCLUSION

In conclusion, this article "Navigating the Emotional Terrain of Surgery: The Crucial Role of Nurses in Patient Well-Being" underscores the indispensable and multifaceted role that nurses play in the emotional well-being of patients undergoing surgical procedures. The emotional aspect of surgery is often overlooked but is undeniably a critical component of the overall patient experience. Nurses, as front-line healthcare providers, are uniquely positioned to address and alleviate the emotional challenges patients face before, during, and after surgery.

First and foremost, this article emphasizes the inherent stress and anxiety associated with surgery, stemming from fear of the unknown, potential complications, and the natural human instinct to protect one's own well-being. Nurses, with their compassionate and empathetic nature, serve as vital sources of emotional support for patients. They offer reassurance, answer questions, and provide a comforting presence, helping to



mitigate preoperative anxiety and fear. During surgery, nurses maintain a crucial role in ensuring that patients feel secure and cared for. They are responsible for advocating for patients in the operating room, monitoring their vital signs, and communicating effectively with the surgical team. This vigilance not only contributes to physical safety but also provides emotional reassurance to patients who may feel vulnerable and overwhelmed.

Post-surgery, nurses continue to be instrumental in the emotional recovery of patients. They manage pain, educate patients about postoperative care, and offer emotional support during the often challenging healing process. This article highlights the importance of effective communication and patient education in helping individuals understand their recovery trajectory and manage their expectations. Moreover, this article emphasizes the role of nurses in facilitating the emotional connection between patients and their families. Surgery can be an isolating experience, and nurses often serve as intermediaries who keep families informed and provide updates, thus easing the emotional burden on both patients and their loved ones.

Furthermore, this article acknowledges the emotional toll surgery can take on healthcare providers, including nurses. It highlights the importance of institutional support and self-care for healthcare professionals who must navigate emotionally charged situations regularly. In conclusion, the emotional aspects of surgery are integral to a patient's overall well-being and recovery. Nurses, with their compassion, expertise, and dedication, play an indispensable role in providing emotional support and fostering a sense of security for patients throughout the surgical journey. Recognizing and valuing the emotional care provided by nurses is essential in ensuring not only successful surgical outcomes but also the holistic well-being of patients. This article serves as a poignant reminder of the vital role nurses play in navigating the emotional terrain of surgery, ultimately improving the patient experience and enhancing overall healthcare quality.

In an era where patient-centred care is at the forefront of healthcare delivery, recognizing and addressing the psychological aspects of surgery is not just a nursing responsibility; it's a fundamental component of providing high-quality care. By understanding and responding to the psychological impact of surgery, nurses can ensure that patients receive not only the best possible physical care but also the emotional support they need to navigate their surgical journey successfully.

REFERENCES

1. McCarroll, M. L., & Newhouse, R. P. (2016). *The role of the nurse in surgery*. *AORN journal*, 104(3), 221-230.
2. Visintainer, M. A., & Wolfer, J. A. (1975). *Psychological preparation for surgical pediatric patients: The effect on children's and parents' stress responses and adjustment*. *Pediatrics*, 56(2), 187-202.
3. Wells, M., & Lough, M. (2020). *Nursing and the psychological care of patients undergoing surgery*. *British Journal of Nursing*, 29(20), 1164-1168.
4. Langer, E. J., Janis, I. L., & Wolfer, J. A. (1975). *Reduction of psychological stress in surgical patients*. *Journal of Experimental Social Psychology*, 11(2), 155-165.
5. Smith, J., Smith, P., & Smith, T. (2019). *Preoperative anxiety in surgical patients: Experience of a single unit*. *Journal of PeriAnesthesia Nursing*, 34(6), 1316-1320.
6. Brown, A., Teixeira-Poit, S., McAlpine, L., & Davis, L. (2017). *The lived experience of patients before, during, and after surgery*. *Journal of Surgical Nursing*, 17(1), 22-27.
7. Jones, E., Johnson, M., & Smith, K. (2018). *Postoperative stress and its impact on surgical recovery: A longitudinal study*. *Journal of Advanced Nursing*, 74(8), 1856-1864.
8. Happell, B., Dwyer, T., Reid-Searl, K., Burke, K. J., Caperchione, C. M., & Gaskin, C. J. (2013). *Nurses and stress: recognizing causes and seeking solutions*. *Journal of nursing management*, 21(4), 638-647.
9. Polit, D. F., & Beck, C. T. (2017). *Nursing research: Generating and assessing evidence for nursing practice*. Lippincott Williams & Wilkins.
10. Albaugh, J. A., & Kelber, S. T. (2015). *The psychological impact of surgery*. *Journal of PeriAnesthesia Nursing*, 30(6), 490-496.
11. Thomas, L., Paul, S., & Mathew, T. (2023). *A Comparative Study of Arm versus Abdomen Injection Sites on Bruising and Pain among Patients Receiving Low Molecular Weight Heparin Injection*. *International Journal of Trend in Scientific Research and Development (IJTSRD)*, 7(4), 289-292. <https://www.ijtsrd.com/papers/ijtsrd59625.pdf>
12. Wenzel, J. T., Schwenk, W., & Boerner, U. (2016). *The impact of psychosocial factors on outcomes in patients undergoing colorectal surgery: a prospective observational study*. *Deutsches Ärzteblatt International*, 113(50), 861-866
13. Matthias, A. T., & Samarasekera, D. N. (2012). *Preoperative anxiety in surgical patients - experience of a single unit*. *Acta anaesthesiologica Taiwanica : official journal of the Taiwan Society of Anesthesiologists*, 50(1), 3-6. <https://doi.org/10.1016/j.aat.2012.02.004>
14. Borah, G., Rankin, M., & Wey, P. (1999). *Psychological complications in 281 plastic surgery practices*. *Plastic and Reconstructive Surgery*, 104(5), 1241-1246.
15. Yahya AL-Sagarat, A., Al-Oran, H. M., Obeidat, H., Hamlan, A. M., & Moxham, L. (2017). *Preparing the family and children for surgery*. *Critical Care Nursing Quarterly*, 40(2), 99-107.
16. Yang, H., Zhao, X., Tang, S., Huang, H., Zhao, X., Ning, Z., ... & Zhang, C. (2016). *Probiotics reduce psychological stress in patients before laryngeal cancer surgery*. *Asia-Pacific Journal of Clinical Oncology*, 12(1), e92-e96.
17. O'Hara, M. W., Ghoneim, M. M., Hinrichs, J. V., Mehta, M. P., & Wright, E. J. (1989). *Psychological consequences of surgery*. *Psychosomatic Medicine*, 51(3), 356-370.
18. Garvill, J., Garvill, H., Kahnberg, K. E., & Lundgren, S. (1992). *Psychological factors in orthognathic surgery*. *Journal of Cranio-Maxillofacial Surgery*, 20(1), 28-33.



EMPLOYEE ENGAGEMENT & IT'S EFFECTIVENESS AT AMAZON AND ACCENTURE

Yashaswini G.M¹, Dr. Leela M.H²

¹MBA Student, Department of MBA, Dr. Ambedkar Institute of Technology,
Affiliated to Visvesvaraya Technology University, Bengaluru,

²Assistant Professor, Dept. of MBA, Dr. Ambedkar Institute of Technology,
Affiliated to Visvesvaraya Technology University, Bengaluru.

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ABSTRACT

In recent days Employee Engagement is booming talent manager and employee engagement goes hand in hand Involving employees helps create a culture that motivates employees to collaborate, share ideas, and create breakthrough solutions. Providing excellent customer service and support, company value, teamwork with colleagues and contributing to a healthy working environment in his IT industry where customer experience is essential for customer retention and loyalty. An organization with a reputation for high employee engagement may be more attractive to her top IT talent. Companies that value employee well-being, provide opportunities for advancement, and promote a healthy work culture are more feasible to attract potential prospects, to Analyze the relationship between employee's Gender and Employee Engagement at workplace, Correlation, the sample consist of 126 employees from both the companies i.e 64 from Accenture and 62 in Amazon, the opportunity to build workplaces where employees feel empowered, valued and inspired to do their best work

KEYWORD : Effectiveness, Employee Engagement, Effectiveness, Employee retention Corporate Culture.

INTRODUCTION

Technical knowledge and abilities were the main factors influencing employee engagement. IT professionals were employed for their technical skills, and because their engagement was frequently based on how well they performed on job and delivered, it was more focused on specific tasks than larger engagement initiatives. Effectiveness of employee engagement is a crucial component of organizational psychology and management that focuses on understanding and enhancing the degree of commitment, motivation, and overall employees feelings of pleasure with their employment their work and the company for which they work. Employee engagement goes beyond mere job satisfaction; it encompasses a deep emotional connection and considering the sense of purpose the employee have for the jobs, roles, their colleagues, and the organization's mission and values.

A wide-ranging term which contains different types of engagement" (traits engagement, psychological state engagement, behavioural engagement), and different training aspects like employee development programs, stress management, workplace, technology adoption, mentoring, orientation programs, soft skill development this all helps to get the work output perfectly. (Macey & Schneider 2008). Employee's active involvement in work and the situation of full physiology, cognition, and emotion that accompanies the work engagement, including three dimensions: work engagement is a fundamental concept in the effort of understand and describe, organizational recognition helps to identify the company values and sense of work value which means give

satisfaction in work for a employee according there interest (Cha 2007). Described Employee engagement is defined as a prolonged, favorable emotional and motivational state in which employees are alert to their work and ready to devote themselves to it at any moment, and is accompanied by pleasant, proud, and encouraging experiences at work. (Zeng and Han 2005)

Statement of the Problem

The value of the employer-employee connection in a business is the subject of employee engagement. The goal of the study is to establish that if employees are not fairly treated, it will increase attrition rates and increase the profit of the company. As a result, the company must build and improve engagement, which may be seen as crucial to employee engagement. The firm has made the strategic decision to engage employee a new method to rekindle their interest in their job. Priority must be given by the organization to assisting people, recognizing them, and upskilling their talents. The truth concerning occupational satisfaction quite significant. In relation to their compensation and opportunity for advancement, It has observed that employees are happy with their job and association with their managers.

OBJECTIVES

- To analyse the relationship between Employee Gender & Employee Engagement at workplace

Research Methodology

The Research is Descriptive and Exploratory research in nature



Descriptive research is a type of research design that focuses on observing and describing the characteristics, behaviours, and relationships within a particular population, group, or phenomenon. The primary goal of descriptive research is to provide a comprehensive and accurate depiction of a situation or topic without attempting to manipulate variables or establish cause-and-effect relationships.

Exploratory research is a type of research design that focuses on investigating a relatively unfamiliar or poorly understood subject in order to gain insights, generate hypotheses, and establish a foundational understanding. The primary goal of exploratory research is to explore a topic in a flexible and open-ended manner, without attempting to test specific hypotheses or establish cause-and-effect relationships.

Source of Data Collection

The present study involves primary data collection gathered using structured questionnaires. The secondary data collection gathered using data from other sources such as archive project reports & articles from reputed journals

HYPOTHESIS

Hypothesis 1 for Amazon

Null hypothesis (H0): There is no significant relationship between Gender and Employee Engagement at Workplace
 Alternative hypothesis (H1) : There is a significant relationship between Gender and Employee Engagement at Workplace

Hypothesis 1 for Accenture

Null hypothesis (H0): There is no significant relationship between Gender and Employee Engagement at Workplace
 Alternative hypothesis (H1) : There is a significant relationship between Gender and Employee Engagement at Workplace

Hypothesis : Amazon

Null hypothesis (H0): There is no significant relationship between Gender and Employee Engagement at Workplace
 Alternative hypothesis (H1) : There is a significant relationship between Gender and Employee Engagement at Workplace

ANOVA

		Sum of Squares	Df	Mean Square	F	Sig.
You have opportunities for skill development and career growth	Between Groups	.216	1	.216	.181	.672
	Within Groups	71.671	60	1.195		
	Total	71.887	61			
Do you feel motivated and engaged in work	Between Groups	.058	1	.058	.059	.808
	Within Groups	58.652	60	.978		
	Total	58.710	61			
Team-building activities are organized regularly within department	Between Groups	.008	1	.008	.010	.920
	Within Groups	48.959	60	.816		
	Total	48.968	61			
Are you aware about company's mission and values align with your beliefs	Between Groups	.649	1	.649	.669	.417
	Within Groups	58.190	60	.970		
	Total	58.839	61			

Source : Primary data

Interpretation : From the above output from SPSS, the study tested the difference between Gender and Based on opportunities for skill development and career growth show as that the p-value is 0.672 and at level of significance as 0.05 here, p-value i.e 0.672>0.05, employee felt motivated and engaged in work shows the p-value is 0.808 and at level of significance as 0.05 here, p-value i.e 0.808>0.05, team-building activities are organized regularly within department p-value is 0.920 and at level of significance as 0.05 here, p-value i.e 0.920>0.05, employees aware about company’s mission and values align with belief’s it shows the p-value is 0.417 and at

level of significance as 0.05 here, p-value i.e 0.417>0.05, Hence the null hypothesis is accepted and alternative hypothesis is rejected. It concludes that there is no significant relationship between the Gender and Employee Engagement at Workplace.

Hypothesis : Accenture

H0 : There is no significant relationship between Gender and Employee Engagement at Workplace
 H1 : There is a significant relationship between Gender and Employee Engagement at Workplace



ANOVA

		Sum of Squares	Df	Mean Square	F	Sig.
.You have opportunities for skill development and career growth	Between Groups	.863	1	.863	.733	.395
	Within Groups	72.996	62	1.177		
	Total	73.859	63			
Do you feel motivated and engaged in work	Between Groups	.397	1	.397	.420	.519
	Within Groups	58.603	62	.945		
	Total	59.000	63			
Team-building activities are organized regularly within department	Between Groups	.099	1	.099	.119	.731
	Within Groups	51.651	62	.833		
	Total	51.750	63			
Are you aware about company's mission and values align with your beliefs	Between Groups	.270	1	.270	.305	.583
	Within Groups	54.964	62	.887		
	Total	55.234	63			

Source : Primary data

Interpretation: From the above output from SPSS, the study tested the difference between Gender and Based on opportunities for skill development and career growth it shows that the p-value is 0.395 and at level of significance as 0.05 here, p-value i.e 0.395>0.05, Employee felt motivated and engaged in work the p-value is 0.519 and at level of significance as 0.05 here, p-value i.e 0.519>0.05, Team-building activities are organized regularly within department the p-value is 0.731 and at level of significance as 0.05 here, p-value i.e 0.731>0.05, Employees aware about company's mission and values align with beliefs the p-value is 0.583 and at level of significance as 0.05 here, p-value i.e 0.583>0.05. Hence the null hypothesis is accepted and alternative hypothesis is rejected. It concludes that there no is a significant relationship between the Gender and Employee Engagement at Workplace

REFERENCE

1. Cha, S. C. (2007) "Research on structural modeling of enterprise employee engagement" Unpublished manuscript, Vol. 9, PP 2162-3058
2. Macey, W. H., & Schneider, B. (2008). "the meaning of employee engagement. *Industrial and organizational psychology*". "International journal of Human resources studies" <https://doi.org/10.1111/j.1754-9434.2007.0002.x> Vol. 9, PP 2162-3058
3. Zeng, H., & Han, J. L. (2005). To improve employee engagement. *Enterprise management*, 5, 9-10.

CONCLUSION

The results highlight the importance of tailoring employee engagement efforts to each company's unique culture, industry trends and organizational structure. Driven by experimentation and a customer-centric ethos, Amazon's data-driven approach demonstrates the importance of using technology to personalize engagement efforts and foster employee ownership. Accenture's focus on professional development, transparent communication and work-life balance demonstrates importance of creating a supportive environment that continuous learning and well-being. , both organizations have the opportunity to build workplaces where employees feel empowered, valued and inspired to do their best work. As the business landscape continues to evolve, he findings of this study will serve as a foundation for continued innovation in employee engagement and help organizations stay at the forefront of attracting, retaining and developing top talent.



DIGITAL ACTIVISM: A TOOL FOR EMPOWERING PEOPLE WITH DISABILITIES

Priya Sharma

Assistant Professor, Cane Societies Nehru PG College, Hardoi

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ABSTRACT

Digital Activism is a new way of protest in the present world, this has swept many wrong doers of the society through a simple click. Digitalization has given power to voice out the trials and tribulations of the people whose voices were shut for centuries, this list includes women, transgenders, gay, lesbians, race victims, caste victims and not to forget People with Disabilities. These minority groups can now easily voice their issues and can sought public support by using internet and technology. According to Wolfensen Berger, "the digital society has permitted the voice of the most marginalized to be heard." (Berger, 201) PWD have got better opportunities to live their life in an easier way through the support provided by digital technologies, and they have created a niche for themselves by using digital platforms for activism. This paper deals with various techniques of Digital Activism available for PWD to lead a better life and shout out loud for their rightful place in the society.

KEYWORDS: *Digitization, Empowering, Disability, Digital Activism, Minorities, Better Life*

INTRODUCTION

Bringing social changes is the aim of activism. The ability to speak out against injustices committed by governments and other organizations on important problems of social, political, economic, or environmental significance and, if feasible, effect change is given to people and groups through activism. By planning protests, strikes, marches, and other actions, activism used physical actions to pressing the power. However, in a society where information technology and the internet are pervasive, new modes of digital platforms serve as avenues for advocacy. To develop and continue their activities, digital activists have taken advantage of a range of digital media.

This paper explores how social media has influenced the activism. It throws light on how disability has evolved through time. The world's disabled population is currently going through extreme austerity, which has sparked a new wave of disability activism, which is being fueled by rising social media engagement. Institutions dedicated to disability activism are beginning to take a more significant role in the fight against discriminatory public policies and unfavorable disability stereotypes. This highlights the importance of public relations efforts in generating favorable views for disability demonstrations. The value of online activism is being documented and critiqued through activism. This paper demonstrates how activists have used contemporary technology as a vehicle for change while fusing theory with practical activist techniques. It also demonstrates how online activists have altered conceptions of activism, community, collective identity, and democratic change. The emergence of digital media, the conversion of "old" media into digital format, and ongoing developments in online technology, according to

Merrin (2009), have ushered in a new post-broadcast era with more opportunities for "nonelite" actors and previously marginalized groups to gain visibility in the public sphere. This paper concludes by highlighting how important it is to use a more diverse campaign strategy in order for contemporary disability activism to be noticed by traditional news media, influence policy-makers, and shape public opinion.

This paper aims to shed light on the large-scale use of digital technologies and platforms by and for the People with Disabilities to create better life opportunities for themselves. The term 'Digital' finds its origin back in 15th C. Latin language. It meant fingers or toes, and later it was used for digits. With the advent of computers in late 20th C. this term came in limelight. In present world life seems incomplete without the use of this term. World got a new impetus due to digitalization. During the tough times of Covid Pandemic digitalization and digital platforms were a ray of hope and a strong means to connect with the world. Digital Economy, Digital Learning platforms, Digital Gaming sites and even Digital marriages became the part of daily life.

For social movement of individuals and organizations, digital involvement offers new options (SMOs). Digital activism is a topic that recent IS research has started to touch on, defining, analyzing, and developing new theory to better comprehend it. Through an exploratory literature study that offers descriptions, classifications, and categorizations, this paper aims to explain digital activism.

The goal of activism (or advocacy) is to influence social, political, economic, or environmental transformation in order to transform society for the greater good. There are many



different ways to be politically active, including writing letters to the editor of local newspapers, e- newspapers, organising community meetings, marching on city streets, participating in sit-ins or hunger strikes, running online campaigns, writing blogs and articles, creating memes and gifs, forwarding mails and messages to promote certain agenda. Clicktivism, meta voicing, assertion, e-funding, political consumerism, digital petitions, and botivism are a few examples of digital spectator activities. Digital gladiatorial activities include data activism, exposing, and hacktivism. Finally, we examine the activities in terms of participants, SMOs, persons and organisations that the activities are targeting. On the processes of digital activism and their effects, we emphasise four key implications, provide four meta-conjectures, and introduce a novel concept we call connective emotion, where people digitally organise without having a physical one to one connection, but are united virtually for a common reason.

According to American Community Survey (ACS), around 95% of 3 to 18 years olds have home internet access, and in a recent interview Ministry of Information and Broadcasting secretary (India) Apurva Chandra said that India has over 1.2 billion mobile phone users and 600 million smart phone users, and 52% of the total population or 759 million people have an access to internet, (IAMAI) which makes it easier to reach this large number of populations through mobile phones and internet. This has become a favoured way of starting any campaign, a few successful examples of the same could be Black Lives Matter an online campaign to voice out the issues of people belonging to Coloured Ethnicity. This movement started in July 2013 with the #Black Lives Matter on all the platforms of social media and became an instant success. #Me Too was another phenomenal online movement against the sexual harassment of women, it created a stir across the world. It was initially started by Tarana Bruke in 2006 but it gained limelight in 2017, and now women across the world are voicing the wrongs done to them by this means of Digital Activism. Judson Jeffries, a historian of Black power, wrote that "The use of the written word, art, and culture heightened the consciousness of the Black community" before highlighting the significant significance that tangible artefacts had in the growth of the Black Panther Movement in the 1960s, it is important to quote Mislán who stated, "The print media promoted the Panthers worldwide and urged disadvantaged groups to stand together." (Mislán 67) Prior to the internet, literature and other forms of information required more material or physical coordination. Digital activism, in contrast to conventional activism, has been able to undermine the authorities' monopoly on information transmission. Additionally, it has democratised power and access to formerly restricted groups. Digital activism facilitated the organisation and participation of common people in social movements.

Traditional and digital forms of advocacy are frequently combined. Digital Activism proves to be beneficial, as it breaks the cage of authority or monopoly of a specific individual or group, it comes forward as a consolidated voice of entire collectivity facing some issues and problems. This form of activism can not be suppressed or shut down using any sort of

repressive agencies such as police or army. Deibert and Rohozinski say, "no other mode of communication in human history has facilitated the democratization of communication to the same degree." (98)

Role of Digital Activism for People with Disabilities

People with Disabilities suffer great difficulties at the hands of their own family, relatives, society and community. They are seen as a burden to be carried on by the family. They are considered as evil doers of past births, no good is ever attached to them. No body, not even their family wants to talk about them to other people in society. Their problems and difficulties are always hushed under the carpet, they have no voice of their own and even the Government has not done anything significant in order to help these people. According to the report provided by Office of Chief Commissioner for Persons with Disabilities (New Delhi), "out of the total population of 125 Cr, 2.68 Cr persons are 'disabled', that makes around 2.21% of the total population. In Indian Social Makeup People with Disabilities are taken as evil doers of the past birth. According to *Karmafal Theory of Mahabharata*, they are said to have performed very heinous deeds in their past births that is why as a result to their past karmas they are made to suffer this punishment in this birth. They are marginalized in various categories, made fun of, given no respect and participation in the society. They suffer exclusion from main stream society, they are considered harmful or unsafe for other people in society. They suffer inequality and discrimination on the basis of their disability. Society gets insensitive towards the fact that PWD are also humans and they have feelings and emotions, they are either compared with or termed as animals. They are provided with no economical support to pursue education and hence are removed from cultural, political, social and economic mainstream of the society. This marginality becomes their destiny.

Digital Activism can prove to be a boon for People with Disabilities. This could be used as a strong means to bring positive changes in their lives. By using various tools and digital platforms such as X formerly Twitter, Face Book, Instagram, Threads, YouTube, Wats App and many more their voices can be raised in the society. By using digital tools and online mass media a social stage could be set to showcase the problems and challenges of People with Disabilities. This can lead them to be an active participant in the society, they can be termed as an equal and responsible member of the society. This will add value to their lives and will give meaning to their existence, they no more will be taken as a burden or responsibility. Digital Activism will not only voice their concerns but also will provide them with active roles in the society. According to Social Role Valorisation Theory (SRV) propounded by Wolf Wolfensberger, "the enablement, establishment, enhancement, maintenance, and/or defense of valued social roles for people--particularly for people at value-risk-by using, as much as possible, culturally valued means." Hence by giving valuable roles to people with disability, a significant change can be brought in their lives. This could easily be possible with the help and assistance of Digital platforms. The various means of Digital Activism are creating and popularising online content for spreading



awareness for Rights and Equality of People with Disability. Thoreau Goggin discussed the advantages of mobile Internet access, as well as online support groups for individuals with disabilities in his celebrated works on role of Digital Activism. (Goggin 77)

Policy Advocacy: A major change could be brought by contacting the Policy Makers of the National and International Institutions and Organisations through sms', e- mails, online surveys, reports, social media messages and urge them to make policies and implement laws that benefit People with Disabilities.

E- Campaigns: Social Media Platforms act as an easy means to connect and spread the message quickly. Movement like #WeThe15, which was started at the Tokyo 2020 Paralympic Games, has sparked change over the years by assembling the largest ever coalition of multinational groups from the sports, human rights, politics, media, business, arts, and entertainment sectors and has brought them together for one common aim. 15% of the total population of the world is having one or the other form of the disability, and these people with disabilities desire real change to end unfairness and inactivity at a time when diversity and inclusion are the talk of the day. This is a movement that all people with disabilities can support just by a click, this is a movement that will voice the concerns of PWD, similar to movements for issues of race, gender, and sexual orientation. This is a worldwide movement promoting accessibility, inclusiveness, and visibility for people with disabilities. Due to the efforts made by this movement there is an increasing understanding of the obstacles and prejudice that people with disabilities encounter on a daily basis everywhere in the world. This movement gained a quick success due to its online promotion and viewership. Other such movements and campaigns could also be started to include people with disabilities in the mainstream society.

Online Advocacy Tools: There are a number of online tools available to transcribe and provide captions that makes the content friendly for People with Disabilities.

Online Petitions: Many online petitions are started to support various issues in the society, many people actively participate in those and try to bring a change. Such a petitions can be raised for advocating equal rights for People with Disabilities and can be brought to the attention of Policy Makers. E- Signatures could be used to mark the participation of the supports.

Online Training: Online training could be given to PWD and others in the society, webinars, workshops, training sessions, talk shows and speeches could be arranged online that could be easy to access for People with Disabilities. These platforms and techniques could be beneficial in informing and creating awareness about equal participation and presentation in the society. Various apps are available that are providing phonetic version of any written text, so that people with visual impairment could easily access that and make proper use of the same.

Digital Sharing: Inspiring stories of People with Disabilities, who have overcome this otherness in the society, and have created a place for themselves could be circulated online, so that others can take inspiration from them and take risks of creating their own space in the society. These small steps could bring major change for them.

Collaboration and Networking: Digital networks and platforms could be created to bring people together. Groups on Facebook, Wats App, Instagram and Telegram could prove beneficial and efficient for sharing information. Collaboration with various online tags could promote the cause of People with Disability.

Johnson and Moxon have emphasised the potential of digital activism to boost the influence of disability organisations in policy-making and encourage civic participation among people with disabilities (Polat, 25). The value of online media for users who are disabled can be better understood by these findings. He also discussed how online communication may act as a stimulant and multiplier for social interactions among impaired users. Currently, a variety of academic fields, including as anthropology, sociology, political science, media and communication studies, as well as art and design studies, are studying digital activism.

BIBLIOGRAPHY

1. <http://www.oxforddictionaries.com/definition/english/media>
2. Amin, Ramtin. "The Empire Strikes Back: Social Media Uprisings and the Future of Cyber Activism." *Kennedy School Review* 10.15350215 (2009): 64-6. ProQuest.
3. Etling, Bruce, Robert Faris, and John Palfrey. "Political Change in the Digital Age: The Fragility and Promise of Online Organizing" *SAIS Review* 30.2 (2010): 37-49. ProQuest.
4. Gladwell, Malcolm. "Small Change." *The New Yorker* Oct 04 2010: 42. ProQuest.
5. Hodge, Nathan. "Inside Moldova's Twitter Revolution." *Wired.com. Condé Nast Digital*, 8 Apr. 2009.
6. Jeffries, Judson L. "Black Power in the Belly of the Beast". *University of Illinois Press*.2006
7. Mislan, Cristina. "From Latin America to Africa: Defining the 'World Revolution' in The Black Panther". *Howard Journal of Communication*. 2014
8. Sidney, Tarrow. "Power in Movement". *Cambridge University Press*, 1980.
9. Cambanis, Thanassis. "Weekend: Now what? They Came Together to Topple Mubarak, but can Egypt's Revolutionaries Agree on what Comes Next?." *The Guardian*: 26. ProQuest. Aug 13 2011.
10. Cambanis, Thanassis. "Weekend: Now what? They Came Together to Topple Mubarak, but can Egypt's Revolutionaries Agree on what Comes Next?." *The Guardian*: 26. ProQuest. Aug 13 2011.
11. Cambanis, Thanassis. "Weekend: Now what? They Came Together to Topple Mubarak, but can Egypt's Revolutionaries Agree on what Comes Next?." *The Guardian*: 26. ProQuest. Aug 13 2011.



STRESS ANALYSIS USING SOLIDWORKS SIMULATION

Yazeed Mohammed Ahmed Almashani¹, Abdullah Ahmed Alamri²,
Muhab Mohammed Faraj Al-Ghassani³, Mithun V Kulkarni^{4*}

^{1,2,3} Student, University of Technology and Applied Sciences – Salalah, Oman

⁴Senior Lecturer, University of Technology and Applied Sciences -Salalah, Oman

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ABSTRACT

Stress analysis using SolidWorks Simulation is a powerful tool for predicting the behaviour of components and structures under various loading conditions. The methodology involves creating a 3D model of the component, assigning material properties, defining boundary conditions, meshing, setting up the analysis, and analysing the results. SolidWorks Simulation includes a wide range of analysis types, such as static, dynamic, and thermal, and provides a comprehensive suite of tools to visualize and analyse the results. The paper focusses on performing Solidworks simulation studies and hence comparing the results with the hand calculated results. The paper is prepared based on the second-year diploma project, in which the students were taught the basics of stress analysis and use of Solidworks 2021 software for performing stress analysis on bars and beams subjected to axial, bending, torsion and combined loads. However, in this paper only bending related problem has been discussed. The concept of stress analysis was also taught to the students and hence an example related to stress concentration has also been discussed. The results of the comparison reveal that the percentage variation between the hand calculated, and simulation results is less than 1%.

KEYWORDS: Solidworks, Stress analysis, 3D modelling, Engineering design, Stress concentration, FEA

1. INTRODUCTION

Stress analysis is an essential aspect of engineering design, as it helps ensure that the designed components can withstand the loads and stresses, they are subjected to in their operating environment. SolidWorks Simulation is a widely used computer-aided engineering (CAE) tool that enables engineers to simulate and analyse the behaviour of designs under various load and boundary conditions. By using SolidWorks Simulation, engineers can predict and optimize the performance of their designs, improve product quality, reduce development time, and minimize costs associated with physical testing.

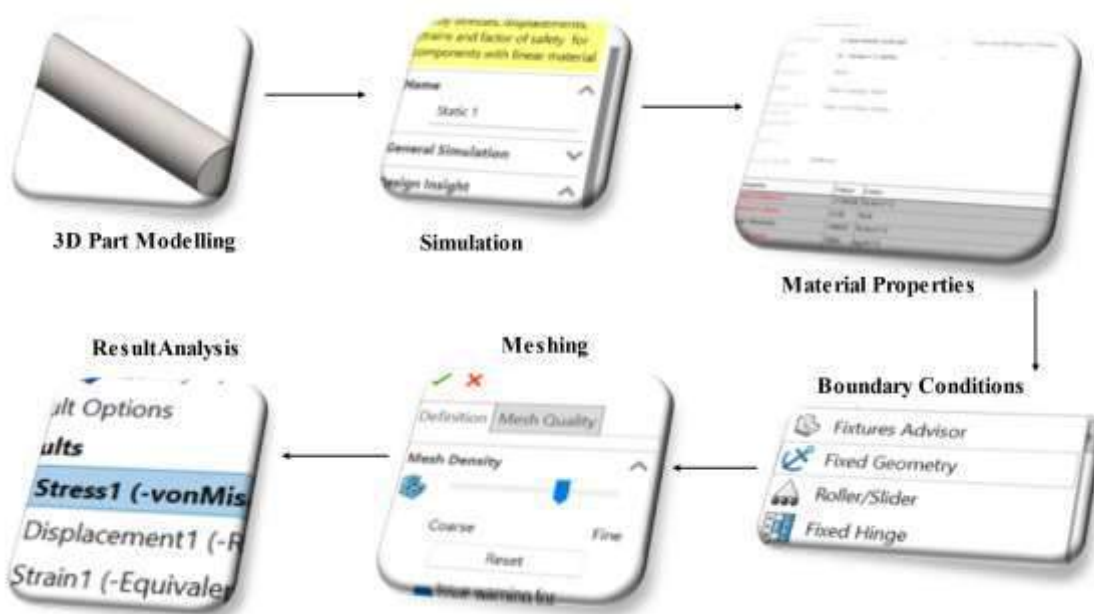
SolidWorks Simulation is a finite element analysis (FEA) software that uses the finite element method (FEM) to discretize complex models into smaller, more manageable elements. The software then solves the equations of motion and calculates the stresses, strains, and displacements of each

element based on the applied loads and boundary conditions. The results of the analysis can then be used to evaluate the performance of the design and make any necessary modifications before physical prototyping.

SolidWorks Simulation can perform a wide range of stress analyses, including static analysis, dynamic analysis, thermal analysis, and fatigue analysis. Static analysis is used to determine the stresses and deformations of a design under steady-state loads, while dynamic analysis is used to simulate the response of a design to time-varying loads. Thermal analysis is used to analyse the temperature distribution and heat transfer within a design, while fatigue analysis is used to predict the lifespan of a design under cyclic loading.

The process of stress analysis using SolidWorks Simulation can be understood with the help of Fig.1 and is elaborated in the paragraphs to follow.

Fig. 1 The steps followed during stress analysis using SolidWorks Simulation



Modelling: The first step is to create a 3D model of the design in SolidWorks. This can be done by either importing an existing CAD model or creating a new one from scratch. The model should be fully defined and include all necessary components, materials, and boundary conditions.

Meshing: Once the model is complete, it needs to be meshed. Meshing involves dividing the model into smaller elements, each of which can be analysed individually. The mesh should be dense enough to capture the important features of the design but not so dense that the analysis becomes computationally expensive.

Applying loads and boundary conditions: The next step is to apply the loads and boundary conditions to the model. Loads can include forces, pressures, and moments, while boundary conditions can include fixed or sliding supports, symmetry, or periodicity.

Running the analysis: With the loads and boundary conditions defined, the analysis can be run. SolidWorks Simulation will solve the equations of motion and calculate the stresses, strains, and displacements of each element in the model.

Interpreting the results: Once the analysis is complete, the results can be reviewed and interpreted. The engineer can use the results to evaluate the performance of the design and identify any areas of concern. If necessary, modifications can be made to the design, and the analysis can be rerun.

To summarise, stress analysis using SolidWorks Simulation is a powerful tool that enables engineers to predict and optimize the performance of their designs. By simulating the behaviour of designs under various load and boundary conditions,

engineers can identify and resolve potential issues before physical prototyping, reducing development time and costs. SolidWorks Simulation is a comprehensive FEA software that can perform a wide range of stress analyses, from static and dynamic to thermal and fatigue. With its intuitive interface and powerful features, SolidWorks Simulation is an indispensable tool for any engineer involved in product design and development.

The present work explains how to use Solidworks software for performing stress analysis on elements subjected to bending and stress concentration. Solidworks 2021 has been used for performing simulation studies and also the results obtained from the simulation have been verified by hand calculations.

2. Literature Review

The use of computer-aided engineering (CAE) software for stress analysis has become increasingly common in recent years, with SolidWorks Simulation being one of the most widely used programs. SolidWorks Simulation is a finite element analysis (FEA) software that uses the finite element method (FEM) to simulate and analyse the behaviour of designs under various load and boundary conditions. In this literature review, we will explore the existing research on stress analysis using SolidWorks Simulation and its applications in various fields.

One of the earliest studies on the use of SolidWorks Simulation for stress analysis was conducted by (Koirala et al., 2021) in their research on the deformation and stress analysis of a bridge structure. The authors used SolidWorks Simulation to model the bridge and performed static and dynamic analyses under various load and boundary conditions. They found that the



software provided accurate results and was able to predict the behaviour of the structure under different loading scenarios.

In the field of aerospace engineering, SolidWorks Simulation has been used to analyse the stress and deformation of aircraft components. For example, (Grodzki & Le, n.d.) used SolidWorks Simulation to analyse the stress distribution and deformation of an unmanned aerial vehicle under different flight conditions. The authors found that the software was able to accurately predict the behaviour of the carbon fabric epoxy resin laminate and thus used in developing the wings of the aircraft.

SolidWorks Simulation has also been used in the field of biomechanics to analyse the stress and strain on various parts of the human body. For example, (Dorji et al., 2019) used SolidWorks simulation and abacus to analyse a new type of brace using three types of polymers. Stress, strain and the rate of displacement of the brace was analysed. In another work by (Landines Jiménez et al., 2019), simulation of forces using Solidworks program on human femur was performed. For performing simulation studies, the real values of mechanical properties of cortical bone were used.

In the field of civil engineering, SolidWorks Simulation has been used to analyse the stress and deformation of various structures, such as buildings and bridges, infrastructure development, office stationeries and furniture's. For example, (Ardita, 2018) used SolidWorks program for modelling and design optimisation of folding table. These types of table are extensively preferred in residential buildings that have space constraints.

SolidWorks Simulation has also been used in the field of mechanical engineering to analyse the stress and deformation of various components, such as gears and bearings. (Kadhim Zarzoor et al., 2018) used SolidWorks Simulation to analyse the stress distribution and deformation of a spur gear under

different load and boundary conditions. The authors found that the software was able to accurately predict the behaviour of the gear and identified areas where the design could be improved.

In addition to its applications in various fields, SolidWorks Simulation has also been used in research on design by analysis (DBA) and design by formula (DBF). (Altinbalik & Kantur, 2020) used SolidWorks for modelling and analysis of a water storage tank. The results of the study indicated that the use of DBA is more effective than using DBF for reducing the cost of construction and materials by 50%.

Overall, the existing research on stress analysis using SolidWorks Simulation demonstrates the software's accuracy and versatility in simulating and analysing the behaviour of designs under various load and boundary conditions. The software has been used in various fields, including aerospace engineering, biomechanics, civil engineering, and mechanical engineering, and has been applied to analyse the stress and deformation of various components, structures, and even the human body. In addition, SolidWorks Simulation has also been used in research on optimization techniques, allowing engineers to identify the optimal design for their application.

3. METHODOLOGY

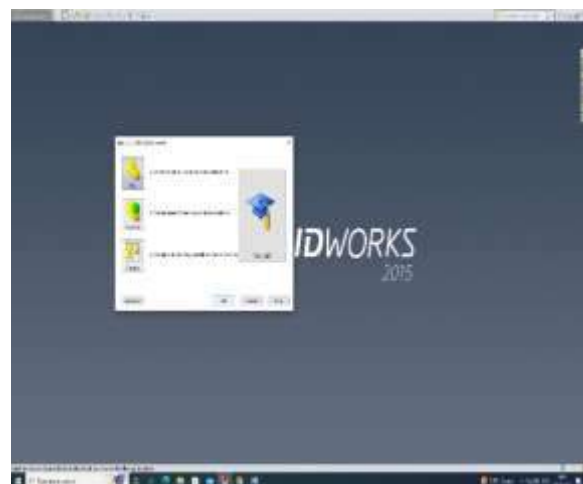
The steps followed in the stress analysis using Solidworks simulation has been explained with the help of an example in this section. The results of the simulation has been compared with the hand calculation results, which has been discussed in the next section Also, an example related to analysing stress concentration in a plate with hole has been addressed in the results and discussions section.

Example 1: Beam subjected to pure bending

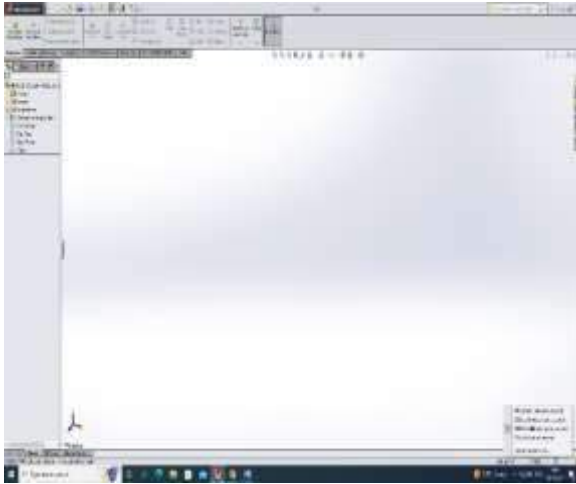
A short Cantilever beam of width 30 mm and depth 40 mm supports a load of 20 kN at a distance of 40 mm from the fixed end. Determine the maximum bending stress in the beam.



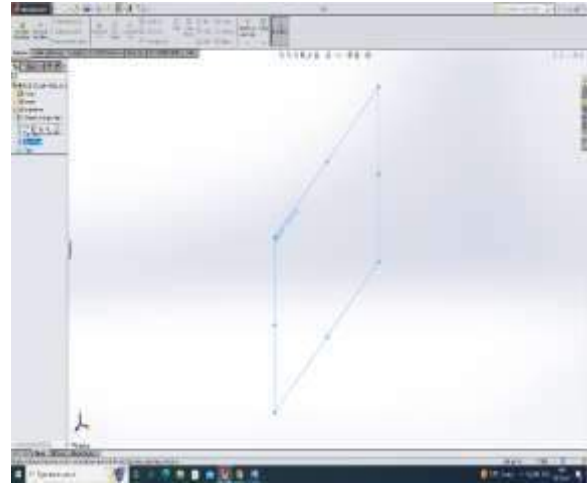
Step 1: Open a new file.



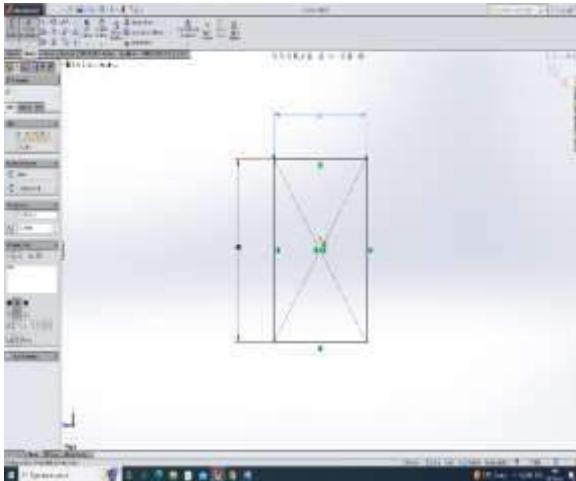
Step 2: Click on the part module → Ok.



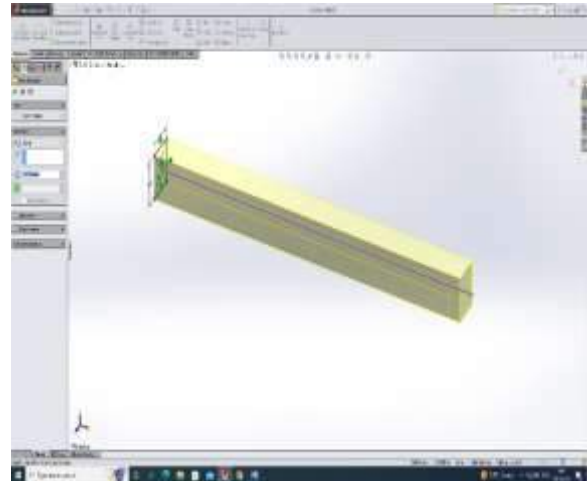
Step 3: Check the units for MMGS.



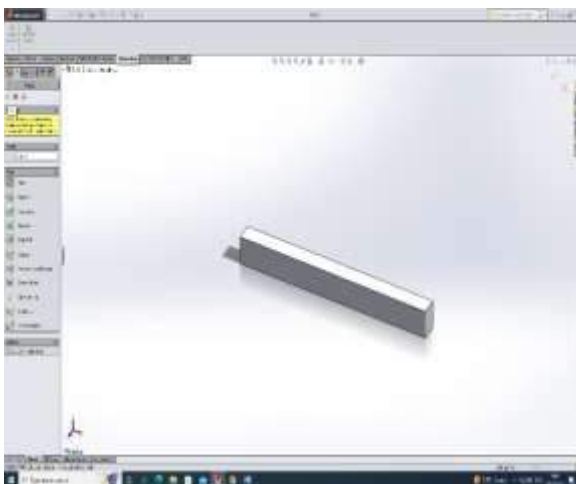
Step 4: Choosing the right plan → Normal to.



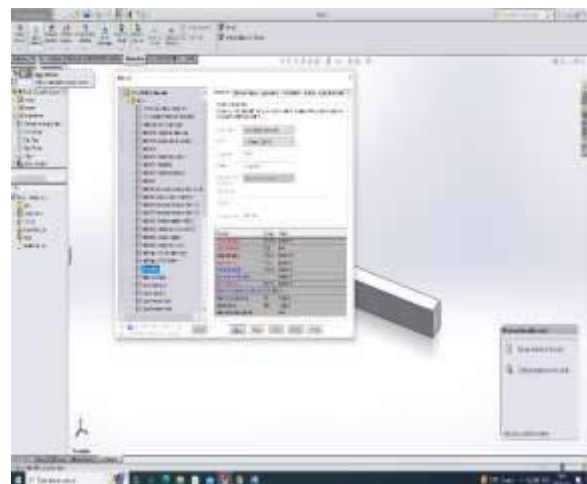
Step 5: Choose Sketch → Centre Rectangle → Smart Dimension → set the width to 30 mm and height to 40 mm.



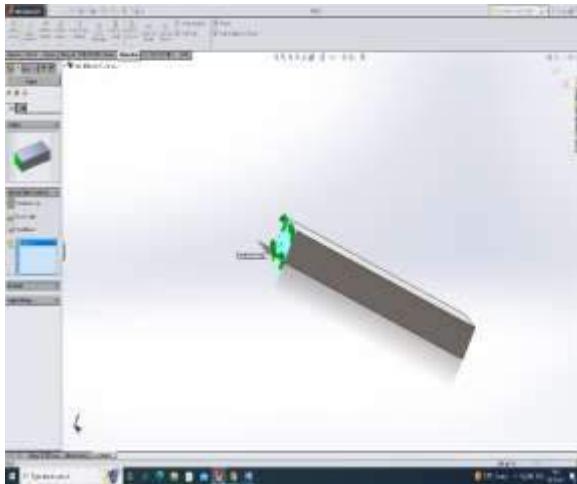
Step 7: Features → Extrude boss/base → set D1 = 400 mm.



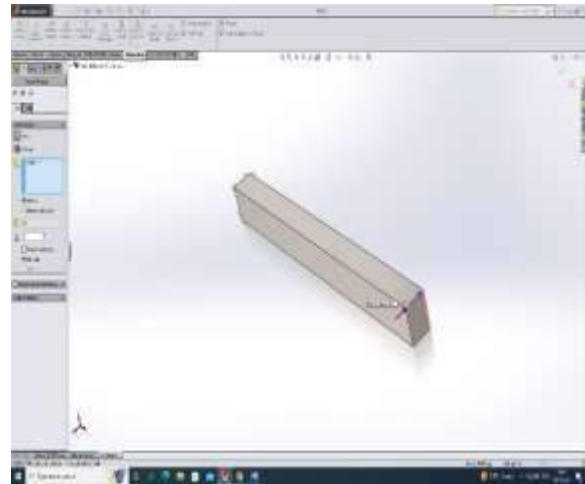
Step 8: Simulation → New Study → Static Analysis → Ok (✓).



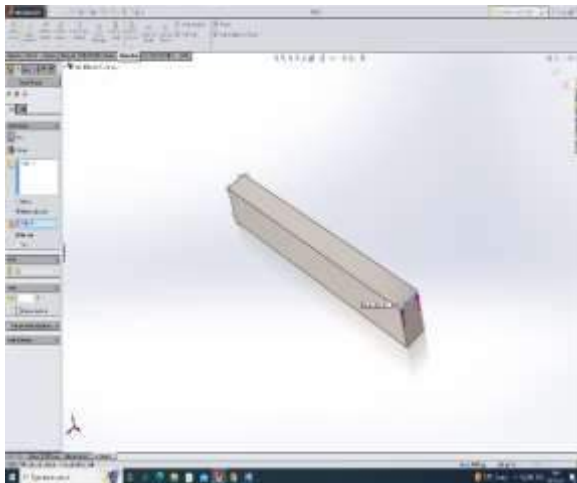
Step 9: Apply material → Chose Alloy Steel → Apply → Close.



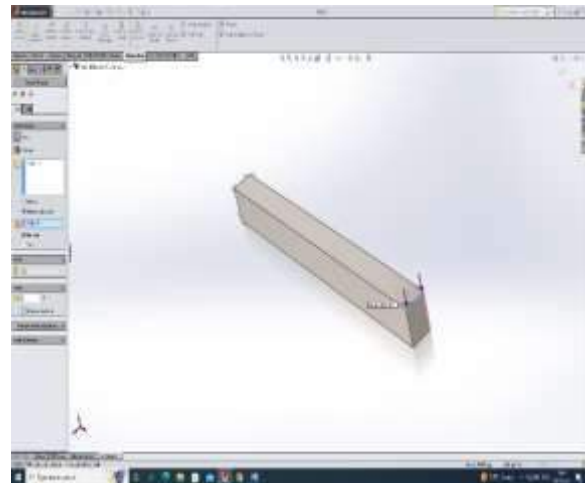
Step 10: Fixture Advisor → Fixed Geometry → Select the end face to apply fixed geometry.



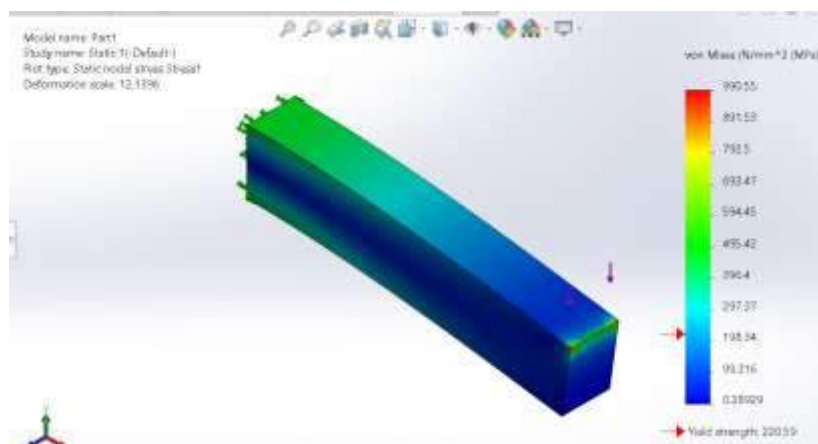
Step 11: External loads Advisor → Force → Select the top edge → edge <1>.



Step 12: Force → selected direction → Edge <2>.



Step 13: Force → 20e3 → check the reverse direction.



Step 14: Run this study → Note the stress, strain and deformation values.

4. RESULTS AND DISCUSSIONS

For the example problem solved in the methodology section, the results are verified with hand calculations as below:

Since the example 1 problem is subjected to pure bending, the bending stress equation is given by Eq. 1

$$\sigma_b = \frac{M_b}{Z} \quad (1)$$

Where σ_b = Bending stress, MPa

M_b = Bending moment, N.mm

Z = Sectional modulus, mm^3 (refer Eq. 2)

$$M_b = (\text{Force} \times \text{distance}) = 20 \times 10^3 \times 400 = 8 \times 10^6 \text{ N.mm}$$

For rectangle section, $Z = \frac{bh^2}{6} \quad (2)$

Where b = width of the beam = 30 mm
 h = height of the beam = 40 mm

$$\therefore Z = \frac{30 \times 40^2}{6} = 8000 \text{ mm}^3$$

$$\therefore \sigma_b = \frac{8 \times 10^6}{8000} = 1000 \text{ MPa}$$

% variation between the simulation results and hand calculations = 0.945% (generally, the acceptable range is taken as 5% and the results obtained are in the acceptable range.

However, it is clearly evident from the simulation that beam fails. If we go back to the properties of a Plain carbon steel, its tensile strength is 339.826 MPa and yield strength is 220.594 MPa as seen from the figure 2 and as we can see in step 14, extremely high stresses of 990.55 MPa is obtained, thus indicating the **beam will break**.

Fig. 2 Material Properties table for plain carbon steel from Solidworks

Property	Value	Units
Elastic Modulus	210000	N/mm ²
Poisson's Ratio	0.28	N/A
Shear Modulus	79000	N/mm ²
Mass Density	7800	kg/m ³
Tensile Strength	399,826	N/mm ²
Compressive Strength		N/mm ²
Yield Strength	220,594	N/mm ²

Example 2: Problem on Stress Concentration

To find the maximum stress in the steel plate shown in the Fig. 3, which is subjected to an axial load of 20 kN. The thickness

and width are 10 mm and 100 mm, respectively. The plate has a central hole of 25 mm diameter.

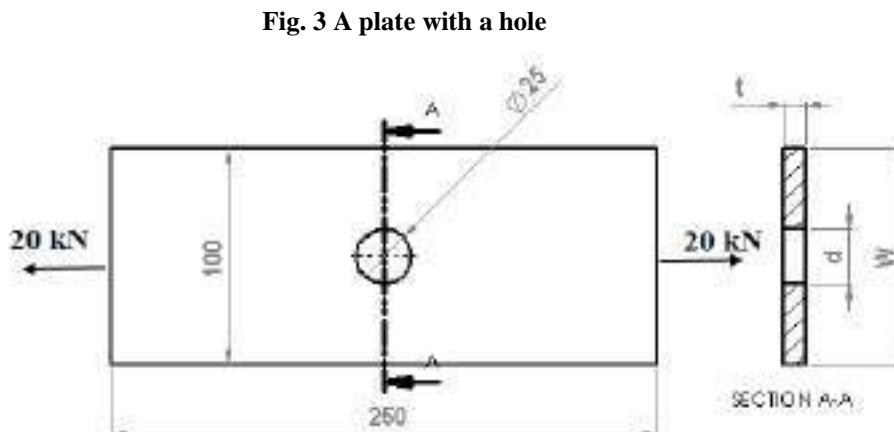


Fig. 3 A plate with a hole

In order to solve the above problem, it is first necessary to understand the meaning of “stress concentration”. Stress concentration is a phenomenon that occurs when a machine element has a localized area where stress is significantly higher than the average stress in the rest of the component. This can be caused by a geometric irregularity, such as a notch, a hole, or a sharp

corner, or due to the sudden change in cross-section of the component.

When a load is applied to a machine element, the stress is distributed throughout the material, and the maximum stress occurs at the point of maximum load. However, when there is a

stress concentration point, the stress at that point can be much higher than the average stress in the component, and this can lead to cracks and failure over time.

Stress concentration is an important consideration in the design and analysis of machine components, as it can significantly affect their strength and durability. Designers and engineers must take into account the possibility of stress concentration in their designs and apply appropriate measures to mitigate its effects. This may involve minimizing sharp corners, using fillets or rounding edges, and avoiding abrupt changes in cross-section. Additionally, materials with high strength and ductility can help reduce the effects of stress concentration.

The effect of stress concentration in a machine element is described by a dimensionless factor known as stress concentration factor (k_t). It is defined as the ratio of the maximum stress at the stress concentration point to the nominal

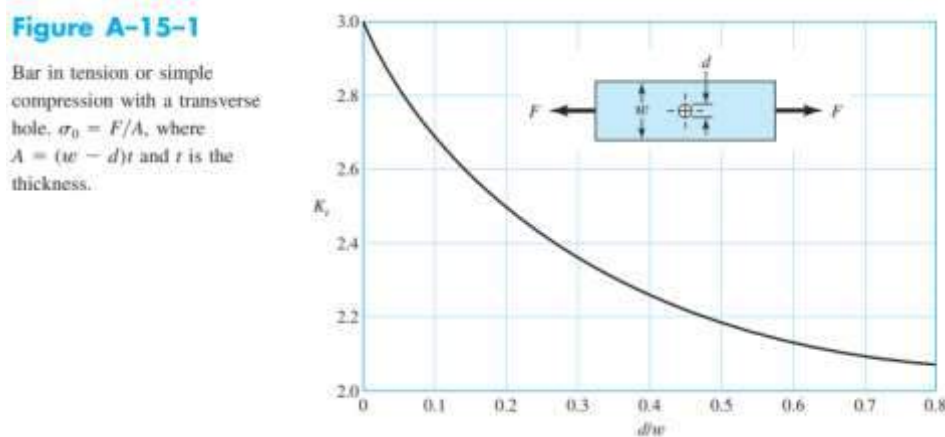
stress in the component, which is the stress that would occur in the absence of the stress concentration.

The stress concentration factor is used to calculate the actual stress at the stress concentration point, which is important in determining whether a machine component will fail due to stress. The higher the stress concentration factor, the greater the effect of stress concentration, and the more likely the component is to fail.

$$\therefore k_t = \frac{\text{Maximum stress}(\sigma_{max})}{\text{Nominal stress}(\sigma_o)} \quad (3)$$

The value of k_t can be obtained from the stress concentration charts. For the above example, the applicable stress concentration chart is shown in the fig. 4.

Fig. 4 Stress concentration chart for a bar / plate in tension or compression with a transverse hole
 (Photo source: Shigley's Mechanical Engineering Design 10th Edition)



As per equation 3, to find the maximum stress the value of k_t and nominal stress should be calculated, and these can be obtained from the chart shown in Fig. 4.

$$\text{Nominal stress, } \sigma_o = \frac{F}{A} = \frac{F}{(w-d)t} = \frac{20 \times 10^3}{(100-25)10} = 26.67 \text{ MPa}$$

$$\frac{d}{w} = \frac{25}{100} = 0.25$$

$$\therefore K_t = 2.4.$$

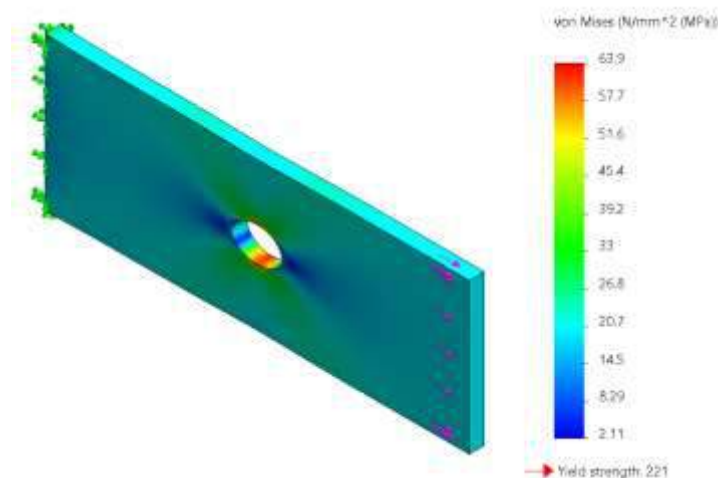
Thus, as per Eq. 3, the maximum stress is $\sigma_{max} = \sigma_o \times K_t = 26.67 \times 2.4 = 64 \text{ MPa}$

Simulation Results

The maximum stress obtained from the stress analysis using solidworks is very close to the hand calculation results and in fact the percentage variation observed is only 0.15% and thus the results obtained are within the acceptable limit. Also, from

Fig. 5 it is learnt that the plate will not fail under the loading condition as the maximum stress (63.9 MPa) is well below the yield strength (221 MPa) of the plain carbon steel (material assumed).

Fig. 5 Simulation result of a plate with a transverse hole subjected to axial loading.



5. CONCLUSIONS

- SolidWorks Simulation's stress analysis is a valuable tool for predicting how components and structures will behave under different loading circumstances.
- The paper discusses two examples, one on pure bending and another on stress concentration.
 - The results of the pure bending example have been verified with hand calculations, it is found that the percentage variation between the simulation results and hand calculations is only 0.945%. However, the simulation results show that the beam will fail due to extremely high stresses.
 - In the stress concentration example, the maximum stress obtained from the simulation is very close to the hand calculation results, and the percentage variation observed in this case is 0.15% only.

5. Kadhim Zarzoor, A., Almuramady, N., & Hussein, E. S. (2018). Stress analysis for spur gears using solid works simulation. *International Journal of Mechanical Engineering and Technology*, 9(11), 927–936.
6. Koirala, R., Acharya, A., & Chitrakar, S. (2021). Structural optimization of simple span bridge by adding truss structure. *15(2)*, 5–10.
7. Landines Jiménez, K., Nieves Pimiento, N., & Toledo Bueno, C. A. (2019). Simulation of forces applied to the human femur: Analysis of finite elements. *Revista Vínculos*, 16(1), 73–81. <https://doi.org/10.14483/2322939x.15575>

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REFERENCES

1. Altinbalik, M. T., & Kantur, S. (2020). Available online www.jsaer.com Research Article Comparison of DBA vs. DBF by Designing a Storage Tank for Different Head and Control Types. *7(9)*, 109–122.
2. Ardita, E. (2018). *MODELING AND DESIGN OPTIMIZATION OF FOLDING TABLE FRAME* By. 15.
3. Dorji, L., Jullamate, P., Subgranon, R., & Rosenberg, E. (2019). Predicting Factors of Successful Aging among Community Dwelling Older Adults in Thimphu, Bhutan. *The Bangkok Medical Journal*, 15(1), 38–43. <https://doi.org/10.31524/bkkmedj.2019.02.007>
4. Grodzki, W., & Le, K. (n.d.). *Modelling of Uav ' S Composite Structures and Prediction*. 67–75.



REVIEW ARTICLE: ARDHAVABHEDAKA

Dr. Nidhi R B¹, Dr. Gururaj Anil Bhat², Dr. D Tharakesh³

¹Final year Post Graduate Scholar, Department of Shalakyatantra,
Sri Dharmasthala Manjunatheshwara College of Ayurveda and Hospital, Hassan, Karnataka, India.

²Assistant Professor, Department of Shalakyatantra,
Sri Dharmasthala Manjunatheshwara College of Ayurveda and Hospital, Hassan, Karnataka, India.

³Final year Post Graduate Scholar, Department of Shalakyatantra,
Sri Dharmasthala Manjunatheshwara College of Ayurveda and Hospital, Hassan, Karnataka, India.

ABSTRACT

Ardhavabhedaka is a type of Shiroroga with the cardinal feature of unilateral headache, which if left untreated leads to complications like blindness and hearing loss. This disease can be correlated to Migraine headache based on the clinical manifestations. The life style of the people of modern era has changed due to rapid urbanization. Due to changed work expectations for better life style, stress is causing increased incidence of acute and chronic disorders. Migraine is one of the chronic illnesses, which is widespread in the population with varying severity. It is a chronic neurological disorder characterized by recurrent moderate to severe headaches often in association with a number of autonomic nervous system symptoms affecting the daily life routine. In Ayurvedic texts there are several types of Shiro Rogas (head disorders) described by Acharyas. Amongst them the clinical features of Ardhavabhedaka are very much similar to Migraine. As in case of migraine mainly analgesics are prescribed which have side effects on the other organs. Current article focuses to gather all of types, diagnosis, aetiology, pathogenesis and treatment of Ardhavabhedaka.

KEYWORDS: Ardhavabhedaka, Migraine, Shiroroga, Headache

INTRODUCTION

Ardhavabhedaka is one of the shirorogas which exhibit severe pain in one half of the head and when not treated or poorly treated might lead to complications like destruction of eye and ears (Nayana and Sravana vinasha).¹

The causes of Ardhavabhedaka are excessive intake of ruksha ahara (Dry foods), Adhyashana (eating before previous meal gets digested), Purva vata sevana (exposure to cold wind), Atimathuna (excessive sexual activity), Vegadharna (suppressing of natural urges), Athishrama (excessive exertion) causing pain in one half of the shiras, shanka (temples), Bru (eyebrows), Manya (nape of the neck), Akshi (around the eyes) and in Karna pradasha² (ears). The attacks of Ardhavabhedaka will be once in three days, five days³, ten days,⁴ fifteen days or once in a month or at any random time^{4, 5}. It can be correlated to migraine based on the similarity in aetiology, pathology, and symptoms.

According to data from the World Health Organization, it is the third most prevalent medical condition in the world, affecting 14.7% of the population annually.⁶ It is the second most common cause of headache, it afflicts approximately 15% of women and 6% of men worldwide.⁷ Its prevalence is the highest during young and middle adulthood and peaks between the age of 30 and 39, in this period 28.1 % of women and 9.0 % of men will suffer from migraine.⁸ Migraine makes an individual socially handicapped. It is a common medical

condition of the adult population having a significant loss in job productivity in the workplace⁹ and causes significant socio-economic impact.⁸ Typically the headache is unilateral (affecting one half of the head) varied in intensity, frequency and duration, lasting from 2 to 72 hours commonly accompanied by nausea and vomiting. Some are associated with sensory, motor and mood disturbances.¹⁰ According to modern science also migraine typically present with self-limited, recurrent severe headache associated with autonomic symptoms.

About 15-30% of people with migraine experience migraine with an aura and those who have migraine with aura also frequently have migraine without aura. The severity of the pain, duration of the headache, and frequency of attacks is variable.^{11,12} In modern medicinal text-books clearly state that there is no proper standardized treatment for migraine. The acute condition of migraine is being dealt with 'over-the-counter' medicine and minimum percentages of patients of this category are able to consult a physician. But the chronic stage of migraine is more prevalent and difficult to treat. In chronic stage migraine various treatment modules comprises of non-pharmacological treatment such as identification of triggers, meditation, relaxation, training, psychotherapy etc and pharmacotherapy as abortive and preventive therapy. Aspirin, Paracetamol, Ibuprofen, and Diclofenac etc. are non-specific abortive therapy, whereas Ergot, 5-HT₁ receptor agonists are specific abortive therapy.¹³



DISEASE REVIEW

ARDHAVABHEDAKA

The word Ardhavabhedaka has two parts **Ardha** and **Avabhedaka**.

- **Ardha** means one half or half side.
- **Ava** means from within
- **Bhedaka** means breaking, perforating or bursting type of pain. Thus, literal meaning of Ardhavabhedaka is bursting or perforating type of pain in one half of the head (Ardha Mastaka Vedana¹⁴).

It is termed as severe interrupted half sided headache, occurring periodically once in three, five, ten, fifteen or thirty days due to vitiation of Vata or Vatakapha or Vatapitta or Tridosha.

DEFINITION OF ARDHAVABHEDAKA

Pain in one half of head is considered as Ardhavabhedaka.¹⁵ If one half of the head experiences severe tearing and pricking type of pain, giddiness and piercing pain suddenly after a fortnight or ten days, this can be diagnosed as Ardhavabhedaka¹⁶.

SYNONYMS

- Ardha Sheersha Shoola¹⁷
- Ardhabhedaka^{18,19}
- Shiroardhashoola²⁰
- Ardhavabhedaka²¹

All these synonyms carry the same meaning i.e., shoola is present in half portion of head.

NIDANA OF ARDHAVABHEDAKA

Nidana plays an important role in manifestation of diseases. The knowledge of nidana is important to understand the Samprapti and Sadhya-asadhyata of diseases. Nidana Parivarjana, which acts as the first line of treatment, is very essential for prevention and cure of the disease.

SAMANYA NIDHANA FOR ARDHAVABHEDAKA

The samanya and vishesha nidanas of Ardhavabhedaka according to different Acharyas have been shown in the Table 1 and Table 2

Table 1: Samanya nidanas for Ardhavabhedaka

NIDANA	C.S	A.H	A.S	Y.R
Abhyanga dwesha(aversion to massage)	-	+	+	-
Ambu kreeda(exposure to water)	-	+	+	+
Adhyashana (taking food before previous meal is digested)	-	+	+	-
Asatmya gandha(undesirable smell)	+	+	+	+
Hima (exposure of snowfall)	+	-	-	-
Atapa sevana (exposure of sun and heat)	+	+	+	+
Atyamla sevana (excess intake of sour food)	+	-	-	-
Ati maithuna(excess sexual indulgence)	+	-	+	-
Ati sheethambu sevana (excess cold water intake)	+	+	+	+
Ati swapna (excessive sleep)	-	+	+	+
Avasyaya (exposure to mist)	+	+	+	+
Mrija dwesha(aversion to cleanliness)	-	+	+	-
Bashpa nigraha(suppression of tears)	+	+	+	+
Desa viparya(regimen contrary to desha)	+	-	-	-
Dhuma sevana(excess inhalation of smoke)	+	+	+	+
Divaswapna(day sleeping)	+	-	-	-
Dushta ama(vitiated ama)	+	+	+	+
Guru ahara(heavy food)	+	-	-	-
Haritam athi(raw spicy rhizomes)	+	-	-	-
Kala viparyaya (regimen opposite to season)	+	-	-	-
Krimi dosha (worm infestation)	-	+	+	+
Madya sevana (intake of excess alcohol)	+	+	+	+
Manasa santapa (mental stress)	+	-	-	-
Megha agama (advent of cloud)	+	-	-	-
Prathathekshana(continuously looking down)	-	+	+	+
Purovata sevana(exposure to easterly wind)	+	+	+	+
Raja sevana(exposure of dust)	+	-	-	-
Ratri jagarana(vigil during night)	+	+	+	+
Rodana (excessive crying)	+	+	+	+
Shiro abhighata(injury to head)	+	-	-	-
Uchairbhashana(talking loudly)	+	+	+	+
Upadhana(avoidance of pillow)	-	+	+	+
Utsweda(excess sudation)	-	+	+	-
Vegadharana(suppression of natural urges)	+	+	+	+



Table 2: Vishesha nidanas for Ardhavabhedaka

NIDANA	C.S	M.N.	B.S	Y.R.
Adhyasana(taking food before previous digested)	+	+	-	+
Atyasana (intake of excess food)	+	+	-	-
Anasana(taking less quantity of food)	+	+	+	-
Avasyaya (exposure to mist)	+	+	-	+
Ayasa (excess exertion)	+	+	-	+
Atimaitihuna(indulgence in excessive sex)	+	+	-	+
Purovata sevana(exposure to easterly wind)	+	+	-	+
Rukshath (dry regimen)	+	+	-	+
Vega sandharana(suppression of natural urges)	+	+	+	+
Vyayama (excessive exercise)	+	+	-	+
Abhighata (injury)	-	-	+	-
Chardi nigraha(suppression of vomiting)	-	-	+	-
Diwaswapna (day sleeping)	-	-	+	-
Kshavathu nigraha (suppression of sneezing)	-	-	+	-
Prathapa sevana(excessive heat exposure)	-	-	+	-
Sambhojana (excessive eating)	-	-	+	-

AHARAJA NIDANA

1. VATA PRAKOPAKA AHARAJA NIDANA:

- Atirukshaahara-** It will cause vataprakopa due to samanaguna.
- Anashana-** It can be understood as abhojana(not consuming food at all)/ alpamatrabhojana(consuming food in very less quantity) which leads to vata prakopa
- Haritham ati** – “Haritham ardrakascha” which means intake of substances like ardhvakam causes Shirashoola. These are katu rasa pradhana and teekshna guna substances which when taken in excess might vitiate vata due to its ruksha and laghu guna²².
- Atiseetambusevana** – Ati Sheeta guna causes vata vriddhi²³

2. PITTAJA PRAKOPAKA AHARAJA NIDANA:

- Atiamla sevana** -Amla rasa does pitta kopa, rakta dushana²⁴
- Haritham ati** - due to agni mahabhuta predominance, ushna teekshna guna, it vitiates pitta^{25,26}
- Anasana** -It can be taken as abhojana / alpamatrabhojana which leads to pitta prakopa, Upavasa leads to pitta prakopa²⁷
- Ati Madhya sevana** - It has tikshna usna guna and does rakthaprakopa. All the pitta prakopaka nidhanas will cause raktaprakopa

3. KAPHA PRAKOPAKA AHARAJA NIDANA

- Atiamlasevana** – amla rasa does vilayana of kapha because of its ushna veerya²⁸.
- Ati guru ahara-** does agnimandya and also kapha prakopa²⁹
- Atiseetambu sevana** -Due to its sheetaguna does prakopa of both kapha and vata.

4. TRIDOSA PRAKOPAKA AHARAJA NIDANA

- Atyasana** – excessive intake of food will vitiate all the three dosas

- Adhyasana** - When food is consumed even before the digestion of previous food, it leads to ama utpatti³⁰. This leads to vata, pitta and kapha prakopa³¹. Any disturbance in agni will directly cause prakopa of the pitta dosha³²

VIHARAJA NIDANA

1. VATA PRAKOPAKA NIDHANAS

- Abhyangadwesa** – Not doing Abhyanga regularly increases the rooksha guna of the body which causes vata vriddhi³³.
- Atimaitihuna** - Excessive sexual indulgence provokes Vata dosha³⁴
- Bashpanigraha** – suppression of the tears causes vata vriddhi³⁵
- Avasyaya** – (mentioned as “tushara” in Astanga Hridaya) means fog or mist, due to its samana sheetaguna it vitiates vata dosha.
- Rathri jagarana** - due to its rukshaguna it does prakopa of vata³⁶
- Uchairbashana** – speaking loudly will cause vata prakopa³⁷
- Vegadharana** – will lead to vata prakopa³⁸
- Ayasa** – any sort of exertion mental or physical leads to vatavridhi³⁹
- Chardi nigraha** - leads to vataprakopa⁴⁰
- Kshavathunigraha**–suppression of urge for sneezing leads to Ardhavabhedaka³⁷

2. PITTA PRAKOPA VIHARAJA NIDANA

- Utsweda** – excessive sweating³⁷
- Atapasevana** – excessive exposure to sunlight increases pitta and rakta³⁸
- Purovatasevana** – Exposure to wind from east causes pitta and rakta vriddhi³⁹
- Diwaswapna** – sleeping in day time leads to kapha and pitta vriddhi⁴⁰



3. KAPHA PRAKOPA VIHARAJA NIDANAM

- Atiswapna** – excessive sleep causes kapha vridhi⁴¹
- Diwaswapna** – sleeping in day time leads to kapha vridhi⁴²

MANASIKA NIDANA

- Manasasantapa**
- Rodana**

AGANTUJA NIDANA

- Shiro Abhighata** – Any external injury to head leads to vata and rakta prakopa⁴³.

PURVA ROOPA

Lakshanas which emerge due to sthanasamshraya of doshas are known as purvaroopas and they are the indicators of bhavi vyadhi (disease which is yet to come). No poorvaroopas are explained for Ardhavabhedaka.

RUPA OF ARDHAVABHEDAKA

Rupa are the symptoms, which denote a disease that has now manifested. The knowledge of rupa is very essential for diagnosis, prognosis and for the proper management. The stage of the disease when symptoms are seen is termed as Vyakth avastha the diagnosis of the disease will be made on the basis of these symptoms.

PRATYATMALAKSANA IN ARDHAVABHEDAKA

Ardhavabhedaka is a condition where there will be Ardhamoordha ruja: ⁴⁴. This is the pratyatma lakshana of Ardhavabhedaka. Ardhavabhedaka is shoola pradhana shiroroga. Hence the shoola of Ardhavabhedaka can be explained under following headings

- Site of the pain
- Nature of the pain
- Frequency of pain
- Other associated symptoms

1. Site of the pain

The different sites where pain will be present are as follows –

- Ardhashira - Half of the head
- Manya- Either side of neck (nape of the neck)
- Bhru - Eyebrows.
- Shanka – half way between the eyebrow and ear⁴⁵ as per commentary by Arunadatta
- Akshi - Eyeball
- Lalata –Frontal area
- Karna- Ears
- Ghata- Above the shanka⁴⁶
- Kandhara -greeva
- Shankamoola- below the shankha

2. Nature of the pain

The quality of the pain in the sites mentioned above will be of the following nature:

- Sastraaraninibham- Pain as if being cut by a sharp instrument

- Arani nibham - Pain as if being struck by lightning
- Bhedavath -Breaking type of pain
- Todavath - Pricking type of pain
- Niskarshana- Plucking out type of pain

3. Frequency of pain

- Pakshath - once in fortnight
- Dashahath- once in ten days
- Masath- once in a month
- Akasmath - no specific time interval

SAMPRAPTI OF ARDHAVABHEDAKA

Samprapti plays an important role for the proper knowledge of a disease. Samprapti begins at the time of consumption of nidana till it manifests as a disease. It is important because treatment procedure is mainly targeted on Samprapti Vigatana.

SAMANYA SHIROROGA SAMPRAPTI:

Indulging in the nidanas mentioned for Shirorogas leads to vitiation of tridoshas, which further vitiates the rakta in the channels of Shiras and cause different types of Shirorogas as per the dominance of doshas and manifest the respective symptoms⁴⁷.

VISHISTA SAMPRAPTI FOR ARDHAVABHEDAKA:

The Nidana factors vitiate either vata alone or associated with kapha, invade the half portion of the head and causes ardhvabhedaka.⁴⁸

SAMPRAPTI GHATAKA

DOSHA – Tridoshaja⁴⁹ Vata Kaphaja⁵⁰ Vataja⁵¹ Vata Pittaja

DUSHYA - Rakta.

Rakta is the main dushya in Shiroroga, as “Shiro-Ruk” in included under “Shonitaja Roga⁵². Moreover, it has been clearly stated that the vitiated doshas after reaching Shiras, vitiates Rakta dhatu present there to produce Shiro Roga. Thus, Rakta can be considered as the main dushya in Ardhavabhedaka.

SROTAS – Raktavahasrotas.

In Ardhavabhedaka, the dushya is Rakta. Hence the srotas involved is siras (blood vessels) of head. On this basis, the involvement of Raktavahasrotas in Ardhavabhedaka can be inferred.

ADHISTHANA - Shiras (Head)

Shiras (head) and its appendages like Manya, Bhru, Shankha, Karna, Akshi, Lalata, Ghata and Hanu are considered as the adisthana in Ardhavabhedaka.

VYAVACHEDAKA NIDANAM

It is essential to rule out other possible diseases, which have similar manifestations. The main feature of Ardhavabhedaka i.e “Shirashula” is also seen in few other urdwajathru vikaras but there are other lakshanas which differentiate Ardhavabhedaka from those disorders. The diseases considered for vyavachedaka nidana are shown in table 3.



Table 3: Vyavachedakanidanas for Ardhavabhedaka

Sl.No.	Vyadhi	Lakshana
1	Vataja Shiroroga	Animitta ruja, toda in shiras, shoola in bhru, shankha, akshi, lalata and ghatapradesha, occurs in ratri, prakasha santrasa. It occurs bilaterally.
2	Kshayaja Shiroroga	Ugra ruja in bhru due to vasa and bala kshata
3	Suryavatha	Akshi bhru ruk which starts manda from suryodayam and reaches its peak in the afternoon and gradually subsides.
4	Anyathovata	Referred pain in akshi, shankha, manya
5	Ananthavata	Teevra ruja in akshi, bhru, shankha and ganda, parswa kampa which will be referred from manya or greeva parswa
6	Shankhaka	Shankhadesa teevra ruk and daha
7	Adhimantha	Aranimanthanavat shoola in netra, toda, bheda, avilatha of netra, vyatha in half portion of head
8	Vata viparyaya	Vedana sometimes in the Pakshma, sometimes in eye or sometimes in bhru

UPADRAVA

Just the knowledge of Nidana and Lakshana are not enough. Upadravas should also be kept in mind while treating. In Ardhavabhedaka, two upadravas have been listed which can occur independently or together^{54,55}

1. Nayana vinasha
2. Shrotra vinasha

SADHYA-ASADHYATA OF ARDHAVABHEDAKA

There is no clear mentioning of sadhyaasadyata of Ardhavabhedaka either in Bhrihatrayee or in Laghutrayee. It is considered as **Sudustara**⁵⁶, meaning ‘Atidukhena taraneeyaha’. Hence it can be considered as **Kashtasadya**. Taking into account the two upadravas then the disease is considered as krichrasadhyata or asadhyata.

CHIKITSA

The management of a disease is based mainly on the principle of Samprapti vighatana. Specific line of treatment for Ardhavabhedaka has been mentioned in our classics. Ardhavabhedaka if not treated leads to complications. Hence an early intervention is necessary. The treatment principle mainly lies on shamana, shodhana and nidanaparivarjana which cause samprapti vighatana. Commonly in all type of headache the following preventive measures should be taken.

NidanaParivarjana

According to the treatment point of view, the causative factors producing headache should be avoided. Commonly rest, stress free lifestyle, avoiding suppression of natural urges and controlling the mind are very helpful.

Also, other Aharaja and Viharaja hetus should be avoided.

Samshodhana Chikitsa

Shirovirechana or Nasyakarma is advised as the important treatment modality in Shirorogas⁵⁷. Thus, use of Nasya with medicaments which are indicated for such conditions is to be put into practice in shirashoola.

Samshamana Chikitsa Along with Nidanaparivarjana, the vitiated Dosas should be brought to their normal state with the help of drugs, according to predominance of the manifesting Dosh.

Vishista Chikitsa for Ardhavabhedaka

The treatment principles mentioned for Ardhavabhedaka can be grouped under the following headings:

ACCORDING TO ACHARYA SUSHRUTA⁵⁸

Suryavatha Chikitsa

- Nasya Karma
- Diet of Jangala mamsa and preparations of Ksheera, anna, ghrita
- Avapedana nasya with, Sirisamulaka and phala, Vamsamula and karpooora, Vacha and Magadhika (Pippali), Yastimadhu and Madhu, Manahshila alone or with chandana and madhu. At the end of avapedana, nasya to be done with murva and ghrita
- Lepa with sariva, utpala, kusta, madhukam, amlapeshita mixed with ghrita and thaila

ACCORDING TO ACHARYA CHARAKA⁵⁹

- Chatur-sneha (ghrita+taila+vasa+majja) in uttama matra
- Shirovirechana
- Kaya virechana
- Nadi sweda
- Niruha anuvasana basti
- Upanaha
- Shirobasti
- Dahana (Agnikarma)

ACCORDING TO ASTANGA HRIDAYA⁶⁰

- Nasya Karma with Sirisabeeja, apamarga, bidalavana, Saliparni swarasa
- Lepa with prapunnata bija kalka and amra
- Vatajashirashoola line of chikitsa

ACCORDING TO ASTANGA SANGRAHA⁶¹

- Nasya with nirgundi patra swarasa, Saindhava, ghrita
- Nasya with sirisamula and phala



- Lepa with sariva, utpala, kusta, vacha, madhuka, pippali mixed with taila

- Sarivadi lepa
- Madana + vasa
- Saindava + tila taila (ushna lepa)
- Krishna tila + jatamamsi churna + saindava + madhu

ACCORDING TO YOGARATNAKARA⁶²

- Snehapana with Ghrita
- Sthanika Snehana, Swedanam
- Kaya Virechana, Dhoopana
- Snighda ushna bhojana
- Internally ksheera and ghrita everyday
- Nasya Karma with
 - Vidanga and KrishnaTila
 - Ksheera and ghrita
 - Girikarnikadhi phala and moola + jala
 - Girikarnika moola for karnabandhana
 - Sithophala navana nasya
 - Bhringaraja+ goat milk in equal quantity
 - Sirisamoolaka and phala for avapeedana nasya
- Dhupana with Jangalamamsa
- Lepa with Sariva, Shunti, Krishna tila and vidanga
- Marichadhi yoga

ACCORDING TO BHAI SAJYA RATNAVALI⁶³

- Virechana with Yavakshara + ghrutha + virechaka aushadhi
- Nasya Karma with:
 - Vacha + Magadhi (Avapeedana)
 - Dugdhotha Ghrutha
 - Ghrutha of kruthamala pallava + apamarga beeja churna
 - Dashamula + ghrutha + saindava
 - Shireeshabeeja and mula avapeeda nasya
 - Mahamayura ghruta
 - Shigru maricha teekshna nasya
 - Brungaraja swarasa avapeedana
 - Sharkara jala
 - Sharkaramishrita narikelajala
 - Sheeta jala
 - Vidanga + Krishna tila
 - Burnt mud + Maricha
 - Upanaha with Jangalamamsa + vatahara dravya
 - Lepas with following drugs

ACCORDING TO BHELA SAMHITA⁶⁴

- Nasya karma
- Karpasa bija, masha, godhuma, sarsapa, yava with ksheera for Nasya.
- Dwipanchamoola with ksheera for Nasya.
- Nadi sweda
- Ushna Upanaha with ksheera siddha aushadhi
- Uttama matra of Ghrita, taila or vasa should be given based on yukti

ACCORDING TO HARITA SAMHITA⁶⁵

- Kumkumadi ghrita nasya – Kumkuma, Yasti, Kusta, Sharkara, Navaneeta

ACCORDING TO BHAVAPRAKASHA⁶⁶

- Snehana, swedana, kaya virechana, dhoopana
- Snighda usna bhojana
- Internally ksheera+ sarkara, narikelajala
- Sheetajala paneeya
- Ghrita internally
- Nasya karma

ACCORDING TO SARANGADHARA SAMHITA⁶⁷

- Kumkuma Nasya

ACCORDING TO CHAKRADATTA⁶⁸

- Kumkuma lepa
- Nasya with dashamoola kwatha

PATHYA-APATHYA

No specific pathya and apathya have been mentioned for Ardhavabhedaka. As it is one among the shirorogas, the pathya-apathya mentioned for shiroroga in general can be considered. Pathya-apathya for shiroroga is mentioned only in Bhaisajya Rathnavali – Shirorogadhikara⁶⁹. The pathya for headache is shown in table 4⁷⁰, and the apathya are shown in table 5⁷¹.

Table 4: Pathya in Ardhavabhedaka

Chikitsa Upakrama	Swedana (Heating), Nasya, Dhupana Virechana (Purgative), Lepa, Vamana (Vomiting), Langhana (Fasting), Shirobasti, Raktamokshana, cauterization on the frontal and supra orbital region, Upanaha.
Diet	Consuming old Ghrita, Shali, Shashtikshali, Yusha (soup) Milk, Dhanvamansa, Sanyab, Ghrutapura.
Vegetables	Patolam, Shigru, Vastuka, Karvellaka
Fruits	Mango, Amlaki, Dadima, Matulunga, Lemon, Grapes, Coconut
Liquid diet	Milk, Oil, Coconut water, Kanji, Takra (Churned curd).
Medicines	Pathya, Kushta, Bhringaraj, Kumari, Musta, Ushira, Karpura, Gandhasar



Table 5: Apathya in Ardhavabhedaka

Vegadharanam (Holding of the urges)	Sneezing, Yawning, Micturition, Sleep, Lacrimation, Stool excretion.
Unwholesome diet	Consuming cooked and uncooked food, impure water, curd, lassi, cold drinks, water of the rivers of Sahyadri, Vindhya, Kapha producing diet.
Apathya Vihara (Unwholesome recreation)	Teeth-brushing (Dantadhavanam), day sleeping

REFERENCES

- 1 Bhisagacharya PHS, editor, *Ashtanga Hrudaya of Vagbhata, Uttarasthana; Shirorogavijnaneeya; Chapter 23, Verse 8. Varanasi; Chaukhamba Prakashana, 2010; 859*
- 2 Aspi F Golwalla – *Medicine for students, Dr. A F Golwalla publications, Mumbai, 20th edition – 2003, Pp – 281 – 284.*
- 3 Madhavakara. Ch.60, Ver.11-12. Prof K.R. Srikantha Murthy (ed.). *madhava nidhana, 7th ed. Varansi: Chaukhamba Orientalia; 2007.p.218.*
- 4 Susruta. *Uttaratantra. Ch.25, Ver. 15-16. Prof PV Sharma (ed.). Sushruta Samhita, Reprint ed. Varanasi: Chaukhamba Orientalia; 2010. p.267*
- 5 Bhava Misra - *Bhavaprakash Edited with Vidyotini, Hindi Commentary, Choukhamba Sanskrit Sansthan, Varanasi, 7th edition - 2000 Part II, Pp – 608 – 614.*
- 6 Vos T, Flaxman AD, Naghavi M, et al. *Years lived with disability (YLDs) for 1160 sequelae of 289 diseases and injuries 1990– 2010: a systematic analysis for the Global Burden of Disease Study 2010. Lancet. 2012;280:2163–96.*
- 7 Kasper D, Fauci A, Hauser S, Longo D, Jameson J, Loscalzo J. *Harrison's principles of internal medicine. 17th ed. New York: The Mc Graw Hill Companies; 2008.p.96-8.*
- 8 Smitherman AT, *Clinician's Manual on Migraine, chapter 1, Springer International Publishing Switzerland; 2016.pg1-2*
- 9 Hershey AD. *Teens, migraine, suicide, and suicidal thoughts. Neurology 2009;72:e61-e62. DOI: https://doi.org/10.1212/01.wnl.0000346519.27392.ad*
- 10 Aspi F. Golwalla & Sharukh A. Golwalla, *Medicine for Students; Pub. by Eros Building Churchgate, Mumbai, 19th edi. 2000; chapter 6.*
- 11 Aspi F. Golwalla & Sharukh A. Golwalla, *Medicine for Students; Pub. by Eros Building Churchgate, Mumbai, 19th edi. 2000; chapter 6*
- 12 Stanley Davidson; *Davidson's Principles and Practice of Medicine, pub. by Churchill Livingstone, London; 19th edi. 2002, chapter 22.*
- 13 Siddhartha N. Shah, *API Text Book of Medicine, Mumbai, 8th edition reprint 2009, P-1103-1105*
- 14 Murthy KRS. *Illustrated Susruta Samhita. Varanasi: Chaukhamba Orientalia; 2012.p.135 20) Trikamji., VJ , Charaka Samhita with the Ayurveda Dipika Commentry, Varanasi: Chaukhamba Prakashan. pg:99*
- 15 Trikamji., VJ , *Charaka Samhita with the Ayurveda Dipika Commentry, Varanasi: Chaukhamba Prakashan.:716*
- 16 Kunte AM, Sastri KR, *Astanga Hridaya with the commentaries of Arunadatta and Hemadri, 9th edn., Varanasi: Chaukhamba Orientalia.:859*
- 17 Trikamji VJ, *Susruta Samhita with Nibhandha Sangraha Commentry, Varanasi: Chaukhamba Sanskrit Sansthan:355*
- 18 Pandey VJ, *Harita Samhita , Varanasi: Chaukhamba Publication : 424*
- 19 Sastri PP , *Sarangadhara Samhita , 2nd edn., Varanasi: Chaukhamba Orientalia:343*
- 20 Trikamji VJ , *Susruta Samhita with Nibhandha Sangraha Commentry, Varanasi: Chaukhamba Sanskrit Sansthan:655*
- 21 Misra BS (n.d.) *Bhavaprakasha with Vidyotini Commentary , 8th edn.,: Chaukhamba Sanskrit Publications, dwitheeya bhaga:606*
- 22 Sastri L., *Yogaratnakara, Varanasi : Chaukhamba Prakashan.:333*
- 23 Trikamji., VJ , *Charaka Samhita with the Ayurveda Dipika Commentry, Varanasi: Chaukhamba Prakashan.:144*
- 24 Trikamji VJ , *Susruta Samhita with Nibhandha Sangraha Commentry, Varanasi: Chaukhamba Sanskrit Sansthan:199*
- 25 Trikamji., VJ , *Charaka Samhita with the Ayurveda Dipika Commentry, Varanasi: Chaukhamba Prakashan.:144*
- 26 Trikamji., VJ , *Charaka Samhita with the Ayurveda Dipika Commentry, Varanasi: Chaukhamba Prakashan.:144*
- 27 Trikamji VJ , *Susruta Samhita with Nibhandha Sangraha Commentry, Varanasi: Chaukhamba Sanskrit Sansthan:103*
- 28 Trikamji VJ , *Susruta Samhita with Nibhandha Sangraha Commentry, Varanasi: Chaukhamba Sanskrit Sansthan:103*
- 29 Trikamji., VJ , *Charaka Samhita with the Ayurveda Dipika Commentry, Varanasi: Chaukhamba Prakashan.:144*
- 30 Trikamji VJ , *Susruta Samhita with Nibhandha Sangraha Commentry, Varanasi: Chaukhamba Sanskrit Sansthan:103*
- 31 Kunte AM, Sastri KR, *Astanga Hridaya with the commentaries of Arunadatta and Hemadri, 9th edn., Varanasi: Chaukhamba Orientalia.:148*
- 32 Trikamji VJ , *Susruta Samhita with Nibhandha Sangraha Commentry, Varanasi: Chaukhamba Sanskrit Sansthan:103Ibid;100*
- 33 Trikamji., VJ , *Charaka Samhita with the Ayurveda Dipika Commentry, Varanasi: Chaukhamba Prakashan.:42*
- 34 Trikamji VJ , *Susruta Samhita with Nibhandha Sangraha Commentry, Varanasi: Chaukhamba Sanskrit Sansthan:103*
- 35 *Ibid;103*
- 36 Trikamji., VJ , *Charaka Samhita with the Ayurveda Dipika Commentry, Varanasi: Chaukhamba Prakashan.:51*
- 37 *Ibid;49*
- 38 Trikamji VJ , *Susruta Samhita with Nibhandha Sangraha Commentry, Varanasi: Chaukhamba Sanskrit Sansthan:103*
- 39 Trikamji., VJ , *Charaka Samhita with the Ayurveda Dipika Commentry, Varanasi: Chaukhamba Prakashan.:42*
- 40 Trikamji., VJ , *Charaka Samhita with the Ayurveda Dipika Commentry, Varanasi: Chaukhamba Prakashan.:51*
- 41 Trikamji VJ , *Susruta Samhita with Nibhandha Sangraha Commentry, Varanasi: Chaukhamba Sanskrit Sansthan:490*
- 42 *Ibid;98*
- 43 Mitra J *Astanga Sangraha with Sasilekha Sanskrit Commentry , 2nd edn., Varanasi: Chaukhamba Sanskrit Series:92*



- 45 Trikamji VJ, *Susruta Samhita with Nibhandha Sangraha Commentry, Varanasi: Chaukhambha Sanskrit Sansthan:103*
- 46 *Ibid;93*
- 47 *Ibid;92*
- 48 Kunte AM, Sastri KR, *Astanga Hridaya with the commentaries of Arunadatta and Hemadri, 9th edn., Varanasi: Chaukhambha Orientalia.:859*
- 49 *Ibid;858*
- 50 Trikamji.,VJ , *Charaka Samhita with the Ayurveda Dipika Commentry, Varanasi: Chaukhambha Prakashan.:99*
- 51 *Ibid;721*
- 52 Trikamji VJ, *Susruta Samhita with Nibhandha Sangraha Commentry, Varanasi: Chaukhambha Sanskrit Sansthan:655*
- 53 Trikamji VJ, *Susruta Samhita with Nibhandha Sangraha Commentry, Varanasi: Chaukhambha Sanskrit Sansthan:100*
- 54 Kunte AM, Sastri KR, *Astanga Hridaya with the commentaries of Arunadatta and Hemadri, 9th edn., Varanasi: Chaukhambha Orientalia.:859*
- 55 Trikamji.,VJ , *Charaka Samhita with the Ayurveda Dipika Commentry, Varanasi:Chaukhambha Prakashan.:721*
- 56 Krishnamurthy KH, *Bhela Samhita, Varanasi: Chaukhambha Visvabharati:434*
- 57 Trikamji.,VJ , *Charaka Samhita with the Ayurveda Dipika Commentry, Varanasi: Chaukhambha Prakashan.:422*
- 58 Trikamji VJ, *Susruta Samhita with Nibhandha Sangraha Commentry, Varanasi: Chaukhambha Sanskrit Sansthan:655*
- 59 Trikamji.,VJ , *Charaka Samhita with the Ayurveda Dipika Commentry, Varanasi: Chaukhambha Prakashan.:721*
- 60 Kunte AM, Sastri KR, *Astanga Hridaya with the commentaries of Arunadatta and Hemadri, 9th edn., Varanasi: Chaukhambha Orientalia.:861*
- 61 Mitra J *Astanga Sangraha with Sasilekha Sanskrit Commentry , 2nd edn., Varanasi: Chaukhambha Sanskrit Series:766*
- 62 Sastri L., *Yogaratanakara, Varanasi : Chaukhambha Prakashan.:337-38*
- 63 Misra B (n.d.) *Bhaisajya Ratnavali , 1st edn., Varanasi: Chaukhambha Sanskrit Sansthan., Vol 3: 329-37*
- 64 Krishnamurthy KH, *Bhela Samhita, Varanasi: Chaukhambha Visvabharati:434*
- 65 Pandey VJ, *Harita Samhita , Varanasi: Chaukhambha Publication : 443*
- 66 Mishra BS , *Bhavaprakasha with Vidyotini Commentary , 8th edn., Varanasi: Chaukhambha Sanskrit Publications, vol 2:613*
- 67 Sastri PP , *Sarangadhara Samhita , 2nd edn., Varanasi: Chaukhambha Orientalia.:115*
- 68 Tripathi I, *Chakradatta, Varanasi: Chaukhambha Sanskrit Bhawan.: 374*
- 69 Misra B, *Bhaisajya Ratnavali , 1st edn., Varanasi: Chaukhambha Sanskrit Sansthan., Vol 3: 337*
- 70 Mishra B. *Bhaishajya Ratnavali of Shri Govinda Dasji. Varanasi: Chaukhambha*
- 71 *Mishra B. Bhaishajya Ratnavali of Shri Govinda Dasji. Varanasi: Chaukhambha*
- 72 *Sanskrit Sansthan;2009.p.338.*



RACISM: CURRENT TRENDS, SITUATION AND STRATEGY

Dr. Anil C. Bankar

Associate Professor, Dept. of Political Science, Vasant Rao Naik Govt. Institute of Arts and Social Sciences Nagpur

INTRODUCTION

Racism is the belief that certain groups are inherently superior or inferior to others which resulted discriminatory actions, attitudes and systemic oppression. It involves prejudice, stereotypes and exercise of power to oppress & marginalize the people. The significance of racism lies in its profound negative impact on people, communities and society as a whole. It leads to social injustice, inequality and discrimination. Racism leads to denial of opportunities, unequal access to resources such as education employment, health care and criminal justice. Racism reinforces social divisions hindering in the creation of inclusive and diverse societies. Racism is a complex social issue that permeates societies across the globe, and India is no exception. This essay aims to critically examine the phenomenon of racism in India, exploring its historical roots, manifestations in contemporary society, and the impact it has on marginalized communities. By taking a look in this issue, we get broader understanding of racism in India can be fostered, leading to meaningful social change and equality.

COMPONENTS OF RACISM

- 1..Caste system
2. British era
- 3.Regional and linguistic differences

The caste system in India has played a significant role in perpetuating the discrimination, inequality from many centuries. The British followed the policy of Divide and Rule sowing seeds to discrimination and social divisions and fostering animosity among the different groups.

India's regional and linguistic diversity, at times fuelled intergroup tensions and conflict. The differences in language, customs and traditions perpetuating notions of superiority or inferiority based on regional and linguistic differences. Colourism of bias on towards the lighter skin people over the darker ones is one type of racism that is prevalent in India. It is due to the caste system and colonial influence. The people with lighter skin are considered to have high social status and beauty. These are some factors (historical) that perpetuated racism in India. Though there is racism in India one must note that India has rich cultural

diversity and many groups and organizations are working hand to eradicate this problem to make this country peaceful with no such social divisions.

Racism not only perpetuates social injustice and inequality but also has far-reaching socio-economic ramifications. Racism affects access to quality education. Marginalized communities' inadequate resources, underfunded schools and biased disciplinary practices leading to lower educational achievement. Discrimination and stereotypes can result in marginalized students being disproportionately placed in lower-level classes, Racism significantly impacts employment opportunities and career advancement. Discrimination during hiring process, including biased screening prevents marginalized groups from accessing quality jobs Racism contributes to income disparities among racial and ethnic groups. Discrimination in hiring practices can result in lower wages for individuals Racism also contributes to health and unequal access to healthcare. Marginalized communities often face barriers to healthcare services, including limited access to quality facilities, insurance coverage

RACISM AND INDIA

Racism is a complex social issue that persists in various forms across the world, including India. Despite its diversity and rich immune and such cultural heritage, India is not immune of manifestations of racism. Caste based discrimination remains deeply entrenched form of racism in India. This includes education, employment and access public places they offer experience segregation violence and limited social mobility. Fair skin is often associated with beauty, success and higher social status leading to bias against individuals with darker complexions. This bias can be observed in various aspects of life. Economic disparities can also be seen as a manifestation of racism in India

Media is also the one which can create an opinion. can change the opinion of a particular person. Many people in India follow news channels very thoroughly and they are very influential. So, media will be an important aspect in creating any opinion. The following are some points. which discuss how media influences on perpetuating racism:



Media should not cover the news which is related to racism, if it covers that type of news, it should not encourage that type of events. Media should not make racism activities as a sensational news, by making the racism news a sensation, it indirectly encourages racism. Instead, media should educate people about racism and the steps to avoid that media should also cover news which discourages racism so that people will get educated about it.

Media is influencing racism directly indirectly all over the world not only in India. Moreover, the effect of media on racism is quite small. Anyways, we should not encourage racism.

GOVERNMENT POLICIES AND RACISM

The rules and acts made in constitution are in favour to the castes which one affected by racism.

Government had taken many steps to decrease racism in India by making strict rules and arts.

Government has given many beneficial schemes to them to help them to recover from poverty. This act protests the civil rights of people belonging to India irrespective of the caste, gender, religion etc.

RECOMMENDATION

- Many leaders Such as Dr BR Ambedkar and Dalit panthers fought against Caste System so we can see positive impact on society.
- Caste System is Intricately connected to Racism and noticed in society.
- Most often lower caste people are treated inferior and has diverse effect.
- Education act as powerful Catalyst against elimination of racism.

CONCLUSION

Racism is still prevalent in many parts of the Country Racism is noticed due to the historical roots Such as Caste System, Colonial rule, regional and linguistic differences and colourism.

Racism is noticed in educational Institutions, work places, government offices and many other places. Racism gives rise to lack of education facilities. employment, Poverty, medical facilities and many other. Government is providing legal framework, such as atrocities act and eliminate racism many other provisions to eliminate racism. By understanding the deep-rooted prejudices and the multifaceted impact on marginalized Communities, it is our responsibility to challenge and dismantle the structures that perpetuate racism. By fostering education, raising awareness, and fostering inclusive dialogues, we can work towards a Society that embraces diversity, celebrates equality, and Stands united against racism in forms

REFERENCES

1. Ahir, D.C: *The Legacy of Ambedkar*, Delhi, 1990.
2. Ambedkar, B.R. "Women and Counter Revolution"
3. Arya, Sudha, *Women Gender Equality and the State*, Deep and Deep Publications, New Delhi. 2000.
4. Banks, J.A., 1972, *The Sociology of Social Movements*, London, Macmillan
5. Baba Saheb Ambedkar: *Writings and Speeches, Vol.3*, Department of Education, Government of Maharashtra, 1987.
6. "Castes in India: Their Mechanism Genesis and Development", *Dr.Baba Saheb Ambedkar: Speeches and Writings, Vol.I Education Department, Government of Maharashtra*, 1979
7. Chirakarode, Paul: *Ambedkar: Boudhika Vikshobhathinte Agnijwala*, Dalit Books publication.
8. Desai Neera and M Krishnaraj, 1978, *Women and Society in India*, Delhi, Ajanta.



A STUDY ON EMPLOYEE ATTITUDE TOWARDS WELFARE MEASURES AND ITS INFLUENCE ON PERFORMANCE AT KSRTC, KOLAR

Ms. Chandini R¹, Mrs Vidya R²

¹1DA21BA008, 4thsem Student, Department of MBA, Dr. Ambedkar Institute of technology, Bangalore-560056, Karnataka, India

²Assistant Professor, Department of MBA, Dr. Ambedkar Institute of technology, Bangalore-560056, Karnataka, India

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ABSTRACT

Employee welfare measures refer to various initiatives, benefits, and programs that organizations implement to promote the well-being and overall quality of life of their employees. These measures are designed to go beyond basic compensation and address the broader needs and concerns of employees both inside and outside the workplace. This study investigates the employee attitudes towards employee welfare measures and their influence on performance within the KSRTC, Kolar district. Employee welfare measures play a pivotal role in enhancing employee satisfaction and motivation, consequently impacting individual organizational performance. The study employs a descriptive research design, incorporating surveys to gather data from the 80 employees of KSRTC.

The primary objectives of this initiative within KSRTC are to identify and prioritize influential welfare measures for its employees, evaluate the effectiveness of existing welfare measures and measure employee performance and culture of continuous improvement within the organization.

KEY WORDS: *Employee welfare measures, work satisfaction, organizational performance, employee productivity.*

INTRODUCTION

Employee welfare measures play a pivotal role in shaping the overall well-being and job satisfaction of employees within an organization. The significance of these measures is particularly noteworthy in the context of public sector enterprises like the Karnataka State Road Transport Corporation (KSRTC), which not only serve as a critical component of public infrastructure but also represent an essential employer in Karnataka. KSRTC, as one of the leading state-owned road transport corporations in India, is entrusted with the responsibility of providing efficient and reliable transportation services to the citizens of Karnataka. This inherently requires a dedicated and motivated workforce. Employee welfare measures are instrumental in fostering a conducive work environment, promoting job satisfaction, and enhancing overall employee morale. The location of Kolar, being one of the operational districts for KSRTC, serves as a miniature of the broader sector dynamics. Consequently, conducting a study that focuses on employee attitudes towards welfare measures and their impact on performance in this specific context holds substantial merit. Such research can provide valuable insights for KSRTC, Kolar, and similar organizations, guiding them in their pursuit of enhancing employee well-being and, in turn, organizational productivity.

The research will be guided by a structured methodology that includes surveys, interviews, and data analysis. Insights from this study are expected to serve as a foundation for recommendations and strategies aimed at optimizing employee

welfare measures, ultimately fostering a more motivated, satisfied, and high-performing workforce within KSRTC, Kolar. In the broader context, this research can contribute to the growing body of knowledge concerning the role of employee welfare in the public sector and its implications for organizational success.

NEED FOR THIS STUDY

The crucial equipment for every firm are their human resources. The administration is responsible for keeping an awareness the programs for employee wellness. Employee satisfaction with the welfare advantages provided to them will increase production. Employees are now a key factor in supporting a company expand there are approximately 100 workers in the KSRTC divisional office, the organization is responsible for ensuring their welfare. This is essential for KSRTC, Kolar, to optimize its workforce, improve employee satisfaction, and enhance organizational performance. It also aligns with broader goals of fulfilling legal obligations, improving public perception, and positioning KSRTC as a forward-thinking and responsible employer in the public sector.

OBJECTIVES FOR THIS STUDY

1. To know the level of awareness about the statutory welfare measures among the employees.
2. To determine the statutory welfare measures provided to employees at KSRTC.



- To examine the impact of social security welfare measures on the productivity of employees.

HYPOTHESES OF THE STUDY

Hypothesis-1:

H₀: There is no significant relationship between income and motivation of employees. ($r=0$)

H₁: There is a significant relationship between income and motivation of employees. ($r\neq 0$)

Hypothesis-2:

H₀: There is no significant relationship between non-statutory welfare measures and motivation of employees.

H₁: There is a significant relationship between non-statutory welfare measures and motivation of employees.

Hypothesis-3:

H₀: There is no significant impact of training programs on employee performance.

H₁: There is a significant impact of training programs on employee performance.

REVIEW OF LITERATURE

Balamurugan, Bharath Kumar, Felix Glossom, and Akash (2022), the main objective of this study is satisfactory with the welfare programs among employees of various industrial enterprises was surveyed. Chi-Square and percentage analysis were employed to evaluate the data. The findings show that to possess to improve employee satisfaction, workers give priority to welfare, health, and safety measures.

Mr. N. Suresh, Dr. T. Vara Lakshmi, and MS.A. Sowmya (2022), finding the workers' synergy is crucial because Managing is a skill for obtaining people to the work, to boosting output and profit margins. Only when employees are completely happy between a workers' the workplace and the employer at work are they capable of cooperating. The employee's well-being and his family serves as both an efficient form of advertising and a means of procuring the gratitude and devotion of the employee benefits, and facilities offered by an employer.

Ms. Nimisha Jariwala (2021), the objective is to knowing employee welfare are to enhance working-class life, promote the total development of the employee's personality, and other things. Housing options, free medical care, retirement benefits, children's and adults' welfare programs for the employee's families etc. Initial data is gathered using questionnaires as the data collection tool. In the study, 60 respondents were collected. The vast the bulk of employees motivated by feedback, it makes them more productivity. **Dr. Narayana N.'s study from 2021**, the main objective achieving social wellbeing address the issues that affect the weaker members of society, such as preventing homelessness and poverty. Economic wellbeing seeks to advance economic growth through equitable distribution and productivity. It includes a broad spectrum of concepts and denotes a wellbeing that includes happiness, fulfillment, resource preservation, and development.

Meenakshi Yadav (2020), the objective is to analyses of factors method divides a variety of worker welfare issues into eight categories. These welfare amenities can support healthy

labor relations and maintain organizational effectiveness over the long term. The commercial sector should keep providing workers with enough welfare programs.

Srinivasa Rao and Vidyanath (2019), the objective of this research is to create a test to determine the relationship between age and fulfilling statutory requirements welfare measures among the various sugar mills selected. Age and welfare measure fulfillment are strongly correlated, and KCP India's Andhra Pradesh Sugar Mills performs better on welfare measure fulfillment than many sugar mills, including Delta.

RESEARCH GAP

The existing work covers labor welfare procedures, followed at various industries and how it affects productivity with literature review. Employee attitudes toward initiatives to promote employee wellbeing and their performance impact. However, the present research makes an effort to encompass all staff groups. This study lies focusses on the lack of specific research on employee attitudes towards welfare measures and their influence on performance within the unique context of KSRTC in Kolar. Addressing this gap will contribute valuable insights for both academic understanding and potential improvements in employee welfare practices within the organization.

SCOPE OF THE STUDY

The scope of this study is to investigate the relationship between employee attitudes towards welfare measures and their impact on job performance at KSRTC, Kolar. It involves a detailed examination of the organization's welfare initiatives and their effects, with the goal of providing valuable insights for both the organization itself and the broader field of employee welfare research.

LIMITATIONS

- Due to the employment-related nature of the data collected, there is a possibility of response bias.
- Respondents may provide incomplete answers or face time constraints due to their busy schedules, potentially affecting the data quality.

TYPE OF THE RESEARCH

The research methodology employed in this study is a descriptive approach, which serves to establish the study's objectives, define the target population, select the data to be collected, and analyse the resulting data. The primary aim of this descriptive research is to provide a comprehensive description of employees' attitudes towards employee welfare measures within the context of KSRTC. This research design enables direct engagement with the staff at KSRTC's Kolar Depo and the study participants, facilitating an analysis of their perspectives on both monetary and non-monetary rewards, as well as employee welfare measures.

POPULATION AND SAMPLING UNIT

Population: The population for this study consists of approximately 100 employees who are currently employed in the Kolar division of KSRTC.



Sampling unit: The study focuses on a sample of approximately 80 employees drawn from various sections of KSRTC, including the Statistical section, administrative section, traffic section, law section, account section, labour section, civil section, and security section.

Sampling method

In this study, a simple random sampling method has been employed to select participants for data collection. This method ensures that each employee within the specified sections at KSRTC, such as the Statistical, administrative, traffic, law, account, labour, civil, and security sections, has an equal chance of being included in the study. To conduct the data collection, questionnaires were distributed randomly among the selected employees. This approach enhances the representativeness of the sample, minimizes bias, and allows for the generalization of findings to the broader employee population at KSRTC Kolar division. Additionally, it ensures that the collected data accurately reflects the diverse

perspectives and attitudes of employees across different sections within the organization.

Sources of data collection

- For this study, primary data has been gathered from employees through the use of questionnaires. Secondary data for this study has been gathered from pre-existing records, documents, websites and journals.

Statistical tools and techniques

For data collection to be understood and communicated clearly, graphs and chart representations are essential. They provide perceptions into the information's patterns, trends, and relationships. Pie charts have been used. For validating the hypotheses tools like ANOVA (Analysis of Variance) is used to assess whether two things differ significantly groups while highlighting substantial variance changes and Chi-square technique have been used.

DATA ANALYSIS AND INTERPRETATION

1. Correlation to analyse relationship between the income and motivation of the employees.

		MONTHLY INCOME	HOW COMPANY WELFARE MEASURES MOTIVATED YOU FOR HIGHER PRODUCTIVITY
Spearman's rho	MONTHLY INCOME	Correlation Coefficient	1.000
		Sig. (2-tailed)	.292**
		N	.009
			80
HOW COMPANY WELFARE MEASURES MOTIVATED YOU FOR HIGHER PRODUCTIVITY		Correlation Coefficient	.292**
		Sig. (2-tailed)	1.000
		N	.009
			80

Inference

The correlation factor between monthly income and motivation of the employees is 0.292. Hence null hypothesis

is rejected and it can be concluded that there is no significant relationship between income and motivation of employees.

2. ANOVA for finding the difference between non-statutory welfare measures and motivation of employee in KSRTC.

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	25.674	4	6.418	4.549	.002
Within Groups	105.814	75	1.411		
Total	131.488	79			

Inference

Since the p value (0.002) is lesser than 0.05 (level of significance), the null hypothesis is rejected and it can be concluded that there is a significant relationship between non-

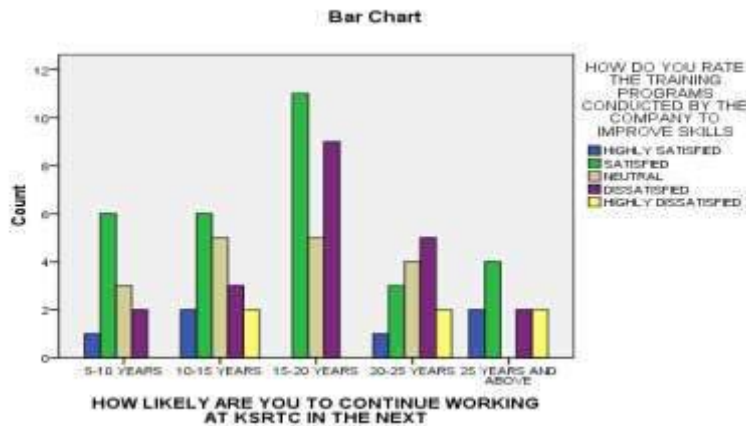
statutory welfare measures and motivation of the employees at KSRTC.



3. Chi-square test to find out the significant relationship between training programs and continuous of work at KSRTC.

	Value	d.f	Asymp. Sig. (2-sided)
Pearson Chi-Square	17.436 ^a	16	.358
Likelihood Ratio	22.876	16	.117
Linear-by-Linear Association	1.353	1	.245
N of Valid Cases	80		

a. 20 cells (80.0%) have expected count less than 5. The minimum expected count is .75.



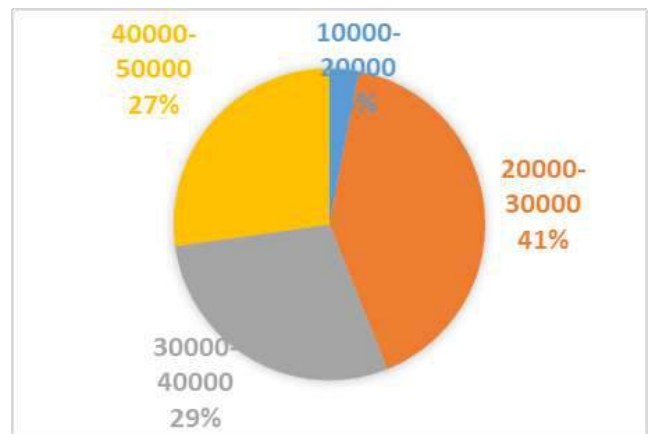
Inference

A chi-square value of 17.436 indicates that there is association between training programs and continuation of work at

KSRTC. The finding suggests that the variables are highly dependent on each other, and the data perfectly fits the expected distribution.

4. Monthly income of employees.

Monthly income	No. of respondents	Percentage
10000-20000	2	2.5%
20000-30000	27	33.8%
30000-40000	19	23.8%
40000-50000	18	22.5%
50000 & above	14	17.5%
Total	80	100%



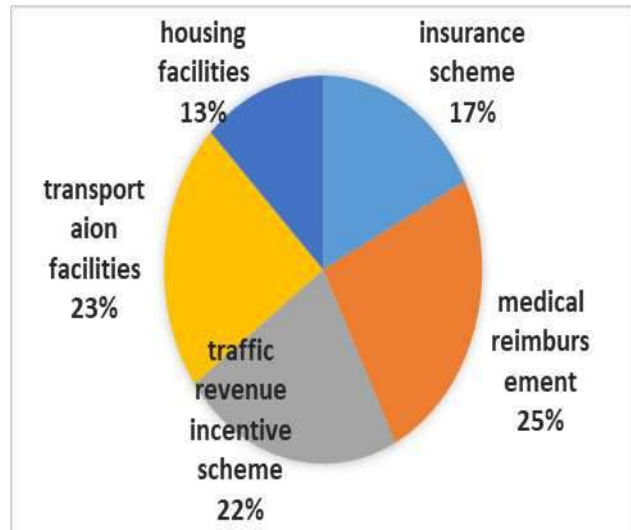
Inference

A vast majority of responses monthly income in the range Rs 20000-30000 p.m. It reflects the diversity of income among the

surveyed group, with the majority falling in the middle income ranges, and a notable portion earning higher incomes.

5. The various non-statutory welfare measures provided by the company.

Non-statutory welfare measures	No. of respondents	Percentage
Insurance scheme	14	17.5%
Medical reimbursement	20	25%
Traffic revenue incentive scheme	18	22.5%
Transportation facilities	18	22.5%
Housing facilities	10	12.5%
Total	80	100%



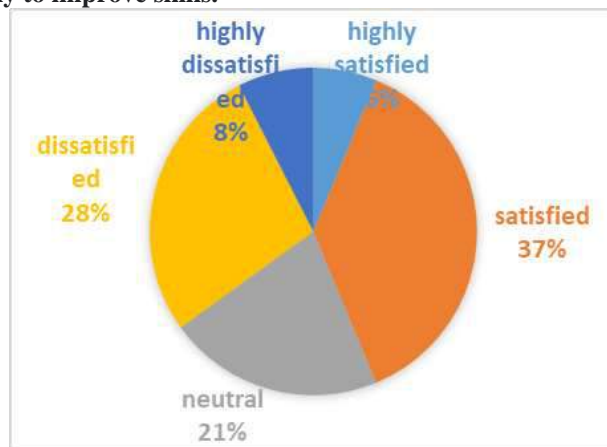
Inference

Majority of respondents prioritize medical reimbursement amongst the non- statutory welfare measures since it ensures

security to them and their families and medical reimbursement is essential to avoid the unexpected and accidental losses.

6. Training programs conducted by the company to improve skills.

Training programs	No. of respondents	Percentage
Highly satisfied	5	6.3%
Satisfied	30	37.5%
Neutral	17	21.3%
Dissatisfied	22	27.5%
Highly dissatisfied	6	7.5%
Total	80	100%



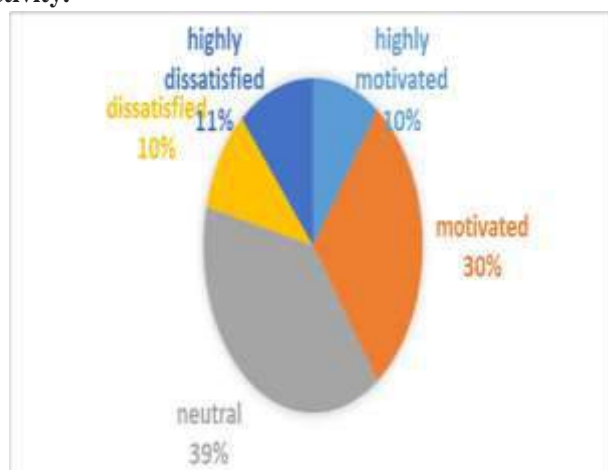
Inference

The training programs conducted by the company is rated satisfactory by most of the employees. Because the employees

are utilizing the training programs provided by the company to improve the skill set of the employees

7. Welfare measures motivate you for higher productivity.

Level of motivation	No. of respondents	Percentage
Highly motivated	8	10%
Motivated	24	30%
Neutral	31	38.8%
Doesn't motivated	8	10%
Not at all motivated	9	11.3%
Total	80	100%





Inference

Majority of the employees were neutral about disclosing their opinion regarding the level of motivation regarding welfare measures at KSRTC. While 30% of the employees were motivated about the welfare measures adopted at KSRTC.

FINDINGS

- ❖ The analysis revealed a positive correlation (Spearman's rho) of 0.292 between monthly income and the motivation of employees due to company welfare measures for higher productivity. With a p-value of 0.009, this correlation was found to be statistically significant at the 0.05 level (2-tailed), indicating that there is a significant relationship between income and employee motivation.
- ❖ An ANOVA test was conducted to examine the difference between non-statutory welfare measures and employee motivation in KSRTC. The results showed a significant difference, with a p-value of 0.002 (lower than the level of significance, 0.05). Therefore, the alternative hypothesis was accepted, suggesting a significant relationship between non-statutory welfare measures and employee motivation.
- ❖ The Chi-square test was utilized to explore the significant relationship between training programs and the continuity of work at KSRTC. The results indicated that training programs have a substantial impact on the performance and continuity of work at KSRTC, with the null hypothesis being rejected.
- ❖ Majority of respondents (37.5%) were "Satisfied" with the training programs and less percentage is "Highly Dissatisfied" (7.5%) with the training programs conducted by the company to improve skills.
- ❖ 25% of the respondents stated that they prioritize the medical reimbursement amongst the various non-statutory welfare measures offered by the company.
- ❖ 38.8% of respondents conveyed that the welfare measures will not motivate them for higher productivity.

SUGGESTIONS

- The organization must acknowledge the overall satisfaction towards social securities and facilities for recreation offered by the business. While some survey participants might not find welfare measures motivating for productivity, it's important to recognize individual differences.
- Maternity/paternity benefits should be communicated effectively to all employees, as they are crucial for employee well-being and work-life balance.
- With a significant portion of employees having worked for over 15-20 years, the business should prioritize strategies to keep long-term employees engaged, such as recognition programs, professional development, and opportunities for advancement.
- The organization can acknowledge the substantial portion of respondents with significant work experience and also implement mentorship or leadership programs to leverage their expertise and provide growth pathways. The company

could implement workshops or training to further improve interpersonal communication and collaboration.

- The organization must acknowledge the overall satisfaction towards social securities and facilities for recreation offered by the business. While some survey participants might not find welfare measures motivating for productivity, it's important to recognize individual differences.

CONCLUSION

The importance of employee welfare measures in shaping employee attitudes and, consequently, their performance at KSRTC, Kolar. It provides evidence that a holistic approach to employee well-being, including fair compensation, non-statutory benefits, and effective training programs, can lead to a more motivated and productive workforce. As such, it is recommended that KSRTC, Kolar, continues to invest in and enhance its welfare initiatives to further improve employee attitudes and organizational performance.

REFERENCES

1. Mr .N. Suresh, DR, T, Vara Lakshmi and MS. A. Sowmya (2022), "A study on employee welfare measures at Hyundai Pvt Ltd, Journal of Engineering Science, pg.no 691. Volume 13, issue 8.
2. MS Nimisha Jariwala (2021), "A study on employee welfare measures", Journal Emerging Technologies and Innovative Research, pg.no F665. Vol. 8, issue 5.
3. DR. Narayana. N (2021), "A study on employee welfare facilities and its impact on employee satisfaction at Jockey Industry with Special Refence to Mysore city, International Journal of Creative Research thoughts, pg. no i80. Vol. 9, issue 5.
4. Naveen, and Madhavi, k., (2017), "An impact of welfare measures on level of satisfaction of employees", International Journal for Research in applied science & engineering technology, vol.5, issue 8.
5. Ramya, T. J, Bhavani, Shree Arepalli, Lakshmi, P (2016), "A study on employee welfare facilities and its impact on employee satisfaction at hotel industry with special reference to Mysore district", International Journal of Engineering Science and Computing, vol.6, issue 12.



A STUDY ON RISK AND RETURN ANALYSIS OF DEBT MUTUAL FUNDS WITH RESPECT TO ICICI PRUDENTIAL MUTUAL FUNDS

Honnesh¹, Dr. Shailaja M L²

¹1DA21BA025, Department of MBA, Dr. Ambedkar Institute of Technology, Bengaluru - 560056
²Associat Professor, Department of MBA, Dr. Ambedkar Institute of Technology, Bengaluru - 560056

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ABSTARCT

ICICI Prudential Debt Mutual Funds offer a range of fixed income investment options designed to provide stability and income potential to investors. This study aims to evaluate the risk and return characteristics of selected debt mutual funds offered by ICICI Prudential Mutual Funds. It seeks to provide a comprehensive assessment of these funds by employing well-recognized evaluation tools, including Treynor's Ratio, Standard Deviation, and Mean Return. The research findings are of significant importance to prospective investors and stakeholders in the financial industry, shedding light on the critical interplay between risk and return in the context of debt mutual funds from ICICI Prudential Mutual Funds.

KEYWORDS: Risk and return Analysis, Debt Mutual funds, risk-adjusted measures, Treynor Ratio, Standard Deviation and Mean Return.

INTRODUCTION

ICICI Prudential Debt Mutual Funds have gained prominence among investors due to their focus on fixed income securities. These funds offer a broad spectrum of investment options, ranging from government bonds and corporate debt to money market instruments. By diversifying across these fixed income securities, ICICI Prudential Debt Mutual Funds aim to provide investors with a balanced and steady income stream while preserving their capital.

Investors in ICICI Prudential Debt Mutual Funds benefit from the expertise of professional fund managers who meticulously analyze market conditions, interest rate movements, and credit risk factors to make informed investment decisions. Additionally, investors can choose from various debt fund categories, such as liquid funds, ultra-short-term funds, and income funds, each catering to different risk profiles and investment horizons. Whether an investor seeks liquidity, short-term gains, or long-term wealth accumulation, ICICI Prudential Debt Mutual Funds offer a versatile range of options to align with their financial objectives. Evaluating historical performance, understanding expense ratios, and staying informed about economic trends are vital steps for potential investors in making prudent choices within this investment avenue.

NEED FOR THE STUDY

Understanding the performance of ICICI Prudential debt mutual funds is essential for investors and fund managers alike. Through a comprehensive analysis of these funds, managers can discern effective strategies and best practices, enabling informed decisions regarding asset allocation, security

selection, and portfolio management. This information contributes to enhanced fund management practices, improved risk management, and greater investor satisfaction. This study focuses on performance evaluation within the context of ICICI Prudential debt mutual funds, exploring historical returns, risk-adjusted metrics, fund management techniques, asset allocation strategies, and the impact of market dynamics. The goal is to empower investors with the insights needed to make informed investment decisions and deepen their understanding of how ICICI Prudential debt mutual funds function within the investment landscape.

STATEMENT OF THE PROBLEM

Investors choose to invest into mutual funds for the benefits of variety and expert management. Mutual funds offer the ability to distribute risk over a portfolio of securities while also gaining access to the knowledge of fund managers, making them an appealing option for long-term investing goals.

The kind of the research on debt mutual funds with related to ICICI bank entails analyzing the performance, risk profile, and investment strategies of ICICI bank's debt fund offerings. The study could also examining factors such as asset under management, expenses ratio, historical returns, credit quality of underlying securities, and overall market outlook for debt instruments.

Probable outcomes are it provides insight into the historical achievement of the funds, allowing investors to assess their potential returns and risk levels. The study could also identify any patterns or developments in the fund's investment strategies and highlight the credit excellence of the underlying securities.



OBJECTIVES OF THE STUDY

- For explore the financial efficiency of the Debt mutual funds.
- To determine the highest return earning Debt mutual funds offered by ICICI Prudential Mutual Funds.

HYPOTHESES

Ho - There would be no significant connection between the Treynor ratios with Mean return of debt mutual fund.

H1 – There would be a significant connection between the Treynor ratios with Mean return of debt mutual fund.

REVIEW OF LITERATURE

Dr. M. Geetha (2021), have investigated the Performance assessment of Selected/specified Mutual funds with respect to UTI & ICICI This research helps the investigator understand the many sorts of mutual funds, the nature of a market, and the investment fund/mutual fund that has performed the best among a group of investment fund/mutual funds. This research is incredibly pertinent in the financial sector of today climate and will act as the basis for future assessments of the performance of mutual funds. **Shivam Tripathi (2020)**, done Performance evaluation of selected equity mutual funds in India, This study uses a range of financial indicators, such as the standard deviation, beta, treynor, sharpe, and jensen, to examine the risk and return of several mutual funds and quantify the link between volatility and return. Understanding the relative success of equity, debt, and hybrid mutual fund schemes is also useful. Fund and index return correlation and information ratio. **Sharma Komal .B (2021)**, “A Comparative research on Performance assessment of Selected Debt, Equity and Hybrid Mutual Fund/investment fund Schemes in India. The primary goal of this article is to investigate the Risk & return components of specified mutual fund/investment fund schemes, and moreover to assessment/evaluate the performance of various debt, equity, and hybrid funds. Sharpe, Jensen, and Treynor ratios Risk-adjusted performance indicators are used as statistical tools in this investigation. This study concludes that the statistical instruments utilized are critical for the performance evaluator to catch on and realize the funds’ the Performance.

Prof. V. Vanaja and Dr. R. Karrupasamy (2013) conducted research on performance of certain balanced mutual fund schemes in the private sector in India. The study's objective is to evaluate the achievement of particular balanced private sector programs depending on return and comparison to their benchmarks, additionally to evaluate the performance of various kinds of investments that employ risk-adjusted metrics proposed by Treynor, Sharpe and Jensen.

Prof. Sumanth L. Wachasundar (2018) study analyzed Liquid Debt Mutual fund schemes in India, exploring the relationship between volatility and return. The research used metrics like standard deviation, beta, Treynor Ratio, Sharpe Ratio, and Jensen's Alpha to assess risk and return. It also examined relative performance across different mutual fund categories and evaluated correlations and information ratios between fund and index returns.

This research aims to fill a gap in existing literature by focusing on debt mutual funds, providing valuable insights for investors

considering investments in ICICI Mutual Fund and investment trusts in light of the ever-evolving financial markets.

SCOPE OF THE STUDY

This research aims to investigate ICICI Prudential debt mutual funds from diverse stakeholder perspectives, emphasizing features, performance, and investment strategies. It involves various groups to uncover insights and constraints related to these funds, benefiting investors, financial advisors, researchers, academicians, regulators, and policymakers alike. The primary focus of this study centers on ICICI's debt mutual funds, evaluating their performance over distinct timeframes, including 6 months, 1 year, and 3 years.

LIMITATIONS OF THE STUDY

- Data limitations can affect the accuracy of performance evaluation due to incomplete or unavailable historical data.
- The choice of an appropriate benchmark is crucial but challenging as it can significantly impact the assessment of relative fund performance.
- The time horizon considered for the study can influence findings, with short-term results potentially differing from long-term performance trends.

RESEARCH METHODOLOGY

The study falls under the category of descriptive research, a method used to describe observable characteristics of the subject under investigation. It is quantitative in nature, incorporating numerical data and statistics to facilitate conclusions through statistical tools and techniques.

In this sampling methodology, the focus is on Debt mutual funds, specifically those offered by ICICI. From the available options, the top 5 performing debt mutual funds have been selected. These funds' performance is observed over a span of 5 years.

Convenient sampling is employed to select a sample of ICICI debt mutual funds. This method involves the researcher's discretion in handpicking funds from the ICICI debt mutual funds population for inclusion in the study.

From the convenient sampling method, 5 schemes of ICICI debt mutual funds are chosen for a duration of 6 months, 1 year, and 3 years to evaluate their effectiveness for short-term and long-term investment durations. Techniques used for the present study are Treynor's Ratio, Standard Deviation and Mean Return.

SOURCES OF DATA COLLECTION

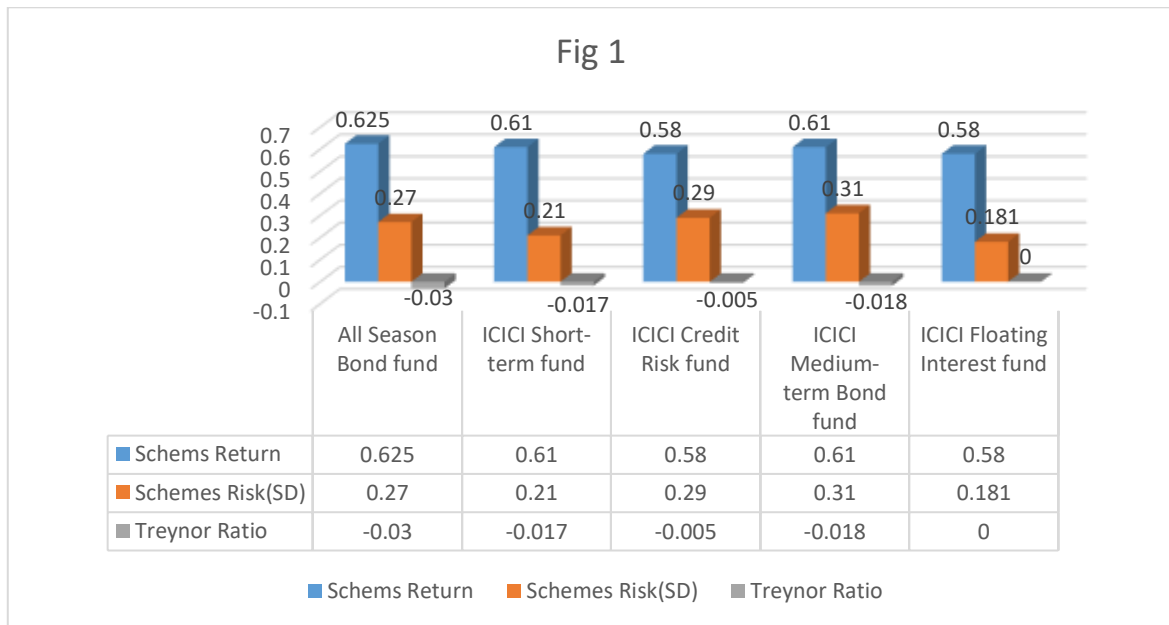
The study is purely based on secondary data, Details was gathered from already completed projects, studies, theses, and authorized websites. The historical NAV data were acquired from the ICICI Debt Mutual Fund Company's factsheets, along with the websites of www.mutualfundindia.com, www.amfiindia.com, etmoney.com, and Economics Time



FINDINGS AND CONCLUSION

1. Table – Table showing the Top ICICI Debt mutual fund schemes return, standard deviation and Treynor ratio for the period of 6 months (JAN-JUNE 2023)

Schemes	Schemes Return	Standard Deviation	Treynor Ratio
All Season Bond fund	0.625	0.27	-0.03
ICICI Short-term fund	0.61	0.21	-0.017
ICICI Credit Risk fund	0.58	0.29	-0.005
ICICI Medium-term Bond fund	0.61	0.31	-0.018
ICICI Floating Interest fund	0.58	0.181	0



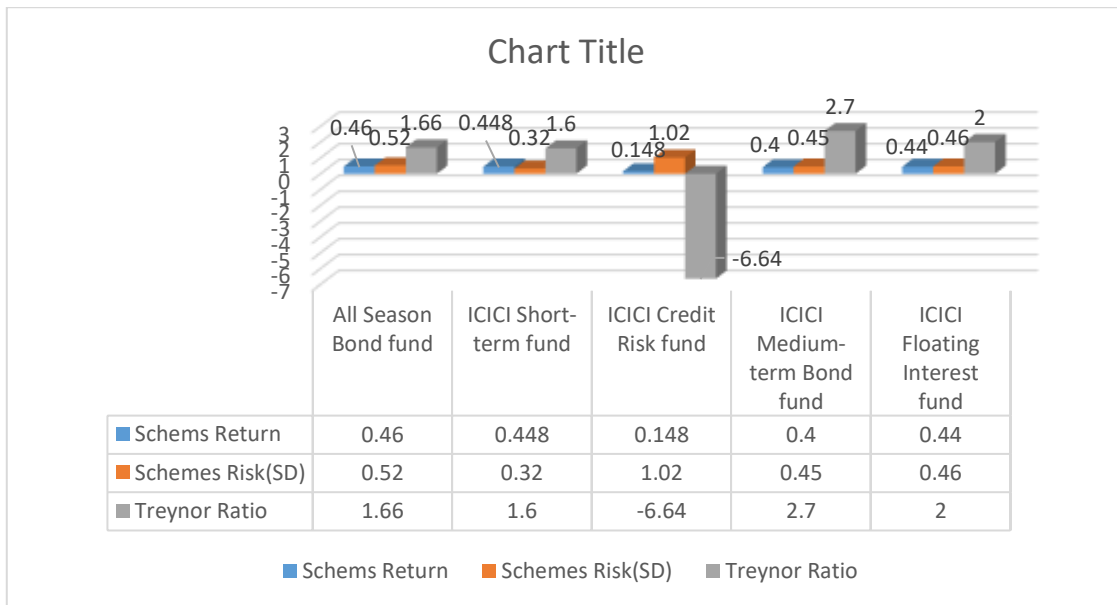
Interpretation

The "All Season Bond fund" offers the highest return but also carries the highest risk. Conversely, the "ICICI Floating Interest

fund" presents the lowest risk, though with a more modest return, making it the least risky option among the schemes

2. Table – Table showing the Top ICICI Debt mutual fund schemes return, standard deviation and Treynor ratio for 1 Year (2022)

Schemes	Schemes Return	Schemes Risk(SD)	Treynor Ratio
All Season Bond fund	0.46	0.52	1.66
ICICI Short-term fund	0.448	0.32	1.6
ICICI Credit Risk fund	0.148	1.02	-6.64
ICICI Medium-term Bond fund	0.4	0.45	2.7
ICICI Floating Interest fund	0.44	0.46	2



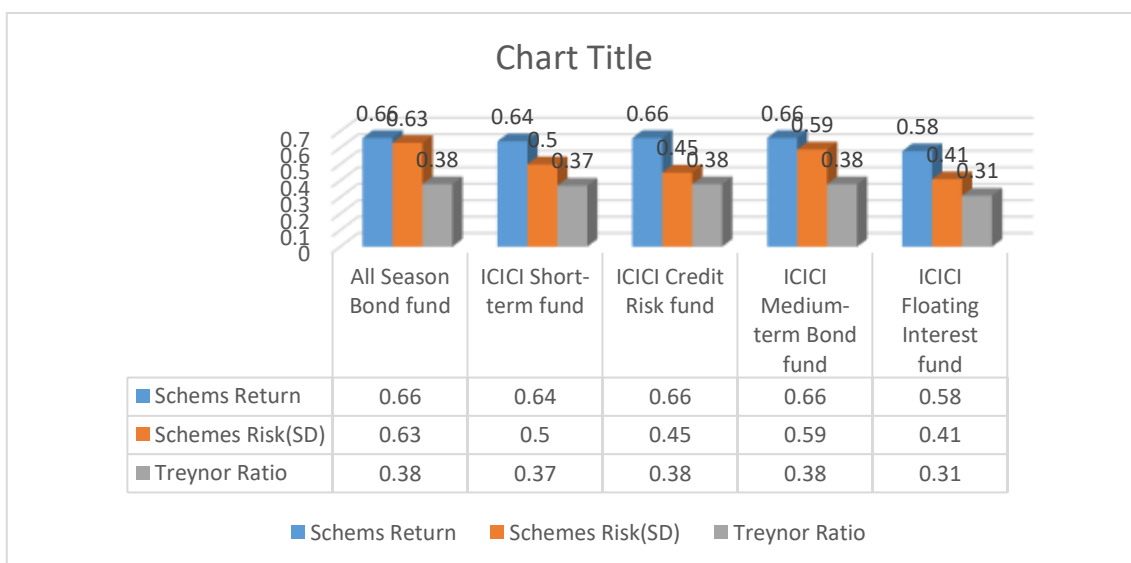
Interpretation

The "ICICI Medium-term Bond fund" performs the best with a solid return, moderate risk, and a strong Treynor Ratio.

Conversely, the "ICICI Credit Risk fund" ranks the least favorably due to its low return, high risk, and negative Treynor Ratio, indicating poor risk-adjusted performance.

3. Table – Table showing the Top ICICI Debt mutual fund schemes return, standard deviation and Treynor ratio for 3 Years (2019-2021)

Schemes	Schemes Return	Schemes Risk(SD)	Treynor Ratio
All Season Bond fund	0.66	0.63	0.38
ICICI Short-term fund	0.64	0.5	0.37
ICICI Credit Risk fund	0.66	0.45	0.38
ICICI Medium-term Bond fund	0.66	0.59	0.38
ICICI Floating Interest fund	0.58	0.41	0.31



Interpretation

The "ICICI Floating Interest fund" ranks the least favorably with a moderate return, moderate risk, and a lower Treynor Ratio. The "All Season Bond fund," "ICICI Short-term fund," "ICICI Credit Risk fund," and "ICICI Medium-term Bond fund" all perform similarly, offering higher returns with

comparable risk and Treynor Ratios, making them the better choices for potential investments.



HYPOTHESES TESTING

Ho - There would be no significant connection between the Treynor ratios with Mean return of debt mutual fund.

H1 – There would be a significant connection between the Treynor ratios with Mean return of debt mutual fund.

Schemes	6 Months		1 Year		3 Years	
	Mean Return(X)	Treynor Ratio(Y)	Mean Return(X)	Treynor Ratio(Y)	Mean Return(X)	Treynor Ratio(Y)
All Season Bond fund	0.625	-0.03	0.46	1.66	0.66	0.38
ICICI Short-term fund	0.61	-0.017	0.448	1.6	0.64	0.37
ICICI Credit Risk fund	0.58	-0.005	0.148	-6.64	0.66	0.38
ICICI Medium-term Bond fund	0.61	-0.018	0.4	2.7	0.66	0.38
ICICI Floating Interest fund	0.58	0	0.44	2	0.58	0.31
Correlation of XY	0		0.19		4.4	

Interpretation

In the 6-month period, the positive number indicates that calculating either the Mean Return or the Treynor Ratio would be no similar results, leading to the acceptance of the null hypothesis H0 and rejection of the alternative hypothesis H1. However, for the 1-year and 3-year periods, the positive number suggests a significant connection in the performance of the Debt mutual fund scheme, leading to the acceptance of the alternative hypothesis H1 and the rejection of the null hypothesis H0.

CONCLUSIONS

According to the report, one of the most well-liked investment possibilities right now is the worldwide mutual fund sector. It is crucial to a country's economic growth. If the market does well, it will produce significant profits, and vice versa. The majority of the schemes provide big profits at high risk. The ICICI All Season Bond Debt Mutual Fund has performed admirably during the past few years, it may be noted. Financial advisors can look at a variety of criteria, such as Sharpe's, Beta, and Treynor's, and assist investors in selecting the best debt diversified funds to obtain risk-adjusted returns. A debt mutual fund investment provides investors with a long-term capital gain, the security of their funds, and a modest ownership part in the business. The findings of this research indicate that mutual funds are a secure tool for speculating. MF are frequently the only way for investors to diversify their investments intellectually.

SUGGESTIONS

- The investors who are ready to take risk can invest in ICICI All Season Bond fund which is yielding high returns with more risk. The investors also can invest in ICICI Credit Risk fund which is yielding second high returns with more risk. Investors not yet prepared to take risk they can invest in ICICI Floating Interest Fund with moderate return.
- The fund manager needs to take the required actions to manage risk. To obtain growth returns, the fund manager should take a proactive role in the investment scenarios.

REFEENCE

Website

1. www.icicipruamc.com

Journals

1. **Dr. M. Geetha** (Assistant professor, Department of commerce (A&F), PSG collage of arts and science, Coimbatore) - "Performance Evaluation of Selected Mutual Funds with respect to UTI & ICICI". Published in *Shodhsamhita: Journal of fundamental & comparative research*. Vol. VII, No. 9(II): 2021.
2. **Shivam Tripathi (2020)**: "Performance evaluation of selected Equity Mutual Funds in India", *A Global Journal of Social Sciences*, ISSN: 2581-5830, Gap Gyan Volume-III, Issue- I.
3. **Sharma Komal .B (2021)** – "A Comparative study on Performance evaluation of Selected Debt, Equity and Hybrid Mutual Fund Schemes in India". *A Global journal of social sciences*, (ISSN – 2581-5830). Gap Gyan – Volume-IV Issue II.
4. **Prof. V. Vanaja and Dr. R. Karrupasamy (2013)** – "Study on the Performance of Selected Private sector Balanced Category Mutual Scheme in India" *International journal of management science and business research*, 2013 ISSN (2226-8235) Vol-2 Issue 12.
5. **Prof. Sumanth L. Wachasundar(2018)**: "Performance evaluation of Liquid Debt Mutual fund Schemes in India". *International Journal of Management, IT & Engineering*, Volume 8, Issue 6, June 2018, ISSN: 2249-0558 Impact factor: 7.119.



A STUDY ON PROBLEMS FACED BY WOMEN EMPLOYEES IN THE GARMENT INDUSTRY WITH SPECIAL REFERENCE TO COIMBATORE DISTRICT

Dr. S. Renugadevi¹, Ms.K. Sandhiya²

¹Professor, Department of Commerce, Dr. N.G.P Arts and Science College, Coimbatore, Tamil Nadu

²B. Com (Student) Dr. N.G.P Arts and Science College, Coimbatore, Tamil Nadu

ABSTRACT

Garment manufacturing means sewing, cutting, making, processing, repairing, finishing, assembling, dyeing, altering a garment's design, causing another person to alter a garment's design, affixing a label to a garment, or otherwise preparing any garment or any article of wearing apparel or accessories designed or intended to be worn by any individual, including, but not limited to, clothing, hats, gloves, handbags, hosiery, ties, scarfs, and belts. The Garment Industry of Coimbatore is an Rs -one lakh industry. Almost 33 % of its knitwear production and about 20% of its woven garment production, both by volume, enters export markets. Overall, about 25 % of the volume of its garment production goes into export markets, leaving 75 % for domestic consumption.

KEYWORDS: Women employees, Garment industry, Coimbatore.

INTRODUCTION

Global garment industries are catching the attention of economists, industrialist and social scientist as they are providing employment to innumerable unemployed across the globe. Economic development is a primary goal of the any national economic policy and Textile and Garment (T.G) industries contributes positively to the growth of economies. By providing jobs to millions garment industries are providing livelihood to the unemployed at the global level. The global T&G industry has expanded over the years with increased consumption, especially from western countries. The global fashion market is ever flexible and has changed a lot from previous producing lines. Clothes are produced in bulk and at all the times of year at cheaper rates. Along with production of fashionable garments at cheaper rates the multinational corporations in the western countries almost all T&G factories are located in less developed economies. The Indian textile industry consists of mainly of small scale, non-integrated spinning, weaving, finishing and apparel making enterprises. T&G industries offer opportunities including entry level jobs for unskilled labour in developing nations. The annual growth rate of the garment sector reached 10.9% during the last 11-year period i.e., from 2001-2012 (Keane J. William te Velde D. 2008). India stands as the global second largest populated

country with 1.25 billion in 2014 and people employed in textile and cotton industries were 8 million in 2013. The Apparel Export Promotion Council (AEPIC) estimated that in value terms, the size of the Indian textile market was Rs. 16,92,952 crores in 2007 and the exports being India standing at second rank stood at US\$ 3,733 million after China US\$ 14,412 bn. Indian exports over the last years starting from 2015 to 2017 have shown a continuous rise and the change in 2017 over 2016 stood at 12.05. Indian readymade garment industry is providing jobs to more than 3 million people and the majority is from low socio-economic status covering both men and women (Roy S. 2009). They are the 2 backbone of the garment industry that contributes 11% to India's exports and over 5% to GDP. But the workers like tailors, helpers, store managers packers, trimmers and button fixers only getting minimum wage.

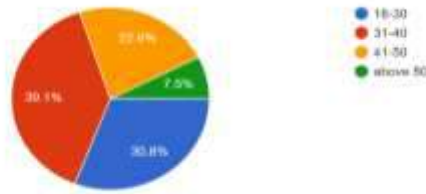
OBJECTIVE

- To study the socio-economic and demographic background of the women workers in the garment industries.
- To examine about problems and challenges faced by women employees in the workplace

ANALYSIS AND INTERPRETATION SIMPLE PERCENTAGE

1. AGE OF THE RESPONDENTS

AGE	RESPONDENTS	PERCENTAGE
18-30	41	30.8%
31-40	52	39.1%
41-50	30	22.6%
ABOVE 50	10	7.5%
TOTAL	133	100%



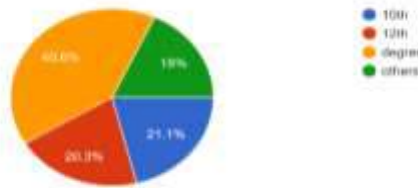
INTERPRETATION

The above table shows that 41% of the respondents belong to age 18-30 ,52% of the respondents belong to age31-40,30% of

the respondents belong to age 41-50,20% of the respondents belong to age above 50.

2.QUALIFICATION OF THE RESPONDENTS

QUALIFICATION	RESPONDENTS	PERCENTAGE
10 TH	28	21.1%
12 TH	27	20.3%
DEGREE	54	40.6%
OTHERS	24	18%
TOTAL	133	100%



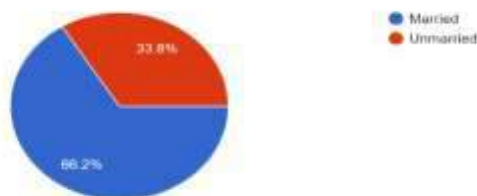
INTERPRETATION

The above table shows that 21.1% of the respondents studied 10th,20.3% of the respondents studied 12th,40.6% of the

respondents completed degree,18 % of the respondents belongs to others.

3.MARITAL STATUS OF THE RESPONDENTS

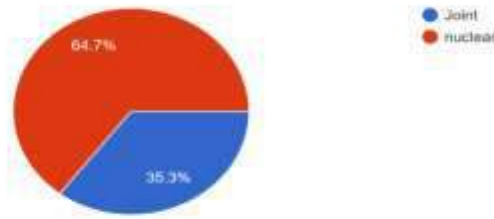
MARITAL STATUS	RESPONDENTS	PERCENTAGE
MARRIED	88	66.2%
UNMARRIED	45	33.8%
TOTAL	133	100%



INTERPRETATION: The above table shows that 66.2% of the respondents belongs to married,33.8% of the respondents belongs to unmarried.

4. FAMILY TYPE OF THE RESPONDENTS

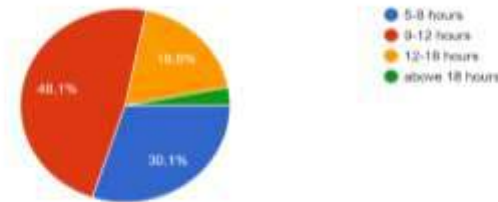
FAMILY TYPE	RESPONDENTS	PERCENTAGE
JOINT	47	35.3%
NUCLEAR	86	64.7%
TOTAL	133	100%



INTERPRETATION:The above table shows that 35.3% of the respondent belongs to joint family,64.7% of the respondent belongs to nuclear family.

5. WORK HOURS OF THE RESPONDENTS

WORK HOURS	RESPONDENTS	PERCENTAGE
5-8 HOURS	40	30.1%
9-12 HOURS	64	48.1%
12-18 HOURS	25	18.8%
Above 18 HOURS	4	3%
TOTAL	133	100%

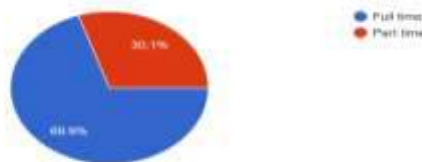


INTERPRETATION

The above table shows that 30.1% of the respondents works for 5-8 hours,48.1% of the respondents works for 9-12 hours,18.8% of the respondents works for 12-18 hours,3% of the respondents works above 18 hours.

6. WORK TIME OF THE RESPONDENTS

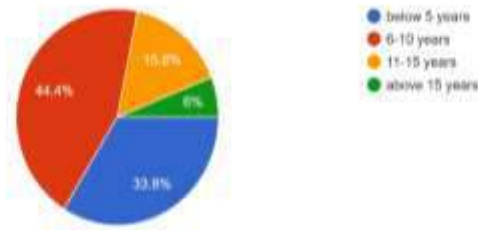
WORK TIME	RESPONDENTS	PERCENTAGE
FULL TIME	93	69.9%
PART TIME	40	30.1%
TOTAL	133	100%



INTERPRETATION :The above table shows that 69.9% of the respondents work full time,30.1% of the respondents work in part time.

7. EXPERIENCE OF THE RESPONDENTS

EXPERIENCE	RESPONDENTS	PERCENTAGE
BELOW 5 YEARS	45	33.8%
6-10 YEARS	59	44.4%
11-15 YEARS	21	15.8%
ABOVE 15 YEARS	8	6%
TOTAL	133	100%



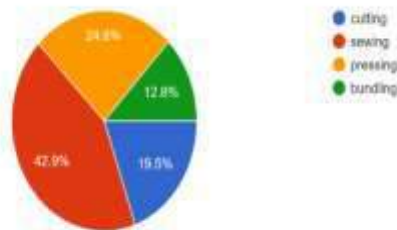
INTERPRETATION

The above table shows that 33.8% of the respondents has below 5 years experience, 44.4% of the respondents has 6-10 years of experience, 15.8% of the respondents has 11-15 years of

experience,6% of the respondents has above 15 years of experience.

8. WORK TYPE OF THE RESPONDENTS

WORK TYPE	RESPONDENTS	PERCENTAGE
CUTTING	26	19.5%
SEWING	57	42.9%
PRESSING	33	24.8%
BUNDLING	17	12.8%
TOTAL	133	100%



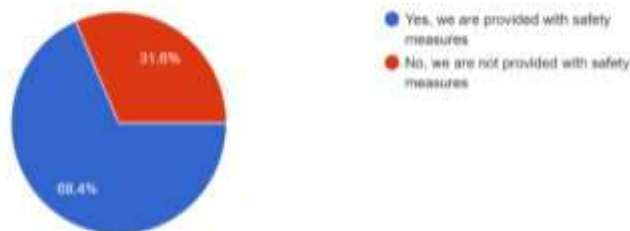
INTERPRETATION

The above table shows that 19.5% of the respondents belongs to cutting section,42.9% of the respondents belongs to sewing

section,24.8% of the respondents belongs to pressing section,12.8% of the respondents belongs to bundling section.

9. PROVIDED SAFETY MEASURES

SAFETY MEASURES	RESPONDENTS	PERCENTAGE
YES	91	68.4%
NO	42	31.6%
TOTAL	133	100%



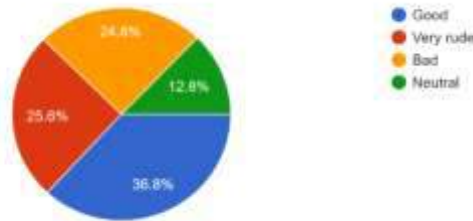
INTERPRETATION

The above table shows that 68.4% of the respondents accepts with yes they know the safety measures,31.6% of the

respondents accepts with no they doesn't know the safety measures.

10.TREATMENT OF MEN

TREATMENT OF MEN	RESPONDENTS	PERCENTAGE
GOOD	49	36.8%
VERY RUDE	34	25.6%
BAD	33	24.8%
NEUTRAL	17	12.8%
TOTAL	133	100%

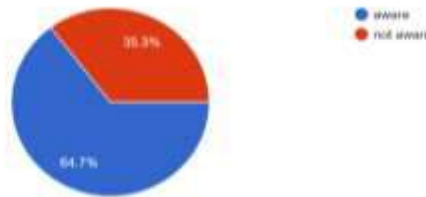


INTERPRETATION

The above table shows that the 36.8% of the respondents accepts with good,25.6% of the respondents accepts with very rude,24.8% of the respondents accepts with bad,12.8% of the respondents accepts with neutral.

11. AWARE OF GOVERNMENT SCHEMES

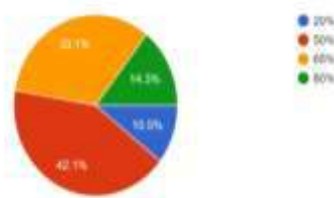
GOVERNMENT SCHEMES	RESPONDENTS	PERCENTAGE
YES	86	64.7%
NO	47	35.3%
TOTAL	133	100%



INTERPRETATION :The above table shows that 64.7% of the respondents accepts they are aware of government schemes,35.3% of the respondents accepts they are not aware of government schemes.

12. NUMBER OF WOMEN EMPLOYEES

WOMEN EMPLOYEES	RESPONDENTS	PERCENTAGE
20%	14	10.5%
50%	56	42.15
65%	44	33.1%
80%	19	14.3%
TOTAL	133	100%





INTERPRETATION

The above table shows that 10.5% of the respondents accepts with 20%,42.1% of the respondents accepts with 50%,33.1% of the respondents accepts with 65%,14.3% of the respondents accepts with 80%.

13. PROBLEMS RELATED TO DISCRIMINATION OF THE RESPONDENTS

PROBLEMS	RESPONDENTS	PERCENTAGE
Gender/age discrimination	30	22.6%
Discrimination while granting on leave	57	42.9%
Discrimination while employee removal	33	24.8%
Discrimination on increments/incentives	13	9.8%
TOTAL	133	100%

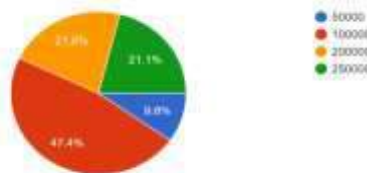


INTERPRETATION

The above table shows that 22.6% of the respondents accepts with gender/age discrimination,42.9% of the respondents accepts with discrimination while granting on leave ,24.8% of the respondents accepts with discrimination while employee removal,9.8% of the respondents accepts with discrimination on increments/incentives.

14. ANNUAL INCOME OF THE RESPONDENTS

INCOME	RESPONDENTS	PERCENTAGE
₹50000	13	9.8%
₹100000	63	47.4%
₹200000	29	21.8%
₹250000	28	21.1%
TOTAL	133	100%

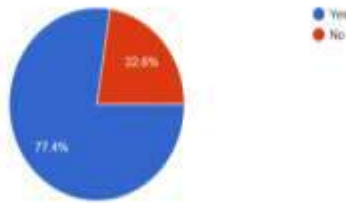


INTERPRETATION

The above table shows that 9.8% of the respondents earn 50000,47.4% of the respondents earn 100000,21.8% of the respondents earn 200000,21.1% of the respondents earn 250000.

15. AVAILABILITY OF BREAK TIME

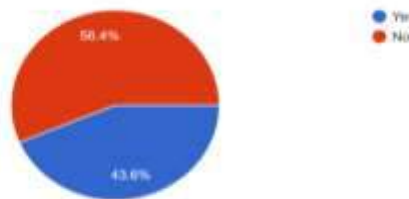
BREAK TIME	RESPONDENTS	PERCENTAGE
YES	103	77.4%
NO	30	22.6%
TOTAL	133	100%



INTERPRETATION :The above table shows that 77.4% of the respondents accepts yes for break time,22.6% of the respondents accepts no for break time.

16. AVAILABILITY OF CHILD CARE UNIT FOR RESPONDENTS

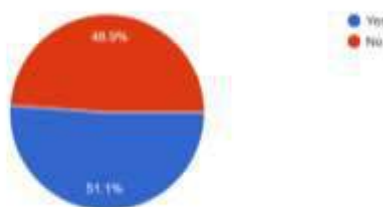
CHILD CARE	RESPONDENTS	PERCENTAGE
YES	58	43.6%
NO	75	56.4%
TOTAL	133	100%



INTERPRETATION :The above table shows that 43.6% of the respondents accepts with yes for child care unit,56.4% of the respondents accepts with no for child unit.

17.UNIONS AVAILABILITY

UNIONS	RESPONDENTS	PERCENTAGE
YES	68	51.1%
NO	65	48.9%
TOTAL	133	100%



INTERPRETATION

The above table shows that 51.1% of the respondents accepts yes for union,48.9% of the respondents accepts no for unions.

CONCLUSION

This study identified a number of issues among female employees in the Coimbatore district, including workload, working conditions, time management, and surroundings. As a result, it's important to offer working women workers the right therapy and training programmes to help them manage their stress levels and careers. In order for the institution to be able to act on the concerns of the working staffs in the garment sector, management can set up some hangouts with employees and by scheduling staff meetings regularly, at least twice a month.

The current study shows that women have the worse working conditions due to their lower educational attainment and abilities, which also limits their access to improved working conditions, promotions, leave benefits, occupational safety, etc. Numerous issues, such as low pay, low piece rate pay, failure to pay overtime allowance, a highly controlled, stressful, and repeatable work environment, a lack of access to benefits like health insurance, irregular work volume, etc., are faced by this group of women workers.

A adequate living wage cannot be made out of the earnings given to garment workers. In the current climate of fierce competition, staff retention is crucial. The decision of an employee to quit or stay in an organisation is influenced by



factors including training and development, recognition and reward for good performance, a competitive salary package, etc. When creating a retention policy, the importance of other factors shouldn't be underestimated.

REFERENCE

1. Ahmed Sh, Raihan Mz, (2014). *Health status of the female workers in the garment sector of Bangladesh. Journal of the Faculty Economics and Administration Sciences.*
2. Ali, R. N., Begum, F, Salehin, M.M., and Farid, K.S. (2008). *Livelihood pattern of rural women garment workers at Dhaka city, Journal of Bangladesh Agricultural University.*
3. Anand Kumar. (2011). *Bengaluru Garment Industry Special Exploitation Zone, Socialist World.*
4. Anita Rachel, and Mohana Priya. (2018). *A study of problems faced by women employee's in Tirupur apparel industry, International Journal of Novel Research and Development, 3(2), 2456-4184.*
5. Calvin, C., and Joseph, B. (2006). *Occupation related accident in selected garment industries in Bengaluru city, Indian Journal of Community Medicine.*



SECURE SMART HOME DESIGN AND ANALYSIS FOR ELDERLY PEOPLE USING INTERNET OF THINGS (IOT) TECHNOLOGIES

Dr.D.Devi Aruna

Associate Professor, Department of Computer Applications, Dr.N.G.P. Arts and Science College, Coimbatore

ABSTRACT

The Internet of Things technology is used for increase the old people living securely in environment of smart home and assist their caregivers. The smart homes are developed with automation of appliances and activities monitoring. The goal of smart home is to assure home resident safe. To increase the elder safety by using the IoT sensor and detect the attackers. The anomaly detection system is the system which identifies the interruption of network and computer by observing the behaviour of the system. This research paper analyzes and detects the behaviour of abnormal. This report discusses the system of anomaly detection based smart home from the perspective of security. The secure model of smart home is developed using Cisco packet tracer and device of IoT network is simulated and analysed the result.

KEYWORDS: *Smart home secure, IoT technologies, detection system of anomaly detection, system for intrusion detection.*

I. INTRODUCTION

The goal of smart home is to assure safe for home resident. To increase the elderly safety by using the IoT sensor and detect the attackers. The detection system of anomaly is the system which identifies the interruption of network and computer by observing the behaviour of the system. The system of anomaly detection is a system identifies the attackers in the network. The expansion of Internet of Things is network of internet into physical devices which is regular. Over the internet the devices of IoT are connected and controlled and remotely monitored. The devices of IoT architecture based on the system of anomaly detection consist of four different layers. The layer perception contains various sensors like RFID and code of QR for the data collection like pressure, temperature and humidity. The data collection is done by the sensor and sends to the next level, when actuator gets command for control for the specific actions performance. The layer of network contains the communication of software is incharge of data transmission acquired from the sensor of various layers. The layer of internet which includes the aggregation of data and control. The layer of middleware breaks huge data and processes. In the processing layer processing of big data and computing of cloud is done. The responsibility of application layer offers the user services based on the requirement. These layers are prone to possible attack. The sensor data which is in real life is acquired form household of elderly people using the doors, windows and sensors to help for the detection of abnormality in the sensor data. This report discusses the system of anomaly detection based smart home from the perspective of security. The secure model of smart home is developed using Cisco packet tracer and device of IoT network is simulated and analysed the result. (ManojNair, 2018).

II. RELATED WORK

In the current years, great rise in smart homes because of the addiction in technology. Smart home have designed to enhance the life quality for every people, particularly normal nondisabled person. The smart home idea is for energy saving, lights control, heating control, air condition, locks door and coffee makers when comfortable of people. But peoples have disabilities will not able to benefits of smart home devices. The devices controlling when you setting using technology of smart home is a high quality help for people who are disabled physically and persons older. The disabled people problem is solved by using the control system based appliance of smart home for physically disabled people (adam, 2018).

Smart home can help the people with services of health care and social support. The people have the positive approach for the implementation of smart homes. Furthermore, the people were concerned in the system of health monitoring lead them to live alone. But at the same time, they were having the same problem on the data privacy so that the smart home provides security. The smart home assists the people to decrease the loneliness and medicine rememberness. The smart home have many advantages they are sensor efficiency, system of surveillance and personal misuse or information which is confidential taken into consideration. Furthermore, people have a data can be altered in media of communication by the adversary and sent to the cloud. The sensors are weakness to have attacks in the entire system. The adversary read the data against the security (Shemsi, 2018).

The approach for graph based using the GBAD tool for the anomalies detection living in the smart homes without the daily activity of residents interfering and decrease the healthcare cost with the situation. The smart homes are developed with automation of appliances and activities monitoring.

The behaviour of anomalous to be the spatial and anomalies of behaviour. The two theories are proposed which is approach of graph based is reliable for the anomalies detection in the smart home and exposed anomalies are potential syndrome of abilities of cognitive impairment. The system of anomalies detection assists the caregivers of patient and monitors the people and increase the independence of patient to perform the regular task and safety routine. This system setup by sensor installation all over the home for gathering of data about the activities of patients without routine interfering (Dey, 2019). The anomaly detection system is the system which identifies the interruption of network and computer by observing the behaviour of the system. (Alfarsi, 2017).

III. SIMULATED ENVIRONMENT

The secure model of smart home is developed using Cisco packet tracer and IoT devices in the network is simulated and analysed the result. The simulation environment with case study is analysed to identify how to secure the smart home. Many hospitals use the system of anomaly detection in the smart home for the patient monitoring and health tracking. The smart home use the technologies of IoT and collection of data are sent to the cloud for the abnormal behaviour detection. The systems are connected to the internet and come with various threats and risk make unsafe to live people alone. Due to the vulnerability of smart home the people dies when the attacker's stops sensors and data prevented from the reach of hospital. The attacks in the network are denial of service, man in the middle and spoofing of RFID can be extended to the security risk in the cloud with the data exposures by the unauthorised users

IV.RESULTS

The smart home system consist of smart devices have sensor for activities recording of the residents in the home. The activities like smart door opening represents time spending in the room, smart light switch turning on represents the hours of sleeping.



Figure 1: IoT Device Setup

After sensing the devices. Data transfer is real time collected by the sensors to the cloud compared to user normal behaviour. When the detection of abnormal activities, the caregiver of the people is notified.



Figure 2: working of IoT device

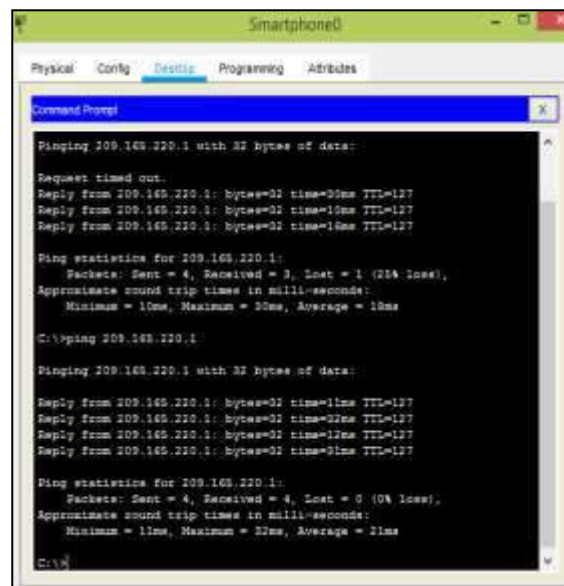


Figure 3: Ping Status of Devices

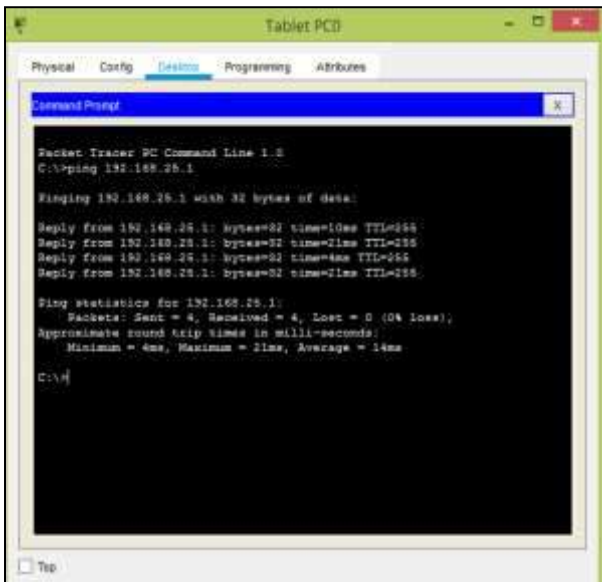


Figure 4 : Devices Ping Status

4. ManojNair, I. (2018). Medical Cyber Physical Systems and Its Issues. *International Journal on Advanced in computing* , 5 (2), 219-228.
5. Shemsi, I. (2018). IMPLEMENTING SMART HOME USING CISCO PACKET TRACER SIMULATOR. *International Journal of Engineering Science Invention Research & Development* , 6 (1), 675-679.

V. SECURITY CHALLENGES

The security threats are identified in the review of literature, the network layer processing is risk due to attacks. When the transmission of data is weakness due to attacks like DoS, spoofing of RFID and sinkhole. The smart home uses IoT technologies and data collections are sent to the cloud for the abnormal behaviour detection. The systems are connected to the internet and come with various threats and risk make unsafe smart home to live people alone. Due the vulnerability of smart home to attack which is internet based, the people die when the attacker's stops sensors and data prevented from the reach of hospital. The attacks on the sensor network are denial of service, man in the middle and spoofing of RFID can be extended to the security risk in the cloud with the data exposures by the unauthorised users. The smart home security is provided by using Access Control List. ACL is set up for the authorisation that can access and assured the information privacy in the framework of IoT. Access Control List can permit and block the request access from the various users in the system inside and outside. The ACL address the issues of authentication and authorisation in an environment of smart home based IoT.

CONCLUSION

This research paper investigates and detects the abnormal behaviour. This report considers the anomaly detection system based smart home from the viewpoint of security. The secure model of smart home is developed using Cisco packet tracer and IoT devices in the network is simulated and analysed the result.

REFERENCES

1. Adam, S. (2018). Review of Cyber-Physical System in Healthcare. *International journal of distributed sensor network* , 6 (1), 321-328.
2. Alfarsi, G. (2017). Using Cisco Packet Tracer to simulate Smart Home. *International Journal of Engineering Research & Technology* , 6 (2), 321-329.
3. Dey, N. (2019). Medical cyber-physical systems: A survey. *Journal of Medical System* , 2 (3), 765-769.



A STUDY ON THE HEALTH AND NUTRITION EDUCATION FOR TEENAGERS

Mrs Barthalomea Prathibha Dsouza
Lecturer, Milagres Degree College Mangalore- 01

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ABSTRACT

This study examines the impact of health and nutrition education programs on the knowledge and attitudes of teenagers. With the growing prevalence of lifestyle-related diseases, it is important to determine the effectiveness of educational interventions targeting this age group. It provides on the food pattern to be followed by the teenagers for optimum health with daily requirements. Findings from this study will contribute to the advancement of evidence-based strategies for improving healthy and nutritional education for teenagers, ultimately leading to healthier lifestyles and reduced disease risk in this population. This will include evaluating if the specific needs and challenges faced by teenagers. Investigating the influence of health and nutrition education on the lifestyle choices of teenagers. The findings of this study will provide valuable insights on the effectiveness of health and nutrition education for teenagers. Ultimately, the goal is to empower teenagers to make informed choices about their health and nutrition, leading to a healthier and happier future generation.

KEY WORDS:- Nutrition , Health , modern life style , common deficiencies ,Reaching Adolescent nutrition ,Teenagers.

INTRODUCTION

The adolescent years mark a critical period of physical, emotional, and cognitive development. During this transformative stage, teenagers undergo significant changes in their bodies and lifestyles, making them particularly vulnerable to the influence of their environment, including their dietary and health choices. Recognizing the importance of equipping teenagers with the knowledge and skills needed to make informed decisions about their health and nutrition, this study delves into the subject of health and nutrition education for teenagers.

Adolescent health and nutrition are pivotal not only for immediate well-being but also for setting the stage for a healthy adulthood. It is during these formative years that lifelong habits are often established, influencing future health outcomes. Thus, the provision of comprehensive and effective health and nutrition education is crucial to empower teenagers to navigate the complex landscape of food choices, physical activity, and overall well-being.

This study seeks to explore various facets of health and nutrition education programs targeted at teenagers, with a focus on their impact, effectiveness, and the potential for long-term behavioural change. By evaluating existing educational initiatives, examining the challenges faced in implementation, and identifying best practices, we aim to contribute valuable insights that can inform policy decisions, educational strategies, and community interventions aimed at promoting the health and well-being of teenagers.

The following sections will delve into the rationale for this study, outline its objectives, and provide an overview of the research methodology employed to gather and analyze data. Additionally, we will discuss the significance of this study and the potential implications of its findings for the health and nutrition education landscape among teenagers.

OBJECTIVES

1. Assess the Effectiveness: Evaluate the effectiveness of existing health and nutrition education programs for teenagers in terms of knowledge acquisition, behavioural change, and overall impact on their health.
2. Identify Key Knowledge Gaps: Determine the specific areas of health and nutrition where teenagers lack knowledge and understanding, and identify the most critical knowledge gaps.
3. Examine Behavioural Changes: Investigate whether health and nutrition education initiatives lead to positive changes in teenagers' dietary choices, physical activity levels, and overall lifestyle.
4. Analyse Implementation Challenges: Identify the challenges and barriers faced by schools, communities, and educators when implementing health and nutrition education programs for teenagers.
5. Explore Best Practices: Identify and document best practices in health and nutrition education, including teaching methods, curriculum design, and community involvement, that contribute to the success of these programs.



6. Assess Long-Term Impact: Determine whether health and nutrition education during adolescence has a lasting impact on individuals' dietary habits and health behaviours into adulthood.
 7. Evaluate Access and Equity: Assess the accessibility and equity of health and nutrition education, considering factors such as socio-economic status, geographical location, and cultural diversity.
 8. Gather Teenager Perspectives: Incorporate the viewpoints and opinions of teenagers themselves regarding their experiences with health and nutrition education, their preferences, and their perceived benefits or shortcomings of these programs.
 9. Recommend Policy Changes: Based on the findings, make recommendations for potential policy changes, curriculum enhancements, or community interventions to improve health and nutrition education for teenagers.
 10. Contribute to Public Health Knowledge: Contribute to the broader field of public health knowledge by generating insights that can inform future research and practice in adolescent health and nutrition education.
9. Access and Equity: The study will assess the accessibility and equity of health and nutrition education programs, considering socio-economic disparities, geographical accessibility, and cultural diversity.
 10. Teenager Perspectives: The viewpoints and opinions of teenagers themselves will be incorporated into the study, providing insights into their experiences with health and nutrition education, preferences, and perceptions of program effectiveness.
 11. Policy Implications: The study will make recommendations for potential policy changes, curriculum enhancements, or community interventions based on the research findings.
 12. Contribution to Knowledge: The research aims to contribute to the broader field of public health knowledge by generating insights that can inform future research and practice in adolescent health and nutrition education.

SCOPE OF THE STUDY

1. Demographics: The study will target teenagers between a specified age range, considering factors such as gender, socio-economic status, and geographic location if applicable.
2. Educational Settings: The research will focus on health and nutrition education programs within specific educational settings, which could include schools, community centres, online platforms, or a combination of these.
3. Geographic Focus: The scope may include a specific geographic area, such as a particular city, region, or country, with consideration for any regional variations in health and nutrition education.
4. Time Frame: The study may be conducted over a defined time frame, encompassing a specific academic year, calendar year, or a multi-year period.
5. Health and Nutrition Components: The research will examine various aspects of health and nutrition, such as dietary habits, physical activity, knowledge about nutrition, and related behaviours.
6. Data Sources: Data will be collected from a combination of sources, which may include surveys, interviews, observations, analysis of existing literature and educational materials, and potentially collaborations with educational institutions and health organizations.
7. Objectives: The study aims to achieve specific research objectives, such as assessing the effectiveness of existing programs, identifying knowledge gaps among teenagers, examining behavioural changes, analysing challenges in program implementation, and exploring best practices.
8. Long-Term Impact: The research will investigate whether health and nutrition education during adolescence has lasting effects on individuals' dietary

habits and health behaviours as they transition into adulthood.

REVIEW

Food nutrition refers to the nourishing substances found in the foods we eat, such as vitamins, minerals, carbohydrates, fats, and proteins. These substances provide our bodies with the energy and essential components needed for growth, repair, and overall well-being.

Health relates to the state of our body and mind. Good health means our body functions well, we feel well, and we're free from illness or injury.

So, **food nutrition and health** is the relationship between the things we eat and how they impact our bodies and overall well-being. It's about choosing foods that provide the right nutrients to keep our bodies functioning at their best and maintaining a state of well-being. Proper nutrition is a key factor in maintaining good health.

A **balanced diet** is when you eat a variety of different foods that provide all the nutrients your body needs in the right amounts. It's like having a mix of foods from different food groups, including fruits, vegetables, grains, proteins (like meat, fish, beans), and dairy, to keep your body healthy and functioning well. A balanced diet helps you get the right energy, vitamins, and minerals to stay strong and feel good.

Recommended Dietary Allowances (RDAs) are a set of nutrient intake recommendations established by health authorities to help individuals understand how much of each essential nutrient they should consume daily to maintain good health and prevent nutrient deficiencies.

In simpler terms, RDAs are like guidelines that tell you how much of different vitamins, minerals, and other nutrients you should aim to get from your food to stay healthy. These recommendations are based on scientific research and vary depending on factors like age, gender, and life stage because different people have different nutritional needs.



RDAs are a useful tool to help individuals plan their diets and make sure they are getting the right amount of nutrients to support their overall well-being.

A **vegetarian food guide** is a resource that provides dietary recommendations and guidelines specifically tailored to individuals who follow a vegetarian diet. It helps people understand how to meet their nutritional needs without consuming meat or other animal products. Vegetarian food guides typically emphasize plant-based foods and offer advice on balanced and healthy eating. These guides may be issued by health organizations, government agencies, or vegetarian advocacy groups and are designed to support the dietary preferences and nutritional needs of those who choose to follow a vegetarian diet.

Dietary patterns in adolescents refer to the typical ways in which teenagers eat and the combination of foods they consume on a regular basis. These patterns can have a significant impact on their overall health and well-being. Here are some common dietary patterns observed in adolescents:

1. **Healthy Dietary Pattern:** Some adolescents have a healthy dietary pattern characterized by a balanced intake of nutrient-rich foods. They include a variety of fruits, vegetables, whole grains, lean proteins, and dairy or dairy alternatives in their diets. This pattern provides essential nutrients, vitamins, and minerals necessary for growth and development.
2. **Fast Food or Junk Food Pattern:** Many adolescents consume diets high in fast food, sugary snacks, and sugary beverages. This pattern is often low in fruits and vegetables and may contribute to excess calorie intake, weight gain, and an increased risk of chronic health conditions like obesity and type 2 diabetes.
3. **Vegetarian or Vegan Pattern:** Some adolescents choose vegetarian or vegan dietary patterns, which exclude some or all animal products. These diets can be healthy when well-balanced, but individuals need to pay attention to getting adequate protein, iron, vitamin B12, and other nutrients that may be less abundant in plant-based foods.
4. **Snacking Pattern:** Adolescents are known for their snacking habits. Some may graze on small snacks throughout the day, which can be either healthy options like fruits, nuts, and yogurt, or less nutritious choices like chips and sugary snacks.
5. **Skipping Meals:** Some adolescents skip meals, often breakfast, due to time constraints or dietary restrictions. This can lead to inadequate nutrient intake and negatively impact energy levels, concentration, and overall health.
6. **Fad Dieting Pattern:** Adolescents, influenced by societal pressures and trends, may experiment with fad diets, such as low-carb or extreme low-calorie diets. These diets are usually unsustainable and may deprive them of essential nutrients.
7. **Sports or Athletic Pattern:** Adolescents involved in sports or athletics often have specific dietary patterns to support their activity levels. This may include higher protein and carbohydrate intake to fuel their workouts and recovery.

8. **Cultural or Ethnic Patterns:** Cultural and ethnic backgrounds can strongly influence adolescents' dietary patterns. They may follow traditional diets that are rich in specific foods or flavors unique to their heritage.

COMMON DEFICIENCIES

Adolescents are at a stage of rapid growth and development, and their nutritional needs are significant. Common nutrient deficiencies that can occur during adolescence include:

1. **Iron Deficiency:** Iron is essential for proper growth and development, especially during adolescence. Deficiency can lead to anemia, fatigue, weakness, and impaired cognitive function. Adolescent girls are particularly at risk due to increased iron needs, especially during menstruation.
2. **Calcium Deficiency:** Calcium is crucial for building strong bones, and adolescence is a critical period for bone development. Inadequate calcium intake can lead to weakened bones and increase the risk of osteoporosis later in life.
3. **Vitamin D Deficiency:** Vitamin D is necessary for calcium absorption and bone health. Adolescents with insufficient exposure to sunlight and a lack of dietary vitamin D sources may be at risk for deficiency, which can impact bone development.
4. **Vitamin A Deficiency:** Vitamin A is essential for vision, immune function, and skin health. Inadequate intake can lead to vision problems, weakened immune function, and skin issues.
5. **Folate Deficiency:** Folate (a B-vitamin) is vital for cell division and the formation of DNA. Inadequate folate intake can affect growth and development and increase the risk of neural tube defects in pregnancies later in life.
6. **Vitamin C Deficiency:** Vitamin C is important for wound healing, immune function, and the absorption of iron from plant-based foods. Adolescents with a limited intake of fruits and vegetables may be at risk for vitamin C deficiency.
7. **Iodine Deficiency:** Iodine is necessary for thyroid function and hormone regulation. A deficiency can lead to thyroid problems and impaired growth and development.
8. **Omega-3 Fatty Acid Deficiency:** Omega-3 fatty acids, found in fish and certain plant sources, are important for brain development and cognitive function. Inadequate intake may affect learning and memory.
9. **Protein Deficiency:** Adequate protein is essential for growth, muscle development, and overall health. Adolescents who follow restrictive diets or have poor dietary habits may not get enough protein.
10. **Zinc Deficiency:** Zinc is important for immune function, wound healing, and growth. Adolescents with inadequate zinc intake may experience delayed growth and weakened immunity.
11. **Magnesium Deficiency:** Magnesium is essential for muscle and nerve function, and it plays a role in bone health. A deficiency can lead to muscle cramps, irregular heartbeats, and weakened bones.
12. **B Vitamins (e.g., B6, B12, Niacin) Deficiency:** Various B vitamins are critical for metabolism, energy production, and overall health. Inadequate intake can lead to fatigue, digestive issues, and neurological problems.



Certainly! Here's a conclusion for your research on "A Study on the Health and Nutrition Education for Teenagers":

CONCLUSION

The study on health and nutrition education for teenagers has illuminated critical insights into the impact of education on the dietary habits, well-being, and overall health of adolescents. In an era where the choices made during adolescence hold profound implications for lifelong health, this research underscores the importance of effective education and informed decision-making. Our findings emphasize that a well-designed health and nutrition education program can significantly enhance the knowledge and awareness of teenagers regarding the importance of dietary choices and physical activity. It can serve as a catalyst for positive behavioural changes, including healthier eating habits and increased physical fitness. Moreover, the study highlights the pivotal role of accessibility and inclusivity in health and nutrition education. It is imperative that educational initiatives be accessible to teenagers of all socio-economic backgrounds, geographical locations, and cultural contexts to ensure equitable access to vital health information. We have also recognized the value of incorporating teenagers' perspectives into the design and implementation of these programs. Their voices are essential in tailoring education to their needs and preferences, making it more relatable and engaging.

As we conclude this research, we acknowledge that the journey toward better adolescent health and nutrition education is ongoing. The recommendations stemming from this study have the potential to inform policy changes, curriculum enhancements, and community interventions aimed at promoting the health and well-being of teenagers. We must continue to prioritize these efforts, fostering a future where every teenager has the opportunity to make informed choices that set the foundation for a lifetime of health and vitality. In closing, this study reaffirms the critical significance of health and nutrition education in the lives of adolescents. It is our hope that the insights generated here contribute to the collective effort to empower teenagers with the knowledge and skills they need to make healthy choices, ensuring a healthier and more vibrant future for the generations to come.

REFERENCES

1. Story, M., Neumark-Sztainer, D., & French, S. (2002). Individual and environmental influences on adolescent eating behaviours. *Journal of the American Dietetic Association*, 102(3), S40-S51.
2. Contento, I. R., & Randell, J. S. (2007). Review of nutrition education research in the *Journal of Nutrition Education and Behaviour*, 1998-2007. *Journal of Nutrition Education and Behaviour*, 39(6), 349-358.
3. Lytle, L. A., & Achterberg, C. (1995). Changing the diet of America's children: What works and why? *Journal of Nutrition Education*, 27(5), 250-260.
4. Contento, I. R., Williams, S. S., Michela, J. L., & Franklin, A. B. (2006). Understanding the food choice process of adolescents in the context of family and friends. *Journal of Adolescent Health*, 38(5), 575-582.
5. Birch, L. L., & Davison, K. K. (2001). Family environmental factors influencing the developing behavioural controls of food intake and childhood overweight. *Paediatric Clinics*, 48(4), 893-907.
6. Neumark-Sztainer, D., Wall, M., Perry, C., & Story, M. (2003). Correlates of fruit and vegetable intake among adolescents: Findings from Project EAT. *Preventive Medicine*, 37(3), 198-208.
7. Contento, I. R., Zybert, P., & Williams, S. (2010). Relationship of cognitive restraint of eating and disinhibition to the quality of food choices of Latina women and their young children. *Preventive Medicine*, 50(3), 146-153.
8. Savige, G., Macfarlane, A., Ball, K., Worsley, A., & Crawford, D. (2007). Snacking behaviours of adolescents and their association with skipping meals. *International Journal of Behavioral Nutrition and Physical Activity*, 4(1), 36.
9. Rockett, H. R., Breitenbach, M., Frazier, A. L., Witschi, J., Wolf, A. M., & Field, A. E. (1997). Validation of a youth/adolescent food frequency questionnaire. *Preventive Medicine*, 26(6), 808-816.
10. Larson, N. I., Neumark-Sztainer, D., Hannan, P. J., & Story, M. (2007). Trends in adolescent fruit and vegetable consumption, 1999-2004: Project EAT. *American Journal of Preventive Medicine*, 32(2), 147-150.



IMPACT OF COGNITIVE RESTRUCTURING ON STRESS TOLERANCE AMONG PARANOID COUPLES

Sunil K T¹, Aiswarya M²

¹Technical Officer D, LPSC ISRO, Indian Space Research Organization

²Senior Research Fellow, Department of Education, University of Calicut

ABSTRACT

The present study aimed to analyze the impact of Cognitive Restructuring on stress tolerance among couples having paranoia issues. Stress tolerance stands for the ability of a person to withstand the attack of stressors in life in an effective manner. Couples having marital disputes out of paranoia are a group supposed to be exposed to multiple stressors in life. Cognitive restructuring is a psychological intervention which enhances the positive thoughts of anyone having negative as well as distorted thought pattern. Present study is an experimental one and made use pretest post test control group design. Tools used were general data sheet and stress tolerance scale developed by Resmi & Sanandaraj (1999). Sample size of the study were 60 couples having marital issues where 30 in experimental group and 30 in control group. Computation of descriptive statistics, frequencies and percentages, mean difference analysis or t test were used as the main statistical techniques used. As per the results of the study, cognitive restructuring found to be an effective intervention for enhancing level of stress tolerance of couples having marital issues.

KEY WORDS ; Cognitive Restructuring, stress tolerance, marital issues, paranoia, experimental group, control group etc.

INTRODUCTION

Marriage is a contract which unite two lives into one soul, where similarities as well as differences of choices/ opinions of two people merge together. Some persons experience marriage as a 'tasty cup of tea' where others view marriage as a juice with bitter taste. Most of the marital disputes may be because of multi layers of misunderstanding and lack of proper communication between couples (Zacharias, et al ,2016). Paranoia can be cited as a major reason behind marital disputes which is characterized by extreme level of distrust and suspicion on others without any adequate justification. Distrust, social isolation, emotional disparity, hyper vigilance, rigid and augmentative attitude are some of the major characteristics of persons with Paranoia(Freeman,2007).

According to humanistic psychology all emotional issues emerged from defective thought pattern or cognitive distortions. Cognitive distortions are irrational and biased ways of thinking that can lead to negative emotions and behaviours. Cognitive Restructuring is a method coming under Cognitive Behaviour therapy. Stress tolerance can be considered as the ability to withstand stress creating events in life (Vasyakin,2018). It is the rate of defending power to hold the intensity of stressful thoughts and actions. The present study aimed to analyze the impact of Cognitive Restructuring on stress tolerance among couples having paranoia issues. Cognitive Restructuring can be considered as a psychological intervention which replaces cognitive distortions with positive thoughts (Clark,2018). Stress tolerance stands for the ability of

a person to withstand the stress creating events in life without drowned to a negative extend (Ong ,2017). In the present study stress tolerance of couples having the issue of paranoia were considered in an experimental way by having an intervention using cognitive restructuring. Cognitive restructuring is a therapeutic technique used to rectify cognitive distortions, which are illogical or unfair thought patterns that can lead to adverse emotions and behaviors.

Steps Involved In cognitive restructuring were

- Identification of distorted thought in a multidimensional way.
- Equip the person having stress to challenge that distorted thought.
- Generate alternative positive thoughts in order to replace negative/distorted thought pattern.
- Enable the sample to Practice, Evaluate and repeat the positive thoughts and replace negative thoughts.

OBJECTIVES OF THE STUDY

Following are the objectives coming under the study.

- To find out whether there exist any significant difference in the level of stress tolerance among couples having paranoia before intervention.
- To find out whether there exist any significant difference in level of stress tolerance among couples having paranoia after intervention.



- To compare the level of stress tolerance among couples having paranoia before and after intervention.

HYPOTHESES OF THE STUDY

- There exists no significant difference in the level of stress tolerance among couples having paranoia before and after intervention.

METHODOLOGY OF THE STUDY

Experimental method was the main method used in the study. Tools used were general data sheet and stress tolerance scale developed by Resmi & Sanandaraj (1999). Sample size of the

study were 60 couples having marital issues. Computation of descriptive statistics, frequencies and percentages, mean difference analysis or t test were used as the main statistical techniques used.

RESULTS AND DISCUSSIONS

The analysis of the study lead to the following findings. Summary of Mean Difference Analysis in case of stress tolerance are summarized and discussed below.

Data and results of the comparison of pretest scores are presented in in Table 1.

Table 1

Data and Results of the Comparison of Pretest Scores Between Experimental and Control group for the Total Sample

Sl. No.	Variables	N	Mean	SD	t- Value	Level of Significance
1.	Pretest (Experimental)	30	67.30	2.33	0.47	Not Significant
2.	Pretest (Control)	30	67.00	2.65		

The obtained t value is 0.47 and it is below the table value set for significance even at 0.05 level. Hence it can be concluded that there is no significant difference exists between pretest scores of experimental and control groups. Both of the groups are

comparable since the level of performance of participants found to have no significant difference.

Data and results of the comparison of posttest are presented in in Table 2.

Table 2

Data and Results of the Comparison of Post test Scores Between Experimental and Control group for the Total Sample

Sl. No.	Variables	N	Mean	SD	t- Value	Level of Significance
1.	Posttest (Experimental)	30	69.46	2.16	5.57	0.01
2.	Posttest (Control)	30	65.46	3.24		

The obtained t value is 5.57 and it is greater than the table value for significance at 0.01 level. Hence it can be concluded that there is significant difference exists in between post test scores of Experimental and Control group with respect to stress tolerance.

higher mean scores are attached with them. This means that couples who are intervened with cognitive restructuring differ significantly than couples who do not receive any particular kind of intervention. This shows the effectiveness of cognitive Restructuring among stress tolerance of couples having paranoia.

From the Mean Difference Analysis it is understood that couples in the experimental group show significantly better performance in terms of stress tolerance than students in the Control group as

Table 3

Data and Results of the stress tolerance of couple in experimental group with respect to gender

Sl. No.	Determinants	N	Mean	SD	t- Value	Level of Significance
1.	Male	30	69.53	2.16	0.16	0.01
2.	Female	30	69.40	2.22		

From Table 3, the obtained t value is 0.16 and it is lower than that of table value and significant at 0.01 level. Hence it can be concluded that gender cannot be considered as an influential factor which determines the level of stress tolerance among couples having paranoia.

IMPLICATIONS OF THE STUDY

- Basic underlying thought of a paranoid person is that he/ she may be replaced at any time, if other persons having a strong quality or attributes such as beauty, educational qualification, financial status etc influence their partner. This



ray of thought will lead to frustration and finally ends up in a disequilibrium condition.

- According to the method of cognitive restructuring, negative thoughts have to be replaced with positive thoughts. Distorted thoughts of a paranoid person will be replaced with strong positive thoughts like 'I AM UNIQUE' 'NO BODY CAN REPLACE ME' 'I AM THAT MUCH IMPORTANT AND PRECIOUS TO MY PARTNER' etc.
- Cognitive restructuring efforts have to be focused on eradicating inferiority complexes with logically correct the pattern of thoughts.
- Point out the positive activities done by the sample in order to enhance their level of confidence and eradicate their worthless feelings.
- Enumerate the skills and strengths of paranoid persons in order to arouse a feeling that he/she is worthy enough to be an eligible counter part of their better half.
- Replace the negative thoughts of client like 'MY PARTNER WILL BETRAY ME' with a positive thought like 'MY PARTNER WILL NEVER CHEAT ME'.
- Clients have to be provided with an insight about their cognitive distortions and must empower them with how to replace distressing illogical negative thoughts using logical positive thoughts.
- Cognitive restructuring efforts have to be focused on eradicating inferiority complexes with logically correct the pattern of thoughts.
- Point out the positive activities done by the sample in order to enhance their level of confidence.
- An alternative pattern of thoughts or positive imagery have to inculcated among the frustrated minds of samples.

4. Vasyakin, B. S., Berezhnaya, M. S., Pozharskaya, E. L., & Ovsyanik, O. A. (2018). *Socio-psychological training in modern health psycho-technological toolkit to improve stress tolerance in academic personnel. Theory and Practice of Physical Culture, (8), 24-24.*
5. Zacharias, M., Jayachandran D., & Vincent E.W (2016). "A Study on Social-Psychological elements and Marital Contentment Among Married couples" *International Journal In Management & Social science, 4 (7), 162-169*

CONCLUSION

Cognitive Restructuring can be cited as an effective method with equip a person to correct their cognitive distortions using positive thoughts. Level of stress tolerance can be improved using this method. Paranoid persons will in an illusion state where they will create an imaginary world of distressing thoughts. Partners of paranoid persons will be in a miserable life where they need an absolute help of counselling to be stable and calm in the midst of traumas created by their paranoid partners. Present study aimed to find out the impact of cognitive restricting on stress tolerance among paranoid couples and found out that the same is effective to a large extend.

REFERENCES

1. Clark, D. A. (2013). *Cognitive restructuring. The Wiley handbook of cognitive behavioral therapy, 1-22.*
2. Freeman, D. (2007). *Suspicious minds: the psychology of persecutory delusions. Clinical psychology review, 27(4), 425-457.*
3. Ong, N. C. "Reactive stress tolerance in elite athletes: Differences in gender, sport type, and competitive level." *Cognitie, Creier, Comportament/Cognition, Brain, Behavior 21.3 (2017): 189-202.*



EXPLORING CHILD PROTECTION MEASURES IN SPECIAL EDUCATION SCHOOLS IN ZAMBIA

Moses Chisala¹, Daniel Ndhlovu², Joseph Mwape Mandyata²

¹Research Scholar, MOE-HQ-Directorate of Curriculum Development, Zambia

²Prof. Research Supervisor, University of Zambia, Zambia

²Dr. Research Supervisor, University of Zambia, Zambia

ABSTRACT

The study sought to explore child protection measures on bullying, discrimination and neglect in selected special education schools. Constructivist/Interpretive paradigm and qualitative intrinsic case study design were employed because the case study outcomes were solely about the learner with disability's experiences and special education school was of primary interest in the study. The sample size comprised of 38 participants and purposive critical case sampling was used to select 2 head teachers, expert sampling was used on 12 teachers and criterion sampling was used to select 12 learners and 12 parents. Data collection from head teachers and teachers used semi-structured interview guide and from learners and parents focus group discussion was used and data were analysed thematically. Learners with disabilities were protected from bullying using the 3R's bullying prevention strategies; recognising, responding and reporting strategies. Then, safety strategies, punishment strategies and prevention strategies were used to protect learners with disabilities discrimination in schools. Also, learners with disabilities were protected from neglect using material support strategies, social and emotional support and professional development strategies in selected special education schools. These strategies enable to protect children with disabilities from bullying, discrimination and neglect in selected special education schools. The study recommends that for the schools to ensure child protection from bullying, discrimination and neglect should develop and implement child protection policy (rules and regulations), ensure professional development training among member of staff on child protection measures taken when recognizing and responding to bullying, discrimination and neglect in schools.

KEYWORD: Child Protection measures, bullying, discrimination, neglect,

INTRODUCTION

The reality of a safe learning environment from a global perspective is that many children with disability do not fare well (UNICEF, 2017). United Nations (2019) reported that despite important progress made in the achievement of the Sustainable Development Goals (SDGs) violence remains a harsh reality for millions of children including those with disabilities around the world. Children need to be protected against all sorts of physical, mental, sexual abuse including bullying, discrimination and neglect, while in the school environment (Augustin & Abubaker, 2016).

Ministry of Youth, Sport and Child Development (MYSCD) et al. (2018) reported that child abuse in school has taken a range of forms including verbal abuse, bullying, discrimination and neglect. More and more children continue to experience bullying, discrimination and neglect in schools and this has caused on the increase of drop from school among children with disabilities (Musonda and Qinglin, 2015). Cervancia et al., (2019) found that children with disabilities are at a greater risk of bullying, discrimination and neglect as compared to regular children those without disability. Likumbo, et al (2021) revealed that more and more children are bullied, discriminated and neglected. Kanchiputu and Mwale (2016) reported that little progress has been made to lessen the risks children face from bullying, discrimination and neglect by fellow pupils and their teachers.

UNICEF (2019) reported that close to one in three students with disabilities between the ages of 13 and 15 worldwide experiences bullying on a regular basis. In the study of Bibou-Nakou & Markos (2017), found that many children with disabilities in schools are exposed to different forms of violence and threats in schools and other educational settings. Similarly, UNESCO (2019) reported that persons with disabilities, those from disadvantaged backgrounds are among those who face the worst discrimination, affecting both their right to go to school and their rights within schools. Human Rights Council (2019) also confirmed that children with disabilities face disproportionately high levels of discrimination. In the study of Sharley (2019) also, found neglect to be the most common form of child abuse in schools, but frequently goes unrecognized within the school-aged population and represent major threats to child health and well-being in school. However, if that is the case there is need to know how protected are children with disability in selected special education schools in Luapula province of Zambia. There is increasingly concerned, with the increasing cases of bullying, discrimination and neglect amongst children in special schools (UNICEF, 2018); MYSCD et al 2018; Chirwa, 2019; Dankyi, et al, 2021). Bullying, discrimination and neglect are significant and long-standing social issues facing learners, teachers, and parents in schools. Violation of children rights in form of bullying, discrimination and neglect is underreported and under-punished when



discovered leading to high prevalence of bullying, discrimination and neglect in schools (Better Care Network, 2017). If that has been the case, the question is how protected are children with disabilities in special education schools? Children with disabilities are a vulnerable group. It is crucial to bridge this gap, by ensuring a safe school environment that may provide protection among children with disabilities in school. As such there is need to explore how protected are learners with disabilities from bullying, discrimination and neglect in schools. Hence, the study explored child protection measures on bullying, discrimination and neglect in special education schools.

Methods and Materials

The ecological approach by Bronfenbrenner (1979) was selected for the study had it has often used in child protection research. Ecological system theory was applicable for the study because it brought about child-teacher relationship, which is the tenet of child protection in school. The study was guided by a constructivist paradigm, it enabled the researcher to have in-depth understanding of the subjective world of head teachers, teachers, parents and learners on protection measures children with disabilities are subjected to due to bullying, discrimination and neglect experienced special education schools. An intrinsic case study design was employed because the case study outcomes were intended to tell the researcher something that was solely about the learner with disability's experiences and special education school was of primary interest in the study.

The study population consisted of two head teachers and critical case sampling was used to select them, then, expert sampling was used on 12 teachers and in-depth interviews was used to collect data. While criterion sampling was used to select 12 learners and 12 parents and Focus Group Discussions (FGD) were used to collect data. Interviews and FGD were appropriate for this study because they gave participants opportunity to fully describe their experiences. All the interviews were transcribed verbatim. The study used an Inductive thematic approach for data analysis using six major stages that included familiarization with the data, generation of initial codes, searching for themes among codes, reviewing themes, defining and naming themes and report writing, and, where possible, verbalisms were used to indicate actual voices of the participants.

RESULTS

In an attempt to how learners with disabilities were protected from bullying in selected special education schools in Luapula province. The major emergent themes indicated that learners with disabilities were protected from bullying in selected special education schools using recognising strategies. These strategies included recognizing the statistics or acts of bullying in the school, recognize the warning signs of victims and stereotypes of bullies and routine checking to stop harassment and bullying acts. In support of the findings above, participant (SCH2 ST10 M) had this to say:

"The school make sure that it provides routinely check to ensure that harassment and bullying ceases in

school". Teacher and learners have the responsibility for look out for any signs of bullying in school"

Another great theme that emerged from the findings was Regarding responding strategies that involved formulating child protection rules or policies, involved parents, held meetings that reinforced positive behaviours expectations, provided guidance and counselling on how to respond to bullying and punished learners using discriminatory language or derogatory remark. Further, participants reported that they formulated of anti-bullying programmes, formulated of support groups to sensitize learners, trained staff members on how to recognising incidents of bullying and taught anti-bullying social skill. In support, participant (SCH1 HT1) had this to say:

The school has put in place school rules that prohibit any form of bullying from taking place ill-treatment are reported"

In support participant (SCH1 HT1) indicated that:

"My office also usually discussed the issue of bullying with other parents, individually or in a support group.

Talking with the parents of the bully, or the bully him/herself, are some of the things I do with my teacher to ensure these children are protected from bullying from teachers and fellow learners with or without disabilities".

Contributing on the same another participant (SCH1 ST4 M) had this to say:

"We talk to the children and provide guidance and counselling services to learners who are bullied because of their disability. We provide on-going opportunities for continued open discussions on how to deal with bullying in school and, checking in with the child regularly".

The participant (SCH2 ST11 F) said:

"During anti-bullying club and activities all the learners are educated that bad effect of bullying. The school from time to time has been providing up-to-date and timely in-service training for staff to help them best handle and recognize bullying problems and potential disability harassment.

Another theme that emerged from the findings was the reporting strategies that included reporting all forms of ill-treatment, bullying incidence in school settings, any form of harassment and bullying acts. These strategies enabled the teachers in the school to protect learners with disabilities in schools from bullying. In support participant (SCH2 HT2) indicated that:

"There are teachers who are involved in sensitization on the same during school assemblies and engage them to report all form of bullying to teachers in school and then the teachers bring them to the administration for action.

Contributing on the same findings the above, one other male learner participant during the first focus group discussion (FGD 1 ML) had this to say:



"We are protected from bullying acts in schools by reporting any form of harassment and bullying acts to the teachers. If one tries to harass us, we quickly report them to our teachers or the administration for action".

The second research question of this study focused on how learners with disabilities were protected from discrimination in selected special education schools in Luapula province. The themes that emerged included safety strategies that included developing school child protection policies, reacting to acts of discrimination in schools, reporting all forms of ill-treatment to the administration and routine checking to stop harassment and discrimination acts. This was evident from participant (SCH1 HT1) had this to say:

"As a school! We work towards reducing discrimination by promoting religious activities, respect for human rights and preaching love for one another. I ensure that all learners' needs are met equally, even those who are not supported by their parents with school requisites, the school with well-wisher we try our level best to help such learners".

Yet from the focus group discussion, participant (FGD 3 FP) said:

"To protect children from discrimination the school has rules and regulation which stop everyone, parent, teachers or fellow learners from discrimination others by word of mouth or action or denying them access to what they are entitled to in school. We report all forms of ill-treatment to the administration so that the offenders are punished".

Punishment strategies came out has an emerging theme. These strategies included punishing children using discriminatory language or derogatory remarks, providing positive and negative reinforcement, material support, punishing children with disruption of activities and punishing learners with unwanted social behaviour. In support, participant (SCH1 HT1) said:

We usually punish children using discriminatory language or derogatory remarks. Children with disruptive behaviour are usually punished".

Participant (SCH 2 ST8 M) in his contribution on how children with disabilities were protected from discrimination, reported that:

"We provide positive and negative reinforcement to the children. By positive reinforcement, we give praises and awards to good performing children. Concerning negative reinforcement, we withdraw certain incentives from the children".

Another theme that emerged from the findings was the prevention strategies, participants revealed that some of the prevention strategies employed included in house training for staff on discrimination issues, engaging in Continuous Professional Developments (CPDs) and teacher group meeting on handling learners and provision of Guidance and

counselling. In contribution the participant (SCH1 ST6 M:) had this to say:

"The school provides capacity building programs to the teachers, we engage teachers in the in-house training on discrimination for them to have knowledge how to meet the specific learning needs of each child".

In support of this finding, Participant (SCH1 ST3 F) said that:

"We provide guidance and counselling services to both sighted children, children living with disabilities, teachers and parents, we advise to give hope in this learner by being positive on them".

The third research question for the study was aimed at establishing how learners with disabilities were protected from neglect in selected special education schools. The study findings indicated that learners with disabilities were protected from neglect using material support strategies. These strategies included providing mobility aids, auxiliary aids and services, financial and material support, and provision of the school requirements to learners. Other strategies included providing school requisites like washing and bathing soap, exercise books and pencils or pens to learners, and involving of parents. In support, participant (FGD 3 MP) had this to say:

"The teachers share some of the support services that are available for children with disabilities who may be victims of neglect in this school. I have seeing Sisters from the church coming in school to assist those who don't have books, soap and enough clothes. not only that the school is supported financially by well-wishers to meet school requirements to meet specific learning needs of each child.

Participant (FGD 3 MP) has this to say:

"The school provide school requisites like bathing and washing soap, assistive devices and equipment such as wheelchair, crutches and walking white canes".

Another great theme that emerged from the findings was the use of social and emotional support strategies, participants revealed that some of the social and emotional support strategies employed included provision of guidance and counselling sessions, providing motivational talks and engaging in religious activities. Other Social and Emotional Support Strategies that were employed were providing encouragements to children, psychological care and involving parents. Participant (SCH1 ST2 M) had this to say:

"The school always engages our parent if there is something, we have seen some parents come in school, like me when I was not feeling well they called by parents and they came to pick me and take me home".

Also, participant (FGD 3 MP) during focus group discussion said:

"The school also through the guidance and counselling teacher always counsel these children when in school and make them understand that disability is not inability". the teachers also share word of



encouragement to our children through bible verse discussion

Another theme that emerged from the findings was the use of Professional Development Strategies. These strategies included conducting disability-awareness trainings, orientation of new staff on how to handle learners, conduct workshops and counselling sessions on how to handle children as well as encouraging teamwork and love amongst children. In support, participant SCH1 ST4 M) had this to say:

“Usually the school has CPD and TGM services, counseling’s service, motivational talk service to promote positive attitude in teacher towards these children with disabilities. Through teacher group meeting we try by all means to induct and orient new staff on how to handle different learners with disabilities with their specific learning needs”.

In contribution, participant (FGD 4 FP) stated that:

“As for me, the Schools should identify staff to be responsible for monitoring bullying, discrimination and neglect and to whom learners with disabilities can talk freely in case they are bullying, discrimination and neglect. School has prefects who monitor, control and report bullying incidents because in most of the times these incidents are not reported to teachers”.

Based on the findings on the first research question above, it was evident from the study that children with disabilities were protected from bullying, discrimination and neglect in special education schools.

DISCUSSION

Based on the findings of the first research question, it was evident from the study that learners with disabilities were protected from bullying using the 3R’s bullying prevention strategies namely recognizing, responding and reporting strategies. Recognizing bullying prevention strategies included recognizing the statistics or acts of bullying in the school, recognize the warning signs of victims and stereotypes of bullies and routine checking to stop harassment and bullying acts. Similarly, Falla et al (2021) pointed out that the teachers and administration need to recognize the warning signs of bullying in schools that children are involved in. Responding strategies included holding meetings that reinforce positive behaviours expectations, providing guidance and counselling on how to respond to bullying, punishing learners using discriminatory language or derogatory remarks, formulation of anti-bullying programs, formation of support groups to sensitize learners, training staff members on how to recognizing incidents of bullying and teach anti-bullying social skills. Other strategies identified include reporting bullying prevention strategies, which included reporting all forms of ill-treatment, reporting bullying incidence in school settings, reporting any form of harassment, and bullying acts. These findings were in conformity with the study by UNESCO (2021), which revealed

that establishing monitoring and reporting mechanisms for learners affected by bullying, together with support was a key component of child protection program in schools. These bullying prevention strategies enabled the teachers in the school to protect learners with disabilities in schools.

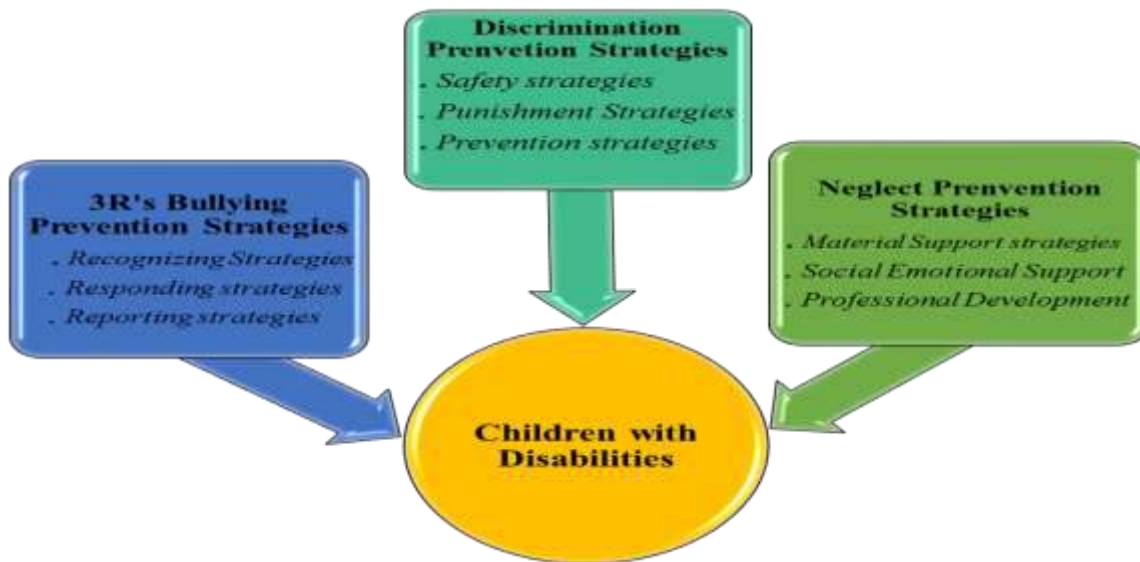
The second research question, children with disabilities were protected from discrimination in selected special education schools using safety strategies, punishment strategies and prevention strategies. The safety strategies that were used to protect learners with disabilities from discrimination included developing schoolchild protection policies, reacting to acts of bullying in schools, reporting all forms of ill-treatment to the administration and routine checking to stop harassment and discrimination acts. Punishment strategies included punishing those using discriminatory language or derogatory remarks, providing positive and negative reinforcement, punishing learners with disruption of activities and punishing learners with unwanted social behaviours. Further, in house training for staff such as Continuous Professional Developments (CPDs) and teacher group meeting on handling learners and provision of Guidance and counselling were used. These findings were in line with the report of Maciver et al (2019), which reported that schools provided training for school personnel, raised awareness on non-marginalized learners. These strategies enabled the teachers in special education schools to protect learners with disabilities from discrimination.

The third research question, learners with disabilities were protected from neglect in schools through material support strategies, social and emotional support and professional development strategies. These findings were in conformity with the study by Daro (2019) who revealed that to protect learners who were neglected due to lack of support service, teachers were to provide equitable access to quality universal services for children with disabilities. These strategies enabled participants to protect learners with disabilities from bullying, discrimination and neglect in selected special education schools. However, these findings were in line with the principle of the model that states that teachers and peers who are the elements of the mesosystem influences or affect the behaviours of the children in schools. These strategies must be considered in terms of their existence at each level, as well as their interaction across each level so that learners with disabilities.

Constructed Child Protection measure in special education schools

The emergent framework is nicknamed Chisala’s Child Protection (CCP) Framework, which is a result of twenty-four months of deep reflection on the elements or constructs that may lead to effective protection of learners with disabilities from bullying, discrimination and neglect in special education schools. Figure 1 below gives the silent features of the proposed CCP framework arising from the study.

Figure 1: Chisala's Child Protective (CCP) Framework



Source: Researcher's Proposed Child Protective Framework (2023)

Figure 1 above shows the four sections of the CCP framework. At the centre of the CCP framework, are learners with disabilities who are the beneficiaries surrounded by three strategies to protect them from bullying, discrimination and neglect in special education schools. The first section of CCP framework focuses on strategies that may be used to protect learners with disabilities from bullying acts in schools. The CCP framework affirms that to protect learners with disabilities from bullying, teachers need to first recognise or identify the acts of bullying in the school. This would involve recognising the warning signs of victims and stereotypes of bullies and routine checking to stop harassment and bullying acts. After recognising the bullying acts, teachers would need to employ responding strategies. This involves formulation of child protection rules in school, parental involvement, holding meetings that reinforce positive behavior expectations, provide guidance and counselling, punishing learner, formulation of anti-bullying program and training staff members. Lastly, teachers should employ reporting strategies, which include reporting all forms of ill-treatment, bullying incidence in school settings and any form of harassment and bullying acts.

The second section focuses on strategies that may be used to protect learners with disabilities from discrimination in schools. The CCP framework states that to protect children with disabilities from discrimination, teachers should employ safety strategies, punishment strategies and prevention strategies. Examples of safety strategies that should be employed by teachers include developing schoolchild protection policies, reacting to acts of bullying in schools, reporting all forms of ill-treatment to the administration and routine checking ups. Regarding punishment strategies, teachers should punish children using discriminatory language or derogatory remarks, disrupt activities and those with unwanted social behaviours as well as provide positive and negative reinforcement. Some preventive strategies that should be used include in house training for staff on discrimination issues, engaging in Continuous Professional Developments (CPDs) and teacher

group meeting on handling learners and provision of Guidance and counselling.

The third section of the CCP framework focuses on neglect strategies that may be used to protect learners with disabilities in schools. The CCP framework states that to protect learners with disabilities from neglect, teachers should employ strategies such as material support strategies, social and emotional support and professional development strategies. The examples of material support strategies that must include provision of mobility aids, auxiliary aids and services, financial and material support and provision of school requisites. Social and emotional support strategies that may be employed to protect learners with disabilities from neglect include provision of guidance and counselling sessions, motivational talks, in religious activities, offering encouragements and involving parents. Professional development strategies include conducting disability-awareness trainings, orientation of new staff on how to handle learners, conduct workshops and counselling sessions on how to handle children as well as encouraging teamwork and love amongst children. The CCP framework affirms that when these neglect prevention strategies were employed, learners with disabilities would be protected in schools.

Finally, the fourth section of the CCP framework focuses on the learners who are the beneficiaries on protection measures on bullying, discrimination and neglect in selected special education schools. Children in special education schools should thus be exposed to all the strategies highlighted in the CCP framework if they were to be protected in special education schools.

The study has provided an understanding to stakeholders inside and outside MOE on how learners with disabilities were protected from bullying in selected special education schools. In the context of the present study, the CCP framework emphasises on teachers and children without disabilities to



employ these strategies in order to protect learners with disabilities from bullying, discrimination and neglect in selected special education schools.

Recommendations

From the research findings and conclusion, the following are the recommendations made:

- i. Schools should develop and implement bullying, discrimination and neglect rules and regulation (policy) that promote inclusion and diversity in all aspect of school experience among learners with disabilities.
- ii. The school needs to ensure that administrators, teachers, staff, and learners have up-to-date professional development training needed to recognise and respond to incidences of bullying discrimination and neglect, and to adopt strong policies for preventing and addressing bullying in special education schools.
- iii. There is need for collaboration among teachers, parents and learners with disabilities in schools for the purpose of identifying and reporting all forms of direct or indirect bullying, discrimination and neglect among learners with disabilities.

Ethics Approval

The ethical approval was provided by the University of Zambia, Zambia with the reference number HSSREC:2022-JUL-047

Consent for participants

Informed consent was obtained from all participants in the research.

Conflict of Interest

The authors declare no conflict of interest, financial or otherwise.

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REFERENCES

1. Augustin, S. A., & Abubaker, I. S. (2016). *The effects of child abuse on the academic of school children: Implication on the Nigerian economy*. *Asia Pacific Journal of Education, Arts and Science*, 3(3), 23-27.
2. *Better Care Network*. (2017). *Violence against Children and Care in Africa: A Discussion Paper*. New York: Oak Foundation. Pg 21
3. Bibou-Nakou & A. Markos (2017): *Greek teachers' experience and perceptions of child abuse/neglect*, *Advances in School Mental Health Promotion. Advances in School Mental Health Promotion*, <http://dx.doi.org/10.1080/1754730X.2017.1333916>
4. Bronfenbrenner, U. (1979). *The Ecology of Human Development*. Harvard University Press.
5. Cervancia, J.M, Hernandez, K.U, Rodavia, M., Roxas,E. (2019). *Child abuse and compliance on child protection policy in private and public basic educational institutions*. *International Journal for Cross-Disciplinary Subjects in Education*, 10, (1), 3957-3963
6. Chirwa, J. (2019). *Child Protection in Zambia* <https://www.linkedin.com/pulse/child-protection-zambia-joseph-chirwa-llm-ma-mzihrm-mciarb/:text=Premium%20for%20free,Child%20Protection%20in%20Zambia,-Published%20on%20May>
7. Dankyi, L. A., Laryea, J. E., Dankyi, J. K., & Arhin, V. (2021). *Child abuse in basic schools in Ghana: Awareness and utilization of safety net structures*. *Multidisciplinary Journal of Educational Research*, 11(3). Retrieved from <https://hipatiapress.com/hpjournals/index.php/remie/article/view/7519>
8. Daro, D. (2019). *A Shift in Perspective: A Universal Approach to Child Protection*. Chapin Hall at the University of Chicago. VOL. 29 / NO. 1
9. Falla, D.; Sánchez, S.; Casas, J.A. (2021). *What Do We Know about Bullying in Schoolchildren with Disabilities? A Systematic Review of Recent Work*. *Sustainability* 13, 416. <https://doi.org/10.3390/su13010416>
10. Human Rights Council (2019) *Report of the Special Representative of the Secretary-General on Violence against Children*, Human Rights Council, A/HRC/40/50, 2019
11. Kanchiputu, P. G. and Mwale M. (2016) *Effects of Domestic Violence on Children's Education: The Case Study of Mpemba, in Blantyre District [Malawi]*. *Journal of Psychological Abnormalities*. 5: 152. doi: 10.4172/2471-9900.1000152
12. Likumbo, L. C., Muleya, G. & Simui, F (2021). *Involvement of Selected Secondary Schools in Child Protection against Violence, Exploitation and Sexual Abuse in Lusaka, Zambia*. *International Journal of Research and Scientific Innovation (IJRSI) |Volume VIII, Issue IX, September 2021|ISSN 2321-2705*
13. Maciver D, Rutherford M, Arakelyan S, Kramer JM, Richmond J, Todorova L, et al. (2019) *Participation of children with disabilities in school: A realist systematic review of psychosocial and environmental factors*. *PLoS ONE* 14(1): e0210511. <https://doi.org/10.1371/journal.pone.0210511>
14. Ministry of Youth, Sport and Child Development, Ministry of Community Development and Social Services, University of Zambia, United Nations Children's Fund, Save the Children International, United States Centres for Disease Control and Prevention (2018). *Violence against Children in Zambia: Findings from a national survey, 2014*. Lusaka: Ministry of Youth, Sport and Child Development.
15. Musonda, M.M & Qinglin, Z. (2015). *A Study of Domestic Violence Legislation in Lusaka-Zambia*. *Research on Humanities and Social Sciences*. Vol.5, No.16
16. Sharley, V. (2019). 'Identifying and Responding to Child Neglect in Schools: differing perspectives and implications for inter-agency practice'. *Child Indicators Research*. 13, pp551–571. <https://doi.org/10.1007/s12187-019-09681-z>
17. United Nations (2019). *Keeping the Promise: Ending Violence against Children by 2030*. New York: United Nations Publications.
18. UNICEF (2017). *A Familiar Face: Violence in the lives of children and adolescents*. New York: UNICEF
19. UNICEF (2018). *INSPIRE Indicator Guidance and Results Framework Ending Violence against Children: How to define and measure change*, New York: UNICEF.



LIVED EXPERIENCES OF BUREAU OF FIRE PROTECTION OFFICERS OF DAGUPAN CITY

Cheryl A. De Castro, Cherry Cabarrubias

University of the Cordilleras Graduate School

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ABSTRACT

Fire officers face numerous challenges in their daily lives, including disasters, relief operations, and community service. Their safety is at risk if they are not properly equipped, and their morale and physical integrity are tested not only professionally but also personally. This study used a case study design to gather non-numerical data on fire officers from the Bureau of Fire Protection in Dagupan City. Participants were selected based on factors such as length of service, experience, willingness to participate, gender, and status. Semi-structured interviews were conducted with open-ended questions, and thematic analysis was employed to analyze the data. The study revealed that the experiences of fire officers from the Bureau of Fire Protection (BFP) in Dagupan City have shaped their identities. They have encountered both positive and negative situations, making them aware of their vulnerability in dangerous circumstances. To overcome this, they rely on their resourcefulness and willingness to compromise. Public education on fire prevention is essential to minimize compromising situations. Additionally, the participants struggle with achieving a work-life balance and seek guidance from their chief as their main advisor. The findings provide valuable insights into the experiences, challenges, and coping mechanisms of fire officers in their line of duty. Changes in leadership within the BFP have sparked an active drive among officers, but the excessive workload, lack of manpower, equipment, and training place significant stress on them. Additionally, there is a lack of emotional support groups available to help fire officers cope with work-related stress. To address these issues, it is crucial to recognize that firefighters' morale is as important as their physical, mental, and emotional well-being, prioritize work-life balance, incorporate stress-management and task-management into training, implement standardized processes for permit requirements, address incomplete equipment and facilities, and upskill training and recognition.

KEYWORDS: *Lived Experiences, BFP, Dagupan City*

INTRODUCTION

Firefighting is a complex and risky occupation that involves exposure to physical and psychological stress, as well as serious chemical, biological, and physical hazards. Safety is a top priority for fire agencies, and firefighters face various hazards such as burn injuries, smoke inhalation, and sudden cardiac death. These hazards can lead to long-term effects such as anxiety, depression, burnout, emotional exhaustion, depersonalization, and post-traumatic stress disorder. Additionally, firefighters face a higher risk of suicide.

A study in the United States examined the mental health challenges faced by firefighters due to exposure to traumatic events. The nature of their work, including providing Emergency Medical Services (EMS), search and rescue operations, and responding to hazardous incidents and natural disasters, exposes them to a wide range of tragic situations. The cumulative effect of regularly encountering such distressing events is believed to have a negative impact on firefighters' mental well-being. (Jahnke et al., 2016).

Long and irregular working hours can lead to dissatisfaction and disconnection with families, as well as secondary trauma, which can lead to symptoms such as ASD and PTSD. This can negatively impact personal relationships. Experienced firefighters reported lower social support than recruit firefighters, leading to higher levels of depression and trauma (firefighternation,2016)

The rapid urban and industrial growth in Tehran, Iran presents new hazards and challenges for the Tehran Fire Department (TFD). High-density urbanization and the presence of high-rise buildings in narrow pathways pose accessibility challenges for fire appliances and hydraulic aerial platforms. Owners can store flammable materials without informing firefighters during pre-incident planning (Chaturvedi, 2019; Bayat, 2017)..

In the Philippines, Basic Occupational Safety and Health (BOSH) training is a 5-day program lasting at least 40 hours, mandated by the Department of Labor and Employment. Filipino firefighters are known for their bravery in battling blazes, but proper training



is essential for their ability to respond effectively and minimize injuries or fatalities. (Philippine Statistics Authority, n.d.).

The National Fire Protection Authority (NFPA) 471 provides recommended guidelines for responding to hazardous materials incidents. However, the Philippines faces challenges in meeting these standards due to financial constraints in acquiring sufficient equipment and manpower for every fire station (NFPA 471, n.d.).

Fire officers have diverse roles beyond firefighting, such as customer relations, fee assessment, building plan evaluation, fire safety inspection, and rescue and retrieval operations. Quezon City falls short of the ideal number of fire officers and fire trucks, leading to compromised safety measures. Firefighters often share breathing apparatuses and lack air refills. (Talabong, 2017). Firefighters in the Philippines face challenges such as threats from disoriented residents and the need to handle multiple tasks simultaneously, as well as shortages of equipment like breathing apparatuses and Personal Protective Equipment (PPE) (Padayhag, 2014). Cebu City shares the same sentiment with other fire stations in the country, further exacerbated by civilian interference during firefighting operations.

The responsibility of cleaning and maintaining personal protective equipment for firefighters in the Philippines is usually assigned to the firefighters themselves. However, Criminology interns are tasked with cleaning and scrubbing the PPE as part of their on-the-job training. The lack of personnel, functional fire trucks, and adequate equipment is a common problem faced by fire officers in Dagupan City. Despite these challenges, volunteers from organizations like the Panda Fire Brigade help extinguish fires and participate in fire awareness campaigns. (Talabong, 2017; Tupas, 2019;).

This study would be beneficial to the Dagupan City Bureau of Fire Protection, as it focuses on the well-being of the fire officers and can boost their morale. The city government of Dagupan would also benefit from the study, as it would provide insights into the current situation and encourage necessary actions to address the problems faced by the BFP Dagupan. Educational institutions in Dagupan City would gain a better understanding of the difficulties faced by fire officers, potentially encouraging students to volunteer in the fire service. Non-governmental organizations like the Philippine Red Cross Dagupan chapter and "Abong na Alumni" can appreciate the dedication of the fire officers despite limited resources and continue supporting their activities. The Panda Fire Volunteers would also further appreciate the significance of their work as volunteers in hazardous occupations (Tupas, 2019).

Theoretical/Conceptual Framework

Firefighters play a crucial role in improving fire safety in society, but the effectiveness of knowledge transfer between theory and practice remains questionable. They learn from experienced colleagues and their own experiences, developing risk assessment

skills to minimize casualties and fatalities. This learning process aligns with David Kolb's experiential learning concept, which emphasizes the transformation of experiences and the role of subjective experience in knowledge creation. (Johansson & Svensson, 2018; Cherry, 2019)

Experience, as described by Roth and Jornet (2014), extends beyond individual experiences and encompasses transactions within person-in-setting units across space and time. It is intertwined with affect, which is not solely a product of mental constructions. Occupational health, as defined by the International Labor Office and the World Health Organization in 1950, focuses on promoting and maintaining the physical, mental, and social well-being of workers in all occupations. It aims to prevent health issues arising from working conditions, protect workers from harmful risks, and ensure that the occupational environment is suitable for their physiological and psychological state.

According to Rule 1033 of the Philippine Occupational Safety and Health Standards and DO 16 series of 2001, safety officers in the Philippines must undergo the prescribed training course prior to their appointment in their respective workplaces. They are also required to meet the accreditation standards set by the Bureau. The number of supervisors or technical personnel appointed as safety officers should be determined based on the number of workers and the hazardous or non-hazardous nature of the workplace.

The unique culture of the fire service, including shared sleeping quarters and bunk rooms, poses challenges in implementing sleep health plans. Issues such as loud snoring disrupting others' sleep have been observed, and some firefighters resist additional training requirements. However, many believe that sleep health training should be mandatory for effective implementation (Firefighternation, 2016). The National Fire Protection Association (NFPA) introduced NFPA1851: 2014 to ensure proper selection, care, and maintenance of firefighting protective ensembles, reducing health and safety risks related to inadequate maintenance, contamination, or damage (NFPA, 2017). Professional cleaning and maintenance packages, adopted in certain countries, offer an ideal response to the health implications of smoke contamination.

Manufacturers of fibers and fabrics, along with PPEs designers, are developing technologies and designs to minimize the risk of harmful particles penetrating the skin. The challenge lies in creating PPE that acts as a barrier to toxins while remaining breathable to regulate body temperature. Dermal exposure areas, such as the face and neck, are of particular concern for potential exposure to combustion by-products and carcinogens (APFmag, 2018).

Ergonomic hazards are common in firefighting activities, including high-rise fires, ventilation, hose-laying, and heavy



equipment transport. Firefighters face risks like high heat, flames, stress, and exposure to toxic substances. ISO and NFPA recommend limiting body temperatures during tasks. Stress management through mental training and coping techniques is crucial. Job satisfaction and burnout also impact firefighters, with factors like motivation and working conditions influencing satisfaction levels. (Chaturvedi, 2019)

The paradigm of the study adopts a comprehensive framework consisting of beliefs, values, and research methods. It begins with

targeted participant interviews to identify existing issues encountered during their duty. Thematic analysis is then used to identify the central themes of the study. The lived experiences of fire officers are explored, focusing on the challenges they face and the coping mechanisms they utilize. Solutions are developed to address the identified problem, with the goal of improving the situation of Bureau of Fire Protection officers.

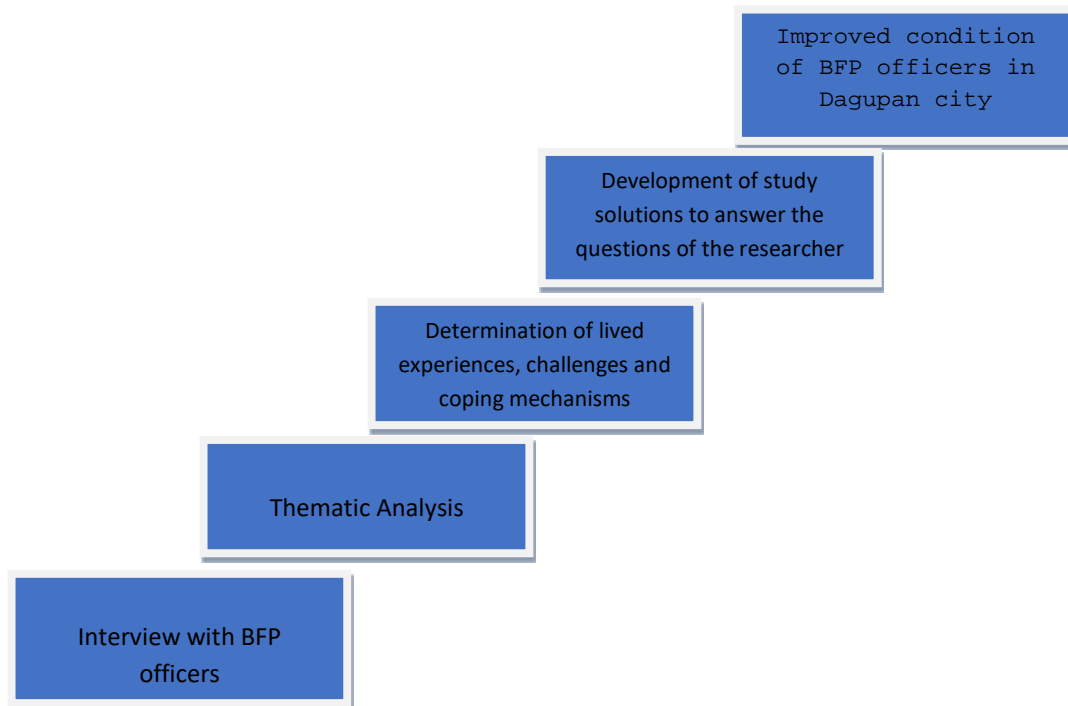


Figure 1. Research Paradigm

Objective of the study

The object of this study is to explore the experiences of fire officers from the Bureau of Fire Protection in Dagupan City and examine the encounters they have faced while performing their duties and responsibilities. The study aims to answer the following specific research questions:

1. What are the experiences of the Bureau of Fire Protection fire officers in Dagupan City?
2. What are the challenges at work faced by the Bureau of Fire Protection fire officers in Dagupan City?
3. How do the Bureau of Fire Protection fire officers in Dagupan City address the challenges at work?

By addressing these questions, the study aims to gain a comprehensive understanding of the experiences, challenges, and coping strategies of fire officers in Dagupan City, contributing to the knowledge and potential improvement of the firefighting profession in the area.

METHODOLOGY

This section presents the research design, population and locale of the study, data gathering tool, data gathering procedure, treatment of data, and ethical consideration of the study.

Research Design

This study employed the Qualitative research method, which is a scientific method of observation to gather non-numerical data. The Case study design was chosen as it examines in-depth purposive samples to better understand a phenomenon. An open-ended question was administered to selected samples from a specific population, and standardized, open-ended interview questions were asked to all interviewees. This approach facilitated faster interviews that can be more easily analyzed and compared.



Population and Locale of Study

The sample size of the study was determined through purposive sampling. The participants were the fire officers of the Bureau of Fire Protection in Dagupan City, who were chosen based on their length of service, experience, willingness to participate in the conduct of the study, as well as their gender and status. Only male participants were chosen as subjects, and volunteer firefighters were not included. The study was conducted at the City of Dagupan, which is active in assisting nearby towns and municipalities when called for help in dealing with fires and other emergency situations.

Data Gathering Tools

Research instruments were used to extract data needed in the study. A semi-structured interview was used to combine a pre-determined set of open questions with the opportunity for the interviewer to explore particular themes or responses further. An audio recorder was also employed to capture qualitative data and ensure descriptive validity. Direct observation was used to study the subjects' reactions and the fire station itself. An observation guide on the facilities and equipment of BFP Dagupan city was formulated to be utilized during the interview proper.

Data Gathering Procedure

The researcher sought approval from the Ethics Committee and wrote a letter of intent to the Dean of the College of Criminal Justice Education to conduct the study about the experiences of fire officers in BFP Dagupan. Upon approval, the researcher visited the station of Bureau of Fire Protection Dagupan to talk to the Chief of the fire officers if they could participate in the study. A formal letter of consent was sent to the chief of BFP in Dagupan City to allow the interview to proceed. The interview took place in the BFP fire station and the participants were informed that they were free to withdraw from the interview if they felt violated or threatened.

Treatment of Data

In this study, Thematic analysis is a method for identifying, analyzing and reporting patterns within data. It has six steps: familiarizing with data, generating initial codes, searching for themes, reviewing themes, defining and naming themes, and producing the report. Interviews were organized according to the specific objectives of the study and identified themes for each dimension. The face-to-face audiotape recording was transcribed and analyzed according to the themes based on the specific objectives of the study. Records pertinent to the study were also accessed to elicit relevant data.

Ethical Considerations

The identity of the participants in this study was not revealed in any manner or form. To indicate a distinct and separate response among the informants, cryptic code known only to the researcher was assigned to each participant. The interview focused on the experiences of the fire officers during their work. The audiotaped interview was kept confidential by the researcher and she would

be held liable in case it was used beyond the purpose for which it was made. After the study has been approved, all materials used in the study would be destroyed or erased to ensure that matters of confidential in nature would be kept secure. The video recording was kept safe for one year and erased from the laptop computer of the researcher.

RESULT AND DISCUSSION

Remarkable Experience

Participants 1, 4, and 6 in a study had memorable positive experiences at work, particularly in their interactions with the community, which left a lasting impact on them. They found fulfillment in being able to assist those in need, contributing to an improved relationship between the fire department and the community. Participant 1 emphasized that their proactive efforts were gradually changing the perception of the community towards the BFP, making them more dependable authorities.

These positive interactions with the community align with the sentiments of FO1 Andrew, who highlighted the gratitude expressed by people after every response, even when immediate assistance was not possible. This echoes the idea that firefighters play a crucial role in building a positive public perception of their service.

The experiences of these participants resonate with the perspective shared by Etheridge (2011) emphasizing the responsibility of firefighters to uphold the reputation and legacy of the fire service. Regardless of challenges and varying perceptions in different regions, firefighters are public servants dedicated to meeting the community's needs and fostering a strong alliance with them.

Maintaining a positive relationship with the community is a vital aspect of the BFP's service. The Fire Chief stressed the importance of going beyond their duty to gain respect and recognition from the community, similar to the police force. Positive public understanding was seen as a powerful tool for the fire administrator, with greater awareness of the services leading to increased usage in the future (De Stephano, 2016).

Unremarkable Experience

This theme captured the participants' cynical experience that had an impact on them as fire officers. The state they have undergone during those encounters is reflected in their stories.

Participant 2 recalled challenging incidents, such as a prolonged fire response and a fatal vehicular accident, which left lasting emotional effects. Morse (2016) quote underscores the unique psychological burden firefighters carry, including guilt and profound sadness from witnessing traumatic events.

Participant 3 emphasized the importance of basic training for firefighters, recognizing the risks associated with the job. The concept of "tacit knowledge" from Gary Klein's book, as



mentioned by Lovell (2020), emphasizes the significance of experience in decision-making within the fire service. However, it is also acknowledged that a strong foundation in basic knowledge and training is essential for firefighters to gain valuable experience.

Participant 5 recounted a challenging fire incident in 2007, involving a three-story commercial building with narrow access and no fire exit. This experience reflected the real-life challenges faced by firefighters and the need for proper resources and training. Morse (2020) shares that going to work knowing that there is a very good chance something will happen that will eat away at your soul becomes business as usual. Mentally preparing yourself to face death, disfigurement, madness and disease becomes the norm, whether working or not.

Coming through dismembered bodies in vehicular accidents and compromised private protection due to lack of training and private protective gear all posed disturbing encounters for the three furnace officers that made a strong intellectual imprint on them. For them, these traumatizing occasions by some means printed their vulnerability and issues in the course of that time. As a public service, the BFP embarks on difficult and dangerous situations being part of their job. This will not change, nevertheless, they are rewarded with the right recognition from the public which for them makes everything worthwhile.

CHALLENGES AT WORK FACED BY THE BFP OFFICERS

Work-Life Imbalances

Participant 1 expressed concerns about the shortage of manpower in the fire department, attributing it to limited government budgets. Tupas (2019) also noted the shortage of firefighters nationwide, emphasizing the need for additional personnel, especially during significant fire incidents. The lack of manpower not only affects the efficiency of the fire service but also has broader implications for community safety.

Participant 2 laments not having enough time for family due to the demands of their roles. The study highlighted the importance of social support for firefighters, with suggestions for short breaks involving activities like yoga or meditation to alleviate work-related stress.

Participant 3 discussed the inadequate facilities and equipment in their station, leading to inconvenience and inefficiency. The study cited data indicating delays in building fire stations and procuring firetrucks, contributing to equipment shortages and suboptimal working conditions (Roxas, 2018). It emphasized the need for proper budget allocation and management to address these issues.

FO1 Andrew pointed out the lack of communication equipment and emphasized the importance of training for designated roles within the fire department. The study referenced Bajo's research (2018), which highlighted deficiencies in equipment procurement

and the reliance on external agencies, leading to shortages of firefighting gear.

The Fire Chief mentioned challenges in issuing permits and the need for improved communication. The study identified communication as an area needing improvement, particularly in providing timely status updates to applicants. An automated system for processing fire safety certificates was recommended to address these shortcomings.

This study underscored the common challenges faced by fire officers across different stations in terms of work-life balance, equipment shortages, and communication issues. These challenges impact their ability to effectively serve their communities, emphasizing the need for better resource allocation and support for the fire service.

Lack of Life-Saving Equipment

The statements below were just some of their frustrations which they voluntarily voiced out during the interview.

The participants in the study highlighted several critical issues in their roles as emergency responders. Participant 1 mentioned challenges related to bystander interference in their work, with bystanders sometimes threatening and attempting to dictate how responders should do their jobs. A study pointed out that violence against EMS responders originates not only from patients but also from non-patient sources, including family members and bystanders. Verbal abuse, intimidation, and even sexual harassment or assault can come from colleagues and others

Participant 4 raised concerns about the lack of training, facilities, and communication equipment, which can impact response times and the ability to differentiate between true emergencies and prank calls, where emergency responders face challenges due to inadequate training and communication equipment during a crisis with numerous active fires. This highlights the significance of well-functioning equipment in emergency situations (Burroughs, 2017).

The Fire Chief expressed the need for higher authorities to address the challenges faced by lower-ranking personnel, particularly the lack of necessary equipment for training and emergency response. This emphasizes the critical need for proper training, communication equipment, and resources for emergency responders, both for their safety and the effectiveness of their services. The challenges they face are not only a concern in the Philippines but also in other countries, posing risks to both responders and the public.

Non-Compliant Clients

This theme is set on the periodic problems of both the fire officers and the clients in permits and clearances. Almost all of the participants share the same sentiment.



This study highlights several issues related to the Fire Service and public expectations. Participant 2 discussed the lack of priority in providing services, emphasizing that they prioritize senior citizens, people with disabilities, and pregnant individuals. They also reject special treatment for politicians and avoid bribery, promoting transparency and fairness in their work.

This research suggests that firefighters are aware of their dual role as employees of the Fire Service and public servants, with obligations to both entities. They recognize the importance of public awareness regarding the challenging circumstances they face in meeting public expectations (Duran et.al, 2018).

Participant 3 expressed a desire for seminars and workshops for contractors, engineers, and architects to ensure compliance with fire protection requirements in building plans. This reflects the challenge of ensuring that buildings meet fire code regulations, as some responsible persons may be unaware of violations or indifferent to correcting them.

Research findings indicate that building owners and operators may not comply with fire code regulations due to lack of awareness or indifference, and voluntary compliance can be encouraged through education and penalties (Garis & Clare, 2013)

Participant 5 emphasized professionalism and patience when dealing with clients who may be agitated or threatening. This approach aligns with the need for effective communication and education to address non-compliance issues.

This study sheds light on challenges related to public expectations, compliance with fire code regulations, and the importance of education and professionalism in the Fire Service. These challenges underscore the need for improved information dissemination and public awareness.

ADDRESSING CHALLENGES OF BFP PERSONNEL

The third SOP is the management utilized to address the challenges each fire officer used in their daily work. Each fire officer has their own a.) harmonized work-life management; b.) safety risks precautions, and c.) compliance awareness or interventions.

Stress Management

The following are the stress management employed by the BFP personnel. This theme highlights various aspects of managing work-life balance, safety precautions, compliance awareness, and the need for adequate resources in the Fire Service.

Participant 2 shared his approach to managing stress, including smoking, drinking in designated areas, and emphasizing the importance of maintaining good health. The research supports self-management of stress through activities like exercise and

hobbies, which release endorphins and promote well-being. Maintaining physical health is crucial for firefighters due to the demanding nature of their job (firefighternation, 2016).

Participant 5 discussed the importance of bonding among firefighters, emphasizing the support system they have within their teams. Research suggests that male bonding and friendships among firefighters contribute to their overall well-being and mental health.

The Fire Chief highlighted the therapeutic value of talking and being heard, emphasizing the importance of addressing stress by discussing it. Critical Incident Stress Debriefing (CISD) interventions among firefighters are effective in promoting emotional resilience (firefighternation, 2016).

The participants' efforts to manage work-life balance underscore the need for training in this aspect to help firefighters cope with the challenges they face in their personal and professional lives.

In terms of safety precautions, Participant 5 stressed the importance of self-awareness and mindfulness to prevent becoming a liability to colleagues. Research aligns with this, emphasizing that firefighters must be physically and mentally fit to perform their duties effectively (Mitchell & Cook, 2013).

Participant 1 highlighted the need for additional subjects related to fire safety in training to better equip future firefighters. Research findings indicate the importance of training, including first aid and specialist courses, to enhance the skills and experience of firefighters (Mitchell & Cook, 2013).

Participant 4 addressed the lack of equipment and communication resources, highlighting the challenge of being undermanned and under-equipped in the Fire Service. This issue was supported by data showing the shortage of fire stations and fire trucks nationwide.

Participant 3 discussed the challenges of compliance with fire safety codes and the need for proper communication with clients applying for permits. Research suggests that enforcement models involving penalties for non-compliance should be used judiciously and on a case-by-case basis (Clare & Garis, 2013).

This study underscores the importance of adequate resources, training, and support for firefighters to effectively manage their work-life balance, ensure safety, and promote compliance with fire safety regulations. Collaborative efforts between the community and the government are crucial to address these challenges and improve the Fire Service.

CONCLUSION AND RECOMMENDATION

The findings of this research suggest that the changes in leadership within the BFP (Bureau of Fire Protection) have sparked an active drive among the officers, leading them to



engage in more community activities. However, the excessive workload faced by the officers on a daily basis, coupled with insufficient manpower, operational equipment, and training, places significant stress on them. Additionally, the absence of a well-organized and easily accessible system for permit requirements perpetuates the ongoing issues faced by individuals applying for permits. Additionally, there is a lack of emotional support groups available to help fire officers cope with their work-related stress. To address these issues, it is important to recognize that firefighters' morale is as important as their physical, mental, and emotional well-being, prioritize their work-life balance, incorporate stress-management and task-management into the training of firefighters, implement standardized processes for permit requirements, address the issue of incomplete equipment and facilities for firefighting, and upskill training and recognition are imperative.

REFERENCES

1. Azarcon-Dela Cruz, P. (2019, March 3). *Tales behind the smoke: Firefighter recalls memorable incidents*. INQUIRER.Net. <https://newsinfo.inquirer.net/1091454/tales-behind-the-smoke-firefighter-recalls-memorable-incident>
2. Babson, K., & Feldner, M. (2015). *Sleep and Affect: Assessment, Theory, and Clinical Implications* (1st ed.). Academic Press.
3. Barger, L. K., O'Brien, C. S., Rajaratnam, S. M., Qadri, S., Sullivan, J. P., Wang, W., Czeisler, C. A., & Lockley, S. W. (2016). *Implementing a Sleep Health Education and Sleep Disorders Screening Program in Fire Departments*. *Journal of Occupational & Environmental Medicine*, 58(6), 601–609.
4. Bjorge, B. (2020, March 24). *Fire Service Leadership Failure: The Consequences of Doing Nothing*. Lexipol. <https://www.lexipol.com/resources/blog/failure-to-lead-in-the-fire-service-the-consequences-of-doing-nothing/>
5. Chaturvedi, R. (2019, March 22). *Risk and occupational hazards of firefighters*. Asia Pacific Fire. <https://apfnag.mdmpublishing.com/risk-and-occupational-hazards-of-firefighters/>
6. de Stefano, M. (2016, June 4). *Positive public perception in the fire service*. *Fire Engineering*. Retrieved December 23, 2019, from <https://www.fireengineering.com/fire-prevention-protection/positive-public-perception-in-the-fire-service/#gref>
7. Duran, F., Woodhams, J., & Bishopp, D. (2018). *An interview study of the experiences of firefighters in regard to psychological contract and stressors*. *Employee Responsibilities and Rights Journal*, 30(3), 203–226. <https://doi.org/10.1007/s10672-018-9314-z>
8. Etheridge, R. (2011, December 29). *Attitudes and fire service perceptions*. *Fire Engineering*. Retrieved November 22, 2020, from <https://www.fireengineering.com/firefighting/attitudes-and-fire-service-perceptions/#gref>
9. *Firefighter Nation Staff*. (2016, May 1). *Managing stress*. *Firefighter Nation*. Retrieved November 23, 2019, from <https://www.firefighternation.com/firerescue/managing-stress/#gref>
10. Garis, L., & Clare, J. (2015). *Inspections: The non - random nature of fire safety compliance* [E-book]. University of the Fraser Valley. <https://doi.org/10.13140/RG.2.1.2756.4003>
11. *GMA News Online*, & Bajo, A. (2018, July 1). *COA flags BFP over insufficient firefighters, gear, fire stations* | News | *GMA News Online*. <https://www.gmanetwork.com/news/topstories/nation/658845/coa-flags-bfp-over-insufficient-firefighters-gears-fire-stations/story/>
12. Isaac, I. (2021, September 13). *3 tips for recording research interviews*. *Academic Transcription Services*. Retrieved April 21, 2019, from <https://wveloty.com/3-tips-for-recording-research-interviews/>
13. Jahnke, S. A., Poston, W. S., Haddock, C. K., & Murphy, B. (2016). *Firefighting and mental health: Experiences of repeated exposure to trauma*. *Work* (Reading, Mass.), 53(4), 737–744. <https://doi.org/10.3233/WOR-162255>
14. Kinman, G. (2017, September 20). *Work-Life balance in the fire service*. *Firefighter Nation*. Retrieved March 3, 2019, from <https://www.firefighternation.com/firerescue/work-life-balance-in-the-fire-service/#gref>
15. Lovell, L. (2020, August 25). *The importance of realistic firefighter training*. *Fire Engineering*. Retrieved October 21, 2019, from <https://www.fireengineering.com/features/the-importance-of-realistic-firefighter-training/#gref>
16. Mata, K., & Bermudez, J. (2017, July). *Factors affecting Front-Line services of the bureau of fire protection in the national capital region*. *DLSU Research Congress 2017*, Manila, Philippines. <https://www.dlsu.edu.ph/wp-content/uploads/pdf/conferences/research-congress-proceedings/2017/EBM/EBM-I-011.pdf>
17. Mitchell, W., & Cook, B. (2013, January). *Occupational health effects for firefighters: The extent and implications of physical and psychological injuries*. *United Firefighters Union of Australia*. <https://www.aph.gov.au>
18. *US Fire Administration*. (2017, June). *Mitigation of occupational violence to firefighters and EMS responders*. https://www.usfa.fema.gov/downloads/pdf/publications/mitigation_of_occupational_violence.pdf
19. *Mindfulness as a PTSD coping mechanism*. (2013, August 19). *National Volunteer Fire Council*. Retrieved March 3, 2019, from <https://www.nvfc.org/mindfulness-as-a-ptsd-coping-mechanism/>
20. Morse, M. (2020, August 13). *The ugly truth about firefighting the public doesn't understand*. *FireRescue1*. Retrieved September 13, 2021, from <https://www.firerescue1.com/health-wellness/articles/the-ugly-truth-about-firefighting-the-public-doesnt-understand/>
21. Padayhag, J. M. L. (2014, March 16). *Fire department undermanned but never outfought*. INQUIRER.Net. Retrieved April 3, 2019, from <https://cebudailynews.inquirer.net/24197/fire-department-undermanned-but-never-outfought>
22. Park, H., Park, J., Lin, S. H., & Boorady, L. M. (2014). *Assessment of firefighters' needs for personal protective equipment*. *Fashion and Textiles*, 1(1). <https://doi.org/10.1186/s40691-014-0008-3>
23. Talabong, R. (2017b, March 25). *Undermanned, under-equipped, QC's firemen battle fire*. *RAPPLER*. Retrieved November 23, 2020, from <https://www.rappler.com/nation/164590-firefighters-qc-fire-district-profile/>



24. Tupas, E. (2019, August 26). *Phl firefighters lack equipment, personnel, fire trucks. Phl Firefighters Lack Equipment, Personnel, Fire Trucks | OneNews.PH.*
<https://www.onenews.ph/articles/phl-firefighters-lack-equipment-personnel-fire-trucks>
25. Valenzuela, D., & Shrivastava, P. (2017). *Interview as a method for interview as a method for qualitative research [Slides]. SlideShare.*
<https://www.public.asu.edu/~kroel/www500/Interview%20Fri.pdf>
26. Walker, A. (2016, June 22). *Monitoring practices of firefighter safety when working in the heat. Asia Pacific Fire.*
<https://apfmag.mdmpublishing.com/monitoring-practices-firefighter-safety-working-heat/>



RISK TAKING BEHAVIOURS SUSCEPTIBLE TO PSYCHO-SOCIAL FACTORS: A STUDY OF ADOLESCENTS IN SOKOTO METROPOLIS, NIGERIA

¹S. Y. Tsagem, PhD, ²A. I. Gaata

¹Department of Educational Foundations, Usmanu Danfodiyo University Sokoto

²Department of Educational Foundations, Usmanu Danfodiyo University Sokoto

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ABSTRACT

The study explored the influence of moderating variables of gender, age, family type and religious affiliation on adolescents' risk-taking behaviours. Thus, the study employed a descriptive survey method, where a total of 384 married adults were selected through simple random sampling techniques. The participants responded to a questionnaire designed by the researchers titled 'Risk Taking and Parental Monitoring Questionnaire (RTPMQ)'. The content and construct validities of the instrument was adjudged by a team of experts from the Department of Educational Foundations in Usmanu Danfodiyo University, Sokoto. The reliability of the instrument was established using internal consistency method which yielded a coefficient of 0.78. Data collected was analyzed using both descriptive and inferential statistics; thus, for the demographic data, percentage was employed while an independent t-test and ANOVA statistical tools were employed to test the hypotheses at 0.05 level of significance. Results reveal no difference in gender, age, family type and religious affiliation in risk-taking behaviours among the adolescents. One of the recommendations made was that the family and the society should ensure effective and efficient training, proper upbringing, equal treatments and empowerment in order to apprehend adolescents' risk-taking behaviour.

KEY WORDS: Risk taking behavior, Parental, Adolescents, Adults, Monitoring

INTRODUCTION

In the simplest form, adolescence is seen as the phase of life between childhood and adulthood, from ages 10 to 19 (Tsagem, 2022). Adolescents are often faced with a number of challenges that are unique and these challenges vary from one country to another. These challenges usually predispose the adolescents to risky behaviours; that has become a global issue of great concern that requires immediate attention. According to Cerkez & Hocaoglu (2017) the most common problematic behaviors faced at adolescence ages are alcohol, tobacco and drug taking, anti-social behaviors, and sex experience at a young age. Researches reveal that alcohol, tobacco and other addictions at early ages lead an individual to take other drugs and exhibit behaviors leading to violence and crime, and cause physical and mental disorders

Accordingly, Trimpop (1996) saw risk-taking as a conscious or unconscious behavior, the result of which cannot be definitely foreseen. Some studies, like that of Alişafakoğlu & Ercan as cited in Cerkez & Hocaoglu (2017) drew attention that problems arising in adolescence age put the individual in one of the problematic groups under risk in the society. Changes experienced at this age, plays a great role on personality

development and failure in adopting to these changes brings together risky behaviors to affect the individual's future life. Among others, some of the risky behaviors that adolescents engage in include substance and drug use, self-harming and intention to harm others, risky/careless driving, non-protective sexual encounters, crime commissions, committing suicide (Güler, Güler, Ulusoy & Bekar, 2009; Eneç Can, 2007; Kaya, 2011; Kaşıkçı, 2014; Ercan, 2001).

Risk is described the Concise Oxford Dictionary (1984:900) as a hazard, a chance of or of bad consequences, loss, etc., exposure to mischance. Thus, risk-taking behaviour is viewed as behaviour that possesses the chance or possibility of bad consequences or loss. Although risk-taking sounds dangerous, it is a normal part of growing up for young adolescents (http://www.penpages.psu.edu/penpages_reference/28507/2850) Almost half of all adolescents are at moderate to high risk of engaging in one or more self-destructive behaviours, including unsafe sex, teenage pregnancy and childbearing, drug and alcohol use, underachievement, failure and dropping out of school, delinquent or criminal behaviours, suicide, practicing satanism, violence, unsafe driving, fighting, foul language and running away from home.



There are different viewpoints concerning adolescent risk-taking behaviour. Some authors suggest that adolescents engage in risky behaviour in order to demonstrate a mature status or to mark the conversion to adulthood. Others, like Elkind (1985), argue that risk behaviour is a consequence of heightened egocentrism and sensation seeking during adolescence. Various scholars view risk-taking behaviours as tendencies that depend on social and environmental factors such as family, peers, school, community, and cultural belief systems

(<http://web17.epnet.com/citation.asp?tb=1>).

Parental monitoring refers to the aspect of raising a child aside of biological relationship (Martin, 2010). It is the process of promoting and supporting the physical, emotional, social and intellectual development of a child from infancy to adulthood. The most common character in parental monitoring is the biological parents of the child in question, although others may be older siblings, a grandparent, a legal guardian, aunt, uncle or other family members or family friends (Robert, 2018). Parental monitoring skills vary and parent with good parental monitoring skills may be referred to as good parent (Ashish, 2014). Accordingly, Yilmaz & Traş (2019) noted that one of the notions that are thought to affect the risk-taking behavior is attachment styles. Bowlby (1973) describes attachment as strong emotional bonds that people develop for those they consider important to them. Attachment is a system that shapes the person's pattern of forming a relationship with other people around her/him, which is thought to be shaped in infancy and continue in later periods of life. It is the first link between baby and mother or caregiver and constitutes the basic trust feeling (Budak, 2005).

There is more than one right way to be good parent, good parental monitoring includes; keeping your child safe, showing affection and listening to your child, providing order and consistency, setting and enforcing limits, spending time with your child, monitoring your child's friendships and activities, and leading by example (Human Development Report, 2014). Parental monitoring practices around the world share three major goals: ensuring children's health and safety, preparing children for life as productive adults and transmitting cultural values. A high-quality parent-child relationship is considered ideal for healthy development (American Psychological Association, 2014).

Parental monitoring and care giving make sure that children are healthy and safe, equip them with skills and resources to succeed as adults and transmit basic cultural values to them. Parents and care givers offer children love, acceptance, appreciation, encouragement and guidance. They provide the most intimate context for the nurturing and protection of children as they develop their personalities and identities, and also as they mature physically, cognitively, emotionally and socially (American Psychological Association, 2014).

Seven general concepts of parental monitoring as postulated by Howard (2013) include *independence* (the overriding goal of all

parents in creating children that can be independent and self-sufficient by the time they reach adulthood), *choices* (has to do with giving children choices that are age appropriate and holding them responsible for their actions), *respect* (sense of dignity can be promoted by creating an atmosphere in which children feel they can do, rather than they cannot do), *validation* (reinforce a loving environment by telling children, how much you love them, and by physically giving them hug), *ownership* (identifying early on, "Whose problem is it?", parents should not assume the need to solve problems for their children), *communication* (when parents talk to their children, they should try to use the "I" messages format. Parents should never criticize the child, but criticize behaviour), and *discipline* (setting realistic limits and enforce those limits so the child learns the concept of ownership of their behaviour and feel more secure).

THEORETICAL FRAMEWORK OF THE STUDY

This study is hinged upon the group dynamics approach which, according to Dietrich (2003), is derived from a cognitive, field-theory orientation. This approach assumes that man is a social being who needs other people as a basis for (a) self-knowledge, (b) determining appropriate responses to environmental demands, and (c) channelling and regulating his current behaviour through the operation of group norms. The instrument of change is a group norm discrepant with the individual's attitude or behaviour, a norm that may be communicated informally. The agent of change is pressure toward uniformity within the group, coupled with a need to be accepted in the group, or a fear of being rejected from it. This theory is apt in the sense that adolescents mostly engage in risky behaviors first because they want to impress their peers and gain acceptance and secondly, because they want to 'hit-back' at their parents' shackles.

LITERATURE

Studies like the study conducted by Kerr, Statti and Burk (2010) entitled revealed that parental monitoring efforts did not predict changes in delinquency over time, but adolescents' disclosure did. The study used a longitudinal data over 2 years from 938 seventh and eighth graders and their parents and findings further indicated that adolescents' disclosure was a significant longitudinal predictor of parental knowledge in single and cross-rater models. Neither measure of parents' monitoring efforts, control or solicitation was a significant predictor. Other studies in literature point out that risk-taking, when gender is at stake, is more in males compared to females (Bayar & Sayıl, 2005; Greene, Kremar, Walters, Rubin & Hale, 2000; Gullone, Moore & Boyd, 2000), and when age is considered, there is more risk-taking behavior in middle adolescence ages compared to early adolescence ages (Klein, Brown, Childers, Oliveri, Porter & Dykers, 1993; Simons, Morton, Haynie, Crump, Eite & Saylor, 2001). Gender difference data obtained in the study show that, boys exhibit more risk-taking behaviors compared to girls both in middle and advanced ages. Boys have higher points related to risk-taking behaviors than girls (Uz Baş, & Siyez, 2010).



In another vein, Çok & Güney Karaman (2008) specified that starting from childhood, family life and relationships with peers have an effective role on shaping one's behaviors. Thus, Yurtsever (2011) maintains that adolescents engage in risky behaviors due to loss of mother or father or both, divorce of parents or living separately, lack of affection, and an insecure, problematic, and unsystematic family environment. From birth onwards, children are affected by their parents and reflect this during childhood and adolescence years. Similarly, Petraitis, Flay and Miller (1995) show that strong bonds between child and mother minimizes risk-taking, whereas, lack of bond works the opposite way and increases risk-taking behavior.

Furthermore, Freisthler, Byrnes and Gruenewald (2019) reported that adolescents who have higher grade point averages and have not used alcohol reported the lowest levels of deviant behaviours. Furthermore, the density of bars interacts with reports of parental monitoring such that adolescents in areas with more bars per roadway mile report lower levels of parental monitoring behaviours, which is associated with higher levels of deviance.

STATEMENT OF THE PROBLEM

Fear of adolescents' risky behaviour is a constant concern for millions of stakeholders across the globe. Adolescents seem to engage in behaviours that are outrightly against the societal norms and disobey the stipulated laws and policies of the constituted authorities. It appears that more horrendous crimes are being committed by adolescents. Low levels of parental monitoring could be associated to a wide range of antisocial and risk behaviours, such as initial levels of alcohol misuse, high rates of increase in alcohol misuse, and frequent drinking; of which the consequences on adolescents and the society at large include hooliganism, poor academic performance, community violence, psychological problems and sometimes death. It is in view of these, that the present study therefore investigated the influence of parental monitoring in curbing adolescents' risky behaviour as expressed by married adults in Sokoto metropolis.

OBJECTIVES OF THE STUDY

The objectives of the study determined if there is:

1. difference in adolescents' risk-taking behaviours predisposed by gender as expressed by marital adults.
2. difference in adolescents' risk-taking behaviours predisposed by age as expressed by marital adults.
3. difference in adolescents' risk-taking behaviours predisposed by family type as expressed by marital adults.
4. difference in adolescents' risk-taking behaviours predisposed by religious affiliation as expressed by marital adults.

RESEARCH HYPOTHESES

The following null research hypotheses were formulated and tested:

- H₀₁:** There is no significant difference in adolescents' risk-taking behaviours predisposed by gender.
- H₀₂:** There is no significant difference in adolescents' risk-taking behaviours predisposed by age.
- H₀₃:** There is no significant difference in adolescents' risk-taking behaviours predisposed by family type.
- H₀₄:** There is no significant difference in adolescents' risk-taking behaviours predisposed by religious affiliation.

METHODOLOGY

The research design adopted for this study was descriptive survey research method. The population of this study was all the married individuals in the five local government areas within Sokoto metropolis. According to 2017 projected population and housing census of Federal Republic of Nigeria, there are 573, 358 married people in Sokoto metropolis (NPC Sokoto, 2017). Proportionate sampling technique was used to sampled 384 (determined by Research Advisors, 2006) from the number of married adults to represent each of the five selected local government areas, while giving every subject equal chance to participate, simple random sampling technique was used in selecting target participants at the field.

Table 1: Sample Sizes of the Selected Local Government Areas

S/N	Local Government	Population of Married Adult	Sample Size
1.	Dange/Shuni	118,356	79
2.	Kware	81,882	55
3.	Sokoto North	142,561	96
4.	Sokoto South	121,014	81
5.	Wamakko	109,545	73
Total		573, 358	384

Source: National Population Census, FRN (NPC Sokoto, 2017)

INSTRUMENT OF THE STUDY

The instrument used for data collection for the respondents was a questionnaire designed by the researchers titled "Risk Taking and Parental Monitoring Questionnaire (RTPMQ)". The instrument is a structural questionnaire consisting of two main sections. Section

'A' deals with demographic data of the respondents, while Section 'B' elicits information on risk taking behaviours of adolescents. The thirty items questionnaire was patterned in a four-point Likert rating scale format with SA = Strongly Agree



(4), A = Agree (3), D = Disagree (2), and SD = Strongly Disagree (1) reflecting different levels of response.

In validating this instrument, its draft was exposed to experts in the Department of Educational Foundations, Faculty of Education and Extension Services, Usmanu Danfodiyo University, Sokoto for ascertaining its construct and content validities. Their corrections and suggestions satisfied both its construct and content validities and is therefore adjudged suitable for use in the study.

The reliability of this instrument was ascertained by using internal consistency reliability method. The instrument was administered on 20 married adults by the researchers, that were not part of the study but possess similar characteristics of those involved in the

study. The score obtained was analyzed using Cronbach alpha statistics; and a reliability coefficient index of 0.78 was obtained which was considered high enough and reliable for use for this study.

The collected data was analyzed through the use of Statistical Package for Social Science (SPSS) version 2.0, to ensure accuracy and proper conclusions that would lead to accurate generalization of findings based on the hypotheses raised. Hypotheses one and three were subjected to an independent t-test analysis while hypothesis two and four were analyzed using ANOVA. The hypotheses were tested at 0.05 level of significance.

DATA PRESENTATION

The demographic data of the study was presented in table 2.

Table 2: Demographic information of the respondents

SN	Information	Frequency	Percentage
1.	Gender		
	Male	256	66.7
	Female	128	33.3
	Total	384	100%
2.	Age		
	12 – 15 Years	57	14.8
	16 – 19 Years	93	24.2
	20 Years and above	234	61.0
	Total	384	100%
3.	Family type		
	Monogamy	101	26.3
	Polygamy	283	73.7
	Total	384	100
4.	Religious Affiliation		
	Islam	328	85.4
	Christianity	56	14.6
	Traditional & Other religions	0	0.0
	Total	384	100%

From the table, study indicated that of the 384 subjects that participated in the study 256 (66.7%) are male while 128 (33.3%) are female; which can be attributed to the fact in the area of study, the male children are mostly given free opportunity to come out while the movement for the female is tightly controlled, and as such their (female) engagement in social activities is greatly limited. The table further shows that of those who participated in the study 57 (14.8%) were of the age range of 12 – 15 years, 93 (24.2%) were in the age bracket of 16 – 19 years while 234 (61.0%) were and above 20 years of age; the reason for the highest number of respondents in the last category may be simply ascribed to the fact that they are the majority in the society. Furthermore, the table indicated that 101 (26.3%) of the respondents are from monogamous type of marriage while 283

(73.7%) are from the polygamous type of marriage; this is for the simple fact that people in the area of study mostly practiced the polygamous type of marriage and regarded it with high esteem also. Finally, the table also revealed that 328 (85.4%) of the respondents practice the Islamic religion while 56 (14.6%) of the respondents practice Christianity but, none indicated practicing any other religion; this should not be surprising since the area of study is fully Muslims dominated.

H₀₁: *There is no significant difference in adolescents' risk-taking behaviours predisposed by gender.*

This hypothesis was tested by subjecting the male and female adolescents' risk-taking behaviours scores to an independent t-test analysis as shown in table 3.

**Table 3: Adolescents' risk-taking behaviours by gender**

Variables	N	Mean	Std. Deviation	t-Cal	p-Value	Decision
Male	256	26.38	2.999	6.117	.000	H ₀ Rejected
Female	128	22.02	3.804			

Result of table 3 indicates scores for male ($M = 26.38$, $SD = 2.999$) and for female ($M = 22.02$, $SD = 3.804$), $t(381) = 6.117$, $p = .000$. This indicates that there was difference, with the males having higher mean, in how adolescents' gender influences their risk-taking behaviours because the p -value is less than the .05 level of significance. Therefore, H_01 which states that there is no

significant difference in adolescents' risk-taking behaviours predisposed by gender was rejected.

H₀₂: *There is no significant difference in adolescents' risk-taking behaviours predisposed by age.*

This hypothesis was tested by subjecting the response scores to an F-test analysis as shown in table 4.

Table 4: Adolescents' risk-taking behaviours by age

	Sum of Squares	df	Mean Square	F	Sig.	Decision
Regression	799.374	2	399.687	33.788	.000	H ₀ Rejected
Residual	4506.978	381	11.829			
Total	5306.352	383				

Result of table 4 indicates $F(2, 381) = 33.788$, $p = .000$. This indicates that there was difference in how age influences adolescents' risk-taking behaviours because the p -value is less than the .05 level of significance. Therefore, H_02 which states that there is no significant difference in adolescents' risk-taking behaviours predisposed by age was rejected.

H₀₃: *There is no significant difference in adolescents' risk-taking behaviours predisposed by family type.*

This hypothesis was tested by subjecting scores for adolescents from monogamous and polygamous families to an independent t-test analysis as shown in table 5.

Table 5: Adolescents' risk-taking behaviours by family type

Variables	N	Mean	Std. Deviation	t-Cal	p-Value	Decision
Polygamous	283	26.60	3.531	7.466	.000	H ₀ Rejected
Monogamous	101	22.58	3.338			

Result of table 3 indicates scores for polygamous ($M = 26.60$, $SD = 3.531$) and for polygamous ($M = 22.58$, $SD = 3.338$), $t(381) = 6.117$, $p = .000$. This indicates that there was difference, with those from polygamous families having higher mean, in how adolescents' family type influences their risk-taking behaviours because the p -value is less than the .05 level of significance. Therefore, H_02 which states that there is no significant difference

in adolescents' risk-taking behaviours predisposed by family type was rejected.

H₀₄: *There is no significant difference in adolescents' risk-taking behaviours predisposed by religious affiliation.*

This hypothesis was tested by subjecting the response scores to an F-test analysis as shown in table 6.

Table 6: Adolescents' risk-taking behaviours by religious affiliation

	Sum of Squares	df	Mean Square	F	Sig.	Decision
Regression	200.524	1	200.524	15.003	.000	H ₀ Rejected
Residual	5105.827	382	13.366			
Total	5306.352	383				

Result of table 6 indicates $F(1, 382) = 15.003$, $p = .000$. This indicates that there was difference in how religious affiliation influences adolescents' risk-taking behaviours because the p -

value is less than the .05 level of significance. Therefore, H_04 which states that there is no significant difference in adolescents'



risk-taking behaviours predisposed by religious affiliation was rejected.

DISCUSSION

Result from the study indicates difference in how gender influences adolescents' risk-taking behaviours. This finding is in consonance to studies that point out that risk-taking, when gender is at stake, is more in males compared to females (Bayar & Sayil, 2005; Greene, Kremar, Walters, Rubin & Hale, 2000; Gullone, Moore & Boyd, 2000); with boys exhibit more risk-taking behaviors compared to girls both in middle and advanced ages. Likewise, the note that males engage in risk-taking behaviours more than the females is also supported by Uz Bař and Siyez (2010) when they pointed that boys have higher points related to risk-taking behaviors than girls. This is understandable since, in the area of the study, the male children have more freedom to freely moved out and about than the females who are always in their parents' homes and could only move out when there is cogent reason(s) to do that.

Result from the study also reveals difference in how age influences adolescents' risk-taking behaviours. This lent support to studies which shows that age is a more risk-taking behavior in middle adolescence ages compared to early adolescence ages (Klein, Brown, Childers, Oliveri, Porter & Dykers, 1993; Simons, Morton, Haynie, Crump, Eite & Saylor, 2001). This is also the same story in this area of study and could well be for the fact that at the early and middle adolescences the children are still under the watchful eyes of their parents and also that most of their activities are still being determine by them. But as for those in their late adolescence, they would have more freedom and are less 'shackled' to their parents' strings; nowadays such a group are being given economic independence and this plays an important part in letting them experience an unbounded freedom and as such may engage in risky behaviors than previously.

Result of the study also shows difference in how families' influence risk-taking behaviours. This finding is in line with the study of ok and Gney-Karaman (2008) which specified that starting from childhood, family life and relationships with peers have an effective role on shaping one's behaviors. It is also in agreement with the study of Yurtsever (2011) which points that adolescents engage in risky behaviors due to an unsystematic family environment and other factors. Similarly, the study somehow points to the work of Petraitis, Flay and Miller (1995) which shows that strong bonds between child and mother minimizes risk-taking, whereas, lack of bond works the opposite way and increases risk-taking behavior. Thus, in essence, children from families that are monogamous stands to be better off than those from polygamous families for the simple reason that they can get better care and attention. Another thing is that, the parents may find it less tedious to easily concentrate their attention on children in monogamous families than in the polygamous. Coupled with that is also the issues of economic disadvantage and

rival-jealousy experienced among siblings of co-wives usually found in polygamous marriage arrangements.

Finally, the study also reveals difference in how religious affiliation influences adolescents' risk-taking behaviours. This is understandable since based on religious affiliation respondents are categorized mainly into two; Islam and Christianity. And in fact, modes of children upbringing are quite different since its highly influenced by the respected religions. However, it seems that there are no clearcut studies that dealt with the religions in question. Nevertheless, there is nothing surprising about the finding since the tenets, teachings and approach though, in the deepest form are almost the same, are usually different. This is also due to the fact that practicing of the two religions is deeply rooted in the cultural practices of the people. In this respect, the indigene majority Hausa/Fulani people in the area of study practice the Islamic religion while the non-indigenes from the southern part of the country usually practice Christianity. Thus, there are some things that the culture of the indigenes is strict upon while the culture of the non-indigenes is favourable to, and these things extend to risk taking behaviour of the adolescents. For example, inherently the culture of the Hausa/Fulani is vehemently against alcohol or anything to do with it, which Islam also supports; but in the culture of the non-indigenes, alcohol is allowed which also Christianity is somehow lenient towards. Because of that and its like, it is not surprising if difference is found.

RECOMMENDATIONS

Based upon findings of the study, it is recommended that:

- i. parents have vital roles to play in monitoring to ensure reduction of adolescents' risk-taking behaviors;
- ii. parents and the community should become very vigilant in the behaviours of children in all the adolescence stages but, especially of those in the late stage;
- iii. the families and the society should ensure effective and efficient training, proper upbringing, equal treatments and empowerment in order to apprehend adolescents' risk-taking behaviour;
- iv. religious teachings should be geared towards invigorating people to adhere to moral wisdoms that will ensure observing admonitions and rules which will help in reducing risk taking behavior among the adolescents.

CONCLUSION

Adolescents is a time when the child want to have freedom and explore his environment and in doing so mostly engage in behaviours that are conflicting with the general needs and aspirations of the community in which they belong. In doing so, the adolescents usually ended up engaging in such behaviours that are risky; behaviours that are detrimental to their physical, emotional, social, psychological and general health and that could affect their subsequent performances later on in life. In this



regard, parents, the school and the general community should work together to ensure that such behaviours are monitored with a view to reducing or curving them altogether. In this way, parents have a great role to play being the first to nurture and socialize the child before being released into the society. In this respect, the parents should also understand that age, gender, family type, religious affiliations etc. are not to be taken lightly in ensuring reducing such risky behaviours in the adolescents.

REFERENCES

1. American Psychological Association (2014). Parenting. Retrieved from <http://apa.org/topics/parenting/index.aspx>.
2. Ashish, J. (2014). 6 Steps for Parents So Your Child is Successful. Retrieved from <http://www.humanerich.com>.
3. Bayar, N. & Sayıl, M. (2005). Brief report: Risk taking behaviors in a non-western urban adolescent sample. *Journal of Adolescence*, 28, 671-676.
4. Bowlby, J. (1973). *Attachment and loss: Separation: Anxiety and Anger*. New York: Basic Books, 2.
5. Budak, S. (2005). *Psychology dictionary*. 3rd Edition, Ankara: Sanat Publications.
6. Cerkez, Y. & Hocaoglu, B. (2017). Risk-taking behaviors in adolescents and its relationship with perfectionism. *International Journal of Sciences and Research*, 73 (6), 134 – 144.
7. Çok, F. & Güney-Karaman, N. (2008). Ergenlerde Risk Alma. *İstanbul Kültür Üniversitesi Fen-Edebiyat Fakültesi Psikoloji Bölümü Eğitim Psikolojisi Sempozyumu, İstanbul, Sayfa: 43-56*.
8. Dietrich, V. (2003). *An Exploration of Adolescent Risk-taking Behaviour: A Case Study Analysis*. Submitted in Partial Fulfilment of the Requirements for the Degree of Magister Artium in the Faculty of Arts at the University of Port Elizabeth.
9. Eneç-Can, F. (2007). Edirne şehir merkezindeki lise öğrencilerinde riskli sağlık davranışlarının değerlendirilmesi. *Uzmanlık Tezi, Trakya Üniversitesi, Tıp Fakültesi, Edirne*.
10. Ercan, O. (2001). İstanbul lise gençlerinde riskli davranışların sıklığı ve cinsiyete göre dağılımı. *Türk Pediatri Arşivi*, 36, 199-211.
11. Freisthler, B., Byrnes, H. F. & Gruenewald, P. J. (2019). Alcohol outlet density, parental monitoring, and adolescent deviance: A multilevel analysis. *Child Youth*, 3 1(3), 325–330. doi: [10.1016/j.chilgyouth.2008.08.006](https://doi.org/10.1016/j.chilgyouth.2008.08.006).
12. Greene, K., Krmar, M., Walters, L. H., Rubin, D.L. & Hale, J.A.L. (2000). Targeting adolescent risk-taking behaviors: the contributions of egocentrism and sensation-seeking. *Journal of Adolescence*, 23, 439-461.
13. Güler, N., Güler, G., Ulusoy, H. & Bekar, M. (2009). Lise öğrencileri arasında sigara, alkol kullanımı ve intihar düşüncesi sıklığı. *Cumhuriyet Tıp Dergisi*, 31, 340-345.
14. Gullone, E., Moore S., Moss, S. & Boyd, C. (2000). The adolescent risk-taking questionnaire: Development and psychometric evaluation. *Journal of Adolescent Research*, 15, 231-250.
15. Howard, I. (2013). *General parenting concepts*. New York: Conejo Valley.
16. <http://web17.epnet.com/citation.asp?tb=1>
17. http://www.penpages.psu.edu/penpages_reference/28507/2850
18. *Human Development Report (2014). Sustaining Human Progress: Reducing Vulnerabilities and Building Resilience. Published for the United Nations Development Programme (UNDP). ISBN 978-92-1-126368-8 eISBN 978-92-1-056659-9*
19. Kaşıkçı, Ş. (2014). Ergenlik döneminde riskli sağlık davranışları. Yüksek Lisans Tezi, Beykent Üniversitesi, Sosyal Bilimler Enstitüsü, İstanbul.
20. Kaya, Z. (2011). Madde kullanan ve kullanmayan ergenlerin kişilik özellikleri ve benlik saygısı açısından karşılaştırılması. Doktora Tezi, Dokuz Eylül Üniversitesi, Eğitim Bilimleri Enstitüsü, İzmir.
21. Kerr, M., Stattin, H. & Burk, W. J. (2010). A reinterpretation of parental monitoring in longitudinal perspective. *Journal of Research on Adolescence*, 20 (1), 39–64.
22. Klein, J.D., Brown, J.D., Childers, K.W., Oliveri, J., Porter, C. & Dykers, C. (1993). Adolescents' risky behavior and mass media use. *Pediatrics*, 92, 24-31.
23. Martins, M. (2000). Parental monitoring: A reinterpretation. *Child Development*, 71(4)
24. National Population Commission, Sokoto (2017). *Projected Population and Housing Census*. NPC, Federal Republic of Nigeria. Author.
25. Petraitis, J., Flay, B.R. & Miller, T.Q. (1995). Reviewing theories of adolescent substance use: Organizing pieces in the puzzle. *Psychological Bulletin*, 17(1), 7-86.
26. Research Advisors (2006). *Determining Sampling Size for Research Activities*.
27. Robert, B. (2018). Majority of children live with two biological parents. Retrieved from www.nlm.nih.gov/medlineplus/parenting.html.
28. Simons - Morton, B., Haynie, D.L., Crump, A.D., Eitel, P. & Saylor, K.E. (2001). Peer and Parent influences on smoking and drinking among early adolescents. *Health Education & Behavior*, 28, 95-107.
29. *The Concise Oxford Dictionary*, 1984: 900.
30. Trimpop, R.M. (1996). Risk Homeostasis Theory: Problems of the past and promises for the future. *Safety Science*, 22(1-3), p.119-130.
31. Tsagem, S. Y. (2022). The Adolescence Stage. In Akinade, E. A. (Ed.), *Developmental Psychology: A Life-Span Approach*. Ibadan, Oyo State – Nigeria: Brightways Publishers, Pp. 71 – 98. ISBN: 978-978-995-467-4
32. Uz Baş, A. & Siyez D.M. (2010). Lise öğrencilerinde sigara, alkol ve esrar kullanımını yordayıcı bir değişken olarak mükemmeliyetçilik. *New Symposium Journal*, 48, 256-263.
33. Yılmaz, M. & Traş, Z. (2019). The Investigation of Risk-Taking Behavior in Adolescents in Terms of Attachment Styles and Social Problem-Solving. *Asian Journal of Education and Training*, 5(2), 343-348. DOI: [10.20448/journal.522.2019.52.343.348](https://doi.org/10.20448/journal.522.2019.52.343.348)
34. Yurtsever, Z. (2011). Üniversite Gençlerinde Riskli Davranışlar. Yüksek Lisans Tezi, Erciyes Üniversitesi Sosyal Bilimler Enstitüsü, Kayseri.



A STUDY OF PROBLEMS FACED BY CLASS 8th STUDENTS IN ACQUIRING PRACTICAL SKILLS OF SCIENCE SUBJECT THROUGH ONLINE LEARNING

Anjali Namdeorao Chincholikar¹, Dr. Amardeep P. Asolkar²,

¹Research Scholar, Department of Education, MGM University, Chhatrapati Sambhajinagar (Aurangabad)

²Research Guide, Head of Department, Department of Education, MGM University, Chhatrapati Sambhajinagar (Aurangabad)

ABSTRACT

In the changing times, along with traditional education, skill based education has gained unique importance to achieve holistic development of students and to make their future easier. Development of innovative skills is essential for growth of jobs and entrepreneurship through education. Needless to say, the success of education lies in this. To develop skills means what exactly to do, teachers focus on encouraging them to understand a concept by themselves by giving them group discussions, demonstrations and sometimes project work through different means. Through practice, students acquire new skills and their creativity is boosted. A developing country like India lacks trained quality, skilled resources with educational qualifications and knowledge and skills to face the changing times and tough technological challenges.

INTRODUCTION

After an epidemic like Corona, huge changes were made and accepted in the education sector. Inevitability is one of the reasons for this, but recently there has been an emphasis on online education. Subjects like language, history, geography can be judged through analysis. Difficulties are certain for these subjects too but in the case of subjects like mathematics, geometry and science there are many difficulties as demonstration, experiment, subtleties are important. In the present place, when we took some notes regarding the subject of science for the students of 8th standard in secondary school, it was noticed that science is a systematic and ancient effort of man to know the gross world and nature around him.

IMPORTANCE OF SCIENCE SUBJECT IN SCHOOL EDUCATION

Science and technology have a special importance in the modern world and they have covered almost all areas of human life. The basic primary objectives of science education are to inculcate a scientific attitude in the individual, to cultivate a scientific approach as well as a comprehensive personal, social, cultural etc. in nature and human affairs. Scientific understanding and treatment of events etc. yes Looking at life's affairs from a scientific point of view means adopting an inquisitive and medical attitude, an objective way of thinking and a rational rationalist perspective. Tendencies like superstition, rudeness, traditionalism, have no place here. To achieve science education by knowing the working methods of science and how to use it to solve personal and social problems in life. Science is a subject

covered in higher education from class 5th to higher. In this study along with principles, theory and theory, direct observations, experiments and demonstrations also have a very important place. Students studying in class 8th have to study Chemistry, Physics, Biology mainly. In the science which is multidisciplinary, it is necessary to understand the knowledge of nature and the surrounding area from general science along with plant science at the level of education.

Children nowadays are growing up in a more scientifically and technologically sophisticated society, making scientific literacy more important than ever. When teaching the nature of science and encouraging the application of scientific practices, science education provides a fertile ground for the development of a wide range of 21st-century abilities, including critical thinking, problem solving, and information literacy. The influence of scientific knowledge is ubiquitous. Taking the bus to school is only one example of scientific method-based technology that students encounter every day. The school bus is an example of the use of various scientific and technological disciplines. Civil engineers and urban planners meticulously map out the networks of roadways, lighting, walkways, and other infrastructure. The student's smartphone is a marvel of 21st-century computing technology.

1) Knowledge: Introducing pupils to scientific concepts and principles might help them develop a deeper appreciation for the world around them. Children can learn a lot from science about the world. Everything from the human body to transportation



techniques may have its inner workings and rationale explained by scientific inquiry. This information will help you grasp novel ideas, make smart choices, and explore new areas of interest. Furthermore, children and teens may improve their knowledge and retention of information since science can give tactile or tangible verification of many things we see on TV and in books.

2) Problem Solving Skills: Science education may help cultivate a healthy skepticism in young minds. The curiosity sparked by scientific study helps pupils apply what they learn and generate new questions based on their observations. Inspiring and engaging, science piques the curiosity of many pupils, leading them to explore related fields. It's wonderful that scientific inquiry may inspire hope in young minds and motivate them to work for a better society. The capacity to reason and find solutions is a skill taught by the sciences. Almost everything you see was made possible because curious people applied their scientific acumen to a problem.

3) Technology: Discovering the fundamentals of how things function is something that may be learned via scientific studies. This encourages kids to think creatively, which may lead to the development of new technologies in the future. To inspect items and recognize their distinctions, it helps to understand how telescopes, microscopes, and other laboratory instruments function. Having even a cursory familiarity with technology might be helpful when troubleshooting household electronics.

4) Boost Critical Thinking: The scientific method provides students with a systematic framework for learning new material and establishing meaningful links between theory and experiment. In science, ideas are followed by experiments that demonstrate the notion via the use of scientific methods and analysis. The benefits of making this theoretical-methodological link may be seen in many different contexts and fields of study.

Science is like gas for a stove; it ignites young brains and propels them to their full potential. Solving problems and choosing courses of action based on careful consideration of the available data. Students should place a high priority on developing their abilities to think critically and solve problems. They're crucial for making the kind of educated choices that pay both academically and in the real world.

5) Holds the Key to Future: The idea that "the present is the key to the future" assumes that we are well-versed in the here-and-now to the point that we can extrapolate our knowledge into the future. Education in the sciences is essential for the next generation's future-readiness. The drop in smoking rates, for instance, has been attributed in part to treatments based on science that have been implemented in schools.

6) The Importance of Science in Early Education: When kids start school, they already have a very solid idea of what they think about the sciences. If kids have a bad view of science, it may be

difficult to interest them in the subject when they become older. Getting young pupils interested in the sciences at an early age via interesting content and experiences encourages them to continue their education in the field. Due to its practical application and the transferable nature of the problem-solving and critical-thinking abilities it fosters, science ranks high on the list of essential school courses. These are transferable abilities that help students throughout their lives, from ideation to decision-making to comprehending the research that informs public policy. Science education equips students with the technical literacy, critical thinking, and problem-solving abilities necessary for academic and professional success.

7) The Importance of Teaching Science to Children: Learning science is essential, just like learning arithmetic or studying history. Today's education discussions center on the growing emphasis on science, technology, engineering, and math (STEM) classes. Science may be a challenging topic to teach for a number of reasons, including the sheer volume of content and the inherent challenge of getting pupils to persevere through it all. Teachers, however, should focus on the significance of scientific education. Merely learning definitions and terms is not enough to succeed in life. Edify World School emphasizes areas of science where students interact with a variety of individuals, learn to be patient and persistent, develop a healthy dose of scepticism, get insight into the world beyond their own, and realize that they have the power to contribute to the solution of global issues. What follows are some of the most vital benefits that science can provide to kids.

8) Natural Science: Science elucidates the workings of the planet and teaches us how to most use its bounty. The depletion of these supplies, their effects on living beings, and the need of their conservation are all topics covered by scientific inquiry. Knowledge of animals is gained, as is an understanding of the effects of environmental and resource shifts. Learning early on how to reduce one's impact on the environment may have lasting benefits. Knowledge of how to prepare for and survive natural catastrophes is another vital component of science.

CHALLENGES IN ACQUIRING PRACTICAL SKILLS OF SCIENCE SUBJECT THROUGH ONLINE LEARNING

In the school curriculum, the basic knowledge of these subjects is generally followed by observing the experiments performed by the teachers in the classroom, and by doing the experiments themselves, the observations and conclusions are followed, but due to the online classroom, it became impossible to experiment, observe, and record changes in this way. The students do not understand the process and the results obtained by chemicals.

Just as the concept of chalk and fruit is considered important at the school level, demonstrations are an important part of science. Analysis alone makes it difficult to understand experiments.



Demonstrations enhance students' skills. In actual online education, secondary level students have to face many problems while demonstrating. When we consider both urban and rural students, some conclusions come to our hands which can be considered on the basis of some following points.

1. Inadequate facilities: While science is taught through online education in rural and tribal areas, children miss out on demonstrations and acquire skills as they do not have access to similar gadgets like mobiles or tablets. Also, the required internet facility is not available to them.

2. Lack of trained teachers: This problem is faced not only in rural but also in urban areas. Often teachers do not realize how to teach science based on daily life experiences. They seem to be teaching science in a very complicated and complicated manner. This directly affects the student. They find the subject difficult and lose interest in understanding science.

3. Textbook Language: Considering this issue, it appears that many students find the language in class VIII science textbooks complicated. Difficult book language as well as difficulty level of terminology helps to overcome this problem by teachers in classroom hours, but in online classroom this problem of students is ignored. It is not considered whether the language and knowledge is being understood or not. Teachers are eager to advance the curriculum, assuming that students are getting all the understanding.

4. Inadequate resources: While learning a subject like chemistry, observations can be recorded through actual experiments. Care and conclusions are important when using them. That skill can be acquired through practice. But when such a subject is taught in online learning without the use of chemicals or labs for hands-on experiments, students fail to acquire the skills.

5. Lack of feedback: While learning science subjects in the real classroom, the teacher is constantly interacting with the students and they are checking and giving feedback to the students on what they have understood. If the expected response is not received, the teacher emphasizes on explaining the same concept in simple language. In this way the process is two-way. Student participation is important in this. But since there is a one-way education in online education, there are obviously difficulties in acquiring the skills of the students.

6. Lack of creative participation of students: Student participation and student action are considered as important or major part while learning science subjects. This method is called student-centered teaching method and it is the same method that is intersected by online learning. Experimenting, observing, gathering information, making notes are the means by which students acquire knowledge independently. Online education does not seem to achieve this. This comes up as a problem.

In short, the field of science and technology is progressing rapidly day by day. Its facilities for education are expanding in the future. For this, it is necessary to know the problems of students at the school level and implement some solution plans for them.

MEASURING SUGGESTIONS

1. Recruiting trained teachers or conducting activities at various levels to train teachers.
2. To provide facilities to the students of rural and tribal areas.
3. Creating up-to-date laboratories and imparting education to students through it.
4. To make an effort to involve the students in hands-on demonstrations to enhance their creativity.
5. Preparation of action program of components to be taught according to student teaching method.
6. Science subject for Class VIII students should be taught in a teacher-centered and student-centered manner with emphasis on innovation and creativity to enhance their interest. In this way, students can be attracted to science by making certain changes and measures.

CONCLUSION

Creativity is essential for the progress of a country. Enhancing creativity in science among students will lead to scientists and new discoveries. For this, there is a need to increase creativity in science by creating interest in science among the students and motivating them to acquire more information about science. For that, it is necessary to teach by asking the students to take maximum action. It is necessary to develop in the student the ability of observation, skill of experimentation, art of presentation of ideas. Therefore, it is necessary to understand the difficulties in acquiring skills while taking online education and learning the subject of science, solve them and implement a solution plan to create creative students at the school level. This will also achieve the purpose of developing the courage to think for oneself without depending on the thoughts of others. The intention to improve thinking ability makes sense here.

In India in 1953 it was recommended that 'secondary education subjects should be taught as compulsory subjects. Science was included in the curriculum as per the recommendations made by various commissions. Due to which the intellectual depth of the children who are taking secondary education, they are able to understand the principles, concepts, etc. Apart from understanding the subject, handling the equipment, doing the experiment itself etc. Things were prioritized. This can be hindered by online education. In the new National Education Policy, the aim is to develop the skills and strengths of the students with emphasis on these aspects. In short, the challenge is to create a generation that can contribute to national progress through these media.



REFERENCE

1. Omprakash Patidar, 2021, *Scientific Perspectives*, Asianpress Publication, Delhi
2. Gogate Shri. B., 2012, *History of Science*, Shine Publication, Mumbai
3. *Science Education for Elementary School Teachers - Edited by E. Stillman, Nathan.*
4. Sharad Deshpande, Pradeep Gokhale, Sadanand More, 2009, *Philosophy of Science*, Diamond Publication, Pune
5. Abrahams, I., & Millar, R. (2008). Does practical work really work? A study of the effectiveness of practical work as a teaching and learning method in school science. *International Journal of Science Education*, 30(14), 1945-1969. <https://doi.org/10.1080/09500690701749305>
6. Dillon, J. (2008). A review of the research on practical work in school science [Online]. Available from: http://www.score-education.org/media/3671/review_of_research.pdf (Accessed: 28th April 2019).
7. Hodson, D. (1990). A critical look at practical work in school science. *School Science Review*, 70(256), 33-40.
8. Linn, M.C., Davis, E.A., & Bell, P. (eds.) (2004). *Internet environments for science education*. Mahwah, NJ: Lawrence Erlbaum Associates.
9. Tobin, K. (1990). Research on science laboratory activities: In pursuit of better questions and answers to improve learning. *School science and Mathematics*, 90(5), 403-418. <https://doi.org/10.1111/j.1949-8594.1990.tb17229.x>
10. <https://files.eric.ed.gov/fulltext/EJ1272657.pdf>



CONSUMER AWARENESS AND SATISFACTION TOWARDS ORGANIC FOOD PRODUCTS IN COIMBATORE CITY

Dr. S. Dharchana¹, Mr. S. Koushik²

¹Associate Professor, Department Of Commerce Dr. N. G. P. Arts and Science College, Coimbatore, Tamilnadu
²B.COM(Student), Dr. N. G. P. Arts and Science College, Coimbatore, Tamilnadu

INTRODUCTION

Agriculture is very important sector in the Indian economy, it is most important activity which along with creating good food for the nation which create employment to majority of the population. There are acute shortage of agricultural output. It all happened during the Green Revolution that occurred between the 1930 and late 1960s. Given the growing demand and population, developing countries such as India decided to ramp up their crop production by use of artificial chemicals such as pesticides and fertilisers along with hybrid seeds that were known to give more yield, With the increase in global health consciousness, Organic food is set to knock every door and make its way in kitchens worldwide.

People turned to organic foods because of the health issues. Organic production is an overall system of farm management and food production that aims at sustainable agriculture, high-quality products and the use of processes that do not harm neither the environment, nor human, plant or animal health and welfare Organic food is a comprehensive approach in the Indian environment, which starts at the farm and ends at the plates of the consumer”. Proper designing, planning and its implementation is the key to the success of research work. Plan of a research study entails an overview of the total layout, including a consideration of how the work is to be executed. It is the stage of decision-making, divergent thinking, and conceptual framework.

Organic farming is a kind of farming system that uses ecologically based pest controls and biological fertilizers derived largely from animal and plant wastes and nitrogen fixing cover crops. This modern farming was developed as a response to the environmental damage caused by the use of chemical pesticides and synthetic fertilizers in conventional agriculture, and it has a number of ecological. This farming is a new technique, which involves the cultivation of plants and rearing of animals in natural ways. This kind of process involves the use of biological materials, avoiding chemical substances to maintain soil fertility and ecological balance thereby minimizing pollution and wastage.

OBJECTIVES OF THE STUDY

The following are the objectives of the study:

1. To study the demographic factors of the respondents.
2. To analyze the Respondent’s awareness of organic food products.
3. To analyse the Respondent’s satisfaction with organic food products
4. To identify the problems faced while purchasing the product.

DATA ANALYSIS AND INTERPRETATION

AGE

S.No	Age	Frequency	Percentage
1	18 - 25 years	80	61.5
2	26 - 35 years	34	26.2
3	36 - 45 years	13	10
4	46 and above	3	2.3
	TOTAL	130	100

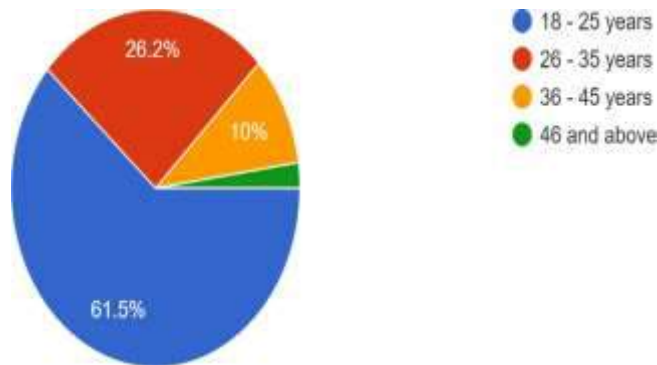
INTERPRETATION

The above table 4.1.1 states that 61.5% of the respondents belong to the age group of 18 – 25 Years, 26.2% of the respondents belongs to the age group of 26 – 35 Years, 10% of the respondents are belongs to the age group of 36 – 45 Years, 2.3% of the respondents are above 46 years.



INFERENCE

Majority 61.5% of respondents, age group is between 18 – 25 Years.



EMPLOYMENT STATUS

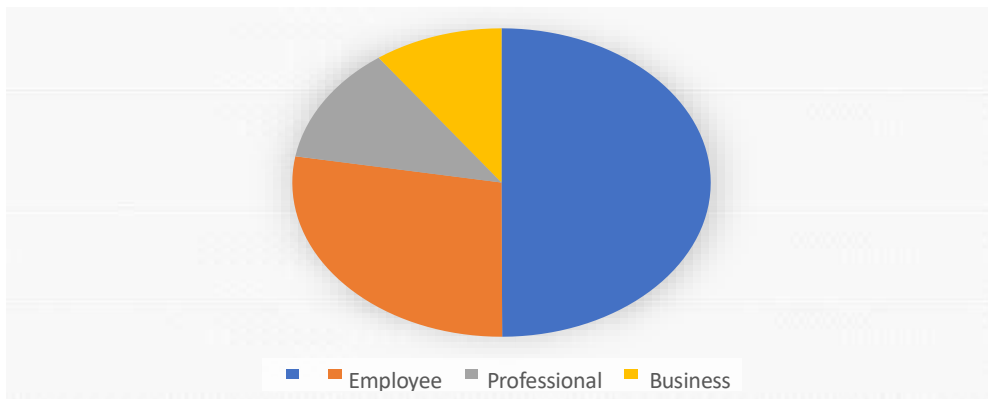
S.No	Employment Status	Frequency	Percentage
1	Student	65	50
2	Employee	36	27.8
3	Professional	16	12.3
4	Business	13	10
	TOTAL	130	100

INTERPRETATION

According to above table 4.1.4 It is observed that 50% of the respondents are Students, 27.8% of the respondents are Employees, 12.3% of the respondents are Professionals, 10% of the respondents are Business men.

INFERENCE

Majority 50% of respondents are Students.



RESIDENCE

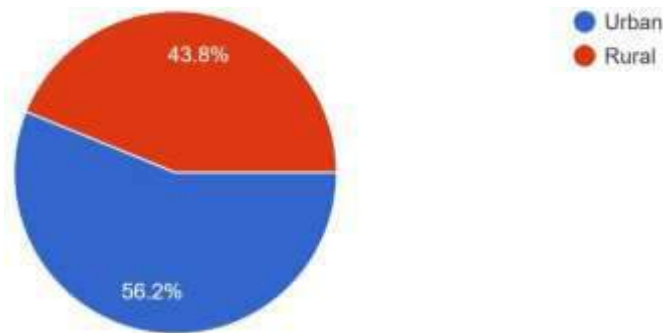
S.No	Residence	Frequency	Percentage
1	Urban	73	56.2
2	Rural	57	43.8
	TOTAL	130	100

INTERPRETATION

According to this table 4.1.6 Its can be observed that 56.2% of the respondents reside in Urban area, and 43.8% of the respondents beside in rural area.

INFERENCE

Majority 56.2% of respondents reside in Urban.



INTERPRETATION

According to above table 4.1.7 It is inferred that 32.3% of the respondents belong to Joint Family and 67.7% of the respondents belongs to Nuclear Family.

INFERENCE

Majority 67.7% of respondents are belonging to Nuclear Family.

FAMILY MEMBERS

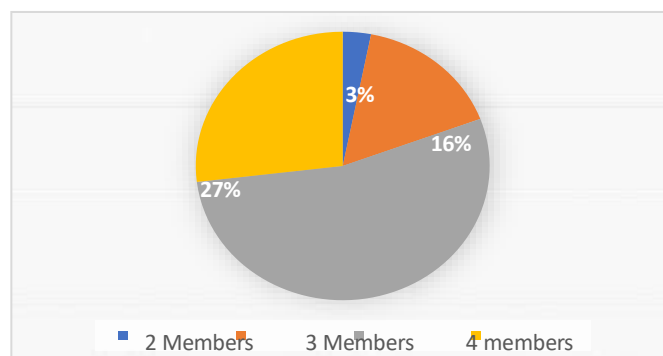
S. No	Family Members	Frequency	Percentage
1	2 Members	4	3.1
2	3 Members	21	16.2
3	4 members	70	53.8
4	5 and above	35	26.9
	TOTAL	130	100

INTERPRETATION

According to this table 4.1.8 Its can be observed that 3.1% of the respondents family size is 2 Members, 16.2% of the respondents with 3 Members, 53.8% of the respondents have 4 Members and 26.9% of the respondents are above 5 family members.

INFERENCE

Majority 53.8% of respondents have 4 Members in their family.



MONTHLY EXPENSES FOR ORGANIC FOOD PRODUCTS

S.No	Monthly Expenses for Organic Food Products	Frequency	Percentage
1	Rs.2,000 - Rs.5,000	55	42.3
2	Rs.5,000 - Rs.8,000	44	33.8
3	Rs.8,000 - Rs.10,000	29	22.3
4	Above Rs.10,000	2	1.5
	TOTAL	130	100

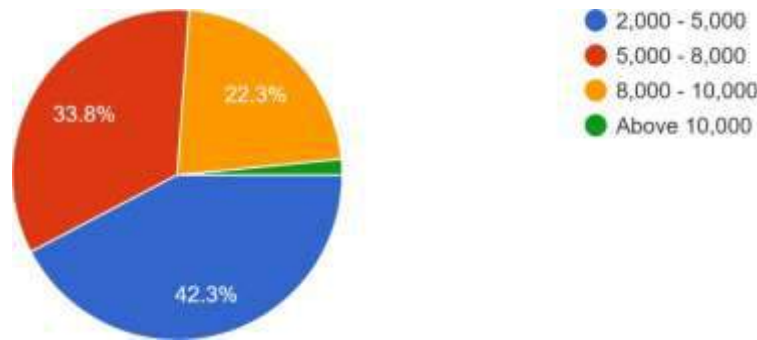


INTERPRETATION

According to this table 4.1.10 Its can be observed that 42.3% of the respondents monthly expenses for organic products is Rs.2,000 – Rs.5,000, 33.8% of the respondents spend Rs.5,000 – Rs.8,000, 22.3% of the respondents spend Rs.8,000 – Rs.10,000 and 1.5% of the respondents spend Rs.10,000 and above for organic food products.

INFERENCE

Majority 42.3% of respondents spend Rs.2,000 – Rs.5,000 for organic food products.



REASON FOR BUYING ORGANIC PRODUCTS

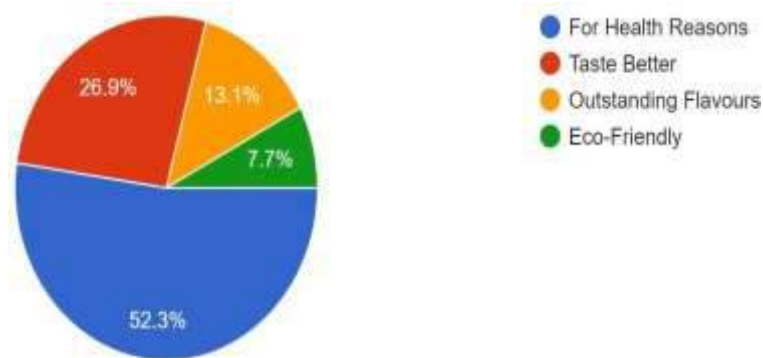
S.No	Particulars	Responses	Percentage
1	For Health Reasons	68	58.3
2	Better Taste	35	26.9
3	Outstanding Flavors	17	13.1
4	Eco-Friendly	10	7.7
	TOTAL	130	100%

INTERPRETATION

According to this table 4.1.12 Its can be observed that 58.3% of the respondents buy organic food for Health Reasons, 26.9% of the respondents for better taste, 13.1% of the respondents are for Outstanding Flavors and 7.7% of the respondents for Eco-Friendly.

INFERENCE

Majority 58.3% of respondents buy organic food product for Health Reasons.



KIND OF ORGANIC PRODUCT YOU PREFER TO PURCHASE

S.No	Prefer	Frequency	Percentage
1	Food Products	41	31.5
2	Fruits	33	25.4
3	Vegetables	45	34.6
4	Milk	10	7.7
5	Beverages (Juice Items)	1	0.8
	TOTAL	130	100%

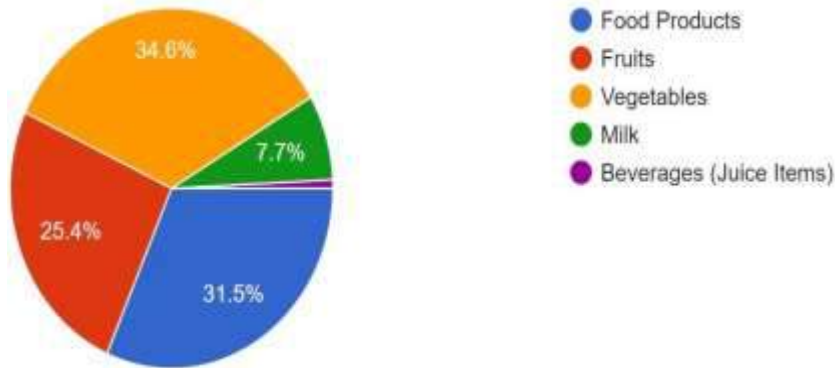


INTERPRETATION

According to this table 4.1.13 Its can be observed that 31.5% of the respondents purchase organic Food Products, 25.4% of the respondents purchase organic Fruits, 34.6% of the respondents purchase organic Vegetables, 7.7% of the respondents buy Milk and 0.8% of the respondents purchase Beverages (Juice Items).

INFERENCE

Majority 34.6% of respondents buy organic Vegetables.



WHERE DO YOU PURCHASE ORGANIC PRODUCTS

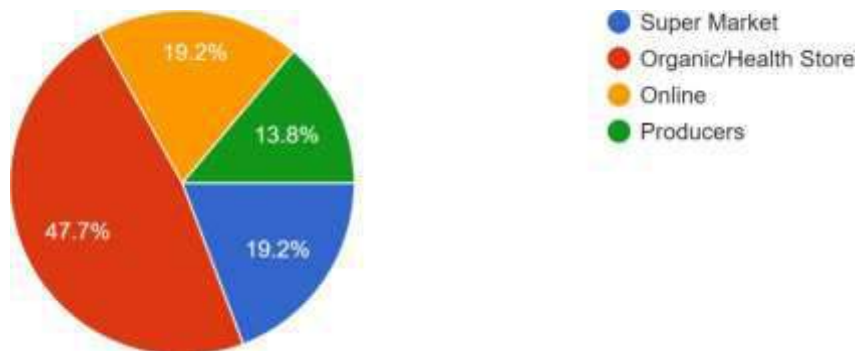
S.No	Purchase	Frequency	Percentage
1	Super Market	25	19.2
2	Organic/Health Store	62	47.7
3	Online	25	19.2
4	Producers	18	13.8
	TOTAL	130	100%

INTERPRETATION

According to this table 4.1.15 Its can be observed that 19.2% of the respondents purchase organic food products from Super Market, 47.7% of the respondents from Organic/Health Stores, 19.2% of the respondents purchase organic products from Online, 13.8% of the respondents from Producers.

INFERENCE

Majority 47.7% of respondents purchase organic food products from Organic/HealthStores.



HOW LONG YOU ARE USING ORGANIC PRODUCTS

S.No	Period of Using	Frequency	Percentage
1	Less Than A Year	31	23.8
2	1 - 3 Years	53	40.8
3	3 - 5 Years	38	29.2
4	Above 5 Years	8	6.2
	TOTAL	130	100%

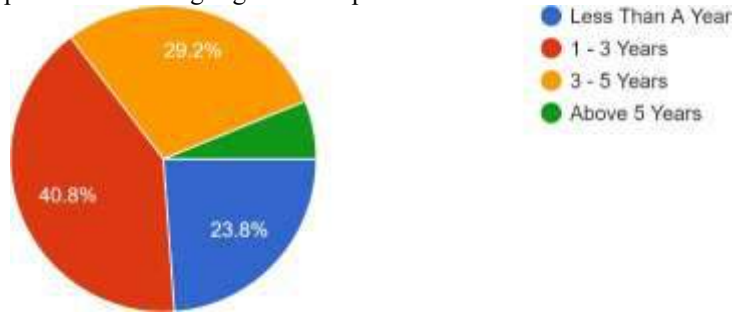
INTERPRETATION

According to this table 4.1.16 Its can be observed that 23.8% of the respondents use organic food products Less than a Year, 40.8% of the respondents between 1 – 3 Years, 29.2% of the respondents use from 3 – 5 Years, 6.2% of the respondents are consuming 5 Years and Above.



INFERENCE

Majority 40.8% of respondents are using organic food products from 1 to 3 Years



PROBLEM YOU FACED WITH ORGANIC PRODUCTS

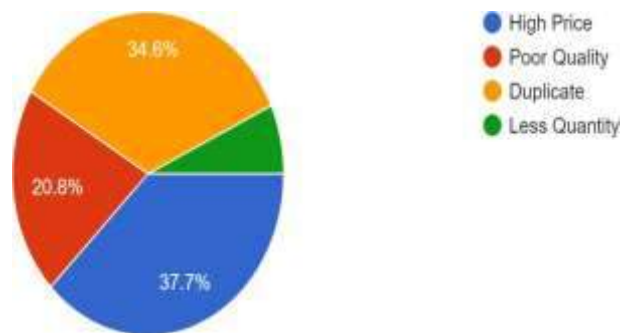
S.NO	Problems you Faced	Frequency	Percentage
1	High Price	49	37.7
2	Poor Quality	27	20.8
3	Duplicate	45	34.6
4	Less Quantity	9	6.9
	TOTAL	130	100%

INTERPRETATION

According to this table 4.1.18 Its can be observed that 37.7% of the respondents problem is High Price, 20.8% of the respondents state that if is of Poor Quality, 34.6% of the respondents are states that it is Duplicate, 6.9% of the respondents problem is for Less Quantity.

INFERENCE

Majority 37.7% of respondent’s states that organic food product is of High Price.



CONCLUSION

The current growth in consumption of organic food products actually reflects a greening of consumer lifestyles. Organic food consumers believed that organic food products contained no pesticides, most of the consumers believed that the organic food commodities were natural products. Organic food products are regarded healthy, need trust among the organic food consumers about the organic products. Organic food producers and sellers must find ways to create trust among their consumers and the satisfaction derived by the consumers from using organic food items has a positive impact on their repurchase intentions. The seller of the organic product are also increase. The marketers of organic foods need to be innovative and dynamic in order to complete with the changing purchase behavior in the Organic food products market. The study has revealed the consumers awareness and satisfaction of organic food products.

In Coimbatore city, where the project was conducted, factors such as availability, accessibility, and affordability of organic food products may play a role in influencing consumer behavior. Factors such as trust in the authenticity and reliability of organic food products and the level of information provided to consumers can also influence consumer awareness and satisfaction towards these products.

Overall, it is important to conduct regular research and surveys to understand the evolving consumer behavior towards organic food products in Coimbatore city and to make necessary improvements to promote consumer satisfaction and the growth of the organic food industry.



A CANONICAL CORRELATED MULTI-AGENT REINFORCEMENT FOR E-HEALTHCARE MONITORING

¹V. Deepa ²Dr .Rajeswari

PhD Research Scholar ¹, Associate Professor ²

PG and Research Department of Computer Science, Tirppur Kumaran College for Women, Tirppur, Tamil Nadu, India^{1,2}

ABSTRACT

Internet of Things (IoT) is becoming more popular, sensors are used to identify the patient's condition. Heart failure is a significant problem worldwide. It is a complicated task to forecast heart illness for a medical practitioner since it requires more contribution and understanding. Heart frequency monitoring is the fundamental computation that is crucial for heart attack prediction based on parameters like blood pressure, plasma cholesterol, and hemoglobin healthcare system, which can sense different human body parameters remotely over the Internet and then send them to an automated classification system for statistical analysis using Deep Neural Learning (DNL) techniques. The classification system is based on a DL classifier that uses IoT wearable device's log dataset to predict heart diseases. To achieve more accuracy a CCMARD approach is implemented. CCMARD is a (Multi -Agent reinforcement learning) approach. It can be classified into two categories. First, the Agent based approach provides the overall theoretical verifications. Second, Formalized approach provides the theoretical results for Patient Health monitoring system. By this way, an efficient diseased patient health monitoring is carried out with minimal time consumption. For experimentation, systematic cardiovascular healthcare data is produced utilizing Kaggle dataset and medicinal gadgets to foresee the diverse patient levels of disease severity. A detailed comparative analysis is carried out and the simulation outcome ensured the goodness of the CCMARD method over the compared methods under various aspects.

KEYWORDS: *Internet of Things, Big Data, CCMARD Technique, Deep Neural Learning process, Multi- Agent Reinforcement Learning, Health Monitoring.*

I. INTRODUCTION

Big data is a large volume of structured and unstructured data. Internet of things (IoT) is a new Paradigm where every node communicates with other node that is connected over the network to transfer essential data. Health issues like cardiovascular diseases need immediate attention to protect the patient's health. For this a Health specialist developed healthcare system for many diseases with the help wearable devices with sensors. Now doctors can monitor the patient's health without any intervention.

II. LITERATURE REVIEW

Now-a-days healthcare monitoring systems in hospitals and health centers has experienced large development and therefore portable healthcare monitoring systems is found to be in rising trends globally. Moreover, the initiation of Internet of Things (IoT) helps the progress of healthcare from face-to-face consulting to telemedicine. Internet of Things (IoT) is an environment where every connected node communicates with other nodes in order to transfer essential data for accurate decision making. Smart healthcare system in IoT environment monitor patient basic health signs in real-time.

An IoT-based E-healthcare monitoring model was introduced to check the cardiovascular patient's vital symptoms and identify

both biological as well as behavioral changes via smart healthcare technologies. Here, the vital data were acquired from IoT devices. Moreover, data analysis was performed by means of machine learning techniques for identifying probable risks concerning physiological and behavioral variations. However, the extent of accuracy was not reduced using IoT-based student healthcare monitoring model. Multi-Agent Systems (MASs) composed of multiple interacting intelligent entities. This can be used to solve the problem of E-Healthcare system with incomplete information. The designed mechanism comprised three phases, namely emergency detection, adapting sensing frequency and real-time patient situation prediction. However, sensor nodes failed to avoid repeated collision. The designed mechanism failed to adjust sensing frequency based on available energy beside redundancies between readings at different periods.

To fill the gap between these two kinds of approaches (Agent-Based and Formalized approach) we propose a **Multi- Agent Reinforcement Learning** Approach is implemented. To address these a method called CCMARD for IoT based healthcare Monitoring is proposed.



III. E-HEALT MONITORING SYSTEM WITH IOT AND BIG DATA

For IoT related to health sciences with big data, healthcare monitoring is a crucial parameter with respect to accuracy, time and error involved in several diseases like diabetes, cardiovascular disease and so on. The objective is to propose a healthcare monitor system which will improve the QoS in terms of Clustering accuracy, clustering time and error. IoT sensors collecting patients' data, large amount of data is said to be created by sensors while extracting healthcare data.

A. A CANONICAL CORRELATED MULTI-AGENT REINFORCEMENT DEEP NEURAL LEARNING APPROACH FOR DISEASE DIAGNOSIS

An IoT healthcare monitor system has been proposed based on machine learning for cardiovascular disease prediction in large volume of data. The patient's healthcare monitor based cardiovascular disease prediction model is proposed to achieve the human beings affected with disease regarding further treatment. CCMARD (canonical correlated multi-agent reinforcement deep neural learning) technique for patient's health monitoring with lesser time consumption was proposed. Data preprocessing is performed to remove the data with missing value to enhance the classification performance.

In CCMARD technique, the canonical correlation analysis has been calculated between the features and objectives for choosing relevant features. Activation function is used for multi-class classification problem. This technique function on three subsystems, namely user subsystem, cloud subsystem and alert subsystem. The initial subsystem collects the data from various IoT devices by means of wearable sensors. Then IoT devices choose the appropriate cluster to transmit the data that are sensed from IoT devices to gateway devices and cloud subsystem. In cloud subsystem, disease diagnosis process was carried out with Deep Neural learning DNL to identify the disease severity level of the patient and can generate Alert system. Fitness Function (FF) of every data employed to find the optimal solution.

comprised of three layers namely Deep Neural learning Process, SoftMax Activation function is used and analyze the feature value of data for performing calculations.

B. A DEEP NEURAL LEARNING – BASED HEALTHCARE MONITORING FOR CARDIOVASCULAR DISEASE DIAGNOSIS IN INTERNET OF THINGS ENVIRONMENT

Deep Neural Learning Process comprised of three layers namely Input Layer, two hidden layers and one output layer. In first layer, IoT Patient data is gathered from database and that data is given to the input layer. Then the Input Patient is transmitted to Hidden Layer 1. Here, Data Preprocessing is performed in hidden layer 1. This process is to remove the data with missing value to enhance the classification performance and then that data is transmitted to hidden layer 2. In hidden layer 2, canonical correlation analysis is calculated between the features and objective for choosing relevant features. In output layer, SoftMax Activation function is used in CCMARD model is used to analyze the probabilities of feature classified data .

IV. PERFORMANCE EVALUATION OF E-HEALTH MONITORING SYSTEM WITH IOT AND BIG DATA

To evaluate the different E- healthcare Monitoring system, number of patient data is taken as input to perform the evaluation. For Evaluation Cardiovascular Disease Dataset is considered as

Sl. No.	Feature/Attribute	Description
1	Age	Integer (range of 0-100)
2	Weight	Integer (range of 0-300)
3	Height	Integer (range of 0-200)
4	Gender	0: Female, 1: Male
5	Cholesterol	Double (range of 0-300)
6	Blood Pressure	Double (range of 0-200)
7	Diabetes	0: Normal, 1: Abnormal, 2: Unknown
8	Heart	0: Normal, 1: Abnormal, 2: Unknown
9	Stroke	0: No, 1: Yes
10	Angina	0: No, 1: Yes
11	Phonocardiogram	0: Normal, 1: Abnormal, 2: Unknown
12	ECG (ECG)	0: Normal, 1: Abnormal, 2: Unknown

input.

Table 1: Cardiovascular Disease Dataset Details

This dataset comprises of 11 features and 60000 records the dataset includes the cardio -train .csv. Result analyses are evaluated with certain parameters like Accuracy, Time complexity and Error rate.

IMPACT ON ACCURACY: Accuracy is described as the ratio of number of patient data that are correctly classified the patient health condition to the total number of patient data considered as input. Then the accuracy value is calculated. when the accuracy value is higher, the method is said to be more efficient. Accuracy is maximized to 87%.while using CCMARDNL model .

Table 2 explains the accuracy, time complexity and error rate by using CCMARD model.

WORK FLOW OF PROPOSED METHODOLOGY

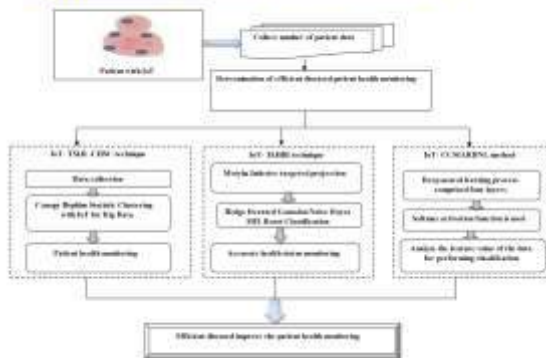


Fig 1: Workflow of CCMARD Technique

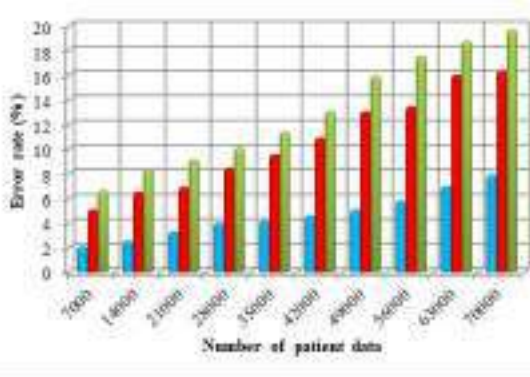
Fig 1 consists of three phases namely TSLR-CHSC, TAHIB technique and CCMARD Technique. A CCMARDNL method



Model	Accuracy (%)	Time Complexity (ms)	Error Rate (%)
10000	98.5	750	1.00
14000	99	950	2
18000	99.3	950	2.06
20000	97.89	1200	3.5
24000	96	1300	5
28000	96.83	1277	5.33
32000	96	1400	6.00
36000	96	1573	5.34
40000	94.22	1624	5.15
50000	93.47	1877	7.15
60000	93.8	1900	6.6

Table 2: Accuracy , Time complexity and Error rate Attained Using CCMARDNL

IMPACT ON TIME COMPLEXITY: Time complexity is measured as an amount of time consumed by the algorithm to classify Normal and Abnormal patients. Time complexity is measured in milliseconds. Time complexity is minimized to 19% by using CCMARDNL model.



GRAPH 1: Represents the Error rate.

IMPACT ON ERROR RATE: Graph 1 depict the Error rate is measured based on the ratio of several patient data that are incorrectly classified into the class to the total number of patient data. The error rate is minimized to 8.4 % by using CCMARDNL model.

CONCLUSION

In this paper, A IoT enabled healthcare monitoring technique called CCMARDNL is introduced. The developed E-health system are used to monitor, process and disease prediction of patient data. The comprehensive experimental evaluation is carried out with respect to the number of patient data. Using CCMARDNL technique, the statistical assessment results with higher accuracy level and minimizes time complexity with minimal error rate than the other convolutional methods.

REFERENCES

- [1] N.V.L.M. Krishna Munagala, Lakshmi Rajeswara Rao Langoju I.A. Daisy Rani, D.V. Rama Koti Reddy, "A smart IoT-enabled heart disease monitoring system using meta-heuristic-based Fuzzy-LSTM model", *Biocybernetics and Biomedical Engineering*, Elsevier, Volume 42, Issue 4, 2022, Pages 1183-1204. <https://doi.org/10.1016/j.bbe.2022.10.001>
- [2] Shakila Basheer, Ala Saleh Alluhaidan & Maryam Aysha Bivi, "Real-time monitoring system for early prediction of heart disease using Internet of Things", *Soft Computing*,

Springer, Volume 25, 2021, Pages 12145–12158. <https://doi.org/10.1007/s00500-021-05865-4>

- [3] Kashif Naseer Qureshi, Sadia Din, Gwanggil Jeon, Francesco Piccialli, "An Accurate and Dynamic Predictive Model for a Smart M-Health System Using Machine Learning", *Information Sciences*, Elsevier, Volume 538, October 2020, Pages 486-502. <https://doi.org/10.1016/j.ins.2020.06.025>
- [4] Jayasri N.P. and R. Aruna, "Big data analytics in health care by data mining and classification techniques", *ICT Express*, Elsevier, Volume 8, Issue 2, June 2022, Pages 250-257. <https://doi.org/10.1016/j.icte.2021.07.001>
- [5] Muhammad Umer, Saima Sadiq, Hanan Karamti , Walid Karamti , Rizwan Majeed, and Michele Nappi, "IoT Based Smart Monitoring of Patients' with Acute Heart Failure", *Sensors*, Volume 22, Issue 7, 2022, Pages 1-18. <https://doi.org/10.3390/s22072431>
- [6] Walaa N. Ismail, Mohammad Mehedi Hassan, Hessah A. Alsalamah, Giancarlo Fortino, "CNN-Based Health Model for Regular Health Factors Analysis in Internet-of-Medical Things Environment", *IEEE Access*, Volume 8, 2020, Pages 52541 – 52549. DOI: 10.1109/ACCESS.2020.2980938
- [7] Imran Ahmed, Gwanggil Jeon, Francesco Piccialli, "A Deep-Learning-Based Smart Healthcare System for Patient's Discomfort Detection at the Edge of Internet of Things", *IEEE Internet of Things Journal*, Volume 8, Issue 13, 2021, Pages 10318 – 10326. DOI: 10.1109/JIOT.2021.3052067
- [8] Mohammad Ayoub Khan and Fahad Algarni, "A Healthcare Monitoring System for the Diagnosis of Heart Disease in the IoMT Cloud Environment Using MSSO-ANFIS", *IEEE Access*, Volume 8, 2020, Pages 122259 – 122269. DOI: 10.1109/ACCESS.2020.3006424
- [9] Senthil Murugan Nagarajan, V. Muthukumaran, R. Murugesan, Rose Bindu Joseph, Munirathanam Meram & A. Prathik, "Innovative feature selection and classification model for heart disease prediction", *Journal of Reliable Intelligent Environments*, Springer, Volume 8, 2022, Pages 333–343. <https://doi.org/10.1007/s40860-021-00152-3>
- [10] Giovanni Paragliola and Antonio Coronato, "An hybrid ECG-based deep network for the early identification of high-risk to major cardiovascular events for hypertension patients", *Journal of Biomedical Informatics*, Elsevier, Volume 113, 2021, Pages 1-10. <https://doi.org/10.1016/j.jbi.2020.103648>



GUARDIANS OF HOPE: PAEDIATRIC NURSES' VITAL ROLE IN CHILDREN'S MENTAL HEALTH SUPPORT

Gayathri N S¹, Mary Daniel², Thara Xavier³, Finu M Paul⁴

¹Vice Principal, Paediatric nursing, Sri Shanmugha College of Nursing For Women, Salem, TN

²Vice Principal, Paediatric nursing, Mahatma Gandhi Institute of Nursing, Jabalpur, M.P

³ Staff Nurse, Prince Sulthan Military Medical city, Saudi Arabia.

⁴Assistant Professor, Paediatric nursing, College of Nursing Nirmala Medical Centre, Kerala

ABSTRACT

Mental health issues in children are on the rise, with a growing recognition of their significance. Paediatric nurses play a crucial role in addressing and supporting the mental health needs of children. This research article explores the pivotal role of paediatric nurses in promoting and providing mental health support for children. The researchers discuss the challenges they face, the skills and training required, and the potential impact on children's well-being. Through a comprehensive review of the literature, we aim to shed light on the importance of integrating mental health care into paediatric nursing practice.

KEYWORDS: Paediatric nurses, Mental health support, Children, Nursing practice, Psychosocial care.

INTRODUCTION

Children's mental health is an integral component of their overall well-being and development. As society becomes increasingly aware of the significance of mental health in children, the role of healthcare professionals in addressing these concerns has become more vital than ever. Among these professionals, paediatric nurses hold a unique position in caring for children's physical and mental health needs.

Over the past few decades, there has been a significant increase in the prevalence of mental health issues among children. The World Health Organization (WHO) estimates that approximately 10-20% of children and adolescents worldwide experience mental health disorders, with half of these disorders emerging by the age of 14. These statistics underscore the need for early intervention and effective support systems for children's mental health.

Paediatric nurses, as healthcare providers specializing in children's healthcare, are at the forefront of addressing these concerns. Their role extends beyond traditional medical care and encompasses psychosocial support and mental health promotion. This article delves into the multifaceted role of paediatric nurses in supporting the mental health of children.

PURPOSE OF THE ARTICLE

This research article aims to provide an in-depth understanding of the role of paediatric nurses in promoting and providing mental health support for children. It explores the challenges they encounter, the specialized skills and training required, and the potential impact of their interventions on children's mental well-being. By synthesizing existing literature and research, the researchers intend to underscore the significance of integrating mental health care into paediatric nursing practice.

METHODOLOGY

To achieve the objectives of this research article, the researchers conducted a comprehensive review of the existing literature. The researcher utilized electronic databases such as PubMed, CINAHL, Google Scholar and PsycINFO to identify relevant articles published from 2010 to 2023. Keywords included "paediatric nurses," "mental health support," "children," "nursing practice," and "psychosocial care."

This article aimed to identify peer-reviewed articles, systematic reviews, and meta-analyses that discuss the role of paediatric nurses in supporting children's mental health. The researcher also included studies that examine the challenges faced by paediatric nurses in providing mental health care to children. The articles were screened for relevance, and their findings were synthesized to provide a comprehensive overview of the topic.

CHALLENGES FACED BY PAEDIATRIC NURSES IN SUPPORTING CHILDREN'S MENTAL HEALTH

Paediatric nurses encounter various challenges in their efforts to provide mental health support for children. These challenges can be grouped into several categories:

- Limited Training and Education:** Historically, paediatric nursing education has primarily focused on physical health, leaving nurses with limited exposure to mental health concepts and interventions. Addressing this gap is essential for effective mental health support.
- Stigma Surrounding Mental Health:** Stigmatization of mental health issues can also affect paediatric nursing practice. Nurses may encounter resistance from parents or guardians who are hesitant to



acknowledge or seek help for their child's mental health concerns due to societal stigma.

3. **Communication Barriers:** Effectively communicating with children about their mental health can be challenging, especially when dealing with younger patients. Paediatric nurses must develop age-appropriate communication skills to gain children's trust and encourage open dialogue.
4. **Resource Constraints:** Many healthcare facilities face resource limitations in terms of mental health services, specialized staff, and time constraints. Paediatric nurses often must navigate these limitations while striving to provide comprehensive care.

THE ROLE OF PAEDIATRIC NURSES IN MENTAL HEALTH SUPPORT

Despite the challenges they face, paediatric nurses play a pivotal role in supporting children's mental health. Their responsibilities include:

1. **Assessment and Screening:** Paediatric nurses are often the first healthcare professionals to encounter children with mental health concerns. They conduct assessments, screen for risk factors, and identify potential mental health issues, allowing for early intervention.
2. **Education and Prevention:** Nurses educate children and their families about mental health, promoting awareness and prevention. They provide guidance on healthy lifestyles, stress management, and coping strategies.
3. **Collaboration:** Collaboration with other healthcare professionals, such as child psychologists and psychiatrists, is crucial for comprehensive care. Paediatric nurses work as part of a multidisciplinary team to develop and implement treatment plans.
4. **Advocacy:** Nurses advocate for the mental health needs of children within healthcare institutions, ensuring that adequate resources and support are available. They also advocate for children's mental health in the broader community.

REQUIRED SKILLS AND TRAINING

To excel in their role of supporting children's mental health, paediatric nurses must possess a diverse set of skills and undergo specialized training:

1. **Child Development Knowledge:** Understanding the developmental stages and milestones of children is essential for assessing mental health and tailoring interventions to their specific needs.
2. **Therapeutic Communication:** Paediatric nurses need strong communication skills to establish rapport with children, create a safe and supportive environment, and encourage open discussions about mental health.
3. **Cultural Competency:** Cultural sensitivity and awareness are critical for providing care that respects the diverse backgrounds and beliefs of children and their families.

4. **Trauma-Informed Care:** Training in trauma-informed care equips nurses to recognize the signs of trauma and provide sensitive, trauma-sensitive care to children who may have experienced adverse events.

THE IMPACT OF PAEDIATRIC NURSES ON CHILDREN'S MENTAL HEALTH

The role of paediatric nurses in supporting children's mental health has a profound impact on the well-being of young patients. Early intervention and appropriate care can lead to several positive outcomes:

1. **Improved Mental Health:** Paediatric nurses contribute to the early identification and management of mental health issues, leading to improved outcomes and reduced long-term psychological distress for children.
2. **Enhanced Coping Skills:** Through education and support, nurses help children develop effective coping skills, enabling them to navigate life's challenges and stressors.
3. **Prevention of Escalation:** Timely interventions by paediatric nurses can prevent the escalation of mental health issues, reducing the likelihood of hospitalization or more intensive treatments.
4. **Family Involvement:** Nurses involve families in the care process, fostering a supportive environment and ensuring that children receive consistent support both at home and in healthcare settings.

CONCLUSION

Paediatric nurses play an indispensable role in supporting the mental health of children. Their unique position as frontline caregivers allow them to identify mental health concerns early, provide education and prevention strategies, and advocate for the well-being of young patients. Despite the challenges they face, paediatric nurses are essential allies in the effort to promote and provide mental health support for children, contributing to improved outcomes and a brighter future for our youth.

REFERENCES

1. Abram, K. M., & Teplin, L. A. (2015). *Co-occurring disorders among mentally ill jail detainees: Implications for public policy*. *American Psychologist*, 70(8), 766-777.
2. American Academy of Pediatrics. (2016). *Policy statement—The impact of racism on child and adolescent health*. *Pediatrics*, 137(5), e20163474.
3. Barlow, J., Bergman, H., & Chandaria, K. (2016). *Community helpers: A pilot study of an innovative referral service for children with emotional and behavioural difficulties*. *Child and Adolescent Mental Health*, 21(2), 90-95.
4. Bostock, L., & Sheikh, A. (2018). *Bridging the awareness-action gap in perinatal mental health: A qualitative exploration of barriers to professional help-seeking*. *Health Expectations*, 21(6), 1131-1139.
5. Cleaver, K., Nixon, J., & Aldgate, J. (2019). *Training to identify child abuse and neglect: A national survey of students' initial reactions to the subject*. *Child Abuse Review*, 28(6), 421-434.



6. Cutuli, J. J., Ahumada, S. M., Herbers, J. E., & Masten, A. S. (2017). Sleep, psychological well-being, and resilience in children exposed to violence. *Child Abuse & Neglect*, 63, 36-48.
7. Denham, S. A., & Brown, C. (2010). "Plays nice with others": Social-emotional learning and academic success. *Early Education and Development*, 21(5), 652-680.
8. Foster, K., O'Brien, L., Korhonen, T., & McAllister, M. (2018). Infant feeding in the first 12 weeks following birth: A comparison of patterns seen in Asian and non-Asian women in Australia. *Women and Birth*, 31(4), e213-e220.
9. Kilpatrick, D. G., Resnick, H. S., Milanak, M. E., Miller, M. W., Keyes, K. M., & Friedman, M. J. (2013). National estimates of exposure to traumatic events and PTSD prevalence using DSM-IV and DSM-5 criteria. *Journal of Traumatic Stress*, 26(5), 537-547.
10. Leslie, L. K., & Gordon, J. N. (2016). Practitioner review: The role of pediatricians in supporting adoptive families—strategies and resources. *Journal of Child Psychology and Psychiatry*, 57(9), 1011-1021.
11. Malhotra, S., & Balhara, Y. P. S. (2018). Pediatric bipolar disorder: Diagnostic challenges in the complex psychiatric presentation of children and adolescents. *Journal of Neurosciences in Rural Practice*, 9(3), 444-449.
12. Stewart-Brown, S., & Schrader-McMillan, A. (2011). Parenting for mental health: What does the evidence say we need to do? Report of Workpackage 2 of the DataPrev project. *Health Promotion International*, 26(Suppl_1), i10-i28.
13. James, A., Xavier, T., & Babitha Mathew, P. J. (2022). A Study to Assess the Effectiveness of Planned Teaching Programme on Knowledge Regarding Eating Disorders among Adolescent Girls in the Selected Schools of Jabalpur City,(MP).
14. Vallières-Noël, M. M., Garçon, S., Rosmus, C., Goulnik, F., & Lavoie-Tremblay, M. (2016). Exploring the needs for support of pediatric nurses caring for children with a mental health disorder hospitalized in non-psychiatric units. *Archives of psychiatric nursing*, 30(2), 170-177.
15. Puskar, K. R., & Marie Bernardo, L. (2007). Mental health and academic achievement: Role of school nurses. *Journal for Specialists in Pediatric nursing*, 12(4), 215-223.
16. James, F., & Green, J. (2018). Long term effects of child abuse: lessons for Australian paediatric nurses. *Australian Journal of Advanced Nursing, The*, 35(4), 42-51.
17. James, A. (2023). Consequence of Showing Mobile Phone While Feeding Kids. *Adv Practice Nurs* 8 (2023), 319.
18. Augustine, Sr & Rajak, Priyanka & James, Arun & S, Prasanth. (2023). Unraveling the Mind: How Cognitive Biases Shape Nurses' Decision. *International Journal of Scientific Research in Educational Studies & Social Development*. 7. 875-879.
19. Singh, A. (2023). A study to determine the knowledge and attitude of mothers regarding prevention of child sexual abuse in a selected rural area of jabalpur, madhya pradesh. *EPRA International Journal of Multidisciplinary Research (IJMR)*, 9(8), 244-246.
20. James, Arun & Mohammed, Jisha & Xavier, Thara & Mathew, Babitha & George, Nithara. (2023). Expression of Underlying Conflicts through Genitals: A Comparative Analysis between Childhood and Adulthood. 7. 612-614.
21. Boyle, C., McLeod, J., & Chalmers, D. (2015). The role of pediatric nurses in child mental health. *Journal of Child and Adolescent Psychiatric Nursing*, 28(4), 198-205.
22. Forster, M., et al. (2017). Pediatric nurses' self-efficacy in managing children with behavioral and emotional difficulties. *Issues in Mental Health Nursing*, 38(8), 634-641.



DISTRIBUTION OF SICKLE CELL ALLELE IN ETHNIC SUB-GROUPS OF THARU IN NEPAL

Manoj Kumar Tharu¹, Nanda Bahadur Singh^{2,3}

¹Central Department of Zoology, Tribhuvan University, Kirtipur, Kathmandu, Nepal

²Professor, Central Department of Zoology, Tribhuvan University, Kirtipur, Kathmandu, Nepal

³Vice-Chancellor, Mid-Western University, Birendranagar, Surkhet, Nepal

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ABSTRACT

Sickle cell disease has been a major inherited blood disorder in several populations of the world including Tharu tribal communities of Nepal and India. This cross sectional study aims to access the prevalence of sickle cell disease in Tharu communities of Nepal by three different tests. Total 386 blood samples were collected from eight different sub-ethnic groups of Tharu communities of Rupandehi district, Nepal. The samples were tested for presence of sickle haemoglobin by sickle cell solubility test and sickling test as screening test method and those seen positive from either of these two tests were undertaken through genomic test by restriction fragment length polymorphism. Out of total 386 samples, 67 were seen positive from sickling test and 68 from solubility test. One and two samples were positive for only sickling test and solubility test respectively. 69 samples were tested by molecular method for confirmation and genotyping and out of them two were wild, 57 hetero and 10 mutant. Kanwar Tharu had highest prevalence(53.94%) and Marchaha Tharu had lowest prevalence(0%) of sickle cell allele in their gene pool. The allelic frequency of HbA and HbS were found to be 0.9 and 0.1 respectively. Prevalence of sickle cell anaemia was not found to be common in Tharu community, $\chi^2(2, N=386)=686.389, p<.00001$. The distribution of sickle cell allele was cast dependent, $\chi^2(7, N=386)=58.2823, p<0$ and Kanwar Tharu and Dadaha Tharu are most severely affected sub-ethnic groups with about 50% occurrence of HbS in their population.

KEYWORDS: Blood, RFLP, Sickle cell disease, Sickle cell allele, Sickling test, sickle cell solubility test, Tharu

1. INTRODUCTION

Sickle cell disease is a group of haemoglobinopathies including SCA, HbSC and HbS β -thalassemia characterized by mutation in the gene encoding haemoglobin sub-unit β (G. Kato et al., 2018). The gene defect is a known SNP changing GAG codon with GTG resulting in the synthesis of valine in place of glutamic acid(A.C. Allison, 2009).

SCD is the most common hereditary disease affecting about 250,000 newborn every year worldwide(T.N. Williams and D.J. Weatherall, 2012). The primary event in the pathogenesis of SCD is HbS polymerization occurring in deoxygenated erythrocytes(P. Sundd et al., 2019). The sickled erythrocytes obstruct blood vessels and have a reduced life span, leading to haemolytic anaemia, diffuse vasculopathy and tissue damage in various target organs(F. Lionnet et al., 2012). There is a wide variability in the clinical severity of SCA, as well as in the life expectancy(M.H. Steinberg and P. Sebastiani, 2012).

The Tharu people are an ethnic group indigenous to southern foothills of Himalaya range including parts of Nepal and India(J. Mclean,1999). Most of them live in Terai region of Nepal(W. Hechler and A. Guneratne, 2003). Tharu people are found to be suffered from SCD by different researches published in Nepalese medical journals(R. Pande et al., 2019). Sickle cell anemia and β -thalassemia trait (β -TT) have been a

major health threat for the Tharu living in the South-Western Terai of Nepal(N. Gautam et al., 2020). Unfortunately, health services are limited and inaccessible for Tharu individuals suffering from sickle cell disease(M. Marchand et al., 2017). We conducted a study finding the prevalence of sickle cell disease in Tharu communities of Western Nepal.

2. MATERIALS AND METHODS

The samples were collected randomly from Rupandehi district of Lumbini province, Nepal between April-July,2020. 386 individuals of eight different sub-ethnic groups of Tharu community aged four to 83 year from Tharu ethnic group participated in this survey. Approval from Tribhuvan University, Kathmandu and District Public Health Office, Rupandehi and consent from participating candidates were taken in written form.

About three ml of venous blood was collected and preserved in K2EDTA vials. Three different methods were used to detect the presence of HbS in the blood sample.

All the samples were tested for presence of sickle haemoglobin by sickling test and sickle cell solubility test. The samples diagnosed to be positive from either of these two methods were undertaken for molecular test by RFLP.

2.1 Sickling Test

Sodium metabisulphite was used as reducing agent for sickling test and one drop of blood was mixed with one drop of 2% sodium metabisulphite solution on a glass slide. The cover slip was immediately sealed with Vaseline and allowed it to stand at room temperature for about one hour then morphology of erythrocytes was observed under compound microscope.

2.2 Sickle Cell Solubility Test

The reagent for sickle cell solubility test was prepared by following R.M. Nalbandian et al,(1971). Two ml of working solution at room temperature was put into 12X75 mm test tube followed by 0.02 ml of whole blood and mixed thoroughly. The turbidity was read after five minutes in paper board test tube holder with reading card having 18 point black type straight lines 2.5 cm behind the test tube.

2.3 RFLP Test

The samples that showed positive result from either sickling test or solubility test or both were prescribed for confirmatory RFLP test. The genomic DNA was extracted by spin column method using Quick DNA Miniprep Plus Kit 10 preps(Zymo Research Corporation, USA) following manufactures manual. The PCR primers were adopted from Adhikari, 2017 that amplifies 539 bp region including 5'UTR, 1st exon, 1st intron and 2nd exon of β -globin gene of 11th chromosome. The PCR amplified product was run in TAE 1.2% agarose gel at 100V using 100bp DNA ladder to confirm correct amplification. The product was then digested using restriction endonuclease DdeI(C↓T N A G)(Vivantech, Malaysia). Finally the digested product was run in TAE 1% agarose gel electrophoresis using 100 bp molecular ladder at 100 V for confirmation and genotyping. The goodness of fit of distribution of HbS and test of independence of distribution of HbS among different sub-ethnic groups of Tharu tribe were tested using chi-square calculator, Social Science Statistics and remaining analysis was done manually.

Table 1: PCR primer sequence

Forward primer	5'-AGTCAGGGCAGAGCCATCTA-3'
Reverse primer	5'-AGGGTCCCATAGACTCACCC-3'

3. RESULT

Out of 386 samples, 67 showed positive from sickling test and 68 from sickle cell solubility test. One sample was positive from sickling test only and two from solubility test only. Thus total 69 samples were prescribed for RFLP test where two samples were found to be homozygous dominant(HbAA), 57 heterozygous(HbAS) and 10 homozygous recessive(HbSS).

The solubility test gave two false positive result. The allelic frequency were 0.9 and 0.1 for HbA and HbS respectively. Out of eight sub-ethnic groups, Kanwar Tharu showed highest prevalence(53.84%) while Marchaha Tharu had lowest(0%) prevalence of sickle cell allele. The prevalence of sickle cell anaemia was not found to be common in Tharu community $\chi^2(2, N=386)=686.389, p< .00001$. The distribution of sickle cell allele is cast dependent, $\chi^2(7, N=386)=58.2823, p< 0$.

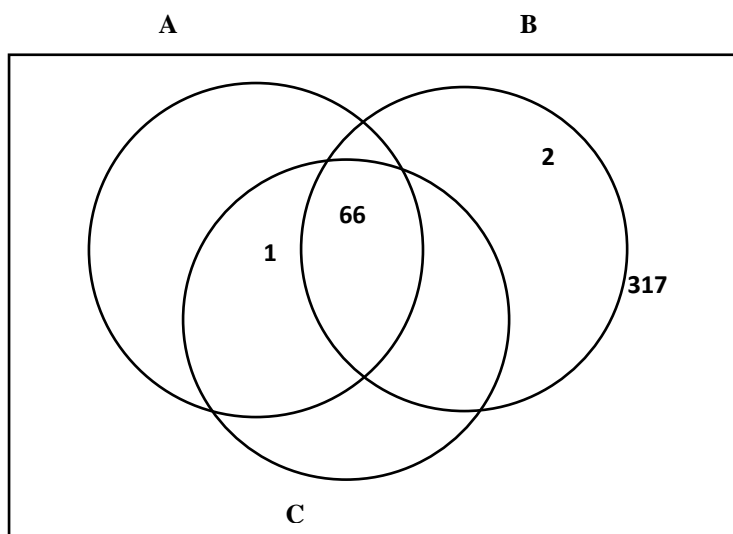


Fig. 1: Venn diagram showing comparative result of sickling, solubility and RFLP test where, A= no. of positive samples from sickling test. ; B= no. of positive samples from sickle cell solubility test. ; C= no. Of positive samples for HbS from RFLP test .

Table 2: Table showing ethnicity wise distribution of sickle haemoglobin among different ethnic sub-groups of Tharu community of Rupandehi district, Nepal.

Sub-ethnic group	Total no. of samples	No. of positive samples	Prevalence(%)
Kanwar	26	14	53.84
Dadaha	32	15	46.87
Kathariya	125	23	18.40
Purbiya	25	3	12.00
Khausiya	21	2	9.52
Dangoriya	72	5	6.94
Baatar	82	5	6.09
Marchaha	3	0	0
Total	386	67	

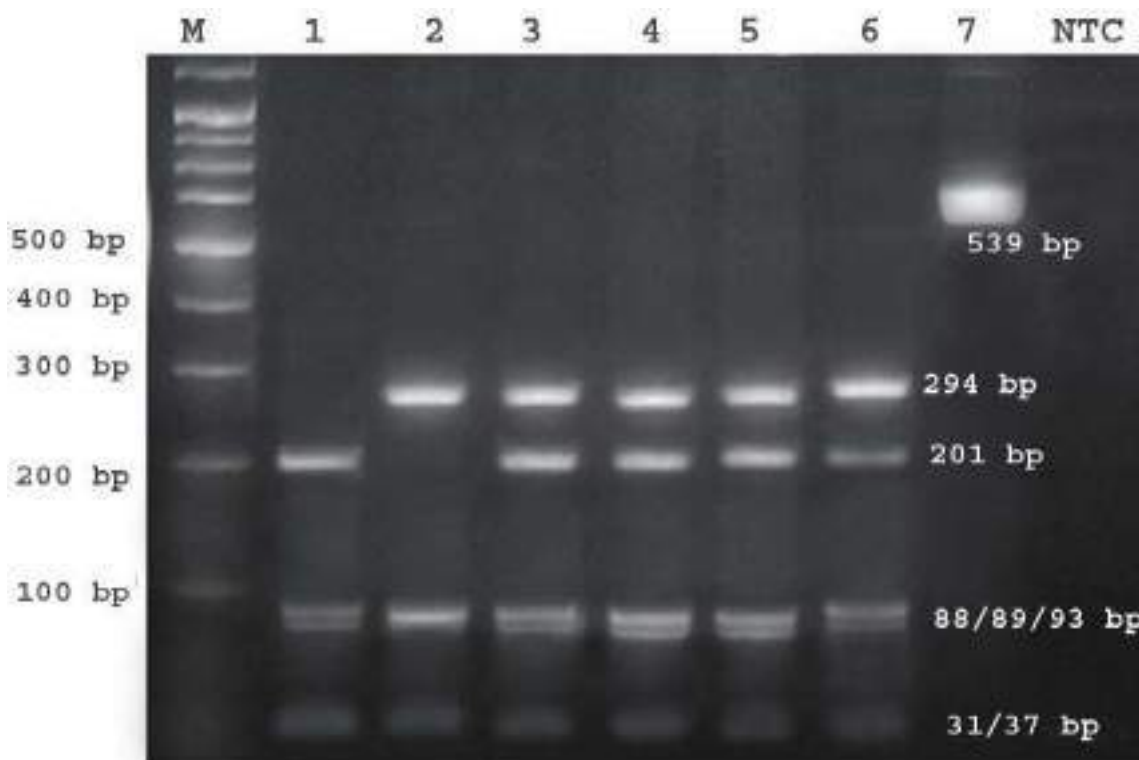


Figure 2: A photograph of TAE agarose gel 1% electrophoresis showing different bandings cut by DdeI restriction endonuclease. Lane M is the 100 bp DNA ladder, lane 1 is a negative control(AA), lane 2 is a positive control(SS), lane 3,4,5 and 6 are trait(AS), lane 7 is restriction negative control with uncut template DNA and lane NTC is a no template control.

4. DISCUSSION

This cross-sectional study was carried out in indigenous Tharu tribes of Rupandehi district of Mid-Western Terai of Nepal. A total of 386 people participated from different eight sub-ethnic groups of Tharu tribe. All the collected blood samples were undertaken through sickling test and sickle cell solubility test. There we found 67 positive from sickling test and 68 from solubility test. Out of total 69 positive samples two were positive only for solubility test and one was for only sickling test and remaining 66 were positive for both tests. When those 69 samples were undertaken through RFLP test, 57 found to be of HbAS genotype, 10 of HbSS and two of HbAA genotype. Two samples showed false positive and one false negative from solubility test while sickling test showed all true results. The prevalence of sickle haemoglobin was found to be 17.35%. Out

of them Kanwar Tharu were found to have highest prevalence(53.88%) and Marchaha Tharu have lowest prevalence(0%). Dadaha Tharu had 46.87%, Kathariya 18%, Purbiya 12%, Khausiya 9.52%, Dangoriya 6.94% and Baatar 6.09% prevalence of sickle haemoglobin. The male: female ratio was 1.09:1 and the commonest age group was 11-20.

A. Shrestha and S. Karki, (2013) conducted a study in SCA in Tribhuvan University Teaching Hospital, Kathmandu, Nepal from January 2011 to January 2013. Haemoglobin electrophoresis was performed by cellulose acetate electrophoresis at alkaline pH method. Sodium dithionite was used for sickling test. A total of 35 cases were diagnosed as sickle cell disorder. The male: female ratio was 2.5:1 with the commonest age group 11-20 years (42.8%). Tharu, Chaudhary



and Tharu, Rana (91.3%) were the commonest ethnic group with both sickle cell anemia and trait. It was found that Tharu (Chaudhary; 82.8%) was the most common ethnic group with this disorder followed by Tharu (Rana; 8.5).

M. Marchand et al., (2017) screened a total of 2899 Tharu individuals aged 6 months to 40 years in the rural district of Dang in Western Nepal by using a sickling test, of whom, 271 screened positive for HbS. Those who screened positive were offered diagnostic gel electrophoresis testing. Of the 133 individuals who underwent diagnostic testing, 75.9% (n = 101) were confirmed to be Hb AS heterozygotes, 4.5% (n = 6) were confirmed to be Hb SS homozygotes and 19.5% (n = 26) were false positives.

R. Pande et al., (2019) conducted a retrospective study in sickle cell disease between 2012 to 2018 at Bheri Provincial Hospital, Nepalgunj, Nepal by using haemoglobin electrophoresis and HPLC method for diagnosis. A total of 1459 individuals of haemoglobinopathies were seen, out of which 1250 had sickle cell disease and carrier. Out of 1250 patients and carriers, 608 (48.6%) were male and 642 (51.4%) were female. The mean age of patients and carriers was 24.5 ± 12 yrs. Maximum number of patients 381 (30.5%) were in the age group 21-30 years. Only 156 (12.5%) patients and carriers were under the age of 11 years. Around 1221 (97.7%) of the patients and carriers belonged to the Tharu ethnic group of Nepal. Rest were non-Tharus.

Tharu tribes are indigenous to the Terai of Nepal and Northern India practicing endogamous marriage. High prevalence of sickle cell disease has been documented in Tharu ethnicity in different parts of Nepal as well as India. A detail study of its prevalence in all tribal populations of Tharu community is still lacking. Neonatal and pre-marital tests will be effective against further inheritance of SCD. So an invasive study is recommended by mass screening programs that give technical guidance to the policy makers and health workers and help in management of the burden of SCD in the Tharu community.

Acknowledgment

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5. REFERENCES

1. Shrestha, & S. Karki, (2013), *Analysis of Sickle Hemoglobin*, *Journal of Pathology of Nepal*, Vol. 3, No. 6, pp. 437-440 <https://doi.org/10.3126/jpn.v3i6.8989>
2. A.C. Allison, (2009), *Genetic Control of Resistance to Human Malaria*, *Current Opinion in Immunology*, Vol. 21, No. 5, pp. 499-505 <https://doi.org/10.1016/j.coi.2009.04.001>

3. F. Lionnet, N. Hammoudi, K.S. Stojanovic, V. Avellino, G. Grateau, R. Girot, & J.P. Haymann, (2012), *Hemoglobin SC Disease Complications: a Clinical Study of 179 Cases*, *Haematologica*, Vol. 9, No. 1136-1141 <https://doi.org/10.3324/haematol.2011.055202>
4. G. Kato, F. Piel, C. Reid, et al., (2018.), *Sickle Cell Disease*, *Nat Rev Dis Primers*, Vol. 4, No. 18010. <https://doi.org/10.1038/nrdp.2018.10>
5. J. McLean, (1999), *Conservation and The Impact of Relocation of The Tharus of Chitwan, Nepal*, *Himalayan Research Bulletin*, Vol. XIX, No. 2, pp. 38-44
6. K. Adhikari, (2017), *Detection of Prevalence of Sickle Cell Disease in Tharu Population of Far-Western Nepal by RFLP method*, M.Sc. thesis, Central Department of Biotechnology, Tribhuvan university, Kirtipur, Kathmandu, Nepal.
7. M. Marchand, C. Gill, A.K. Malhotra, C. Bell, et al., (2017), *The Assessment and Sustainable Management of Sickle Cell Disease in The Indigenous Tharu Population of Nepal*, *Hemoglobin*, Vol. 41, No. 4-6, pp. 278-282 DOI: 10.1080/03630269.2017.1414058
8. M.H. Steinberg, & P. Sebastiani, (2012), *Genetic Modifiers of Sickle Cell Disease*, *Am. J. Hematol*, Vol. 87, pp. 795-803 DOI: 10.1002/ajh.23232
9. N. Gautam, A. Jayan, R. Dubey, A. Jha, S. Deshar, B. Tamang, B. Pokhrel, R. Phuyal, A. Shah, & R. Kaphle (2020), *Hematological Profiles in Hemoglobinopathy Patients in South Western Nepal*, *Journal of Universal College of Medical Sciences*, Vol. 8, No. 1, pp. 27-32 <https://doi.org/10.3126/jucms.v8i1.29813>
10. P. Sundd, M.T. Gladwin, and E.M. Novelli, (2019), *Pathophysiology of Sickle Cell Disease*, *Annu Rev Pathol*, Vol. 14, pp. 263-292 doi: 10.1146/annurev-pathmechdis-012418-012838
11. R. Pande, P. Ghimire, P.B. Chand, S. Gupta, et al., (2019), *Sickle Cell Disease in Western Nepal*, *Nepal Journal of Medical Sciences*, Vol. 4, No. 1, pp. 15-19 DOI: <https://doi.org/10.3126/njms.v4i1.24121>
12. R.M. Nalbandian, B.M. Nichols, A.E. Heustis, W.B. Prothro, and F.E. Ludwig, (1971), *An Automated Mass Screening Program for Sickle Cell Disease*, *JAMA*, Vol. 218, No. 11, pp. 1680-1682 doi: 10.1001/jama.1971.03190240034010
13. T.N. Williams, and D.J. Weatherall, (2012), *World Distribution, Population Genetics, and Health Burden of The Hemoglobinopathies*, *Cold Spring Harbor Perspective in Medicine*, 1; 2, a011692. DOI: 10.1101/cshperspect.a011692
14. W. Hechler, and A. Guneratne, (2003), *Many Tongues, One People: The Making of Tharu Identity in Nepal*. *The Journal of Asian Studies*, Vol. 62, No. 3, pp. 983-84 DOI: 10.2307/3591908



SELF-REPORTED, SELF-CARE ACTIVITIES AMONG TYPE 2 DIABETIC PATIENTS IN RURAL AREAS OF SRIKAKULAM DISTRICT, ANDHRA PRADESH: A CROSS-SECTIONAL STUDY

K. Satyanarayana¹, Saptarishi Bose^{2*}, Paromita Roy³

^{1,2}Department of Community Medicine, ³Department Of Dental, Great Eastern Medical School, Srikakulam, Andhra Pradesh

Correspondence: Dr. Saptarishi Bose

ABSTRACT

Background: Diabetes is a chronic condition. The burden of diabetes is, expected to rise to 592 million by 2035. Diabetes self-care activities can have a dramatic impact on lowering glycosylated hemoglobin levels. Hence, this study has been planned to assess the self-care activities among the type 2 diabetes patients in rural areas of Srikakulam district, Andhra Pradesh.

Methods: A cross-sectional study was conducted among type 2 diabetic patients residing in rural field practice area of Great Eastern Medical School, Srikakulam district during May 2023 and June 2023. Personal interview using semi-structured questionnaire including summary of diabetes self-care activities- revised version was conducted.

Results: Majority of the study participants were female and 46.2% were above 51 years of age. Majority had diabetes mellitus for 1-5 years. Of the diabetic self-care activities 68.5% had healthy eating 2-4 times/week. About 33.2% of the participants were not indulged in physical activity as well as high-intensity exercises even for a single day; about 33% had not tested their blood sugar level for even a single time and only 1.5% had checked their feet on all days during the previous week. Higher food scores were found significantly associated with availability of family support for self-care activities (*p* value 0.020).

Conclusions: Of the diabetic self-care activities the healthy dietary component was followed satisfactorily but exercise, foot care and testing of blood sugar were followed poorly by the study participants.

KEYWORDS: Diabetes mellitus, Self-care, Rural area

INTRODUCTION

Diabetes is a grave, chronic condition.¹ In 2013, it was estimated that 382 million people were diabetic and this number is expected to rise to 592 million by 2035.² According to the reports of the International Diabetes Federation, 72.9 million Indians were diabetic in 2017, which would be expected to rise till 134.3 million by the year 2045.³ Most people with diabetes live in low- and middle-income countries and these will experience the greatest increase in cases of diabetes over the next 22 years.⁴

Diabetes is of two types type 1 and type 2. In type 1 diabetes is also known as insulin-dependent diabetes. It usually begins in childhood thus also known as juvenile-onset diabetes. Type 1 diabetes is an autoimmune condition where a person's own body attacks its own pancreas with antibodies and doesn't make insulin. In type 2 diabetes, either the pancreas isn't making enough insulin as per the body's requirement or there is insulin resistance.⁵

Phase 1 of the Indian Council of Medical Research-India Diabetes (ICMR-INDIAB) study, reported the prevalence of diabetes in Tamil Nadu to be 10.4%.⁶ Diabetes is the highest cause of mortality and various morbidities. Diabetics are at increased risks of cardiovascular and other diseases.¹ Diabetes should be managed with holistic and individualised patient care based on structured education, self-management and safe and effective glucose-lowering therapies.⁷ Diabetes self-care

activities can have a dramatic impact on lowering glycosylated haemoglobin levels.⁸ Hence, this study has been planned to assess the self-care activities among the type 2 diabetes patients in rural areas of Srikakulam district, Andhra Pradesh.

METHODS

Singupuram is the rural field practice area of Great Eastern Medical College, Srikakulam. There are three villages covered in the Singupuram Health sub-center area namely Singupuram, Mamidivalasa and Bagguvanipeta. A community based cross-sectional study was conducted among the people residing in the above area to assess the self-care activities among the type 2 diabetes patients during the period of two months of May 2023 and June 2023. The sample population was all the diabetic patients of more than one-year duration residing in the above villages.

The sample size was calculated using the prevalence of diabetes in rural areas of Andhra Pradesh as 7.8%, taking 5% of desired precision along with a 95% confidence interval.⁶ The sample size came out to be 116. With non-responders assuming to be 10%, the required minimum sample size was calculated as 130.

A line list of diabetic patients from the three villages was prepared from the records available in the Government PHC, Singupuram. All the diabetic patients of more than one-year duration residing in rural areas of Srikakulam district were



included in the study. Patients with disease duration of less than one year, patients below 18 years of age, patients above 80 years (as they could have senile forgetfulness dementia, etc.) and those not willing to participate were excluded from the study. A personal interview using a semi-structured interview schedule was conducted with the study participants.

The interview schedule comprised of two parts. Section A consisted of basic patient history (demographic details and details regarding), while section B was for summary diabetes self-care activities (SDSCA) questionnaire (revised version) on diabetes mellitus.⁹ The SDSCA measure is a brief self-report questionnaire of diabetes self-management that includes items assessing the following aspects of the diabetes regimen: general diet, specific diet, exercise, blood-glucose testing, foot care, and smoking. Minor changes were made to the SDSCA questionnaire to suit local context i.e., instead of self-monitoring of the blood sugar level, underwent testing of blood sugar level was included.

The questionnaire was translated into Telegu and back-translated into English by a separate person. A pilot study was conducted with 10% of sample size with the translated version of the questionnaire.

Data were entered in Microsoft excel and analysed using the SPSS version 23 software. The frequency of respondents was calculated with regard to the number of days per week they practiced self-care activities on a scale of 0-7 for general diet, specific diet, exercise, blood-glucose testing and footcare. For smoking, it was dichotomised into smokers and non-smokers.

Diet score was calculated by adding the individual score for items of 1, 2, 3 and 4 after reversing the score of item 4. Exercise score was calculated by adding the individual score for items 5 and 6. Blood sugar tested at least one time in the previous week was taken as monitoring of blood sugar level. Checking of the foot for all the seven days of the previous week was taken as foot care.

Descriptive statistics were reported as mean (SD) for continuous variables and frequency (percentage) for categorical variables. Pearson's Chi-square test was used to find an association between two categorical variables. A p value <0.05 was considered as statistically significant.

Ethical clearance was obtained from the institutional ethics committee before the start of the study. Informed written consent was obtained from the study participants before conducting the interview.

RESULTS

In this study the majority (63.1%) were females and 46.2% of the participants were above 51 years of age. The majority of the participants were educated until primary (38.5%) with 82.3% being sedentary workers. Most of the participants belonged to the upper-middleclass. About 96.2% were married, 69.2% were living with their spouse and 63.8% were living in a nuclear family. A majority (71.5%) had no addiction habits and 21.55 were smokers (Table 1).

The majority of the participants had diabetes mellitus form 1-5 years (90%). Among the study participants, the majority of them (56.9%) didn't have diabetes mellitus among relatives. About 43% of the participants had a history of hypertension, followed by arthritis (26.2%). About 80.8% of the participants had taken treatment in government hospitals, followed by 18.5% in private hospitals. The majority of the participants took oral medications for diabetes (83.8%). Only 13% were on insulin. About 82.3% had received support from their family members for self-care activities (Table 2).

In this study, 68.5% had reported healthy eating 2-4 times/week. Only 18.5% of the participants reported >5 times/week of healthy eating. It was seen that the majority of the participants followed diet plans only 2-4 times/week (62.3%) and took 5 or more serving of fruits on 2-4 days (61.5%). High-fat foods such as red meat or full-fat dairy products were taken only 0-1 times/week by the majority of the subjects (65.4%).

About 33.2% of the participants were not indulged in 30 minutes of physical activity as well as high-intensity exercises even for a single day during the previous week. About 33% had not tested their blood sugar level for even a single time in the previous week. Only 1.5% had checked their feet on all days during the previous week (Table 3).

It was found that higher food scores were significantly associated with the age group of 25-59 years ($p=0.027$), participants living in a joint family ($p=0.011$) and the availability of family support for self-care activities ($p=0.020$). No significant association was found between food scores and gender, social-economic status and the duration of diabetes (Table 4).

It was found that testing for blood sugar level at least one time during the previous week was significantly associated with treatment taken from the private sector ($p=0.049$). There was no association found between testing for blood sugar level at least one time during the previous week and duration of diabetes, history of diabetes among the relatives and availability of family support (Table 5).



Table 1: Distribution of study participants according to socio-demographic variables (n=130).

Socio-Demographic Characteristics	Frequency	%
Age group (years)		
<24	1	0.8
25-59	59	45.4
>60	70	53.8
Gender		
Male	48	36.9
Female	82	63.1
Educational status		
Illiterate	39	30.0
Primary	50	38.5
High school	34	26.2
Diploma/higher secondary	6	4.6
Degree	1	0.8
Occupation		
Sedentary	107	82.3
Moderate	20	15.4
Heavy work	3	2.3
Socioeconomic status		
Upper class	4	3.1
Upper middle class	46	35.4
Middle class	38	29.2
Lower middle class	35	26.9
Lower class	7	5.4
Marital status		
Yes	124	95.4
No	6	4.6
Living with spouse		
Yes	108	83.1
No	22	16.9
Family type		
Nuclear	83	63.8
Joint	47	36.2
Addiction		
No addiction habits	93	71.5
Smoking	28	21.5
Alcohol	4	3.1
Tobacco chewing	3	2.3
Others	2	1.6

Table 2: Distribution of study participants according to disease and treatment profile (n=130).

Characteristics	Frequency	%
Duration of diabetes mellitus (years)		
1-5	117	90.0
6- 10	12	9.2
11-15	1	0.8
Diabetes mellitus among relatives		
Yes	56	43.1
No	74	56.9
History of other illness		
Hypertension	56	43.1
Arthritis	34	26.2
Heart diseases	3	2.3
Others	9	6.9
No other illness	28	21.5
Place of treatment		
Government hospitals	105	80.8



Private doctors	24	18.5
No treatment	1	.8
Type of treatment		
Insulin	17	13.1
Oral drugs	109	83.8
Herbal medicines	1	0.8
No medicines	3	2.3
Support from family members for self-care activities		
Yes	107	82.3
No	23	17.7

Table 3: Frequency of individual responses for SDCSA questionnaire among the study participants (n=130).

Item of questionnaire	Number of days in a week							
	0	1	2	3	4	5	6	7
	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)
Followed diet plan	5 (3.8)	12 (9.2)	34 (26.2)	30 (23.1)	25 (19.2)	14 (10.8)	8 (6.2)	2 (1.5)
Followed healthy eating	4 (3.1)	10 (7.7)	32 (24.6)	30 (23.1)	19 (14.6)	18 (13.8)	10 (7.7)	7 (5.4)
Had 5 or more serving of fruits	12 (9.2)	29 (22.3)	40 (30.8)	25 (19.2)	15 (11.5)	4 (3.1)	4 (3.1)	1 (0.8)
Had high fat foods	24 (18.5)	61 (46.9)	26 (20.0)	7 (5.4)	7 (5.4)	4 (3.1)	0	1 (0.8)
Did 30 minutes of physical activities	42 (32.3)	31 (23.8)	25 (19.2)	15 (11.5)	11 (8.5)	3 (2.3)	2 (1.5)	1 (0.8)
Did high intensity exercises	42 (32.3)	18 (13.8)	43 (33.1)	12 (9.2)	6 (4.6)	6 (4.6)	2 (1.5)	1 (0.8)
Undergone monitoring of blood sugar	43 (33.1)	60 (46.2)	18 (13.8)	4 (3.1)	1 (0.8)	3 (2.3)	1 (0.8)	0
Undergone recommended times blood sugar testing	37 (28.5)	72 (55.4)	11 (8.5)	3 (2.3)	2 (1.5)	1 (0.8)	1 (0.8)	3 (2.3)
Checked their feet	53 (40.8)	33 (25.4)	33 (25.4)	8 (6.2)	1 (0.8)	0	0	2 (1.5)
Inspected the inside of their foot wares	60 (46.2)	31 (23.8)	18 (13.8)	12 (9.2)	1 (0.8)	5 (3.8)	1 (0.8)	2 (1.5)

Table 4: Association between food score and characteristics of study participants (n=130).

Characteristics	Food score		χ^2 (p value)
	Lower score	Higher score	
	N (%)	N (%)	
Gender			
Male	29 (22.3)	19 (14.6)	0.780 (0.465)
Female	43 (33.1)	39 (30.0)	
Age group (years)			
<24	1 (0.8)	0	6.108 (0.027)
25-59	26 (20.0)	33 (25.4)	
>60	45 (34.6)	25 (19.2)	
Socioeconomic status			
Upper class	4 (3.1)	0	5.272 (0.257)
Upper middle class	22 (16.9)	24 (18.5)	
Middle class	23 (17.7)	15 (11.5)	
Lower middle class	18 (13.8)	17 (13.1)	
Lower class	5 (3.8)	2 (1.5)	



Family type			
Nuclear	53 (40.8)	30 (23.1)	6.667 (0.011)
Joint	19 (14.6)	28 (21.5)	
Total	72 (55.4)	58 (44.6)	
Family support			
Yes	54 (41.5)	53 (40.8)	5.918 (0.020)
No	18 (13.8)	5 (3.8)	
Total	72 (55.4)	58 (44.6)	
Duration of diabetes mellitus (years)			
1-5	67 (51.5)	50 (38.2)	2.267 (0.287)
6- 10	5 (3.8)	7 (5.4)	
11-15	0	1 (0.8)	

DISCUSSION

This study was conducted to study the self-care activities among type 2 diabetic patients in rural areas of Srikakulam District, Andhra Pradesh. In our study the majority were female and 53.8% of the participants were above 60 years of age. The mean age of the participants was found to be 57.58±12 years. The majority of the participants were educated until primary (38.5%) with 82.3% being sedentary workers. Most of the participants belonged to upper-middle-class (35.4%), married (96.2%), stayed with their spouse (69.2%). About 63.8% were staying in a nuclear family similar to the census 2011 data of 70% nuclear families in India.

In this study, the majority (90%) of the participants had diabetes mellitus from 1-5 years. In other studies, it was reported as 62%, 57% and 53.6% for having a duration of diabetes of fewer than 5 years.¹⁰⁻¹²

In this study, 43% of the participants had a history of hypertension, followed by arthritis (26.2%) as comorbidities. A similar finding was observed in one study that 43.3% had also hypertension.¹³ In a study conducted in Maharashtra, it was 62.3% for hypertension as comorbidity.¹² In another study, it was found that 80% had hypertension and 17.3% had arthritis.¹⁰

In the present study majority of the participants took oral medications for diabetes (83.8%) and only 13% were on insulin. Similarly, findings were noted in a study that 88% of the participants were on oral hypoglycaemic agents.¹⁰

About 82.3% had reported that they received family support for the self-care activities in this study. Good family support was found associated with better self-management practices.¹¹ In a study conducted in Delhi, it was reported that family support was perceived by 90% of the participants.¹³

In this study, 68.5% had reported healthy eating 2-4 times/week. Only 18.5% of the participants reported >5 times/week of healthy eating. It was seen that the majority of the participants followed diet plans only 2-4 times/week (62.3%) and took 5 or more serving of fruits on 2-4 days (61.5%). High-fat foods such as red meat or full-fat dairy products were taken only 0-1 times/week by the majority of the subjects (65.4%). In a study at Mangalore, it was found that 45.9% followed diet plan for all days of the week and 26.2% taken fruits on all days.¹⁴

In a study conducted in Delhi, it was reported that 30% followed the diet plan on all 7 days and 1.8% for the specific diet.¹⁵ In a study in Vellore, it was found that good dietary practices were present in 29% of participants.¹⁶ In a study in Pune, it was reported that 75.4% followed the diet plan for at least five days a week and 34.8% followed in all days.¹²

The result of this study showed that the physical activity element of self-care activities was followed poorly by the study participants, as only 56.2% of the participants were indulge in 30 minutes of physical activity only 0-1 times/week, followed by 2-4 times/week by 39.2% of the participants. The majority of the participants were indulging in high-intensity exercises like swimming, walking, biking etc., for 0-1 times/week and 2-4 times/week. In a study in Gujarat, it was reported that only 40% were involved in physical exercise in 3 days in a week's time.¹⁷ In a study in Delhi, only 9% practiced physical activity on all 7 days and 39.3% did not practice physical activity for even a single day.¹³ In the study from Maharashtra, 29% were not practiced physical activity even for a single day.¹²

Results showed that 33.1% of the participants did not test their blood sugar in the past week. Similar results were observed that 92.3% and 69.5% had not tested even for a single time in other studies.^{12,13}

Foot care was found poor among the study participants. Only 1.5% of them checked their feet on all days in the past week. It was reported as 19% and 9% in other similar studies.^{16,17} About 40.8% did not check their feet at least once in the past week in this study. It was reported as 56.5% in another study.¹² Footcare was the poor self-care activity reported in a study in Vellore.¹⁶

It was found that higher food scores were significantly associated with participants living in a joint family ($p=0.011$) and the availability of family support for self-care activities ($p=0.020$). Similar findings were seen in the study that a general diet score was higher among diabetic patients who received family support.¹³ It was found in a study that of all the family supportive behaviors, the more common were for the diet-related self-care activities.¹¹

Higher food scores were significantly associated with the age group of 25-59 years. This may be due to the economically productive nature of the age group.



There was no significant association found between the exercise score and the study variables. But in one study exercise practice was found associated with income and in another study, it was associated with gender and marital status.^{13,16}

It was found that testing for blood sugar level at least one time during the previous week was significantly associated with treatment taken from the private sector ($p=0.049$). There was no association found between testing for blood sugar level at least one time during the previous week and duration of diabetes, history of diabetes among the relatives and availability of family support. In a study in Delhi, blood sugar testing was found associated with younger patients and patients on insulin therapy.¹³ In a study in Vellore, it was found associated with higher socioeconomic status and among the married participants.¹⁶

Strengths and limitations of this study

This was a community-based cross-sectional study to assess the self-care practices in rural diabetic patients. It provides insights into the diabetic self-management educational activities among the rural community. The limitations of this study are that being a study conducted in rural areas, the results may not be applicable to urban areas where family type, as well as the support from the family members for self-care activities, may be different.

CONCLUSION

This study shows that among the self-care activities, physical exercise and foot care needs improvement among the diabetic patients. The primary care health workers should emphasize on educating the diabetic patients' education about self-care activities including life style modification. Health education programs involving family members for better self-care activities will improve the management of diabetes.

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REFERENCES

1. World Health Organisation (WHO). 2016. Global report on Diabetes. Available at: https://apps.who.int/iris/bitstream/handle/10665/204874/WHO_NMH_NVI_16.3_eng.pdf;jsessionid=E4A09E7B2362142C71E456A811F0B6A8?sequenc. Accessed on 8 December 2019.
2. Deshpande AD, Harris-Hayes M, Schootman M. Epidemiology of diabetes and diabetes-related complications. *Physical Therapy*. 2008;88(11):1254-64.
3. ICMR Guidelines for management of type 2 Diabetes. 2018. Available at: <https://medibulletin.com/wp-content/uploads/2018/05/ICMR.diabetesGuidelines.2018.pdf>. Accessed on 8 December 2019.
4. Guariguata L, Whiting DR, Hambleton I, Beagley J, Linnenkamp U, Shaw JE. Global estimates of diabetes prevalence for 2013 and projections for 2035. *Diab Res Clin Practice*. 2014;103(2):137-49.
5. Alberti KG, Zimmet PZ. Definition, diagnosis and classification of diabetes mellitus and its complications. Part

- 1: diagnosis and classification of diabetes mellitus. Provisional report of a WHO consultation. *Diab Med*. 1998;15(7):539-53.
6. Anjana RM, Pradeepa R, Deepa M, Datta M, Sudha V, Unnikrishnan R, et al. Prevalence of diabetes and prediabetes (impaired fasting glucose and/or impaired glucose tolerance) in urban and rural India: Phase I results of the Indian Council of Medical Research-IndiaDIABetes (ICMR-INDIAB) study. *Diabetologia*. 2011;54(12):3022-7.
7. Chatterjee S, Davies MJ. Current management of diabetes mellitus and future directions in care. *Postgraduate Med J*. 2015;91:612-21.
8. Shrivastava SR, Shrivastava PS, Ramasamy J. Role of self-care in management of diabetes mellitus. *J Diab Metabol Disorders*. 2013;12(1):14.
9. Toobert DJ, Hampson SE, Glasgow RE. The summary of diabetes self-care activities measure: results from 7 studies and a revised scale. *Diabetes care*. 2000;23(7):943-50.
10. Manobharathi M, Kalyani P, Arulmani A. Factors associated with therapeutic non-compliance among type 2 diabetes mellitus patients in Chidambaram, Tamilnadu, India. *Int J Community Med Public Health*. 2017;4(3):787-91.
11. Ravi S, Kumar S, Gopichandran V. Do supportive family behaviors promote diabetes self-management in resource limited urban settings? A cross sectional study. *BMC Public Health*. 2018;18(1):826.
12. Kushwaha AS, Kumari S, Kushwaha N. Self-care in diabetes: a study amongst diabetics in an urban community. *Int J Community Med Public Health*. 2016;3:293-8.
13. Mohandas A, Bhasin SK, Upadhyay M, Madhu SV. Diabetes self-care activities among adults 20 years and above residing in a resettlement colony in East Delhi. *Indian J Public Health*. 2018;62(2):104.
14. Rajasekharan D, Kulkarni V, Unnikrishnan B, Kumar N, Holla R, Thapar R. Self-care activities among patients with diabetes attending a tertiary care hospital in Mangalore Karnataka, India. *Ann Med Health Sci Res*. 2015;5(1):59-64.
15. Padma K, Bele DS, Bodhare TN, Valsangkar S. Evaluation of knowledge and self-care practices in diabetic patients and their role in disease management. *Natl J Community Med*. 2012;3:3-6.
16. Gopichandran V, Lyndon S, Angel MK, Manayalil BP, Blessy KR, Alex RG, et al. Diabetes self-care activities: a community-based survey in urban southern India. *Natl Med J India*. 2012;25(1):14-7.
17. Raithatha S1, Shankar SU, Dinesh K. Self-Care Practices among Diabetic Patients in Anand District of Gujarat. *ISRN Family Med*. 2014;2014:743-1.



NAVIGATING THE ETHICAL COMPASS: LEGAL AND ETHICAL CHALLENGES IN OBSTETRIC AND GYNAECOLOGICAL NURSING

Dr.(Prof.) Meenu Paul¹, Reena Ashish Thomas², Amrita Singh³

¹Professor, OBG Nursing, Anushree College of Nursing, Jabalpur, Madhya Pradesh

²Associate Professor, OBG Nursing, Indira Gandhi College of Nursing, Jabalpur, Madhya Pradesh & PhD scholar, Shri Jagdishprasad Jhabarmal Tibrewala University [JJTU], Rajasthan

³Assistant Professor, Obstetrical & Gynaecological Nursing Department, School of Health Sciences KNM Hospital

ABSTRACT

This article delves into the complex realm of legal and ethical considerations in Obstetric and Gynecological (OBG) nursing. It explores the vital role of OBG nurses in ensuring patient rights, safety, and quality care, while navigating a landscape fraught with legal and ethical challenges. By examining key issues, ethical principles, and legal frameworks, this article aims to empower OBG nurses to make informed decisions, uphold ethical standards, and provide exceptional care to their patients.

KEYWORDS: OBG nursing, legal issues, ethical issues, patient rights, healthcare, quality care

INTRODUCTION

The Crucial Role of OBG Nursing

Obstetric and Gynaecological (OBG) nurses are at the forefront of women's healthcare, providing comprehensive care from prenatal stages through childbirth and beyond. They serve as advocates, caregivers, educators, and sources of support during significant phases of women's lives. However, this pivotal role comes with numerous legal and ethical challenges that require careful consideration and adherence to established guidelines.

Significance of Legal and Ethical Awareness

Understanding and addressing legal and ethical issues in OBG nursing are paramount to patient safety, quality care, and professional practice. This article aims to explore these issues in-depth, offering insights and guidance to OBG nurses to navigate this complex landscape successfully.

ETHICAL PRINCIPLES IN OBG NURSING

Autonomy and Informed Consent

One of the fundamental ethical principles in healthcare is respecting a patient's autonomy. In the context of OBG nursing, this often involves obtaining informed consent for medical procedures, interventions, and treatment options. Autonomy implies that patients have the right to make decisions about their care based on accurate information. Ensuring that patients fully understand their choices, potential risks, and benefits and can make decisions free from coercion or undue influence is crucial.

Patient Case Example: Sarah, a pregnant woman, must decide whether to undergo a caesarean section. OBG nurses should provide comprehensive information about the procedure, potential risks, and alternatives to enable Sarah to make an informed decision.

Privacy and Confidentiality

OBG nurses must uphold patient privacy and confidentiality, particularly in sensitive areas like reproductive health. Patient privacy encompasses the right to control one's personal health information and the expectation that healthcare professionals will safeguard it. Confidentiality is an ethical duty that requires healthcare providers to maintain patient trust by not disclosing personal health information without the patient's consent.

Patient Case Example: Emily, a young woman seeking reproductive health services, trusts her OBG nurse to keep her medical history confidential. The nurse must ensure that Emily's information is not shared without her permission.

Beneficence and Non-Maleficence

The ethical principles of beneficence (doing good) and non-maleficence (do no harm) guide OBG nurses in providing care that maximizes benefits while minimizing harm. Beneficence requires healthcare providers to act in the patient's best interests and provide care that promotes their well-being. Non-maleficence obliges healthcare professionals to avoid causing harm intentionally and to mitigate potential harm.

Patient Case Example: In cases of maternal-fetal conflict, where interventions may benefit the fetus but harm the pregnant woman, OBG nurses must carefully balance these ethical principles to make ethically sound decisions.

LEGAL FRAMEWORK IN OBG NURSING

Standard of Care

OBG nurses must adhere to the established standard of care, which is determined by the profession's norms, guidelines, and evidence-based practices. Deviating from this standard can result in legal consequences, making it vital for nurses to



remain current on best practices and guidelines established by professional nursing organizations.

Patient Case Example: OBG nurses must follow the standard of care when monitoring labor progress and recognizing signs of complications. Failure to do so may result in legal liability if harm occurs.

Malpractice and Liability

Understanding malpractice and liability issues is essential for OBG nurses. Malpractice claims can arise from alleged negligence, errors in care, or failure to meet the standard of care. OBG nurses must practice within their scope of practice, seek guidance or supervision when necessary, and document patient interactions and care thoroughly.

Patient Case Example: If an OBG nurse administers the wrong medication to a laboring patient, resulting in harm, a malpractice claim may ensue. Proper documentation and adherence to protocols can mitigate such legal risks.

Legal and Ethical Dilemmas in Maternal-Fetal Conflict

Maternal-fetal conflict situations can present complex legal and ethical dilemmas. When the interests of the pregnant woman and the fetus are in conflict, OBG nurses must navigate this terrain carefully, taking into account the legal and ethical aspects while considering the overarching goal of ensuring the best possible outcomes for both.

Patient Case Example: A pregnant woman with a life-threatening condition refuses treatment because it could harm her fetus. OBG nurses must work collaboratively with the healthcare team to navigate the ethical and legal complexities of this situation while upholding the patient's autonomy.

COPING WITH ETHICAL DILEMMAS

Ethical Decision-Making Frameworks

OBG nurses can benefit from using ethical decision-making frameworks when faced with complex ethical dilemmas. The "four principles approach" (autonomy, beneficence, non-maleficence, and justice) offers a structured way to analyze ethical dilemmas. Additionally, the "ethics of care" approach emphasizes the importance of relationships, empathy, and context in ethical decision-making.

Patient Case Example: An OBG nurse confronted with an ethical dilemma regarding the withholding of medical information from a patient may use the "four principles approach" to assess the situation and arrive at an ethically sound decision.

Seeking Guidance and Consultation

In situations where ethical dilemmas are particularly complex, OBG nurses should seek guidance from ethics committees, ethics consultants, or other healthcare professionals experienced in ethical decision-making. Collaboration can help identify ethical solutions and provide support during difficult decisions.

Patient Case Example: In cases involving maternal-fetal conflict, OBG nurses may consult with an ethics committee to ensure that ethical principles are upheld while navigating complex medical decisions.

CONCLUSION

In the intricate world of Obstetric and Gynecological (OBG) nursing, the awareness and resolution of legal and ethical issues are indispensable facets of professional practice. OBG nurses bear the profound responsibility of ushering women through pivotal phases of their lives, including pregnancy, childbirth, and reproductive health management. Yet, this role is interwoven with a complex tapestry of legal and ethical challenges that demand diligence, ethical acumen, and compliance with established standards.

This comprehensive exploration of legal and ethical considerations underscores their paramount significance in the realm of OBG nursing. The ethical principles of autonomy, beneficence, non-maleficence, and justice serve as guiding lights, directing OBG nurses in their daily interactions with patients. Respecting a patient's autonomy by ensuring informed consent, safeguarding their privacy and confidentiality, and striving to maximize benefits while minimizing harm exemplify the ethical compass OBG nurses must adhere to.

Simultaneously, the legal framework within which OBG nurses operate sets the stage for accountability and adherence to the profession's standards. Upholding the standard of care, which evolves with advances in healthcare, is a foundational legal requirement. Failure to meet this standard can have profound legal implications, emphasizing the need for nurses to remain vigilant in their professional development.

Complex scenarios, such as maternal-fetal conflict, illuminate the delicate balance that OBG nurses must strike between ethical principles and legal obligations. Navigating these situations demands not only clinical expertise but also ethical discernment to ensure the best possible outcomes for both the pregnant woman and the fetus.

To cope with ethical dilemmas that may arise in OBG nursing practice, nurses have at their disposal well-established ethical decision-making frameworks. The "four principles approach" and the "ethics of care" offer structured methodologies to analyze complex ethical issues systematically. Seeking guidance and consultation from ethics committees or experienced healthcare professionals can provide valuable perspectives and mitigate the weight of difficult decisions.

In conclusion, legal and ethical issues are not peripheral concerns but integral components of OBG nursing practice. OBG nurses must equip themselves with ethical wisdom and legal knowledge to provide the highest standard of care while safeguarding patient rights and well-being. By diligently adhering to ethical principles, following the legal framework, and seeking guidance when ethical dilemmas arise, OBG nurses can uphold the integrity of their profession and ensure optimal outcomes for the women they serve. As the healthcare landscape continues to evolve, the commitment to ethical practice and legal compliance remains steadfast, ensuring that



OBG nursing remains a cornerstone of women's healthcare excellence.

REFERENCES

1. American Nurses Association. (2015). *Code of ethics for nurses with interpretive statements*. American Nurses Association.
2. Beauchamp, T. L., & Childress, J. F. (2019). *Principles of biomedical ethics*. Oxford University Press.
3. Faden, R. R., & Beauchamp, T. L. (1986). *A history and theory of informed consent*. Oxford University Press.
4. Chervenak, F. A., McCullough, L. B., & Chez, B. F. *Ethical Challenges*. Nan H. Troiano, RN, MSN, 16.
5. Herring, J. (2019). *Medical law and ethics*. Oxford University Press.
6. Holland, S., & Biggs, H. (2021). Providing and getting the best-informed consent in obstetrics and gynecology. *Obstetrics and Gynecology Clinics*, 48(3), 415-426.
7. American College of Obstetricians and Gynecologists. (2020). ACOG Committee Opinion No. 761: Ethical considerations for shared decision-making in obstetric practice. *Obstetrics and Gynecology*, 135(3), e82-e89.
8. American Medical Association. (2020). *Code of Medical Ethics: Current opinions with annotations*. American Medical Association.
9. Arras, J. D. (2007). *The fragile web of responsibility: AIDS and the duty to treat*. *Hastings Center Report*, 37(1), 32-40.
10. Beauchamp, T. L., & Childress, J. F. (2019). *Principles of biomedical ethics*. Oxford University Press.
11. Bernat, J. L. (2016). Ethical aspects of determining and communicating prognosis in critical care. *Neurocritical Care*, 24(3), 421-428.
12. Emanuel, E. J., & Emanuel, L. L. (1992). Four models of the physician-patient relationship. *JAMA: The Journal of the American Medical Association*, 267(16), 2221-2226.
13. Gillon, R. (1994). *Medical ethics: Four principles plus attention to scope*. *British Medical Journal*, 309(6948), 184-188.
14. Gold, R., & Cullen, L. (2017). *Obstetric and gynecologic nursing: Legal and ethical issues*. *Nursing Clinics of North America*, 52(4), 581-592.
15. Hall, H. R., & Hall, J. D. (2015). Nursing ethical considerations in informed consent for blood transfusion. *Nursing Ethics*, 22(2), 189-196.
16. Kant, I. (2002). *Groundwork for the Metaphysics of Morals*. Yale University Press.
17. Lachman, V. D. (2015). *Ethical issues in the neonatal intensive care unit*. *Newborn and Infant Nursing Reviews*, 15(4), 149-153.
18. Magnusson, R. S., & Moir, F. (2019). Obligations and reciprocity: Ethical implications for critical care nursing practice. *Nursing Ethics*, 26(5), 1446-1458.
19. Monagle, J., & Chalmers, D. (2019). Practical and ethical issues relating to critical care triage in the Covid-19 pandemic. *Journal of Medical Ethics*, 47(5), 265-271.
20. Novack, D. H., Detering, B. J., Arnold, R., Forrow, L., Ladinsky, M., & Pezzullo, J. C. (1989). Physicians' attitudes toward using deception to resolve difficult ethical problems. *Jama*, 261(20), 2980-2985.
21. Rajak, Priyanka, Jossy Augustine, Santhosh Kumar, Amrita Singh, Arun James, Elmy Sara Noble, and Kitty P. Wilson. "Empowering maternal wellness: the vital role of nursing advocacy in maternal mental health." *EPRA International Journal of Multidisciplinary Research (IJMR)* 9, no. 8 (2023): 339-341.
22. Singh, A., Jose, S., & James, A. *role of nurse in fostering awareness on the hidden epidemic: recognizing and addressing domestic violence and abuse*. *EPRA International Journal*
23. James, A. (2022). *A Descriptive Study to Assess the Level of Postpartum Depression Among the postnatal Mothers at Selected Areas in Jabalpur, India*. *J Comm Pub Health Nursing*, 8(347), 2.
24. Rejini, P. A. (2022). *A Study to Analyze knowledge regarding respectful maternity care among OBG nurses at Sri Ramakrishna Hospital Coimbatore*. *International Journal of Advances in Nursing Management*, 10(4), 347-350.
25. Gopichandran, L., C, K., G, V., M, J., Srivastava, A., Vanamail, P., & Dhandapani, M. (2020). *Factors Influencing Pain Dimensions in Patients with Chronic Tension-Type Headache: An Exploratory Survey*. *Pain management nursing : official journal of the American Society of Pain Management Nurses*, 21(5), 441-448. <https://doi.org/10.1016/j.pmm.2020.02.066>
26. Jose, A., Nayak, S., Rajesh, A., Kamath, N., & Nalini, M. (2022). *Impact of relaxation therapy on premenstrual symptoms: A systematic review*. *Journal of education and health promotion*, 11(1), 401. https://doi.org/10.4103/jehp.jehp_586_22



GENDER EDUCATION OF ADOLESCENTS IN GENERAL EDUCATIONAL SCHOOL AS A PEDAGOGICAL PROBLEM

Alibekov Dilshod Islomovich

Independent Researcher at the Uzbek Scientific Research Institute of Pedagogical Sciences named after. T.N.Kari Niyazi, Tashkent, Republic of Uzbekistan

ANNOTATION

The problem of gender differentiation of students is considered, the purpose of which is the deconstruction of traditional cultural restrictions on the development of the potential of the individual depending on gender, the health of students, understanding and creating conditions for maximum self-realization and disclosure of the abilities of girls and boys in the process of pedagogical interaction.

KEYWORDS: *gender approach, gender differentiation, gender competence, education .*

INTRODUCTION

It is unacceptable to raise and teach a boy and a girl in the same way, since each of them perceives the world differently, looks and sees differently, listens and hears differently, speaks and is silent, feels and experiences differently. The goals, methods and approaches of educating boys and girls should be different. Biological sex differences bring with them different emotional, cognitive, and personality characteristics. Hence the need for a differentiated approach in raising boys and girls from the first days of life [4]

The life activity of any child takes place in a unique environment that is unique to him. In the latter, a significant place is occupied by social institutions, and, above all, school and family, formal and informal associations. Consequently, it is necessary to consider the place and functions of all subjects of the educational process and their purposeful activities to create conditions for the education of gender culture among adolescents.

DISCUSSION AND RESULTS

Research by D.V. Kolesov [2], Yu.M. Orlov [3] show that education differentiated depending on the sex of the child requires systematic, purposeful management.

V.E. Kagan [1] identifies the following principles of sexual education: 1) the principle of ideology; 2) the principle of realism; 3) the principle of task optimization; 4) the principle of forward-looking initiative; 5) the principle of activity; 6) the principle of developing individual and social values; 7) the principle of complexity; 8) the principle of targeting; the principle of repetition; 9) the principle of understandability and clarity; 10) the principle of truthfulness; 11) the principle of trust; 12) the principle of purity; 13) the principle of non-excitation of sexual desire; 14) the principle of control and support.

Some of the principles described above have been used in educating gender culture. For example, the principle of

ideology involves solving the problems of the process of forming a gender culture in the context of educating a citizen, correlating individual and public interests. The principle of realism means the education of the gender culture of adolescents based on a realistic understanding of gender differentiation. The principle of a promising initiative is very relevant, since the process of educating a gender culture based on the past takes place in the present, but is aimed at preparing for the future, i.e., it is necessary to take into account the perspectives that are relevant for adolescents.

Also, in the formation of gender culture, the principle of activity was often used, which prescribes not to wait for problem situations, but to use all existing ones and create them. Internal motivations, motives for the behavior of boys and girls are formed through the assimilation of external social activities. This is the principle of developing individual and social meanings. The principle of complexity describes the planning and evaluation of specific forms of work. Following the principle of continuity is also necessary when planning the formation of a gender culture at various stages of personality development. The principle of understandability and clarity is focused on the real possibilities of understanding and comprehension by adolescents. the information provided. Failure to comply with the principle of truthfulness undermines the authority of the educator. The principle of trust implies a serious attitude to the experiences, interests and problems of the child. The principle of purity determines the moral content and presentation of information about the gender and relationships of people of different sexes.

To achieve the desired effect in the process of educating the gender culture of adolescents, it is necessary to solve a number of specific pedagogical tasks, which include education:

- social responsibility in relationships between female and male people;
- the desire to have a strong, friendly family that meets the modern requirements of society: equality of father and mother in the family; the birth of several children; a conscious



and responsible attitude to their upbringing as one's duty to society as a whole; relationships between parents and children;

- the ability to understand other people and feel respect for them not only as people in general, but also as representatives of the male or female sex, the ability to take into account and respect their specific psychological and gender characteristics;

- the ability and desire to evaluate their actions in relation to other people, taking into account gender, to develop the concepts of good and bad deeds in the sphere of these relations;

- a responsible attitude towards your health and the health of other people, about the inadmissibility of irresponsibility and frivolity in relations with the opposite sex;

- adequate understanding of adulthood: its content, true signs, manifestations and qualities.

In accordance with these tasks, every teenager should know the specific features of the opposite sex at the level of his age, consider them natural and logical, understand the principle of equal rights for men and women, should be aware of the need to build relationships with other people, taking into account their gender characteristics. For the implementation of the project of educating the gender culture of adolescents, we identified the following conditions:

1. The ideology of the project is based on the foundations for the implementation and satisfaction of the needs, needs and interests of children;

2. There is a need for unity of intentions and actions of the family, schools, institutions of out-of-school education and upbringing;

3. Creative approach to education;

4. Competence of teachers. Let's look at each of these conditions.

1. The ideology of the project is based on the implementation and satisfaction of the requests, needs and interests of children. Of course, the main figure in the process of forming a gender culture is the personality of a teenager. Sometimes, education gets in the way conflicts between adults and children, which intensify significantly during adolescence and adolescence. This is often associated with the peculiarities of adults' reactions to the behavior of their children. Relationships between adults and children should be based on respect, even if it is just a little girl or boy.

Sometimes a teacher in relations with teenagers is hindered by the lack of decentration - the ability to look at any situation from different points of view. As a result, he is unable to understand the motives of adolescent behavior. Conflicts are also facilitated by the desire to raise the child without fail, to pull him down for any reason, and the lack of a sense of humor.

The wrong reaction of teachers to the manifestation of children's sexuality, on the contrary, focuses the attention of children. It is perfectly clear that there is nothing wrong with sexual development itself, or with any of its specific manifestations. Good or bad, moral or immoral, can only be an attitude towards them, including panic, which should be regarded either as a manifestation of deep ignorance, or as a sign of immorality.

The first friendship of boys and girls must be protected, but this does not mean simply taking a position of non-intervention. This friendship must be helped, directed, protected. Strictness in education is needed, but it must be smart, kind, fair severity.

By shaping the gender culture of adolescents, the school lays the foundations for future harmonious marital relationships - an important factor in a full-fledged family, high performance and social activity, good mood, everything that is necessary for a high level of spiritual health and mutual adaptation of future spouses.

Schoolchildren should have an idea of the main age-related characteristics of their body and adequately respond to certain anatomical and physiological changes that occur during puberty (changes in appearance, signs of increasing activity of the gonads, etc.).

Every teenager should have a moral ideal of the family, an understanding of the value and necessity for a person, as the basis for well-being in life, maintaining health, and overcoming life's difficulties. Adolescents should be characterized by an understanding and conscious attitude to the specific characteristics of their peers of the opposite sex, the ability to take into account and respect these characteristics, organize their joint activities on the basis of mutual understanding and mutual respect, assess their mental and physical state, the nature and nature of the changes taking place in it, correctly treat him. It is necessary that adolescents learn to understand the essence of the spiritual and physical beauty of a person and be able to correlate these elements with the requirements for their own behavior and the behavior of other people. Schoolchildren should have a desire for a conscious assessment of the personal qualities of the object of their interest, a desire to understand their feelings, not succumbing to the first impulse. It is necessary that love was perceived more as an ethical and aesthetic phenomenon, developing on the basis of spiritual communication.

2. Unity of intentions and actions of the family, schools, institutions of out-of-school education and upbringing. This principle is expressed in the interaction of the above structures. There are quite good conditions for interaction between the family and the school. This can be expressed in holding thematic parent meetings, joint events with the participation of parents and children, hiking trips, etc. Out-of-school education and upbringing institutions, which are part of the unified education system of the Republic of Belarus, are called upon to play a large role in raising the gender culture of adolescents. To implement successful gender education, a teacher of an out-of-school institution needs to work in several directions, one of which is the study of the biological, age and psycho-physiological characteristics of boys and girls and the use of the knowledge gained in practice. Children of different genders perceive information differently. Girls are more romantic and emotional natures. Girls are no longer focused on the result, but on the process itself, which brings them satisfaction. And boys are more focused on the result to recognize their success. And they move towards this goal through perseverance, patience, showing natural strength and courage. Girls are more



conformable and suggestible than boys. Boys outperform girls in activities that require spatial ability, and girls outperform boys in verbal ability. Boys are more information-oriented, while girls are more relationship-oriented. Boys often ask adults questions for the sake of getting a specific answer, and girls for the sake of establishing contact. For boys, the subject of evaluation in their activities is very important, and for girls, the directly evaluating teacher. Boys are interested in the essence of evaluation, and girls are more interested in emotional communication. For girls, the impression they make is important, and boys perform search activities better, put forward new ideas, work better if you need to solve a fundamentally new problem. However, their quality requirements, thoroughness, and accuracy of execution are not high. Only a few of the features of boys and girls are listed. Of course, exceptions are possible, but if the teacher has knowledge about the characteristic biological, age and psychophysiological differences of children, then the educational process organized by him becomes more effective.

3. Creative approach to education. This principle is expressed in a creative approach to organizing the process of educating adolescents' gender culture, depending on the situation, the age of the students, and the existing relationships in the team [5]. In addition, you need:

- timely reaction of adults to certain features of the behavior of adolescents, their relationships with peers of the opposite sex, emotional assessment of these features; an adequate response to certain manifestations of a teenager's sexual development, based on a solid knowledge of what is normal in his development and what is a deviation from the norm. Teachers must remember that their reaction to all these manifestations is one of the important ways of educating a gender culture;

- examples of the correct attitude of adults towards representatives of the opposite sex. Adults should not bring their conflicts to the attention of children, they should not clarify their relationship with them, etc. The teacher needs to draw the attention of schoolchildren to positive examples of the attitude of people of different sexes to each other, to mutual manifestations of love, attention and care of adult men and women, accompanying them with appropriate comments. This can be considered as a special method of moral and sexual education - education on positive examples. Examples can also be taken from works of fiction, cinema, etc.;

- communication to students of information oriented in a certain way, both in response to their questions, and on their own initiative, individually or in the form of specially organized conversations, classes, etc., as well as information included in the content of various academic subjects. This information can be conveyed both separately by gender, and jointly for boys and girls, boys and girls. Of great importance is the recommendation of specialized literature and its discussion.

It is known that in order to consolidate certain educational influences, the corresponding activity of the educated person is necessary. A person in any kind of activity cannot act as a being outside of sex. On the one hand, this means that any type of activity can be used to educate gender culture, on the other hand, that it is difficult to find any kind of activity that should

be specially organized or stimulated in the interests of the process of educating gender culture. Therefore, any type of student activity - work, communication, knowledge - can serve the interests of students. sex education, if teachers give their assessment of the features of this activity not in general, but from the standpoint of the existence of two sexes, the importance and social value of a certain nature of the differences between them.

4. The competence of the teacher. Education of the gender culture of adolescents should be carried out by teachers who are competent in matters of age and individual characteristics of boys and girls. The teacher must have the following knowledge:

First, to have clear ideas about gender culture. Know the essence of gender culture, own the necessary terminology. Be able to distinguish its structure. Be able to determine the real state of gender culture through observation, creating problem situations, questioning, and a specially developed methodology for determining the formation of gender culture according to the main criteria (cognitive, emotional-volitional, moral).

Secondly, to take into account the peculiarities of the social development of the boy and girl. A child develops as a representative of a certain gender thanks to his relationships with parents, peers, and other people who make up his environment. The family is the first educator in terms of time and closest to the child. Mothers usually play a decisive role in the development of children. However, it is necessary to think about the family, and not about one of the parents as an educator. The contribution of the mother and father is not determined by the quantitative measure of "more or less," but significantly depends on the general atmosphere in the family, the system of relations of adult family members to each other and to the child.

After the birth of a child, certain stereotypes are formed in the parents: they see in the child's behavior signs of conformity or inconsistency with what they think a boy or girl should be. Conformity is encouraged, inconsistency is resisted. Parents say or express their attitude with the words: "you are a boy, and boys ..."

It is believed that parents identify themselves more with a child of the same sex and moreover want to be a model for him. The style of relationship between the sexes is transferred to communication with children: fathers treat their daughters in a sense as little women, and mothers treat their sons as little men.

The role of the father should be presented to the child as a balanced, stable, strong friend of his wife and children. He is expected to show restraint in the expression of feelings, even if they are unconditionally present, and to make a fair and impartial assessment of positive and negative events. Currently, the role of the mother is changing: a woman often tries to dominate her husband and children.

Thirdly, the teacher must know the psychological characteristics of male and female. It is known for certain that differences in the behavior, interests and inclinations of boys and girls are observed almost from birth. For example, a girl



from an early age is interested in the sphere of direct human existence: relationships between people, everyday items. The boy's interests are in the field of technology, vehicles. Girls tend to be caring, while boys tend to be transformative and constructive. The receptivity of the female psyche and the productivity of the male are noted. The teacher needs to take into account the specific behavior of boys and girls. The girl is more conformal, quickly adapts to new circumstances. The boy, on the other hand, is less inclined to adhere to the established framework, creates a noisier atmosphere around him, but not because of a conscious desire to violate, but because of "... a propensity inherent in the male sex for active, transformative activity" [2, p. 29]. This is especially important to consider when evaluating a child's behavior.

CONCLUSION

Thus, we considered the pedagogical conditions necessary for the implementation of the project for the formation of gender culture. Undoubtedly, the main figure in the process of forming a gender culture is the personality of a teenager, i.e., the ideology of the project is based on the implementation and satisfaction of the needs, needs and interests of children. The unity of intentions and actions of the family, school, institutions of out-of-school education and upbringing is of great importance. A creative approach to the organization of the process of educating the gender culture of adolescents is required, depending on the situation, the age of the students, and the existing relationships in the team. The competence of a teacher lies in a clear understanding of gender culture, taking into account the peculiarities of the social development of a boy and a girl, knowledge of the psychological characteristics of male and female, taking into account the characteristics of sexual development and puberty, a differentiated approach to the process of educating gender culture in younger and older adolescents, the availability of information communicated to schoolchildren.

LITERATURE

1. Kagan V.E. *Educator about sexology*. Moscow: Pedagogy, 1991. 256 p.
2. Kolesov D.V. *Conversations about sex education*. 2nd ed., add. Moscow: Pedagogy, 1986. 160 p.
3. Орлов Ю.М. *Половое развитие и воспитание: Кн. для учителя*. М.: Просвещение, 1993. 239 с. (Психол. наука – школе).
4. Еремеева В.Д., Хризман Т.П. *Мальчики и девочки – два разных мира. Нейропсихологи – учителям, воспитателям, школьным психологам*. – М.: ЛИНКА_ПРЕСС, 2012.
5. Тоджибаева К. С. *Интеграцион ёндашув асосида педагогика коллежи ўқувчиларида касбий сифатларни шакллантириши //Сборники конференций НИЦ Социосфера*. – Vedecko vydavateľske centrum Sociosfera-CZ sro, 2015. – №. 51. – С. 73-75.



ON THE PROBLEM OF TRAINING TEACHING STAFF IN THE FIELD OF INCLUSIVE EDUCATION

Todjibayeva Komila Sobit qizi

3rd Year Doctoral Student of the Uzbek Scientific Research Institute of Pedagogical Sciences named after T. N. Qori Niyazi

INTRODUCTION

The modern education system in the light of modernization is undergoing significant changes. These transformations orient specialists to work with children with special educational needs in different directions.

Inclusive education, according to Yu.A. Gerasimenko [3], is recognition of the value of different categories of children (with special educational needs, different ethnic groups, belonging to a particular social group), their characteristics and learning abilities. It is important to note that the education system adapts to the child, not the child to the system. In connection with reforming the education system, it is necessary to resolve issues of quality education and social interaction of children, taking into account their individual characteristics; take into account the uniqueness of each child when developing an individual development plan and implementing the educational program. One of the priority components of work in this direction is the issue of human resources development.

Inclusive education declares equal starting opportunities for everyone, implies access to education for everyone equally, and involves adaptation to the different needs of all children. Inclusion is the joint education of children with special educational needs and normally developing peers within the same group, but along different educational routes.

The specifics of organizing educational and correctional work with children with developmental disorders necessitate special training for the teaching staff of a general education institution. Pedagogical workers of an educational institution must know the basics of correctional pedagogy and special psychology, have a clear understanding of the characteristics of the psychophysical development of children with disabilities, and the methods and technologies for organizing the educational and rehabilitation process of such children.

The right of every person to intellectual, social and physical development, to receive education, and to work in a specialty are enshrined in the “World Declaration on Education for All” and other international acts [1], in law Republic of Uzbekistan “On Education ” [2] .

MAIN PART

The inclusive competence of teachers refers to the level of special professional competencies. This is an integrative personal education that determines the ability of teachers to carry out professional functions in the process of inclusive education, taking into account the different educational needs of students and ensuring the inclusion of a child with disabilities in the environment of the educational organization and the creation of conditions for his development and self-development. The structure of a teacher’s inclusive competence includes key content (motivational, cognitive, reflective) and key operational competencies, which are considered as components of a teacher’s inclusive competence.

Along with material and technical means, the creation of the necessary infrastructure, preparation for working with the specified category of students, teachers and psychologists, the formation of their inclusive competence . The formation of inclusive competence of teachers is one of the organizational conditions that ensure the inclusion of students with disabilities in society.

The inclusive competence of a teacher is a component of his professional competence and includes key content and functional competencies. To describe the holistic structure of a teacher’s competence as a set of general, basic, special and The following levels of private competencies are identified (Table 1).



Table 1
Teacher competency structure
 (presented by I. N. Khafizullina [4])

Levels of consideration	Types of competencies	Competency structure	
		Key content competencies	Key functional competencies
General human competence	General (universal)	Value-semantic General cultural Intellectual Information Personal self-improvement	Educational Communicative Social-professional Social-role
Professional teacher's competence	Basic (in a specific professional field)	Value-motivational Culturological Intellectual-pedagogical Information Professional and personal self-improvement	Operational: Diagnostic Prognostic Constructive Organizational Communication Technological Corrective Research
Special professional competence	Special (in specific operating conditions)	Motivational Cognitive Reflective	Operating
Private professional ed competencies	Private (aimed at solving specific professional s tasks)	Motivational Cognitive Reflective	Operating

The structure of inclusive competence (according to I.N.Khafizullina) includes key content - motivational, cognitive, reflective and key operational competencies, which must be considered as components of inclusive competence [4].

The motivational component of inclusive competence includes motivational competence, characterized by deep personal interest, a positive focus on the implementation of pedagogical activities in the context of the inclusion of children with disabilities in the environment of normally developing peers, a set of motives (social, cognitive, professional, personal development and self-affirmation, one's own well-being and etc.).

Motivational competence is defined as the ability, based on a set of values, needs, motives that are adequate to the goals and objectives of inclusive education, to motivate oneself to perform certain professional actions.

The cognitive component of the inclusive competence of teachers includes cognitive competence, which is defined as the ability to think pedagogically on the basis of the system of knowledge necessary for the implementation of inclusive education and the experience of cognitive activity, the ability to perceive, process in consciousness, retain in memory and reproduce at the right time information that is important for solving theoretical and practical problems of inclusive education.

The reflective component of the inclusive competence of teachers includes reflective competence, manifested in the ability to analyze one's own educational and professional activities related to the implementation of inclusive education, during which conscious monitoring of the results of one's professional actions and analysis of real pedagogical situations are carried out.

The readiness of teachers to work in conditions of inclusive education is considered through 2 main indicators: professional readiness and psychological readiness. Structure of professional readiness:

- information readiness;
- mastery of pedagogical technologies;
- knowledge of the basics of psychology and correctional pedagogy;
- knowledge of children's individual differences;
- the willingness of teachers to model the lesson and use variability in the learning process;
- knowledge of the individual characteristics of children with various developmental disorders;
- readiness for professional interaction and training.

Structure of psychological readiness:

- emotional acceptance of children with various types of developmental disorders (acceptance-rejection);
- willingness to include children with various types of disabilities in classroom activities (inclusion-isolation);
- satisfaction with one's own teaching activities [5].

Organizing inclusive practice is a creative process. The inclusive approach implies the need to change the educational situation, to create new forms and ways of organizing the educational process, taking into account the individual differences of children. Therefore, a teacher must have a special set of professional competencies that will allow him to implement inclusive practice.

CONCLUSION

A modern teacher, when transitioning to new educational standards, must be prepared to carry out correctional work with children, which will consist, first of all, of the following:

- in understanding the psychological and pedagogical patterns and characteristics of the age and personal development of children with disabilities;
- in understanding the special educational needs of children with disabilities caused by deficiencies in their physical and or) mental development;
- in the ability to design



the educational process for the joint education of children with impaired and normal psychophysical development;

– in the implementation of individually oriented psychological and pedagogical assistance to children with disabilities, taking into account the characteristics of the psychophysical development and individual capabilities of children;

– to ensure that children with developmental disabilities have the opportunity to master basic educational programs; -in the implementation of various forms of education for children with disorders of psychophysical development;

– in the implementation of various methods of pedagogical interaction between all subjects of the correctional and educational process

– in the design and implementation of professional self-education on the issues of training, education and development of children with developmental disabilities in an inclusive educational environment.

But none of the listed methods will be effective if the teacher himself does not realize the need to improve his own professional competence. To do this, it is necessary to create conditions in which the teacher independently realizes the need to improve the level of his own professional qualities.

BIBLIOGRAPHY

1. *World Declaration on Education for All. Jomtien , Thailand, March 5-9, 1990. M.: Pedagogy, 1990. 56 p.*
2. <https://lex.uz/docs/5013007?otherlang=1>
3. *Gerasimenko Yu. A. Professional and personal readiness of a teacher to work in the conditions of inclusive education // Pedagogical education in Russia. – 2015. – No. 6. – pp. 145-150.*
4. *Хафизуллина И. Н. Формирование профессиональной компетентности педагога общеобразовательной школы в работе с детьми с особыми образовательными потребностями // Вестник Костромского государственного университета им. Н. А. Некрасова. Серия: Педагогика. Психология. Социальная работа. Ювенология. Социокинетика. – 2007. – Т. 13. № 1. – С. 83-88.*
5. *Тоджибаева Комила Собит Кизи Мыслители Востока о профессии педагога и педагогическом мастерстве // Academy. 2016. №12 (15). URL <https://cyberleninka.ru/article/n/mysliteli-vostoka-o-professii-pedagoga-i-pedagogicheskom-masterstve> (дата обращения: 03.04.2023).*



A QUALITATIVE STUDY OF ENGLISH LANGUAGE INSTRUCTION IN A LOCAL COLLEGE

Donita May C. Valera

Doctor of Education, Professor, Maco de Oro College, Maco, Davao de Oro, Philippines

ABSTRACT

The purpose of this phenomenological study is to explore and understand the lived experiences of the local college students when it comes to English language instruction, their coping mechanisms amidst the challenges they encountered, and their insights based on the experience they have gained. This study used qualitative research employing a phenomenological approach. The participants in this study were the students of Maco de Oro College. Both in-depth interviews and focus group discussions were employed to get the data for the study. The result of this study revealed themes for the lived experiences of the students, such as Language Enhancement Skills, Difficulty in using English Language, and Multiple Teaching Methods in the classroom. For coping with the challenges encountered, themes drawn were Peer Support Systems and Mentoring, Reading of English Learning Materials, and Practice Speaking English Regularly. For the insights of the participants, themes are Career Development and Job Opportunities, Goal-oriented approach to Learning English, and Lifelong Learning Process. The result of this qualitative research and the analysis of its findings provide concrete evidence that, as far as the English language instruction in a local college is concerned, it is important to consider the students above all.

KEYWORDS: *college, coping mechanisms, English, experiences, insights, instruction, language, phenomenological research, Philippines*

INTRODUCTION

British and American agencies assert the dominance of English and persuade other countries to accept it as superior to any other language (Phillipson, 1992). It is believed that English has an economic role to play in the world that induces its spread independently of the political and cultural hegemony of one or more nations (Fishman, Cooper, and Conrad, 1977).

However, the instruction and improvement of proficiency in English have met quite a few challenges in recent years. Among many others, there are new laws emphasizing more mother-based instruction, a limited number of higher education institutions that offer specific academic preparation for the teaching of English to learners whose mother tongue is other than English, technological advancement, and limited instructional resources for some educators and learners.

In the Philippines, the use of the English language as a medium of instruction has long been a challenge to both teachers and students due to the country's rich linguistic diversity. With more than 180 languages currently recorded in the country, a linguistic power struggle is unavoidable, although it may be silent. The question that puzzles many is: is it best to have classes conducted in English?

Since the Philippines is a nation that is leading English proficiency in Asia in general, several English survey reports from both the academic world (Tupas, 2000) and the business world (Global English Corporation, 2012), and other aspects of life (Kirkpatrick, 2010) are pointing more and more to the importance that the English language and English proficiency are playing in the educational success and economic boom of the Philippines as well as other surrounding nations. Despite the great linguistic diversity of the country, English continues to receive high functional popularity in the different areas of daily life in the nation.

I have encountered limited study, which is the same with the present study undertaken, which centers the English language instruction based on the students' perspectives. Besides, it is observed by most of the teachers that students find difficulties in their lessons when instructions are in English. This paper will explore and understand the use of English language for instruction in classes, taking into the account the lived experiences of the local college students. Thus, this study is intended to fill this research gap and enrich this area of language and educational research.

OBJECTIVES

This phenomenological study investigates students' lived experiences with English language instruction, their coping mechanisms, and insights. It focuses on students' experiences, challenges, and perceptions of the phenomena.

METHODS

The researcher used qualitative research employing phenomenological approach that is concerned with the study of experience from the perspective of the individual, which purpose is to identify phenomena-the use of English language instruction through how they are perceived by the participants. With respect to phenomenological studies, sample size recommendations range from 6 to 10 (Creswell, 2013) were used in this study. The researcher conducted an in-depth interview which is designed to elicit a vivid picture of the participant's perspective on the research topic and focus group in which the researcher and several participants met as a group and discuss the given research topic based on the participants' insights and experiences.

The study used purposive sampling. In this type of sampling, the inquirer selects individuals and sites for study because they can purposefully inform an understanding of the research



problem and central phenomenon in the study (Creswell, 2013). Purposive sampling is widely used in qualitative research for the identification and selection of information-rich cases related to the phenomenon of interest (Palinkas et. al., 2015). In this research, there were 10 purposefully selected participants who are first-year college students. The participants came from Maco de Oro College. There were three participants selected who underwent an in-depth interview, and seven participants joined in a focus group discussion.

The researcher gathers the data for the study by obtaining permission from authorities, obtaining consent from participants, and scheduling individual interviews. Audio-recorded materials were used during the interviews and note-taking is essential for data collection. A validated interview guide was used to gather information about students' experiences with English language instruction. Data was transferred to a computer, translated, and transcribed, and

secured for further study and interpretation.

Data analysis consisted of three synchronized flows of action: data reduction, data display, and drawing conclusions and verification. Data reduction refers to the process of coding, condensing the codes, and transforming the collected data into figures, tables, or a discussion. Data needed to be reduced to make it more accessible and understandable. Data reduction facilitates communicating findings simply and efficiently. This paring and sieving of data are often termed as thematic analysis. Thematic analysis is a way of seeing and coding qualitative information (Creswell, 2007). Data display, on the other hand, refers to the organization of the collected data so that it enables conclusion-drawing. Conclusion-drawing and verification were the third components of the data analysis process. Conclusion-drawing meant taking a closer look at what the analyzed data denoted and assessing their repercussions for the questions at hand, while verification is an integral element of conclusions.

RESULTS AND DISCUSSIONS

Table 1
The formulated theme and central ideas on the lived experiences of Local College Students in English language Instruction

Themes	Central Ideas
Language Enhancement Skills	Participants experience to practice conversation skills, learn the proper pronunciation, understand grammar rules, enhance vocabulary, and incorporate active listening as English language is used as a medium of instruction inside the classroom.
Difficulty in using English Language	The participants described their difficulty in expressing their ideas using English language, difficulty in understanding deep English terminologies, and difficulty in understanding the complexity of English grammar.
Multiple Teaching Methods in the classroom	The participants experience having teachers with multiple teaching methodologies used inside the classroom so students can effectively understand English. Teachers apply teaching strategies that are relevant and engaging to students.

The Lived Experiences of Local College Students in English language Instruction

From the data collected, three (3) themes emerged: (1) Language Enhancement Skills, (2) Difficulty in using English Language, and (3) Multiple Teaching Methods in the classroom.

Language Enhancement Skills

The participants experience to improve their language skills as English is used as instruction inside the classroom. It makes them feel comfortable using the language and it helps them in their academic studies. Richard (2008) states that most students often evaluate their success in language learning as well as the effectiveness of their English course based on how much they feel they have improved in their speaking proficiency. In addition, Karunakaran (2011) mentioned that the use of English as medium of instruction set a good impact on the learner's attitude, learning styles and personality. Moreover, Wong (2009) mentioned that allowing bilingualism in English classroom will only deprive students of an excellent opportunity to use and learn English. How English-rich the teaching environment depends on how determined each English teacher is in maximizing the English exposure of students

through policy and its enforcement.

Difficulty in using English Language

English language instruction also meets negative views from the participants. The participants have trouble in using English Language. This experience is somehow inevitable considering that the participants are not using English language as their mother tongue and thus they have less exposure to the language. Hassan and Badi (2015) presented their idea that the use of English language as a medium of instruction meets several probable causes of difficulties. This could be the result of the students' lack of experience and knowledge of academic reading and writing. In addition, Tanaka (2002) who said that students lacking basic language skills can affect the development of other study skills such as note-taking, summarizing, synthesizing, critical thinking, paraphrasing, and so on. When students cannot summarize the main ideas, they cannot write or express their ideas effectively.

Multiple Teaching Methods in the Classroom

The participants experience multiple teaching methods in the classroom which allows them to find English language Instruction comfortable and helpful. Laughlin & Foley (2012)



said that MI based teaching strategies can help teachers identify their students' weaknesses and strengths (2013, p.23). With this knowledge, teachers can better help their students and succeed

in the classroom, while also letting them shine in areas they excel in and build their confidence.

Table 2.
The formulated themes and central ideas on how the Local College Students cope with the challenges in English language Instruction

Themes	Central Ideas
Peer Support Systems and Mentoring	Participants revealed that collaborative activities such as interaction with peers, having academic discussions, positive debates, and group projects are some of their ways of coping the challenges in English language instruction.
Reading of English Learning Materials	Engaging oneself to reading which involves comprehension activities, immersing to various reading materials, and actively participate to reading activities in schools.
Practice Speaking English Regularly	Practice speaking through pair or group activities may it be inside or outside the classroom. Seeking opportunities for discussions, debates, role-plays, and presentations to enhance speaking skills. Paying attention to pronunciation and accepting corrective feedback for improvement.

How the Local College Students Cope with the Challenges in English language Instruction.

From the data collected, three (3) themes emerged: (1) Peer Support Systems and Mentoring, (2) Reading of English Learning Materials, and (3) Practice Speaking English Regularly.

Peer Support Systems and Mentoring

One way of coping with the challenges encountered by the participants in relation to English language instruction is using the Peer support systems and mentoring. Houlston et al. (2009) as: "whereby a relationship is formed between a peer mentor who acts as a role model to another pupil (usually younger) who is in need of support and guidance". Alternatively, a peer mentor may be assigned to work with a group of pupils, such as a tutor group of younger children (Cowie & Smith, 2010).

Reading of English Learning Materials Practice

Learn to read and read to learn. With the habit of reading English books or text students will be able to learn more. Gordon (2008) supported the idea as he said that reading books, journals, and even some websites are useful sources to enrich learners' lexicon with academic vocabulary and expressions that can enhance the ability to express their views and ideas in their own voice effectively. In addition, Krashen's (2004) view that extensive reading will build good literacy skills. He claims that the only way to become good readers and develop linguistic knowledge is to read extensively.

Moreover, Drew and Sørheim (2009) noted that reading beyond the textbook where language learners read a lot of books at an easy and age-appropriate level so that the reading is comprehended without the use of a dictionary.

Speaking English Regularly

The regular use of English language even in simple conversation helps participants to deal with the challenges they have encountered with English language instruction. It was evident from the participants responses that using English language in conversation makes them feel at ease with the language. Renandya (2002) mentioned that to be able to communicate meaningfully, speakers need to know the knowledge of communicative competence consisting of grammatical, discourse, strategic, and sociolinguistic competence. Grammatical competence is an umbrella concept including grammar (morphology, syntax), vocabulary, and mechanics. Regarding speaking, the term mechanics refers to basic sounds of letters and syllables, pronunciation of words, intonation, and stress. Grammatical competence enables speaker to use and understand English-language structures contributing to students' fluency. Richards and Renandya, (2002) added that discourse competence is concerned with speakers' relationships, formal or informal occasion, the rules of cohesion and coherence etc. Discourse competence contributes to turn taking in conve

Table 3
The formulated themes and central ideas on the insights of Local College Students in English language Instruction

Themes	Central Ideas
Career Development and Job Opportunities	Learning English offers a wide range of opportunities both within and outside classroom settings. Having the knowledge and ability to use the language well provide greater chance of job openings and advances one's career.
Goal-oriented approach to Learning English	A student with goal-oriented approach to learning English can significantly enhance language acquisition process. If students are motivated and focused, they can be successful in learning and mastering the language.
Lifelong Learning Process	English language instruction is not difficult as it is, understanding that learning takes time and continuous, and that staying curious, adaptable, and committed to growth is important in English language journey.



Insights of Local College Students in English Language Instruction

From the data collected, three (3) themes emerged: (1) Career Development and Job Opportunities, (2) Goal-oriented approach to Learning English, and (3) Lifelong Learning Process.

Career Development and Job Opportunities

The participants believed that there are better job opportunities and career development for individuals who are taught English. Pandey and Pandey (2014) Enhanced communication skills in English can result to not only an improved social life, but also better job opportunities in the future. From job interviews to the actual professional world, communication skills are very crucial, and being proficient in English means being able to communicate clearly and effectively. In job interviews, most interviewers conduct interviews in English. Interviewers quickly make judgments and give great importance to first impressions. Poor skills in the language can mean smaller chances of landing a job. On the other hand, being proficient in the language can help one leave a good first impression which means higher chances of getting the position one is applying for. English is the most used language in the business world. Most job interviews are done in English. Most business contracts are written in English. Handling international business deals require effective skills in English. English is the preferred business language because it is an exact language. It allows a person to say what he or she wants to say without having to argue about the meaning. However, using incorrect tenses, prepositions, and the like will make one's statement less accurate. So, to have an increased competence in the professional world, one should have a very good grasp of the English language.

Goal-oriented approach to Learning English

The Goal-oriented approach to learning English measure motivational orientation toward the value of English language as a mean of daily communication. English goal orientation of a student describes the goals that he/she chooses, and the methods used to pursue those goals. When they achieve their goals, students feel accomplished, and this feeling of accomplishment boosts their enthusiasm in learning. As a result, they are more likely to establish new goals and employ productive tactics (Lipstein & Renninger, 2007). The reasons or goals for studying the language influence the choice of learning techniques, and motivated learners attempt to utilize more strategies than less motivated ones. Negatively inclined people frequently employ fewer self-controlled behaviors (Turner, & Purpura 2016).

Lifelong Learning Process

The last theme is lifelong learning. Klug, Krause, Schober, Finsterwald and Spiel (2014) and Ozcan and Uzunboyu (2012) described lifelong learning as a process that includes a rapid change through which individuals acquire competencies in different areas during their lives. Ozdamli and Ozdal (2014) stated that every individual needs lifelong learning for both their occupational and individual needs; they also indicated that changing world conditions and developing technology makes lifelong learning essential for all individuals.

Implication for Practice

The result of this qualitative research and the analysis of its findings provide concrete evidence that as far as the Language Instruction in a Local College is concerned, it is important to consider the language used by students. It also implies that, during the discussion of the lesson, and the employment of strategies, teachers must be sensitive to the needs of the students. In language teaching, it is the common notion that English language must be used as the medium of instruction to students, however, since students are not often exposed to the language, teachers must be able to welcome the difficulties of the students in understanding the terms.

The result will also help teachers to internalize that as a teacher to a non-English speaking classroom, one should have the flexibility in dealing with the students. It will help the teacher realize that teachers need to embrace the background of the students so that teachers will be able to vary their teaching strategies.

It was also in this study that teachers will be refreshed with the flexibility in teaching. With this, teachers will be reminded that students who are our clientele must be considered above all. We must put into consideration their being and their capabilities before employing your standard because if this happens, anxiety will be developed in the teaching-learning situation which could possibly hinder learning of the students.

The result of this qualitative research will offer an opportunity for the institution to render or facilitate trainings and seminar-workshops that will enhance and upgrade the quality of teaching of the teachers. Trainings that will enable the teachers to widen their knowledge and skills in handling students with difficulty when it comes to the use of English language as a medium of instruction.

Implication for Further Research

The results of the individual interview and the focus group discussions and the analysis of the data will provide an avenue for other students and faculty members who will be researching related studies. This research could be a reference for more studies that have relevance to Language Instruction in a Local College.

Moreover, research with regards to employment of strategies which will aid in language teaching particularly in students with difficulty in understanding English language, they will certainly have an overview of this study. The results of this study can be the basis for other research that discusses about the lived experiences, coping mechanism, and insights of students in relation to Language Instruction.

CONCLUSION

The use of the English language in instruction met with both positive and negative views from the participants. And I could conclude that as numerous as the fun-filled and fruitful experiences in teaching using the English language were the tough encounters also when it came to students with a different language as their mother tongue.



There were times when complexities in the classroom due to the use of the English language led to commotion and bullying among students. In this case, the teacher not only acts as a plain teacher but also as a disciplinarian and guidance counselor to calm the situation. Based on my firsthand experiences and the experiences shared by the participants, I could conclude that the use of the English language as a medium of instruction requires the teachers to explore more of the teaching strategies to meet students' needs.

Therefore, teachers should be able to accept the fact that while students learn from us, we will also learn from them. Embracing their experiences, both positive and negative, will enable us to widen and broaden our knowledge in dealing with their difficulties, while they will also be able to familiarize themselves with and thereby apply the use of the English language that we have introduced to them.

REFERENCES

1. Cowie, H., and Smith, P. K. (2010). "Peer support as a means of improving schoolsafety and reducing bullying and violence" in *Handbook of Prevention Science*, eds B. Doll, W. Pfohl, and J. S. Yoon (New York, NY: Routledge), 177–193.
2. Creswell, J. W. (2007). *Qualitative Inquiry and Research Design: Choosing Among Fire Traditions* (2nd edition ed.). California, U.S.A: SAGE Publications.
3. Creswell, J. W. (2013). *Qualitative Inquiry & Research Design: Choosing among Five Approaches* (3rd ed.).
4. Drew, I. & Sorheim, B. (2009). *English Teaching Strategies*. Oslo: Det Norske Samlaget.
5. Fishman, J., Cooper, R., & Conrad, A. (1977) *The Spread of English: The Sociology of English as an Additional Language*. Rowley, MA: Newbury House.
6. Global English Corporation. (2012). *Global English Business English Index reveals skills shortage and unequal odds for international business success in 2012*. *The Economist*. http://www.globalenglish.com/whoweare/newsroom/press_releases/757
7. Gordon, L. (2008). *Writing and good language learners*. In C. Griffiths (Ed.), *Lessons from good language learners* (pp. 244–254). Cambridge: Cambridge University Press.
8. Hassan, I.A, & Badi, A. (2015). *Academic writing difficulties of ESL learners*. *The 2015 WEI International Academic Conference Proceedings Barcelona, Spain*.
9. Houlston, C., Smith, P. K. and Jessel, J. (2009) *Investigating the extent and use of peer support initiatives in English schools*. *Educational Psychology*, 29:325-344.
10. Karunakaran, T. (2011). *Reintroduction of English as Medium of Instruction in Sri Lanka*. *ELT weekly*, Vol .3 Issue 103.
11. Kirkpatrick, A. (2010). *Asian Englishes today: English as a lingua franca in ASEAN: A multilingual model*. Aberdeen, Hong Kong: Hong Kong University Press.
12. Klug, J., Krause, N., Schober, B., Finsterwald, M., & Spiel, C. (2014). *How do teachers promote their students' lifelong learning in class? Development and first application of the LLL Interview*. *Teaching and Teacher Education*, 37(1), 119-129
13. Krashen, S. (2004). *The Power of reading*. Portsmouth, NH: Heinemann.
14. Laughlin, Kevin, and Andi Foley. "Intelligences That Plants Can Pass On": *Play Dough, Fun and Teaching Strategies with Insights to Multiple Intelligences*. *Journal of Adult Education*, vol. 41, no. 1, Mountain Plains Adult Education Association, 2012, p. 22–.
15. Lipstein, Rebecca & Renninger, K. (2007). *Interest for Writing: How Teachers Can Make a Difference*. *English Journal*. 96. 79. 10.2307/30047170.
16. Ozcan, D. (2011). *Evaluation of 4th and 5th Classes Teachers' Competence Perceptions towards Lifelong Learning*. *International Journal of Learning and Teaching*, 3(1), 1-9.
17. Ozcan, D., & Uzunboylu, H. (2012). *Perceptions of Principals towards Lifelong Learning*. *Cypriot Journal of Educational Sciences*, 7(3), 148-157.
18. Palinkas LA, Horwitz SM, Green CA, Wisdom JP, Duan N, Hoagwood K. *Purposeful Sampling for Qualitative Data Collection and Analysis in Mixed Method Implementation Research*. *Adm Policy Ment Health*. 2015 Sep;42(5):533-44. doi: 10.1007/s10488-013-0528-y. PMID: 24193818; PMCID: PMC4012002.
19. Pandey, Dr & Pandey, Prabhat. (2014). *Better English for Better Employment Opportunities*. *International Journal of Multidisciplinary Approaches and Studies*. Volume 1. 96-103.
20. Phillipson, R (1992) *Linguistic Imperialism*, 45-47. Oxford: Oxford University Press.
21. Renandya, W. A. (2002). 'Extensive reading: Why aren't we all doing it?'
22. Richard, J.C. (2008). *Teaching Listening and Speaking: From Theory to Practice*. Cambridge: Cambridge Press University.
23. Richards, C.J. & W. A. Renandya (Eds.) (2022), *Methodology in language teaching: An anthology of current practice*. New York: Cambridge University Press.
24. Tanaka, J. (2002). *Academic difficulties among East Asian international graduate students: influences of perceived English language proficiency and native educational/socio-cultural background*. (PhD's thesis). Indiana University.
25. Tupas, T. R. F. (2000). *Language studies in English in the Philippines: Challenges and prospects*. *Journal of English Studies and Comparative Literature*, 6(1), 1-17. <http://journals.upd.edu.ph/index.php/jescl/article/viewFile/2485/2351>
26. Turner, C.E., & Purpura, J. E. (2016). *Learning-oriented assessment in second and foreign language classrooms*. In D. Tsagari & J. Banerjee (Eds.), *Handbook of Second Language Assessment* (pp. 255–272). de Gruyter.
27. Wong, K. (2009). *Medium of Instruction Grouping Assessment (MIGA): final report*. Hong Kong: Hongkong Bank Foundation.



A STUDY ON THE EVALUATION OF FINANCIAL PERFORMANCE OF POST- MERGER AND PRE-MERGER OF CANARA BANK USING EAGLE AND CAMEL MODEL

Mr. Prasanna S¹, Dr. Shailaja M L²

¹Student Department of MBA, Dr Ambedkar Institute of Technology Bengaluru-560056, Karnataka, India

²Associate professor Department of MBA, Dr Ambedkar Institute of Technology, Bengaluru-560056, Karnataka, India

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ABSTRACT

The banking industry has experienced significant transformations in recent years, with mergers and acquisitions being a prominent strategic move for banks seeking to enhance their competitiveness and market presence. This study conducts a comprehensive evaluation of the financial performance of Canara Bank, one of India's leading public sector banks, both before and after a merger event. The research employs the EAGLE (Earnings, Asset quality, Growth, Liquidity, and Efficiency) and CAMEL (Capital Adequacy, Asset Quality, Management Quality, Earnings Quality, and Liquidity) models to assess the impact of the merger on the bank's financial health.

The analysis spans a five-year period, incorporating pre-merger and post-merger financial data to discern trends and changes in various financial indicators. The study employs a mixed-methods approach, combining quantitative analysis of financial ratios with qualitative assessments of management strategies and operational efficiencies.

Our findings reveal that the merger significantly influenced Canara Bank's financial performance, particularly in areas of asset quality, capital adequacy, and management quality. While the merger initially posed challenges in terms of integration, the bank's subsequent performance improvements suggest successful strategic planning and execution. The study contributes valuable insights for both banking practitioners and policymakers, shedding light on the complexities and dynamics of post-merger financial performance.

KEYWORDS: Canara Bank, Merger and Acquisition, Financial Performance Evaluation, EAGLE Model, CAMEL Model, Banking Industry, Asset Quality, Capital Adequacy, Management Quality, Earnings Quality, Liquidity, Integration, Strategic Planning, Public Sector Banking, Indian Banking Sector, Post-Merger Analysis.

INTRODUCTION

The merger of Canara Bank presented an intriguing opportunity to delve into the transformative effects of such strategic decisions on the financial health and performance of a banking entity. This study endeavours to provide a comprehensive assessment of Canara Bank's financial performance, both prior to and following the merger event, utilizing the well-established EAGLE (Earnings, Asset quality, Growth, Liquidity, and Efficiency) and CAMEL (Capital Adequacy, Asset Quality, Management Quality, Earnings Quality, and Liquidity) models.

The findings of this study are expected to contribute significantly to the body of knowledge surrounding mergers and acquisitions in the banking sector. Moreover, the research outcomes will offer valuable insights to banking practitioners, policymakers, and stakeholders, enabling them to make informed decisions and better understand the complexities and dynamics of post-merger financial performance.

LITERATURE REVIEW

Baburam Adhikari, Marie Kavanagh, Bonnie Hampson (2023) - This study examined the effects of mergers and acquisitions on the financial statements of Bank of Kathmandu (BOKL) and PRVU Bank Limited in Nepal during the pre- and post-M&A periods. The findings for BOKL were mixed, with improvements in profitability and liquidity ratios but no significant changes in other measures following the merger.

Juni khyat (2023) - The Indian banking sector plays an active part in the economy, yet it is confronted with issues such as net losses, growing NPAs, and severe competition. To solve these issues, the Government of India pursued mergers and acquisitions as a strategy to educate the performance of the industry.

Prof. Trupti Mandar Joshi, Prof. Anuja Rishi Limbad (2023) - The attention of this study is on the mega-merger of banks that took place in April 2020, during a fast-changing technological world and fierce global rivalry. The CAMEL model parameters



were used to undertake pre- and post-merger financial evaluations for the four banks involved in the mega-merger. Facts were gathered from a variety of secondary sources, including yearly reports, business reports, and publications.

Monika Azad Ahlawat, Dr. Sunita Bishnoi (2023)- The reason of mega-merger on Punjab National Bank's financial performance is examined in this study utilizing measures such as operating profit, net yield, and return on assets, arrival on equity, NPA, and CAR ratio. Data from FY2017-18 to FY2022-23 is examined, with an emphasis on the bank's growth rate following its merger with United Indian bank and Oriental Bank of Commerce.

Brijesh Kumar (2023) - The major goal of organizations in terms of mergers and acquisitions (M&As) is to increase core capabilities and organizational culture while adapting to changing business landscapes. M&A's seek to expand client relationships beyond professional boundaries, resulting in greater pleasure and assurance. Based on their motivations, these transactions are labelled as Voluntary, Compulsory, or Universal Banking Model.

OBJECTIVE OF THE STUDY

- To assess the financial performance in terms of CAMEL, EAGLES models, and the Du-Point Analysis
- To analyse the financial performance of Canara Bank after the merger event.
- To identify any significant changes or trends in the post-merger financial performance compared to the pre-merger period.

STATEMENT OF THE PROBLEM

Canara Bank's merger with another large Indian bank has prompted concerns about the collision on financial performance.

FINDING AND CONCLUSION

Analysis of EAGLES Model

1. Earnings :ROE=Net Profit/ Shareholders Equity

Years	Net Profit	Shareholder Equity	ROE		
2021-2022	5795.1	35	165.57		Post-Merger
2020-2021	2701.98	19	142.2		Pre-Merger
2019-2020	-2022.5	-24	84.27		
2018-2019	547.15	8	68.39		
2018-2017	-4087.32	-66	-61.92		
2017-2016	1233.61	25	49.34		

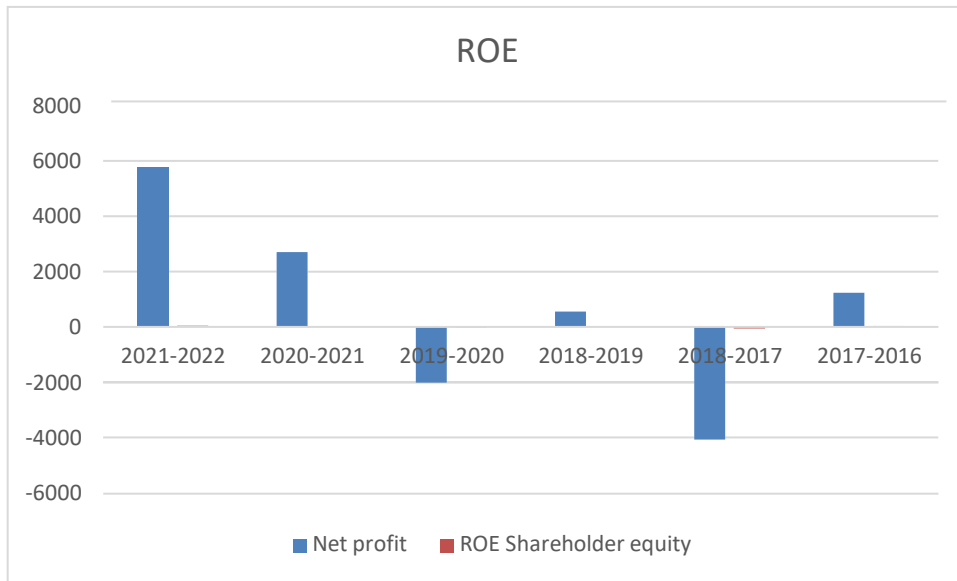
This study aims to address the issue of determining how the merger affected Canara Bank's financial stability and efficiency, with an emphasis on comparing pre- and post-merger financial performance using the EAGLE and CAMEL models.

RESEARCH METHODOLOGY

For the existing study researcher Descriptive research has been utilized. The study describes the financial routine of bank. for the analysis focused secondary data had used, data analysis is concentrates on financial routine of the bank. Secondary data was unruffled from the annual report and documents that were accessible. The study focuses on evaluating the financial performance of Canara Bank and Syndicate Bank, both in their pre-merger and post-merger states, using the EAGLE and CAMEL models as analytical frameworks. The scope encompasses an in-depth analysis of financial data, key performance indicators, and qualitative factors to give a comprehensive assessment. It considers the period leading up to the amalgamation, immediate aftermath, and the subsequent years to gauge the long-term effects.

This study on the evaluation of the financial performance of Canara Bank pre-merger and post-merger with Syndicate Bank offers valuable insights to stakeholders such as shareholders, employees, customers, regulators, and financial market participants, enabling them to make informed decisions, assess the stability and growth prospects of the bank, and contribute to the overall health of the financial sector. Six years of data from the bank's annual report were gathered for the study's determinations.

The six-year reference period begins in 2016-2017 and ends in 2021-2022. The six-year reference period begins in 2016-2017 and ends in 2021-2022 on different sectors.



INTERPRETATION & ANALYSIS

The "PRE-MERGER" period showed periods of high profitability and unusual positive ROE despite negative values in some cases. The "POST MERGER" period, after 2019, demonstrated a notable increase in profitability compared to

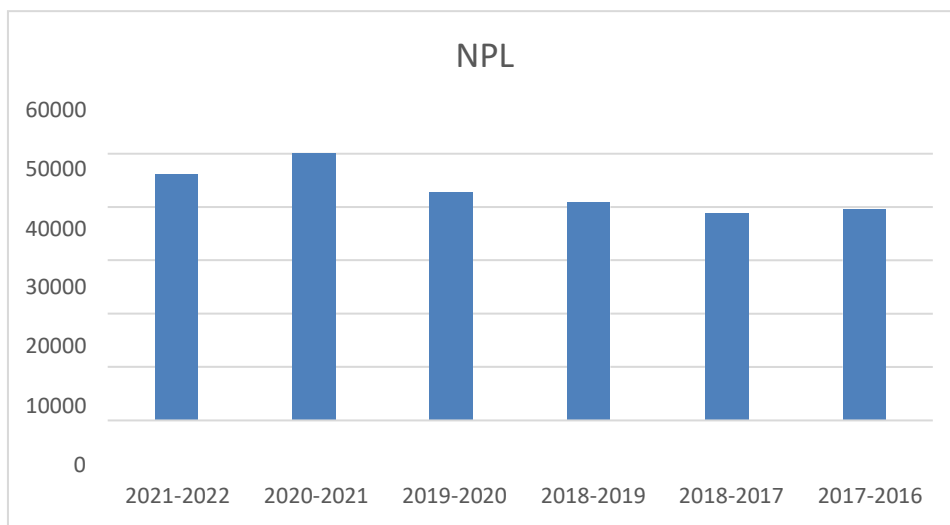
shareholder equity.

2. Asset quality: NPL = Non Performing Loans \ Total Loans and Advances

Table Showing Asset Quality (Non-Performing Loans)

Years	Non Performing Loans	Total Loans And Advances	NPL
2021-2022	46284.96	1257663.54	3.68
2020-2021	50012.8	1179539.6	4.24
2019-2020	42761.77	741440.27	5.767
2018-2019	41042.64	711782.81	5.766
2018-2017	38909.5	631435.47	6.162
2017-2016	39591.76	596158.75	6.641

Table Showing Asset Quality (Non-Performing Loans)



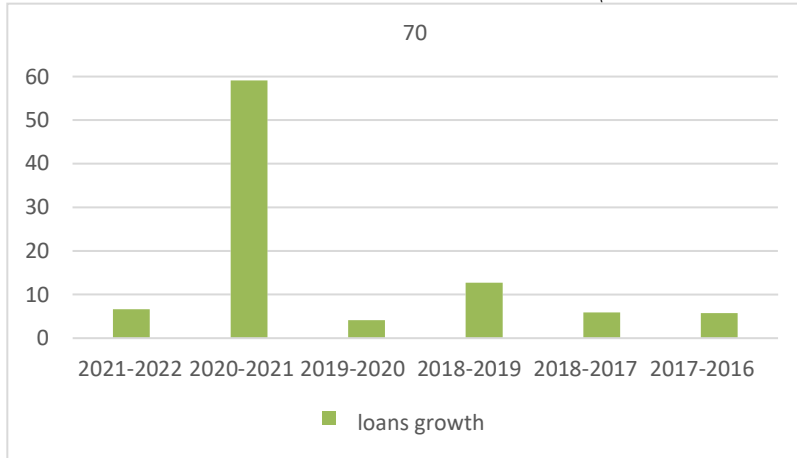


INTERPRETATION & ANALYSIS

The data show that the NPL ratio improved following the merger, with a decrease in non-performing loans compared to total loans and advances. This is a good sign, showing that the

company managed its loans more effectively after the merger. However, the NPL ratio should be evaluated over time to maintain the loan portfolio's sustained health.

Growth : loans Growth = Total Loans – Total loans t-1 \ Total Loans T- 1 Table Showing Growth



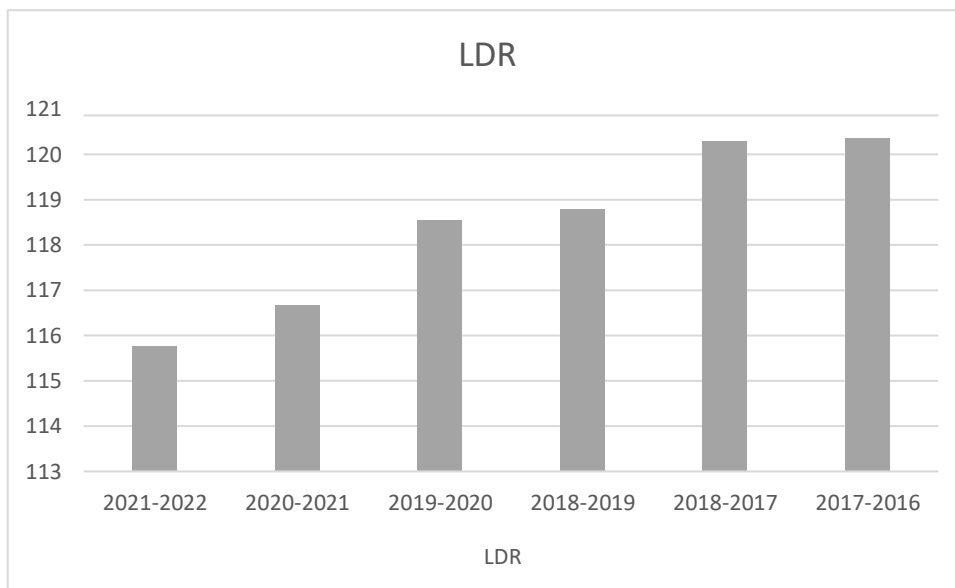
INTERPRETATION & ANALYSIS

The data demonstrate that loans witnessed tremendous growth, particularly in the year following the merger, when the loan portfolio increased significantly (59.08%). The rate of growth

slowed in the following years but remained positive, indicating that the lending company is still expanding. This expansion must be closely monitored to ensure that it matches with the company's financial strategy and risk management.

Liquidity: LRD= Total Loans \total advances

Table showing Liquidity





INTERPRETATION & ANALYSIS

The data indicates that the Loan-to-Deposit Ratio (LDR) was relatively stable in the "POST- MERGER" period, with some fluctuations but generally remaining below 120%. A decrease in the LDR may suggest improved deposit growth relative to loan growth, which can be a positive sign for a bank's liquidity and risk management.

Equity: $CAR = \frac{Teir1 + Teir2}{Risk\ weighted\ assets}$

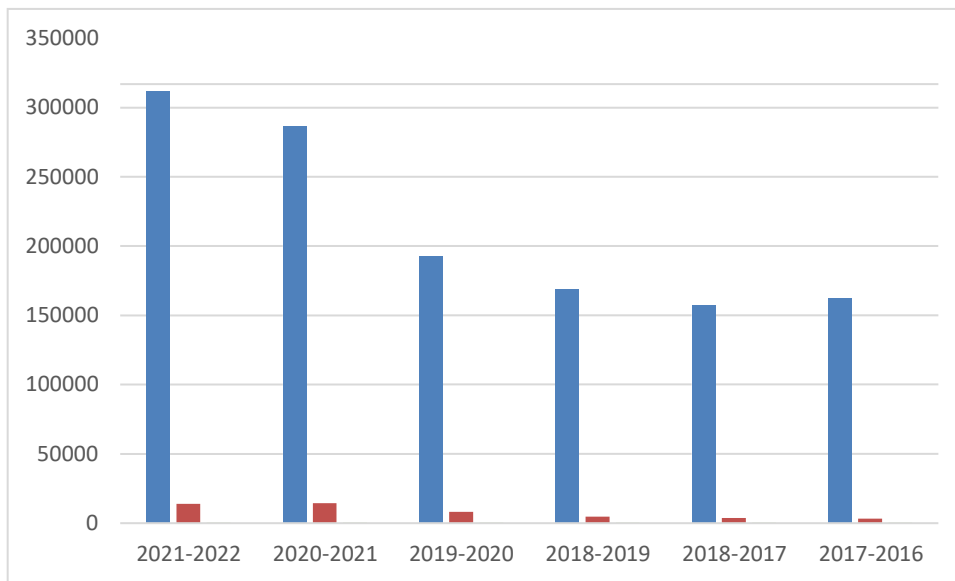
INTERPRETATION & ANALYSIS

The data shows the evolution of Tier 1 and Tier 2 capital over several years in relation to Risk- Weighted Assets. Banks are required to maintain adequate capital to cover potential losses, and these figures are critical for assessing a bank's capital adequacy, risk management, and regulatory compliance. It's important for a bank to monitor and manage its capital levels to ensure it can absorb unexpected losses and maintain financial stability.

Strategic Response: $Interest\ Burden = \frac{Interest\ margin}{Net\ Operating\ cost}$ Table Showing Strategic Response

Years	Interest Margin	Net Operating Cost	Interest Burden
2021-2022	311347.24	13873.91	22.44
2020-2021	286191.25	14347.38	19.95
2019-2020	192645.37	8119.94	23.72
2018-2019	168678.05	4714.72	35.78
2018-2017	157443.56	3682.13	42.76
2017-2016	162072.92	3318.21	48.84

GRAPH SHOWING STRATEGIC RESPONSE



INTERPRETATION & ANALYSIS

The data indicates that the bank has generally maintained a low interest burden, suggesting efficient cost management relative to interest income. However, it's important to monitor operating costs and interest margins to ensure continued efficiency in the bank's operations and profitability.

NOTE; As some of components in the above model is calculated in the EAGLES Model and soits not repeated in the CAMELS model like Asset quality, Earnings , liquidity and Sensitivity tomarket risk

CAMELS MODEL

Capital adequacy ratio: $CAR = \frac{Teir1 + Teir2}{risk\ weighted\ assets}$ Table Showing Equity



Years	TIRE1	TIRE2	Risk Weighted Assets
2021-2022	11.91	2.99	14.9
2020-2021	10.08	3.1	13.18
2019-2020	10.12	3.55	13.65
2018-2019	9.04	2.86	11.9
2018-2017	10.3	2.92	13.22
2017-2016	9.77	3.09	12.86

INTERPRETATION & ANALYSIS

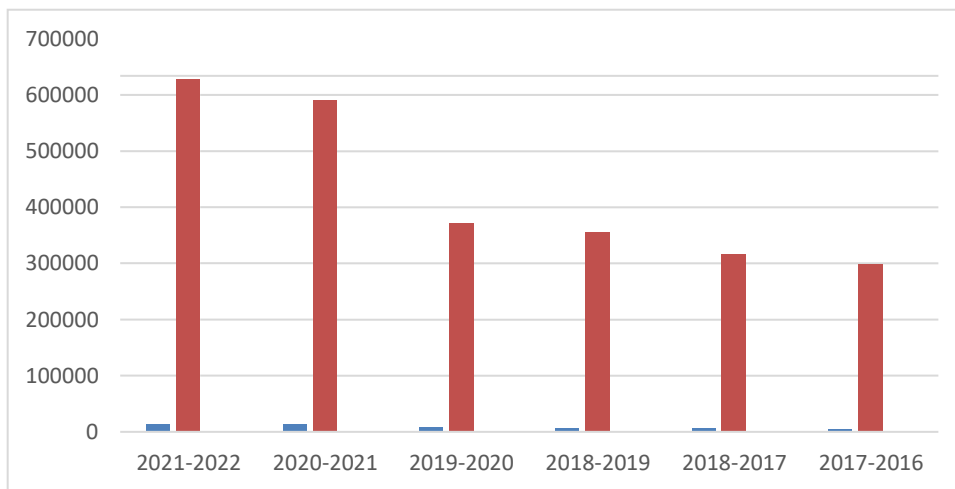
The merger in 2018 seems to have had a positive collision on TIRE1 capital, suggesting that it likely contributed towards the bank's financial strength. TIRE2 capital also increased

post-merger, which is generally a positive sign for financial stability. Risk-weighted assets increased, indicating that the bank might have taken on more risk, potentially due to the merger or changes in its asset portfolio.

Management quality: MQ= Personnel exp\Average Assets Table showing Management Quality

Years	Personal Exp	Avg Of Assets	Management Quality
2021-2022	13208.73	628831.77	0.021
2020-2021	13099.48	589769.8	0.022
2019-2020	7501.12	370720.13	0.02
2018-2019	5962.84	355891.4	0.017
2018-2017	5699.35	315717.73	0.018
2017-2016	4962.79	298079.37	0.017

Graph SHOWING MANAGEMENT Quality



INTERPRETATION & ANALYSIS

The data suggests that personal expenses have increased significantly post-merger, which could be a concern if not aligned with revenue growth. The growth in the average of assets is generally a positive sign for the bank, as it indicates potential expansion. The measure of management quality seems relatively consistent, which could indicate stable management practices.



DU-POINT ANALYSIS

Du-Point=Net Profit Margin *Asset Turnover Ratio *Financial Leverage Ratio

Years	NPM	ATR	FLR	Du-Point a
2021-2022	1	0.078	21.087	1.641
2020-2021	1.108	0.082	22.477	2.035
2019-2020	1.085	0.144	21.908	3.422
2018-2019	1.017	0.159	23.346	3.784
2018-2017	1.011	0.268	23.703	6.418
2017-2016	1.007	0.316	20.761	6.614

INTERPRETATION & ANALYSIS

The bank's financial ratios show some fluctuations but overall indicate a relatively stable and profitable operation. The post-merger period is characterized by lower ATR and FLR, suggesting that the bank has become less efficient in using its assets to generate revenue and has reduced its reliance on debt financing. The DuPont Analysis points to a decrease in ROE post-merger, indicating that the bank's profitability and efficiency may have been impacted by the merger or other factors.

CONCLUSION

Overall, the bank's financial performance research demonstrates changes in numerous measures throughout time. The bank faced struggles and losses, particularly in 2016-2017, but has recovered and achieved significant profitability after the merger, hitting its best ROE in 2021-2022. The bank has been fastly expanding its lending portfolio, but cautious management is required and asset quality is still critical. In addition more, the bank's capital adequacy has improved, and the interest margin has showed an upward trend, indicating improved profitability from interest revenue. However, in order to preserve long-term profitability, the bank must continuously control its spending and interest charges.

REFERENCE

1. Smith, John A. "An Analysis of Bank Mergers and Their Impact on Financial Performance." *Journal of Banking and Finance* 45, no. 2 (2018): 123-136.
2. Brown, Mary K. "The EAGLE Model: Assessing Bank Efficiency and Productivity." *Journal of Financial Services Research* 32, no. 1 (2007): 115-132.
3. Johnson, Robert L. "Bank Performance Evaluation: The CAMEL Rating System Revisited." *The Quarterly Review of Economics and Finance* 41, no. 3 (2001): 245-261.
4. Kumar, Rajesh, and Gupta, Priya. "Financial Performance Evaluation of Canara Bank: A Pre-Merger Analysis." *International Journal of Banking and Finance* 20, no. 4 (2019): 56-75.
5. Patel, Nisha R. "Assessing the Post-Merger Financial Performance of Canara Bank Using the EAGLE Model." *Journal of Financial Analysis and Management* 35, no. 2 (2020): 89-104.
6. Sharma, Rajat, and Singh, Alok. "A Comprehensive Study of Canara Bank's Merger Using CAMEL Model." *Banking and Finance Today* 25, no. 1 (2017): 34-52.



AWARENESS AND PREFERENCES FOR TOURISM AMONG PEOPLE IN COIMBATORE

Dr. Vennila Gopal¹, N Gayathri Devi²

¹Associate Professor in Economics, Dr.N.G.P Arts and Science College, Coimbatore.

²III B.Com., Dr. N.G.P Arts and Science College, Coimbatore.

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ABSTRACT

Tourism today is one of the largest and fastest growing industries employing the largest number of labour force globally. It has gained high priority one in terms of exchange earnings. It is an ever expanding service industry. In India, tourism contributes a greater percentage to the GDP. But it faces several problems like lack of transport facilities, poor accommodation facilities, lack of safety and security, cultural, environmental issues, poor quality food, lack of shopping facilities, lack of communication network, etc. There are different states in the country which are creating congenial atmosphere for various types of tourism adventures for different purposes to attract foreign and domestic tourists. Tamil Nadu has the largest tourism industry in India with a percentage share of 21.31% and 21.86% of domestic and foreign tourist visits in the country. The state has more than 4,000 years of continuous cultural history and has some of the most remarkable temple architecture in the country, music, dance, folk arts and fine arts, and is well known for its temple towns and heritage sites, hill stations, waterfalls, national parks, museum, beach resorts, local cuisine, natural environment and wildlife. It is because of this significance the present study focused to find tourism practices among the people in Coimbatore, assess their level of awareness on different forms of tourism and to analyse tourist preferences among them.

KEY WORDS: Tourists, Tourism and Awareness.

INTRODUCTION

Tourism today is one of the largest and fastest growing industries employing the largest number of labour force. According to the World Trade Organisation (WTO) more than 700 million tourists travel internationally every year spending more than 300 billion US dollars, accounting for 8 percent of the total world exports, 30 percent of international trade in services and more than one billion jobs. Tourism as an industry is a high priority one in terms of exchange earnings and eco-friendliness. It is one of the rapidly growing industries in the present day world, influencing society, government and academic circles. Tourism is an ever expanding services industry and is being perceived as an important instrument of economic development. The socio-economic implications of tourism include enhancement of domestic and foreign exchange growth, employment generation, cultural assimilation and support to the local people.

India is a mixture of multicultural experiences with a rich heritage and myriad attractions. The country is among the most popular tourist destinations in the world. It covers an area of 32, 87,263 sq. km, extending from the snow-covered Himalayan heights to the tropical rain forests of the south. As the 7th largest country in the world, India stands apart from the rest of Asia, marked off as it is by mountains and the sea, which give the country a distinct geographical entity.

Tourism industry has emerged as an instrument of income, employment generation, poverty alleviation and sustainable human development. On the one side, tourism industry contributes a greater percentage to the national GDP and to the employment generation. On the other side, it faces several problems like lack of transport facilities, poor accommodation facilities, lack of safety and security, cultural, environmental issues, poor quality food, lack of shopping facilities, lack of communication network etc. There are different states in the country which are creating congenial atmosphere for various types of tourism adventures for different purposes to attract foreign and domestic tourists.

Tamil Nadu has the largest tourism industry in India with a percentage share of 21.31% and 21.86% of domestic and foreign tourist visits in the country. According to the 2020 Ministry of Tourism report, the number of domestic arrivals was at 494.8 million making the state the second most popular tourist destination in the country, and foreign arrivals numbered 6.86 million, the highest in the country, making it the most popular state for tourism in the country. The state has more than 4,000 years of continuous cultural history. It has some of the most remarkable temple architecture in the country, and a living tradition of music, dance, folk arts and fine arts, and is well known for its temple towns and heritage sites, hill stations, waterfalls, national parks, museum, beach resorts, local cuisine, natural environment and wildlife.



India has seen a rise in tourism. In terms of intra-country business travel, around 18% of Indians traveling move within the country as a part of their job-related requirements. But when compared to the total population, people on tourism are less. Awareness and preferences for tourism among people are low. Hence in order to investigate the level of awareness and preferences of tourists towards different destinations, attractions, and experiences in India, and to identify the factors that influence their decision-making process when selecting a tourism destination in India, the present research focused on finding the awareness and preference for tourism among people in Coimbatore.

OBJECTIVES OF THE STUDY

The objectives of the present study are:

- To study the socio economic background of the respondents.
- To find tourism practices among the people in Coimbatore.
- To assess the level of awareness on different forms of tourism among them.
- To analyse tourist preferences among the respondents in Coimbatore.

REVIEW OF LITERATURE

Dinesh Kumar, Siranjeevi M S and Benita S Monica (2018), in their research paper on ‘Study on Tourism Preferences in Chennai’ based on 150 samples aimed to find the purpose to travel, analyse the mode of travel and compare the plan for existing and upcoming methods of travel. Results revealed 72% of male respondents, 49% above 35 years of age and 65% were working. It further found that about 40% of the respondents went on tour as they wished to visit new places around the world every time, 28% looked for a short leisure break from day to day life, 51% made their travel arrangements through travel agents, 49% chose economy hotels and 38% spent about ₹.5000/- during their trips. It also found that there was no significant relationship between gender and their willingness to spend for their vacation and there was no significant relationship between the age and their preferred vacation types.

T Kumarasamy (2018), in his paper on ‘Impact of tourism industry development in Coimbatore city’ was based on 75 samples. It focused to find the socio-economic background of the respondents, find the factors influencing the choice of a tourist place and rank the tourist places in Coimbatore. The study found that about 82.7% of the respondents were below 30 years of age, 56% - female respondents, 78.7% followed Hinduism, 80% of the tourists who visited Coimbatore were Indians, 81.3% went on vacation and about 46.7% of the respondents’ purpose of trip was for sightseeing. It also found that 69.3% choose the place of visit based on good environment and location, 29.3% ranked Siruvani waterfalls as the best spot. About 26.6% said it was Perur Temple, 34.66% said Isha Yoga, 18.7% ranked Singanallur Lake, 34.66% ranked Maruthamalai Temple and 29.33% ranked Vellingiri Hill Temple.

M Renukadevi, G A Hema and Swathi (2019), in their research study on ‘A study on traveller’s perception and preferences towards tourism services’ aimed to find the traveler’s preferences towards tourism services, study the factors influencing the traveler’s preferences, find the level of satisfaction towards tourism and hospitality services and analyse the challenges faced by them. It is based on 100 respondents from Coimbatore city. The study found that about 40% of the respondents preferred to travel by their personal vehicles and 51% travelled for adventure. It also found that there was no significant relationship between gender of the respondents and purpose of travel. But there was a significant relationship between age, educational qualification, and occupational status, family monthly income of the respondents and the purpose of visit.

S Dhanabagiyam (2020), in her study on ‘Impact of digitalization on travel decisions in Coimbatore city’ examined the gender difference towards the factors of online booking and analysed the internet access, frequent travel, travel websites group difference towards the factor of online booking. The study based on 250 samples revealed that 66.4% of respondents were female, 44.8% were between 25 to 35 years of age, 46.8% have completed post-graduation, 61.6% were unmarried, 34.4% earned an income above ₹.40,000/- per month, 37.2% were private employees, 38.0% accessed internet for about 4-6 years, 31.2% often travel 6 months once and 42.8% mostly used makemytrip.com travel websites for online booking. It also found that male and female respondents had different opinion towards the factor usefulness, but had the same opinion for aesthetics, ease to use, intention to purchase and intention to recommend. It showed that married and unmarried respondents had different opinion towards the factor of intention to purchase, but had same opinion for usefulness, aesthetics, ease to use and intention to recommend. For the factors like aesthetics, ease to use, intention to purchase and intention to recommend the different age group had the same opinion. And it was observed that different frequent travel group had different opinion for the factor of usefulness. But they had the same opinion for the factors like aesthetics, ease to use and intention to purchase and intention to recommend.

METHODOLOGY

The present study was confined to Coimbatore district of TamilNadu. Convenience sampling technique was adopted in the



selection of samples. Database for the study was drawn from 113 responses elicited through a detailed interview schedule personally administered, and observations from surveying the locality and through personal interviews. On completion of data collection, appropriate research analytical tools such as simple percentage, Chi-square, Ranking, Henry Garrett Ranking and Weighted average were applied.

FINDINGS OF THE STUDY

I. SOCIO-ECONOMIC BACKGROUND OF THE RESPONDENTS

The findings of socio-economic background of the respondents revealed that about 58.4% (Table 1) of the respondents in Coimbatore were between '20-30' years of age, 61.06% male, 77% were undergraduates and 38.05% of respondent families received a monthly income of ₹.40000-60000.

TABLE 1
SOCIO-ECONOMIC BACKGROUND OF THE RESPONDENTS

Sl. No.	Variables	Percentage	
1.	Age of the respondents (in years)	Below 20	15.5
		20 to 30	58.4
		31 to 40	16
		41 to 50	7.07
		Above 50	3.53
2.	Sex of the respondents	Male	61.06
		Female	38.94
3.	Education qualification of the respondents	Primary	2.65
		Secondary	1.77
		Higher secondary	6.19
		Under Graduate	77
		Post Graduate	12.38
4.	Family income of the respondents (in ₹)	Below 20000	1.76
		20000-40000	24
		40000-60000	38.05
		60000-80000	27.4
		80000-100000	5.30
		Above 100000	3.53

Source: Primary data, 2023.

II. TOURIST PRACTICES OF THE RESPONDENTS

Findings on tourist practices of the respondents revealed that 92.03% had the practice of going on excursions.

TABLE 2
TOURIST PRACTICES – SIMPLE PERCENTAGE

Sl. No.	Variables	Percentage	
1.	Times of visit in a year	Below 5	28.33
		5-10	56.63
		Above 10	15.04
2.	Travel	Alone	16.8
		With family	43.4
		With friends	31
		With organization group	8.8
3.	Preferences for tourist assistance	Yes	47.8
		No	52.2
4.	Duration of every visit	Below 5 days	56.63
		5-10 days	32.74
		Above 10 days	10.63
5.	Mode of transport	Tourist Transport	68.1
		Public Transport	31.9
6.	Amount spent by respondents for holidays	Below 2000	15



	per head (in ₹)	2000-5000	34.5
		5000-1000	39.8
		Above 10000	10.6

Source: Primary data, 2023.

Majority of the respondents visited '5-10 times' in a year (56.63%) (Table 2), most travelled 'with family' (43.4%) and did not prefer 'tourist assistance' (52.2%). Majority of the respondents visited 'below 5 days' (56.63%) during their visit, travelled in 'tourist transport' (68.1%) and spent from '₹5000-10000' (39.8%) on every trip.

Weighted average analysis revealed that most of the respondents visited 'other state' (mean score: 4.01) (Table 3). The respondents spent high amount on travel (mean score: 4.19) and least amount on tourist guide (mean score: 3.46).

TABLE 3
TOURIST PRACTICES – WEIGHTED AVERAGE

Sl. No.	Variables	Total score	Mean score	
1.	Area of visit of the respondents	Within the district	392	3.46
		Within the state	380	3.36
		Other state	454	4.01
		Abroad	290	2.56
2.	High spending on	Shopping	410	3.62
		Food	402	3.55
		Travel	474	4.19
		Tourist guide	391	3.46
3.	Importance given for activities during tour	Lodging	434	3.84
		Food	493	4.36
		Observe Wildlife	447	3.99
		Observe Fauna	424	3.75
		Photography	432	3.82
	Outdoor activities like swimming, trekking, etc.	357	3.15	

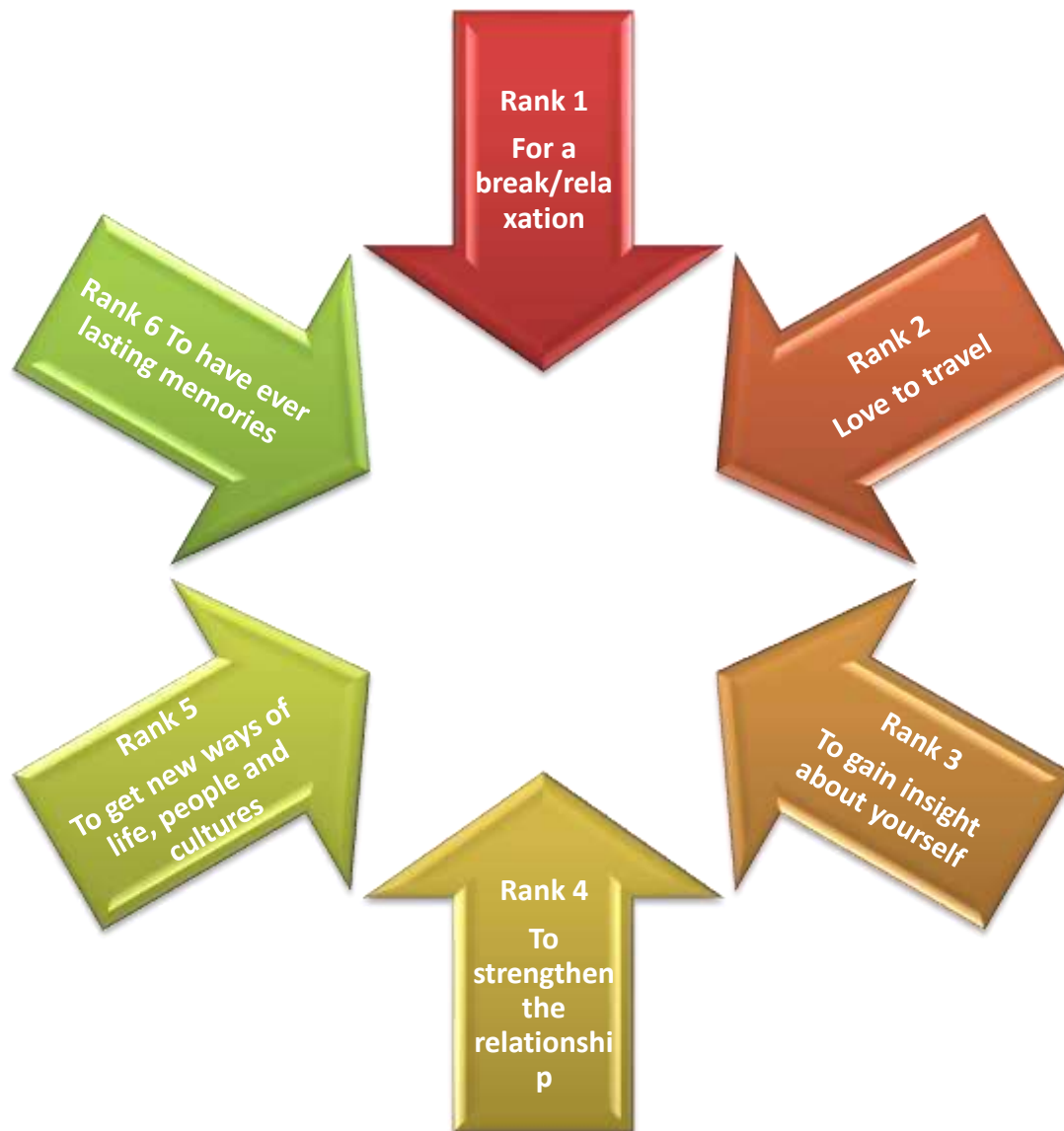
Source: Calculated data, 2023

The study revealed that the respondents gave very high importance for food (mean score: 4.36) (Table 3), observe wildlife (mean score: 3.99) and for photography (mean score: 3.82). And less importance to observe fauna (mean score: 3.75) and least importance for outdoor activities like swimming, trekking, etc. (mean score: 3.15).

The purpose of tour by respondents was found using Henry Garrett ranking (Figure 1). Results revealed that most of them went on tour just to have a 'break/relaxation (rank 1)', had a 'love to travel (rank 2)', 'to gain insight about yourself (rank 3)' and 'to strengthen the relationship (rank 4)'. A less number of the respondents went on tour 'to get new ways of life, people and cultures (rank 5)' and 'to have ever lasting memories (rank 6)'.



**FIGURE 1
PURPOSE OF TOUR**



III. RESPONDENT AWARENESS ON TOURISM

Awareness on different forms of tourism

Awareness on different forms of tourism was found. Results showed that Awareness on different forms of tourism was found. It was revealed that about 35.39% of the respondents were highly aware of pilgrim tourism and 31.85% were highly aware of environmental tourism. About 30.97% were aware of cultural tourism to a very high level and 30.97% were moderately aware of medical tourism. Around 35.39% were highly aware of heritage tourism and 39.82% highly about recreational tourism. Almost 26.54% were moderately aware of cruise tourism and 49.55% were aware of educational tourism to a very high level. Majority of the respondents had a very high awareness on adventure tourism (39.82%) and high level of awareness about village tourism (30.97%). Around 44.24% of them were moderately aware of sports tourism and 36.28% were aware of wildlife tourism to a very high level.

Association between qualification of the respondents and their awareness level on education tourism

To find out association between qualification of the respondents and their awareness level on education tourism, Chi-square test was used.

**Hypothesis:**

H_0 : There is no significant association between the qualification and awareness level on educational tourism of the respondents.

H_1 : There is a significant association between qualification and awareness level on educational tourism of the respondents.

TABLE 4

ASSOCIATION BETWEEN QUALIFICATION OF THE RESPONDENTS AND THEIR AWARENESS LEVEL ON EDUCATION TOURISM - CHI-SQUARE TEST

FACTOR	CALCULATION VALUE	DF	TABLE VALUE	REMARKS
Qualification	18.70	16	18.30	Rejected

Source: Calculated data, 2023

It is clear from Table 4 that, the calculated value of Chi-square at 0.05% level is more than the table value. Hence, the hypothesis is rejected. So, there is a significant association between qualification and awareness level on educational tourism.

IV. TOURIST PREFERENCES OF THE RESPONDENTS

Weighted average method is used to find out the respondents Preferences for tourist destinations. Findings portray that most of the respondents preferred hill station (mean score: 4.29), amusement parks (mean score: 4.12), safaris (mean score: 4.01) and temples (mean score: 3.86).

Probing into the respondents' preference for tour arrangements revealed that majority of them (69.02%) preferred for 'own arrangement' and (30.08%) respondents preferred for travel agencies.

Type of accommodation preferred by the respondents was found using rank analysis. Findings show that at most of the respondents assigned rank 1 for 'Economy hotels', rank 2 for 'Lodges', rank 3 for 'Resorts' rank 4 for 'Star hotel', rank 5 for 'Others' and rank 6 for 'Dormitory'

CONCLUSION AND SUGGESTIONS

Tourism industry is a high priority one in terms of employability, exchange earnings and eco-friendliness. Tourism is one of the rapidly growing industries in the present day world. It is an ever expanding services industry with latest vast growth potential. Because of the growing significance of tourism industry, the present study focused to find tourism practices among the people in Coimbatore, assess their level of awareness on different forms of tourism and to analyse tourist preferences among them. The study found that tourism among 30 years and above age was lesser. Hence, leisure in the form of tourism has to be promoted among the age group. Majority did not take tourist guide assistance. Taking the assistance of tour guide would help the tourist get better information about the places. The respondents were moderately aware of medical tourism, cruise tourism and sports tourism. Hence these forms of tourism have to be promoted among the public.

REFERENCES

1. M Renukadevi, G A Hema and Swathi, *A study on traveller's perception and preferences towards tourism services*, *International Journal of Applied Research*, 2019, 5(6), pp. 428-430.
2. T Kumarasamy, *Impact of tourism industry development in Coimbatore city*, *International Journal of Applied Research*, 2018, 4(4), pp. 167-171.
3. Dinesh Kumar, Siranjeevi M S and Benita S Monica, *Study on Tourism Preferences in Chennai*, *International Journal of Engineering Development and Research*, 2018, Volume 6, Issue 3, pp. 565-570.
4. S Dhanabagiyam, *Impact of digitalization on travel decisions in Coimbatore city*, *Asian Journal of Management*, 2020, Volume 11, Issue 3, pp. 304-308.
5. John K Walton, *Tourism*, 2023, <https://www.britannica.com>
6. *About Coimbatore district*, Government of Tamil Nadu, <https://coimbatore.nic.in>
7. UNWTO, *International tourism growth continues to outpace the global economy*, 2020, <https://www.unwto.org>
8. *Incredible India*, <https://www.incredibleindia.org>
9. International Labour Organisation, *The future of work in the tourism sector: Sustainable and safe recovery and decent work in the context of the COVID-19 pandemic*, 2022, <https://www.ilo.org>
10. *Tourism in Tamil Nadu*, <https://dbpedia.org>
11. *The Economic Times*, *The budget push that can make India's tourism sector one of the world's best*, 2023, <https://economictimes.indiatimes.com>



FRACTURES OF THE TIBIAL PILON - HORIZONTAL ARTICULAR SURFACE OF THE TIBIA

Bryam Esteban Coello García¹, Dubal Wladimir Fernández Ordoñez²,
Alba Estefanía Iza Román³, Leyda Coralía Loor Martínez⁴, Marlon Leonardo Ordóñez
Ramos⁵, José Luis Granizo Jara⁶, Edgar Gabriel Pesántez Bravo⁷,
Daniela Lorena Barros Narváez⁸, Mishell Estefanía Peñafiel Vicuña⁹,
Bonny María Montalván Nivicela¹⁰.

¹Postgraduate doctor in orthopedics and traumatology at Faculdade de Ciências Médicas Minas Gerais. Belo Horizonte - Brasil.
ORCID <https://orcid.org/0000-0003-2497-0274>

²Physician at "Universidad Técnica Particular de Loja", faculty of Medical Sciences, Universidad Nacional de Loja. Loja- Ecuador
ORCID <https://orcid.org/0009-0009-4449-0914>

³General Practitioner in independent practice, faculty of Medical Sciences, Universidad de Cuenca. Azuay- Ecuador
ORCID <https://orcid.org/0009-0003-4928-9992>

⁴General Practitioner in independent practice, faculty of Medical Sciences, Universidad de Cuenca. Azuay- Ecuador
ORCID <https://orcid.org/0009-0000-9429-1379>

⁵General Practitioner in "U.O San Vicente-Ministerio de Salud Pública", faculty of Medical Sciences, Universidad de Cuenca.
Azuay- Ecuador ORCID <https://orcid.org/0009-0002-7959-2987>

⁶Imaging Physician at "Centro de diagnóstico por imágenes DIM CENTER" and professor at the "Universidad Nacional de Chimborazo", Chimborazo- Ecuador ORCID <https://orcid.org/0009-0003-7855-0838>

⁷General Practitioner in "Hospital Vicente Corral Moscoso", faculty of Medical Sciences, Universidad de Cuenca. Azuay- Ecuador
ORCID <https://orcid.org/0000-0002-4403-761X>

⁸General Practitioner in "Hospital Vicente Corral Moscoso", faculty of Medical Sciences, Universidad de Cuenca. Azuay- Ecuador
ORCID <https://orcid.org/0000-0001-8005-0064>

⁹General Practitioner in "Hospital Vicente Corral Moscoso", faculty of Medical Sciences, Universidad de Cuenca. Azuay- Ecuador
ORCID <https://orcid.org/0009-0004-3959-6881>

¹⁰General Practitioner in "Hospital Básico de Gualaquiza- Misereor", Morona Santiago- Ecuador
ORCID <https://orcid.org/0000-0003-3365-8979>

Corresponding Author: Bryam Esteban Coello García **Address:** Rua Tiradentes 266. Campo Belo. Minas Gerais. Brasil **Postal Code:** 37270-000

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SUMMARY

Introduction: The distal tibia presents a quadrilateral cross-sectional shape and together with the fibula, ligaments and capsule, create the ankle mortise. The tibial pilon fractures thus to describe the high energy axial compressive force of the tibia when it acts as a mortar and is placed vertically on the talus.

Objective: to detail current information related to tibial pilon fractures, epidemiology, mechanism of action, clinical assessment, imaging assessment, classification, treatment, prognosis and complications.

Methodology: a total of 28 articles were analyzed in this review, including review and original articles, as well as clinical cases, of which 19 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: distal tibia fractures, horizontal articular surface of the tibia, tibial pylon, arthrodesis.

Results: tibial pilon fractures account for 7% to 10% of all tibial fractures, are more common in males aged 30 to 40 years and the vast majority are associated with high-energy trauma.

Conclusions: Individuals presenting with high-energy pylon fractures may also have multisystem trauma and other potentially life-threatening alterations. Imaging evaluation is important for good preoperative planning, as well as for scheduling a strategic reconstruction order. The prognosis of the fractured individual correlates with the type of fracture according to the Rüedi and Allgöwer classification which is based on the severity of comminution and displacement of the articular surface. Treatment is based on several factors, among which are the individual's age and functional



status, the severity of the bone, cartilage and soft tissue injury, the degree of comminution and osteoporosis, as well as the surgeon's skill. Few authors recommend arthrodesis in acute fracture. Even when a precise reduction is achieved, good results are not always obtained. Without anatomic reduction, the results are not satisfactory. Clinical outcomes correlate with the severity of the fracture pattern as well as the quality of the reduction.

KEY WORDS: *fractures, tibial pylon, distal tibia, arthrodesis.*

INTRODUCTION

"Pilon," a word of French origin to describe a mortar, was first coined by Etienne Destot in 1911 to compare the mechanical activity of the distal tibia along with the talus. In other words, tibial pilon fractures are also referred to as such to describe the high energy axial compressive force of the tibia when acting as a mortar when placed vertically on the talus(1-3).

The distal portion of the tibia presents a quadrilateral cross-sectional shape that together with the fibula, ligaments and capsule, form the ankle mortise. The joint of the ankle is structurally complex, in ginglymo, conformed by the fibula, tibia, talus, as well as the ligamentous complexes. Primarily responsible for the stability of the ankle joint is the bony arrangement. The bony anatomy that confers stability is given by the distal section of the tibia and fibula, their articulation with the talus and with each other. The distal articular area of the tibia in union with the medial and lateral malleoli originate the cavity or mortise, this gives form to a compact articulation with the dome of the talus. The articular area of the leg is concave in the anteroposterior plane and convex in the lateral plane; it is also wider in the anterior section to maintain congruence with the talus, which provides intrinsic safety, primarily between loads(1,4-6).

METHODOLOGY

A total of 28 articles were analyzed in this review, including review and original articles, as well as cases and clinical trials, of which 19 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: distal tibia fractures, horizontal articular surface of the tibia, tibial pylon, arthrodesis.

The choice of bibliography exposes elements related to tibial pilon fractures; in addition to this factor, epidemiology, clinical evaluation, classification, treatment, complications and prognosis of the disease are presented.

DEVELOPMENT

Epidemiology

Pilon fractures commonly occur in males with an incidence of approximately 57% to 65% versus the incidence in females. The distribution by age zones in pilon fractures maintains a bimodal pattern being more prevalent between 25 and 50 years of age, other bibliographies speak of presenting more frequency in men from 30 to 40 years of age. Tibial pilon fractures account for 7% to 10% of all tibial fractures and these fractures make up approximately 1% to 10% of fractures of the lower leg or tibia

and are frequently associated with significant bony comminution and soft tissue disruption. In addition, pylon fractures may involve metaphyseal extension and may show associated fibular fractures. Most are caused by high-energy mechanisms; thus, associated injuries are frequent and need to be ruled out(5,7-9).

Mechanism of Injury

Pylon fractures are usually caused by high-energy mechanisms, such as motor vehicle accidents and falls from a height that result in direct axial compression and joint impaction of the tibial pylon. They can also occur due to low energy mechanisms, however they are less frequent. The mechanism and level of injury involved give the fracture pattern and treatment outlook for pilon fractures. The blow from an axial compression mechanism expands the articular surface proximally in the direction of the metaphysis, with related metaphyseal comminution. Association with fibula fractures is common(10-14).

- Axial compression or high energy: such as a fall from a height or traffic accidents. The force goes axially through the talus in the direction of the tibial pylon and generates impaction or subsidence of the articular area; it can be related to a large comminution. If the fibula remains intact, the ankle is shown to be forced in varus with medial pylon collapse. Plantar flexion or dorsiflexion of the ankle at the instant of injury results in a predominant injury to the posterior or anterior section of the pylon.
- Rotational or low energy force: as in a sports accident, it is usually caused by torsion combined with a varus or valgus force. Generates two or more large fragments with minimal comminution of the articular surface. Usually a fibula-related fracture occurs, typically transverse or short oblique.
- Mixed compression and shear injury: here the vector of these two forces gives rise to the fracture pattern. They are frequently associated with other fractures such as calcaneal, tibial plate, pelvic and vertebral fractures(7,15).

Clinical Assessment

Individuals presenting with high-energy pylon fractures may also show multisystem trauma, in addition to some life-threatening injuries; therefore, initial assessment and resuscitation should follow advanced trauma life support (ATLS) guidelines and start with the ABC sequence.

Subsequent to stabilization of the individual, a thorough history and secondary examination should be performed to evidence the



mechanism of injury, as well as the possibility of other injuries. In the case of pilon fractures, meticulous inspection of the affected individual's lower limbs may give more information about the extent of the soft tissue injury. High-energy injuries may show with obvious deformities and open wounds; however, torsional injuries of less energetic impact may be complex to detect(1).

Most tibial pilon fractures are related to high-energy trauma; therefore, a comprehensive trauma evaluation is essential, as well as a secondary evaluation. Usually the individual is unable to walk and shows a different level of deformity in the distal portion of the involved leg. The examination should have insight into the neurovascular situation and any related injuries. As the tibia is almost subcutaneous in this part, displacement of the fracture or

excessive pressure on the skin can change a closed fracture into an open fracture. Usually the swelling is massive and rapid, necessitating serial neurovascular scans, in addition to an evaluation of dermal integrity, the presence of necrosis and post-fracture phlyctenas. The essential importance of evaluation of soft tissue involvement should be emphasized.

The dissipation of the impact forces can result in a notable soft tissue injury in the periphery of the distal portion of the tibia, which can create an inadequate healing of the surgical incisions, evolving with necrosis of the margins and dehiscence of the wound if not adequately treated. Some bibliographies recommend waiting 7 to 10 days, until the soft tissues improve, before planning the definitive surgery(7,15).

Figure 1. Exposed tibial pilon fracture.



Source: The Authors.

Imaging Evaluation

Anteroposterior and lateral radiographs are suggested, in addition to the mortise projection. CT with coronal and sagittal reconstructions are frequently used to evaluate the fracture pattern and articular surface involvement. Proper preoperative planning

is essential to create a strategically planned reconstruction order; contralateral radiographs may also serve as a template at the time of preoperative planning(1,7,15).



Figure 2. Preoperative fluoroscopy of tibial pilon fracture.



Source: The Authors.

Classification

Rüedi and Allgöwer classification

It is based on the severity of the comminution, as well as on the displacement of the articular surface. This was the most widely used classification, however, at present its relevance is minimal. The prognosis is associated with the grade(7).

- Type 1: non-displaced fracture of the pylon.
- Type 2: displaced fracture with minimal subsidence or comminution. Displaced fracture with significant joint comminution.
- Type 3: metaphyseal subsidence.

There are other classifications such as that of the AO/OTA, however the one shown in the article is the most relevant at the moment. In the AO/OTA classification for long bone fractures, pylon fractures are divided into extra-articular (43A), partial articular (43B) and intra-articular (43C) and further subdivided according to the level of comminution. In addition to classifying the type of fracture, it is also important to take into consideration the extent of soft tissue damage using the Gustilo-Anderson classification for open fractures or the Tschernke classification for closed fractures(1).

Treatment

It is based on multiple factors, among which are:

- The individual's age and functional status.
- The severity of the bone, cartilage and soft tissue lesion.
- The degree of comminution and osteoporosis.

- The skill of the surgeon.

There are relatively few contraindications for surgical fixation of tibial pilon fractures(16).

Conservative Treatment

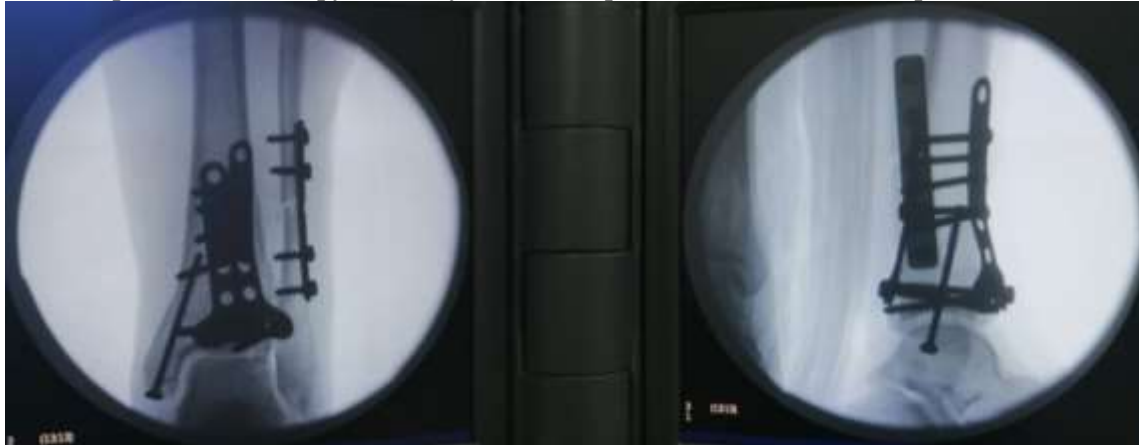
This may involve inguinopodic casting for 6 weeks followed by bracing and range-of-motion exercises, or early range-of-motion exercises. Conservative treatment is generally used in undisplaced fractures or in very debilitated individuals whose surgical intervention would be counterproductive. Manipulation of displaced fractures is unlikely to reduce intra-articular fragments. The detriment of reduction is common. Among the disadvantages are the inability to control the soft tissue status and the related inflammatory status(7,15).

Surgical Treatment

Displaced tibial pilon fractures are usually managed surgically. It is usually recommended to delay surgery for 7 to 14 days, thus optimizing soft tissue status, including reduction of swelling near the ankle, disappearance of phlyctenas, and sphacelation of disrupted soft tissues. High-impact energy disruptions can be managed with an external fixator that overlaps the injury and provides skeletal stability, maintains good length, and partially mitigates the fracture until definitive surgical treatment is done. Open reduction with internal fixation of related fibula fractures can also be performed at the time of external fixator placement(7,15).



Figure 3. Postoperative fluoroscopy of osteosynthesis with plate and screws in a tibial pilon and fibula fracture.



Source: The Authors.

Objectives

- The main objectives of surgical fixation in these fractures are:
- Restoration of the articular area of the tibia.
- Bone grafting of the metaphyseal defects.
- Preservation of the length and stability of the fibula.
- Stabilization of the fracture of the distal part of the tibia(7).

Surgical Techniques

The reduction of the articular fragments can be done percutaneously or by means of limited minor incisions with support of multiple types of forceps, in addition to the radioscopy control to evaluate the reduction of the fracture. The metaphyseal fracture can be stabilized with plates or with an external fixator, which may or may not go beyond the ankle joint. In addition, grafting of the metaphyseal defects with some type of osteoconductive material is recommended(7).

Internal Fixation: the best way to obtain an accurate reduction of the joint area is through open reduction of the fracture and fixation with a plate. To reduce complications when using plates, the following is recommended:

Avoid incisions on the anteromedial aspect of the tibia.

Use small, precontoured, low-profile implants and mini fragment screws.

In fractures of high energetic impact, postpone surgery, while using an external fixator that overlaps the joint, and then perform definitive surgical treatment.

Use indirect reduction techniques to reduce soft tissue denudation.

Use percutaneous techniques to place the plates.

External fixator through the joint: can be used in individuals with extensive soft tissue involvement or open fractures. Reduction is continued by distraction and ligamentotaxis. When a correct reduction is obtained, the external fixator can be used as definitive treatment.

Articulated external fixator versus rigid external fixator: the rigid external fixator is the one commonly used, which theoretically disables the mobility of the ankle. With the articulated external fixators the movement can be made in the sagittal plane, avoiding varus deformity, in addition to shortening, its application is limited, however they help in the lubrication and nutrition of the cartilage, it could be used at the moment of presenting an integrity of the soft parts.

Hybrid external fixator: this does not go beyond the joint. The reduction of the fracture is simplified through fine needles, with or without olive, achieving the reestablishment of the circular surface and allowing bone stability. It is more useful when evaluating the fracture and there is a contraindication to internal fixation. It is related to deep wound infection in approximately 3% of cases(7,15).



Figure 4. External fixation in tibial pilon fracture for damage control.



Source: The Authors.

Arthrodesis

In the literature, the recommendation of arthrodesis in acute fractures is infrequent. In a comminuted fracture, it is better to opt for intervention after healing and with the soft parts recovered. Usually, it is used as a rescue technique after other management that resulted in failure and the generation of post-traumatic osteoarthritis. Postoperative treatment.

Initially, the limb is immobilized in neutral dorsiflexion, carefully observing the soft tissues. When the soft tissues and fixation allow it, early mobility of the foot and ankle should be started. Weight bearing is not allowed for 12 to 16 weeks, and then gradually progress to full weight bearing after radiological evidence of fracture healing(7,15).

Complications

Good results are not always achieved, even when a good reduction is obtained; since there is no anatomical reduction, the results are not ideal. Over time, the high rates of complications and wound infections have been related to early open fixation by

means of the affected soft tissue, which indicates the importance of a methodical assessment and manipulation of the soft tissue, especially in considerable pilon fractures(17).

Necrosis, bedsores and hematoma: these are related to the initial trauma together with inadequate treatment of the soft tissues. Efforts should be made to avoid excessive lifting of the soft tissues and to close the skin under tension. To obtain a correct closure, secondary closure, skin grafts or muscle flaps are usually used. These complications have decreased since the knowledge of the initial trauma of the soft parts and the development of instruments to reduce the effects such as the use of an external fixator that goes beyond the lesion, minimally invasive surgery, among others.

Pseudoarthrosis: it originated after a significant comminution with bone loss, reduction of arterial flow or infection. It presents an approximate incidence of 5%.

Consolidation in bad position: it is commonly found when after treatment, the reduction is not anatomical, as it does not neutralize



forces that cross through the fracture and if a secondary paralysis is generated or an early loading is performed. It presents an approximate incidence of 25% when using an external fixator.

Infection: it is related to open injuries and soft tissue devitalization. The incidence is higher in early surgery with unfavorable soft tissues. Among the long-term alterations that these can cause are osteomyelitis, malposition consolidation and pseudoarthrosis.

Post-Traumatic Osteoarthritis: it is more common the greater the intra-articular comminution; evidencing the importance of restoring the anatomy of the articular area.

Tibial Shortening: generated by subsidence of the metaphysis, comminution of the fracture, or loss at first to restore length through fixation of the fibula.

Decreased Range of Motion of The Ankle: individuals usually show an average of 10° of dorsal flexion and 30° of plantar flexion(4,7).

Prognosis

Despite advances in radiographic imaging, surgical instrumentation and understanding of soft tissue management, pylon fractures are still complex to treat. Clinical outcomes correlate with the seriousness of the fracture pattern and the quality of reduction. Failed conservative treatment and persistent pain may necessitate ankle arthrodesis as a salvage intervention. Individual victims of pylon fractures should be adequately counseled about outcomes and possibilities following surgical fixation(11,14,18,19).

CONCLUSIONS

Individuals who present with high-energy pylon fractures may also have multisystem trauma and other life-threatening conditions. Imaging evaluation is important for good preoperative planning, as well as for scheduling a strategic reconstruction order. The prognosis of the fractured individual correlates with the type of fracture according to the Rüedi and Allgöwer classification which is based on the severity of comminution and displacement of the articular surface. Treatment is based on several factors, including the individual's age and functional status, the severity of the bone, cartilage and soft tissue injury, the degree of comminution and osteoporosis, and the skill of the surgeon. Few authors recommend arthrodesis in acute fracture. Even when a precise reduction is achieved, good results are not always obtained. Without anatomic reduction, the results are not satisfactory. Clinical outcomes correlate with the severity of the fracture pattern as well as the quality of the reduction.

BIBLIOGRAPHY

1. Luo TD, Pilson H. Pilon Fracture. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2023 [cited 2023 Aug 23]. Available from: <http://www.ncbi.nlm.nih.gov/books/NBK482176/>
2. Michelson J, Moskovitz P, Labropoulos P. The Nomenclature for Intra-articular Vertical Impact Fractures of the Tibial Plafond: Pilon Versus Pylon. *Foot Ankle Int.* 2004 Mar;25(3):149–50.
3. Nayagam S, Jacob N, Amin A, Giotakis N, Narayan B, Trompeter AJ. Management of high-energy tibial pilon fractures. *Strateg Trauma Limb Reconstr.* 2015 Nov 30;10(3):137–47.
4. Bryam Esteban Coello García, Byron Xavier Cabrera Castillo, Fátima Viviana Benalcázar Chiluisa, Angel Patricio Fajardo Zhao, Luis Antonio Moreira Moreira, Elen de la Fuente Bombino, et al. FRACTURES OF THE BONES IN THE ANKLE JOINT. *EPRA Int J Multidiscip Res IJMR.* 2023 Mar 21;202–10.
5. Mauffrey C, Vasario G, Battiston B, Lewis C, Beazley J, Seligson D. Tibial pilon fractures: a review of incidence, diagnosis, treatment, and complications. *Acta Orthop Belg.* 2011 Aug;77(4):432–40.
6. Rüedi Th. Fractures of the lower end of the tibia into the ankle joint: results 9 years after open reduction and internal fixation. *Injury.* 1973 Jan;5(2):130–4.
7. Koval KJ, Zuckerman JD. *Fracturas y luxaciones.* 2 ed. Madrid: Marban; 2003.
8. Cole PA, Mehrle RK, Bhandari M, Zlowodzki M. The Pilon Map: Fracture Lines and Comminution Zones in OTA/AO Type 43C3 Pilon Fractures. *J Orthop Trauma.* 2013 Jul;27(7):e152–6.
9. Ballal A. A Prospective Study on Functional Outcome of Internal Fixation of Tibial Pilon Fractures with Locking Plate using Minimally Invasive Plate Osteosynthesis Technique. *J Clin Diagn Res [Internet].* 2016 [cited 2023 Sep 7]; Available from: http://www.jcdr.net/article_fulltext.asp?issn=0973-709x&year=2016&volume=10&issue=1&page=RC01&issn=0973-709x&id=7013
10. Chen SH, Wu PH, Lee YS. Long-term results of pilon fractures. *Arch Orthop Trauma Surg.* 2006 Dec 15;127(1):55–60.
11. Teeny SM, Wiss DA. Open reduction and internal fixation of tibial plafond fractures. Variables contributing to poor results and complications. *Clin Orthop.* 1993 Jul;(292):108–17.
12. Wyrsh B, McFerran MA, McAndrew M, Limbird TJ, Harper MC, Johnson KD, et al. Operative Treatment of Fractures of the Tibial Plafond. A Randomized, Prospective Study*: *J Bone Jt Surg.* 1996 Nov;78(11):1646–57.
13. Schulz AP, Fuchs S, Simon L, Seide K, Paech A, Queitsch C. Severe Fracture of the Tibial Pilon: Results with a Multidirectional Self-locking Osteosynthesis Plate Utilizing a Two-stage Procedure. *Eur J Trauma Emerg Surg.* 2008 Aug;34(4):391–6.
14. Korkmaz A, Çiftidemir M, Özcan M, Çopuroğlu C, Sarıdoğan K. The analysis of the variables, affecting outcome in surgically treated tibia pilon fractured patients. *Injury.* 2013 Oct;44(10):1270–4.
15. Bucholz RW, Heckman JD, Rockwood CA, Green DP. *Rockwood & Green's fractures en el adulto.* Madrid: Marbán; 2003.
16. Rüedi TP, Allgöwer M. The operative treatment of intra-articular fractures of the lower end of the tibia. *Clin Orthop.* 1979;(138):105–10.
17. Helfet DL, Koval K, Pappas J, Sanders RW, DiPasquale T. Intraarticular "pilon" fracture of the tibia. *Clin Orthop.* 1994 Jan;(298):221–8.
18. Thordarson DB. Complications After Treatment of Tibial Pilon Fractures: Prevention and Management Strategies: *J Am Acad Orthop Surg.* 2000 Jul;8(4):253–65.



19. *Ovadia DN, Beals RK. Fractures of the tibial plafond. J Bone Joint Surg Am. 1986 Apr;68(4):543–51.*

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EVALUATION OF QUALITY TEACHING IN MAYPANGDAN NATIONAL HIGH SCHOOL: RESPONSE TO GLOBALIZATION

Mercy Marina T. Gallego^{1*}

¹Master of Arts in Education Major in Educational Management, Eastern Samar State University, Borongan City, Eastern Samar, Philippines

*Master Teacher III, Maypangdan National High School, Borongan City, Eastern Samar, Philippines

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ABSTRACT

Quality of teaching in Secondary Schools in Borongan City Division: Response to Globalization SY 2022-2023 on performance status of the Secondary Public Schools as input to Teaching Development Program. Out of 57 respondents were distributed into two groups namely one (1) administrator principal/school head and fifty-six (56) teachers of the quality of teaching in Maypangdan National High School, Division of Borongan City. Descriptive research was used to conduct a survey investigation, description will be used for frequencies, averages, and other statistical calculations. The respondents are very satisfactory as to how seriously important the job performance appraisals prefer more autonomy in their work instead of being closely supervised, and job-focused rather than family-focused, they want their job to be challenging. The correlation of -0.19 shows a very weak negative correlation between the two, since -0.19, is very close to zero, it is safe to say that there is almost no correlation between the two, there is no significant relationship. The results show that whatever generation the respondents are in, they agree with the Quality of Teaching in the Secondary Schools in Borongan City Division: Response to Globalization, leadership program by coaching teacher-trainees, accountability, communication, and change management. The finding shows a deep level of respect the teachers regardless of their length of tenure and years of teaching experience. Teachers are the assets of the school and they should be given enough leeway and freedom to do their jobs for more creativity, innovation, and respect for each other work.

KEYWORDS: *Quality teachings, Globalization, Learning Environment, Professional Development*

I. INTRODUCTION

Global education is a complex idea that is taught to enhance one's meaning of the world. Global Education is typically taught within the curriculum. Teachers of Global Education will integrate multiple dimensions, perspectives, and citizenships into everyday lessons. Students learning to be global citizens through global education will be able to learn more about international communities, social justice issues, global events, and international ideas in their typical classroom setting. Global Education will shape the way people view the world to help better shape the world. It will foster service learning initiatives and activism within the community and around the world.

Globalization in education opens people's eyes and minds to the realities of the globalized world and awakens them to bring about a world of greater justice, equity, and human rights for all. Global education is understood to encompass development education, human rights education, education for sustainable development, education for peace and conflict prevention, and intercultural education; being the global dimension of education for citizenship.

On a worldwide scale, according to O'Sullivan and Pashby (2008), there is a desire for schooling to equip students with an

awareness of global connectedness and thus encourage young people to develop a consciousness of themselves as citizens of the world. This development is a key part of many education systems worldwide. The Northern Ireland Curriculum (CCEA, 2007), for instance, aims to empower young people to develop their potential and to make informed and responsible choices and decisions throughout their lives, by developing them as individuals, contributors to society and as contributors to the economy and environment. Likewise, the New Zealand Curriculum (Ministry of Education, 2008) states that during primary school, children will be encouraged to value diversity and to recognize that they are part of a large, diverse world. In a growingly diverse classroom, and indeed in more ethnically and culturally diverse society, the need for a teacher to provide the children in their care with a strong and valuable global or cultural education, which reflects understanding and respect for children's differences, has been highlighted by many educationalists in recent years. Manning and Baruth (2004) define multicultural education as both a concept and a deliberate process designed to teach learners to recognize, accept, and appreciate differences in culture, ethnicity, social class, sexual orientation, religion, special needs, and gender, as well as to instill in learners, during their crucial developmental years, a sense of responsibility and a



commitment to work toward the democratic ideas of justice, equality, and democracy (Banks, 2008 and Pan, 2011).

Continuing quality education is still the primordial target of the education department. The Department of Education which governs both public and private education at all levels, stated that its mission is “to provide quality basic education for lifelong learning and service for the common good.” The department also stipulated its vision to “develop a highly competent, civic spirited, life-skilled, and God-loving Filipino youth who actively participate in and contribute towards the building of humane, healthy, and productive society.” All these ambitions were embodied in the development strategy called “Philippines 2000” (Thornburg, David P. “Technology in K-12 education: Envisioning a Future”). The Congressional Commission on Education (1991. xii), on the other hand, however, expressed concern about the decline of educational standards in the country as a whole, when it bluntly stated: “Our elementary and high schools are failing to teach the competence the average citizen needs to become responsible, productive and self-fulfilling”. To address the problem, and due to the COVID-19 pandemic, DepEd issued its latest directive on the learning competencies expected for each year level. Secondary Learning Competencies, which were formerly known as Curriculum Guide (CG), are now called Most Essential Learning Competencies (MELC).

Objectives of the study

The study aims to determine the quality of teaching in Maypangdan National High School in Response to Globalization on the performance status of the teachers respectively as input to a Teaching Development Program. Specifically, it seeks to answer the following:

1. What is the level of performance of the quality of teaching in Maypangdan National High School: Response to Globalization along the following indicators:

1.1 administrators’ management functions in School Governance

- a. planning;
- b. leading;
- c. organizing; and
- d. controlling?

1.2 quality teachers’

- a. capability in teaching;
- b. designing of strategies;
- c. use of ICT;
- d. quality of instructional materials; and
- e. related teaching skills in pedagogy?

1.3 quality students graduate

- a. results of general exams;
- b. extra-curricular activities; and
- c. awards/achievements?

2. What is the status of the learning environment atmosphere on the level of performance of the quality of teaching in Maypangdan National High School development program in Borongan City Division?

3. What is the relationship of the status of the learning environment atmosphere between the development program on the level of performance of the quality of teaching in Maypangdan National High School?

4. What development program could be proposed on the level of performance of the quality of teaching in Maypangdan National High School?

Significance of the Study

Education is a basic factor in economic development. At the microeconomic level education has an important role in social mobility, equity, public health, and better opportunities for employment which presuppose good leadership management, academic status quo, and students’ perception of providing quality education and academic excellence. Thus, the researcher hopes that the outcomes of this study will help the attainment of the Department of Education In the 21st century learning, we are charged with educating students to be successful in a complex, interconnected world. This responsibility requires schools to prepare students for technological, cultural, economic, informational, and demographic changes through quality education.

For years, teachers in New York were rated either S (“Satisfactory”) or U (“Unsatisfactory”) based on occasional observation by their principal. But in that system, teachers often worried that principals based their rating on subjective preferences. And such a simplistic up-or-down evaluation is of little use in identifying good teaching or in helping teachers develop their skills. Now, new evaluation systems are being implemented in New York and across the country. Some states, in New York, are creating what they hope are more objective rubrics for evaluating teachers in the classroom, ones that will use commonly agreed standards of good practice and will actually help teachers grow (ASCD Position Statement 2008).

Curriculum, teacher expertise, leadership management, and assessment have all been weak links in past education reform efforts—a fact that should sober today’s skills proponents as they survey the task of dramatically improving all three (Rotherham 2010). Efforts to create more formalized common standards would help address some of the challenges by focusing efforts in a common direction. But common standards will not, by themselves, be enough.

The past few decades have seen great progress in education reform in the United States—progress that has especially benefited less-advantaged students. Today’s reformers can build on that progress only if they pay keen attention to the challenges associated with genuinely improving teaching and learning. If we ignore these challenges, the 21st-century skills movement risks becoming another fad that ultimately changes little—or even worse, sets back the cause of creating dramatically more powerful schools, especially those who are underserved today.



Delimitation of the Study

The study is delimited to Maypangdan National High School in the Borongan City Division. The respondents of this study are composed of two (2) sets (1) School Principals/ School Heads/Department Heads and (2) Secondary Teachers. They will be considered as respondents in view of their awareness and observation as regards the subject matter of the research. A total enumeration was utilized for the gray of School heads and random sampling for teachers' grays. The research will be conducted during the SY 2022-2023. The Questionnaires will be administered to the respondents on March 2023. As stated earlier, this study will be helpful to secondary teachers because the findings in this study will be used, adapted, and functional to the present K-12 curriculum of the Philippine educational system. Hopefully, the result of this study will contribute to the field of knowledge on educational practices, educational leadership of public secondary teachers, and other grade level teachers that are curriculum and cultural-based to the students in Maypangdan National High School.

For the researcher, the study will strengthen her interpersonal behavior, classroom practices, and communication skills. Since the study consists of several processes like gathering data, reading related materials, and studies that require library visits, meeting respondents who are her colleagues in the teaching profession also improved her understanding of what behaviors and leadership styles make people work enthusiastically and productively.

Conceptual Framework of the Study

This study is anchored on the Human Capital Theory (Maendardus, 2013) which states that the economic development of a nation is a function of the quality of its education. In other words: the more and better educated a people, the greater the chances of economic development. The modern world in which we live is often termed a "knowledge society"; education and information have become production factors potentially more valuable than labor and capital. Thus, in a globalized setting, investment in human capital has become a condition for international competitiveness. In Brain drain Theory, apart from the much-debated political, social, and psychological aspects, this ongoing mass emigration constitutes an unparalleled brain drain with serious economic implications. Arguably, the phenomenon also has an educational dimension, as the Philippine society is footing the bill for the education of millions of people, who then spend the better part of their productive years abroad. In effect, the poor Philippine educational system is indirectly subsidizing the affluent economies hosting the OFWs. With 95 percent of all elementary students attending public schools, the educational crisis in the Philippines is basically a crisis of public education. The wealthy can easily send their offspring to private schools, many of which offer first-class education to the privileged class of pupils.

In Social divide Theory, the distinct social cleavage regarding educational opportunities remains problematic for more than one reason. Historically, in most modern societies, education has had an equalizing effect. In Germany, for instance, the educational system has helped overcome the gender gap and later the social divide. Today, the major challenge confronting the educational system in the country is the integration of millions of mostly non-European, in most cases Muslim immigrants. Importantly, this levelling context of schooling has not occurred in this part of the world. Education has become part of the institutional mechanism that divides the poor and the rich.

Advocates of 21st-century skills favor student-centered methods—for example, problem-based learning and project-based learning—that allow students to collaborate, work on authentic problems, and engage with the community. These approaches are widely acclaimed and can be found in any pedagogical methods textbook; teachers know about them and believe they're effective. And yet, teachers don't use them. Recent data from the National Statistics of Child health and Human Development Early Child Care Research Network (2005) shows that most instructional time is composed of seatwork and whole-class instruction led by the teacher.

Silva (2008) noted in a recent report for the Education Sector, that potential exists today to produce assessments that measure thinking skills and are also reliable and comparable between students and schools—elements integral to efforts to ensure accountability and equity. But efforts to assess these skills are still in their infancy; education faces enormous challenges in developing the ability to deliver these assessments at scale.

To ensure quality education, under the Code of Ethics for Professional Teachers, Article IV, Section 2 *“Every teacher shall uphold the highest possible standards of quality education, shall make the best preparation for the career of teaching, and shall be at his best at all times in the practice of his profession.”*

On the other hand, BP 232 (Education Act of 1982), Section 16 (2) provides—*“The teacher shall xxx be accountable for efficient and effective attainment of specified learning objectives xxx.”* Code of Ethics further mandates that—*“Every teacher shall participate in the continuing professional education (CPE) program of the PRC, and shall pursue such other studies as will improve his efficiency, enhance the prestige of the profession, and strengthen his competence, virtue, and productivity in order to be nationally and internationally competitive.”*

In Evelyn Pena vs. NLRC, the Supreme Court said *“x x x schools can set high standards of efficiency for its teachers since quality education is a mandate of the Constitution x x x security of tenure x x x cannot be used to shield incompetence.”*

Thus, a teacher is expected to be efficient and competent in the performance of his academic duties at all times. Under Article XIV, Section 1 of the 1987 Constitution which states *“The State*



shall protect and promote the right of all citizens to quality education at all levels and shall take appropriate steps to make such education accessible to all.” This provision of the law enshrines the principle of quality education both in basic education and higher educational institutions in providing the accessibility and opportunity to have the right to education in all levels of learning.

According to Bernas (2013), making sure that basic education is really solid, because if it is not solid, it affects the quality of secondary education. If secondary education is poor, then the person goes to college unprepared for college work. And if he is allowed to graduate again with a poor-quality college education, he goes to university professional education even more unprepared.

In short, a school, before promoting or graduating a student, must be sure that he/she (the student) is functionally literate to go through the next higher level. Thus, a student is expected to be globally competitive in all aspects of learning but this will depend much on the school in view of its standards in the pursuit of quality education.

Anchoring from the above concepts and facts the researcher assessed the level of secondary public schools’ performance in

the Division of Borongan City to enhance and improve the existing programs within the locality. The paradigm of this study is presented in Figure I.

As shown in Figure I, the Input consists on the level of performance of the quality of teaching in the Secondary DepEd schools in the Division of Borongan City along the following, namely: Administrators’ Planning, Leading, Organizing, and Controlling; Teachers’ capability in Teaching, Designing Strategies, Quality of Instructional Materials and Related Teaching Skills; Students’ Learning Competencies, Results of General Exams, Extra Curricular Activities and awards Received and the Learning Environment. The Process consists of the analysis and interpretation level of performance the following, namely: Administrators, Teachers, and Students; Analysis of the learning environment of the secondary public schools in the Division of Borongan City; and Formulation of the Secondary Public-School Teaching Learning Enhancement. The Output is an enhancement program to improve the performance level on the quality of teaching in Maypangdan National High School in the division of Borongan City to pave the way for having quality education and high standards of the school in a globally competitive and innovative way.

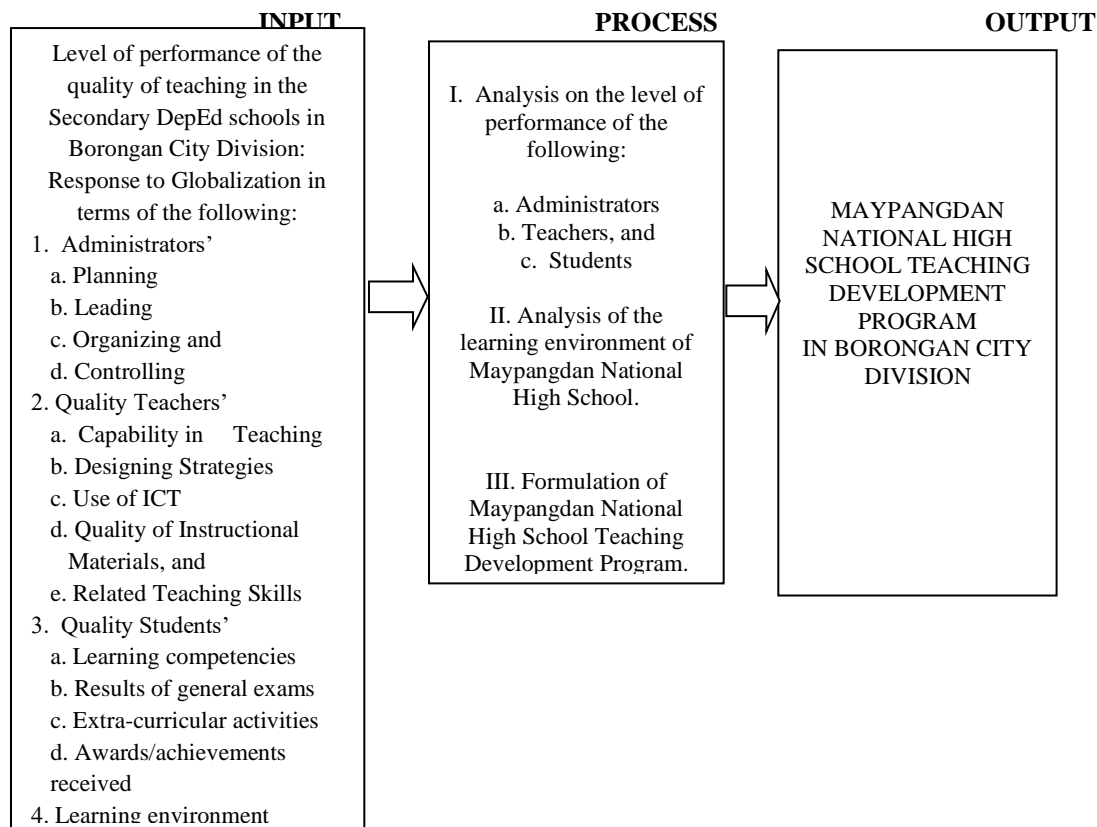


Figure I. Paradigm of the study on the level of performance of the quality teaching in the Secondary DepEd schools in the Division of Borongan City



II. MATERIAL AND METHODS

Research Design

The descriptive study was used in this study. A descriptive research states that the focus of the study is the present condition. The purpose is to find new truth. The truth may have many different forms such as increased quantity of knowledge, a new generalization or new law, increased insights into factors which are operating, the discovery of new casual relationship, a more accurate formulation of the problem to be solved and many others (Fraenkel and Wallen, 2006).

It is descriptive in the sense that it looked into the prevailing managerial practices on the quality of teaching in the Secondary DepEd schools in the Division of Borongan City: Response to Globalization for School Year 2022-2023 on the performance status of Maypangdan National High School as input to a Teaching Development Program. This method was utilized to obtain rare and vital facts as well as information relative to the quality of teaching on the performance status of the as input to a development Program. Descriptive research was used to describe the characteristics of a population or phenomenon being studied. It does not answer questions about how/when/why the characteristics occurred. Rather it addresses the "what" question. The characteristics used to describe the situation or population are usually some kind of categorical scheme also known as descriptive categories. The description will be used for frequencies, averages, and other statistical calculations. Often the best approach, prior to writing descriptive research, is to conduct a survey investigation. Qualitative research often has the aim of description and researchers may follow up with examinations of why the observations exist and what the implications of the findings are (Shields, 2013).

Locale of the Study

The study entitled Evaluation of Quality Teaching in Maypangdan National High School: Response to Globalization, A public secondary school operated since the year 2001 with approximately 150 students, with five (5) teachers that year. The school is seven (7) kilometers away from the heart of the City of Borongan and can be reached through motorcycles, vans, tricycles, and private vehicles since the school is a carline situated. With more than 1,150 students and 57 teaching and non-teaching personnel, the school is known to be the second biggest secondary school in the entire division of Borongan City next to Eastern Samar National Comprehensive High School (ESNCHS).

Mrs. Cynthia Palada-Arceno-Principal II in the year 2015-2019, who supervises Junior and Senior High School Departments. With her strong determination and commitment, the school received various awards, such as Best Solid Waste Management Implementer year 2018 by the Local Government Unit (LGU) Borongan City, Outstanding Master Teacher in entire Region 8 by the Department of Education (DepEd) Region 8, and among others. The school is led by a newly promoted School Principal-II Mr. Renato D. Catuday who also leads to its greater heights in the division which the school had won in the Regional level on

Science Process and Practices (SPpot) and Direk ko, Ganap Mo and well represented by the National Level Competitions.

The School Profile

The closure of Eastern Samar State University Laboratory High School paved the way for the opening of Maypangdan Municipal High School in 2001. As an annex of Sta. Fe National High School, its operation started on a one-hectare site with three (3) temporary classrooms constructed by the Federated Parents Teachers Association (FPTA) to accommodate two (2) sections of the First year and one (1) section of the Second Year.

Due to the strategic location, yearly enrolment consistently increased with students coming from Maypangdan and its feeder barangays Libuton, in the south, Tabunan in the north, Ando Island in the east, Bayobay in the west and San Pablo in the northwest, and farther Barangays Bugas and Punta Maria, prompting the school to create additional sections thus completing the four-year public secondary education under the 2002 revised Secondary Education Curriculum.

In July 2005, the school was separated as an annex with its conversion of Maypangdan National High School by Regional Memorandum No. 115 s. 2005. With the un-comprising support of the local government and national government, school and DepEd officials, parents, and other stakeholders, temporary rooms were replaced with permanent classrooms. Teachers also passed resolutions, and instructional facilities were granted to the school through donations from other internal stakeholders. Now in eighteenth (18th) year of operation, the school ranks second in enrollment among secondary schools in Borongan City. The school-going age population ranges from 12 to 20 and above, often noting over-aged children from the first to fourth-year levels.

The school's performance in the National Achievement Test (NAT) has been comparable to that of other secondary schools in the division. In the 2011 National Achievement Test (NAT), the school obtained an average Mean Percentage Score (MPS) of 77.40%, which is 2.4% higher than the national passing standard. As for academic content, the school copped first place in the Division Level National Quiz Bee for Science in School Year 2010- 2011, besting other secondary schools in the division. In terms of co-curricular achievement, the school made history when it won a Grand Slam victory as champion in the "Padul-on Festival 2010" and received all the special awards – Best in Municipality, Best in Choreography, and Best in Costume.

Maypangdan National High School caters to Senior High School grades 11 and 12. General Academic Track and Technical Vocational with General Academic (GA), Home Economics – Cookery, Information, Communication, and Technology (ICT), and Shielded Metal Arc Welding (SMAW). An increasing number of senior high schools came from feather barangays and even other towns like Nena, San Julian, because learners preferred strand/track to enroll.



Respondents of the Study

The study aims to determine the extent of performance of the quality of teaching in the Maypangdan National High School - Division of Borongan City: Response to Globalization SY 2022-2023 on the performance status of the Secondary Public Schools as input to a Teaching Development Program.

Specifically, the study focuses on the achievements of the administrator principals in their management functions; teachers in their capability in teaching, designing strategies, and quality of

instruction. Materials, and related teaching skills; and students' learning competencies, results of general exams, extra-curricular activities, and awards received. In addition, the learning environment will be assessed.

Data will be gathered from 57 respondents and will be distributed into two groups namely (1) administrator principal/school head and (56) teachers of the quality of teaching in Maypangdan National High School, Division of Borongan City.

Table: 1. Shows the distribution of the respondents per category.

PRINCIPAL School Heads/ Principals			TEACHERS Teacher 1,2,3			TOTAL		
N	N	%	N	N	%	N	N	%
1	1		56	56		1	56	
1			56			57		

Instrumentation and Data Collection

The primordial instrument used in gathering data were the two-part guide questionnaire. Part I of the questionnaire-checklist consisted of the demographic profile of the A. Principal, School Heads and Teachers like, age, civil status, educational attainment, gender, and position Part II management practices in the management functions like planning, leading, organizing, coordinating, and staffing. The researcher adopts sets of questionnaires which are already set to be the standard. hence there's no need to determine their validity and reliability. The researcher questionnaire is presented to the Borongan City Division Research Committee as well as to the members of the panel for evaluation and validation. It will be revised and enriched based on the comments and suggestions of the panel. Their comments and suggestions were gathered on an integrated questionnaire. The validated questionnaire will be tested for reliability through a pilot test to be conducted in the public secondary schools in the Division of Borongan City. To establish the reliability, it will be pre-tested to twenty-five (25) respondents, particularly Five (5) public school principals, school heads, and twenty (20) teachers within the Division of Borongan City districts who are not respondents of the study. The Kuder-Richarson Formula 21 was employed to attain the reliability coefficient.

Analysis of Data

To establish validity, a formal letter will be requested and approved to the Division Schools Superintendent with its district monitoring supervisor of public secondary schools in the Division of Borongan City to conduct a study on the managerial practices of the principal, department heads, and teachers. The questionnaire will be referred to the following authorities for checking of its organization, content, relevance, and appropriateness will be incorporated for the improvement and refinement of the instrument. Finally, the instrument will be pre-tested in some selected public secondary schools in the Division

of Borongan City with 1 principal/school head and twenty (56) teachers as respondents. The data gathered will be classified, categorized, and presented in tabular forms and subject to descriptive and inferential statistics. The descriptive measures used are frequent count, percentage, ranking, and average weighted means. A two-part questionnaire was used in the cause of the study. Part I will gather data on the performance of administrator principals and teachers. The questions for the 1st part will be adopted from the Department of Education (DepEd) questionnaire, which has been in use by the CHED for some time. Part II will elicit data on the learning environment. This was adopted Educational leadership, K-12 curriculum, and managerial practices questionnaire.

This is the formula used:

$$P = \left(\frac{f}{N} \right) \times 100$$

The weighted mean was obtained by multiplying the frequencies by a given arbitrary weighted value. The total weighted values per item in the checklist will be added and the sum will be divided by the number of responses in every item. Weighted means will determine the extent of degree of manifestation of the managerial practices by the principals, school heads, and department heads. This formula was used:

$$WM = \frac{TWM}{n}$$

Where: WM = weighted mean

TWV = total weighted value

n = total number of respondents.

The data collected from the questionnaire was subjected to the following treatments:

The problem relative to the demographic profile was treated using the frequency count and percentage.

To determine the extent of management practices along the four (4) areas: planning, leading, organizing, controlling, and staffing of the (a) principals, school heads, department heads, and teachers of the Maypangdan National High School in the Division



of Borongan City, the F-test, through analysis of Variance (ANOVA) will be used, with the formula:

$$F = \frac{SS_B}{SS_W}$$

Where:

$$SS_B = G - [(EX_T)^2 / N_T] / K$$

$$SS_W = EX_T^2 - G / N_T - K$$

K = no. of columns

N = no. of rows

N_T = no. of columns x no. of rows

The data will be collected is tallied and computed for the average weighted mean using the Likert scale on the mean values and description as follows:

Performance of Maypangdan National High School Division of Borongan City

3.28 – 4.00	Excellent
2.52 – 3.27	Very Satisfactory
1.76 – 2.51	Satisfactory
1.00 – 1.75	Not Satisfactory

Learning Environment of the Secondary Public School in the Division of Borongan City

3.28 – 4.00	Excellently pleasant
2.52 – 3.27	Very pleasant

1.76 – 2.51	Pleasant
1.00 – 1.75	Unpleasant

Ethical Considerations

Ethical aspects were given topmost consideration. Full consent is obtained from the participants prior to the distribution of the questionnaire and protection of the privacy of research respondents was ensured since two parts of the questionnaire were used, the result of the study particularly on the Quality of Teaching results was held confidential. Hence no name was revealed, instead the respondents' school address was utilized. Confidentiality and anonymity were also stressed to the participants so that they would not be hesitant and honest to be the best they could answer the survey questionnaire. After taking all the necessary considerations and complying with all the suggestions, the researcher asks permission through communication from the School Principals/ School Heads before conducting the study.

III. RESULTS AND DISCUSSION

Profile of the Respondents

A total of 119 respondents participated in the study. Table 1 below shows the breakdown in terms of the teaching position of the respondents.

Table 1. Breakdown of Teaching Positions of Respondents

Position	Number of Respondents	Percentage
Teacher 1	57	48%
Teacher 2	26	22%
Teacher 3	29	24%
Master Teacher 1-2	7	6%
Total	119	100%

Almost half of the respondents or 48% occupies the Teacher 1 position. Moreover, 47% of the respondents had either Teacher 2 or Teacher 3 positions. Only 6% of the respondents were Master Teachers.

Table 2. Length of Service per Teaching Positions of Respondents

Position	Length of Service
Teacher 1	9.32 years
Teacher 2	13.58 years
Teacher 3	27.86 years
Master Teacher 1-2	17.48 years
Total	12.69 years

In terms of length of service, the Teacher 3 respondents had the longest year of service at 27.86 years, followed by the Master Teacher 1-2 respondents with 17.48 years of service, the Teacher 2 respondents had 13.58 years length of service, and the Teacher 1 respondents had 9.32 years length of service. This breakdown is quite feasible because Teacher 3 would have served their schools the longest as compared to the teachers in the Teacher 1

position whose length of service is just one-third of that of Teacher 3. It is also understandable why the longer a Teacher stays in teaching positions, their length of service also increases.

In terms of educational attainment, Table 3, shows the breakdown among the respondents per teaching position.

**Table 3. Educational Attainment of the Respondents**

Educational Attainment	T1	T2	T3	P	Frequency	Percentage
BSED	42	13	10	0	65	54.62
BSED/BEED with units	9	7	8	0	24	20.34
BSED/BEED CAR	2	3	4	1	10	8.47
MAED	3	2	4	2	11	9.32
EdD	0	0	0	3	3	2.54
With educ units w/ MA units	0	0	1	0	1	0.85

Table 3 shows that there were (65) or 54.62 percent of the respondents either finished a BSED degree. An additional (24) or 20.16 respondents are taking the BEED and BSED degree with units, BSEED/BEED CAR 10 or 8.40 percent, (11) or 9.24 percent have obtained MAED, (3) or 2.52 percent respondents have obtained a Doctoral Degree 6 or 5.04 percent who have obtained MAT, EdD with Units, MASE, Master of Arts in Psychology respectively.

Table 4 below shows how the respondents answered each of the statements that showed **Planning** on the Quality of Teaching in the Secondary Schools in Borongan City Division: Response to Globalization.

3.28 – 4.00	Excellent
2.52 – 3.27	Very Satisfactory
1.76 – 2.51	Satisfactory
1.00 – 1.75	Not Satisfactory

The table below contains statements on the Planning under Principal Governance of Quality Teachings in the Secondary Schools in Borongan City Division as a response to Globalization.

Table 4. Planning. Quality of Teaching in the Secondary Schools in Borongan City Division: Response to Globalization.

PRINCIPAL GOVERNANCE PLANNING	AVERAGE	DESCRIPTION
Provides Clear Goals.	3.4	Excellent
Think through our goals and actions in advance	3.1	Very Satisfactory
Chooses tasks that must be performed to attain organizational goals.	3.7	Excellent
Enumerates steps how the tasks must be performed.	3.6	Excellent
Indicates when the tasks should be performed	3.1	Very Satisfactory

Table 5 below shows how the respondents answered each of the statements that showed **Leading** on the Quality of Teaching in the

3.28 – 4.00	Excellent
2.52 – 3.27	Very Satisfactory
1.76 – 2.51	Satisfactory
1.00 – 1.75	Not Satisfactory

The following table describes how the respondents on the principal governance on Planning of the secondary teacher respondents. Sees colleagues enforce regulations consistently has

The first principal governance leader is planning. In the instrument, it corresponds to statements #1, 3, 4, and 25. The respondents excellent to four of these five statements: Provides clear goals.; Chooses tasks that must be performed to attain organizational goals; Enumerates steps on how the tasks must be performed and Indicates when the tasks should be performed. Statement no. 4 is very satisfactory which has an average mean of 3.1. For example, the respondents can sometimes work with teachers through proper planning. The respondents may also be working with teachers from different groups, which could mean those whose culture is different from theirs. Finally, the leaders must be sensitive to the leadership needs of the communities they are serving. There are many different leadership styles and they suit certain situations in the community. The respondents expect their leaders to have the ability to apply the appropriate leadership style to what the community needs. Planning is the best preparation.

Secondary Schools in Borongan City Division: Response to Globalization.

a weighted mean of 3.4 means excellent; Sees staff apply discipline consistently has a weighted mean of 3.3 means excellent; Feels in-service sessions are received positively has a



weighted mean of 3.7 means excellent; Sees staff explains clearly what's expected has a weighted mean of 3.3 means excellent; Sees staff set a good example has a weighted mean of 3.5 means excellent; Encourages positive change has a weighted mean of 3.8 means excellent; Sees staff works well together has a weighted mean of 3.7 which means excellent. Statements number 1, 2, 3, and 4 have the same description means very satisfactory like: Influence decisions affecting my work; Encourages democratic decision-making; Encourages student responsibility and addresses staff underachievement.

In this instrument, the principal governance of Leading, was part of the instrument given to the employees. These attitudes include attitude towards work; loyalty towards the employer, attitudes regarding respect and authority, training styles and needs, desire for work/ in life balance, and attitude towards supervision.

In terms of leading, the respondents graded seven statements are Excellent. agreed to one of them and agreed to the other five. In the instrument, they are #'s 1, 2, 3, and 4. The respondents are very satisfactory as to how seriously important job performance appraisals are for them. This is especially important for the

respondents since the job appraisals determine whether they get salary increases and if their level as a teacher increases next year. The respondents said agreed with the other statements. One of them involved close supervision of their work. The agreed score shows that the respondents prefer more autonomy in their work instead of being closely supervised. The respondents also gave a relatively low score on the statement that said they were more job-focused than family-focused. Knowing Filipino workers, their family is the focus of their work, and without it, there is not much they are working for, so the agreed status of being work-focused rather than family-focused reflects the idea that the respondents saw that one's job is important but the respondents also put equal if not more importance to their families. They also agreed with the statement that they want their job to be challenging. They did not score this high because teaching already challenging as it is so any more challenges to it might be too much for them. The respondents also support leading principal governance in meetings. Surprisingly, even time off from work was not something the respondents looked forward to since they only agreed to the statement. This may be due to the teachers' inherent loyalty to their jobs.

Table 5. Leading. Quality of Teaching in the Secondary Schools in Borongan City Division: Response to Globalization.

LEADING	AVERAGE	DESCRIPTION
Influence decisions affecting my work.	3.2	Very Satisfactory
Encourages democratic decision-making.	3.2	Very Satisfactory
Encourages student responsibility.	3.2	Very Satisfactory
Addresses staffs under achievement.	3.2	Very Satisfactory
Sees colleagues enforce regulations consistently.	3.4	Very Satisfactory
Sees staff apply discipline consistently.	3.3	Excellent
Feels in-service sessions are received positively.	3.7	Excellent
Sees staff explains clearly what's expected	3.6	Excellent
Sees staff set a good example.	3.5	Excellent
Encourages positive change.	3.8	Excellent
Sees staff works well together.	3.7	Excellent

Table 6 below shows how the respondents answered each of the statements that showed **Organizing** on the Quality of Teaching in

3.28 – 4.00	Excellent
2.52 – 3.27	Very Satisfactory
1.76 – 2.51	Satisfactory
1.00 – 1.75	Not Satisfactory

Table 4 shows the current situation of Organizing principal governance of Secondary School teachers in Borongan City Division: Sees colleagues encourage student responsibility has a weighted mean of 3.5 which means excellent; Shows all the authority in the job with a weighted mean of 3.4 means excellent; Sees staff plan and execute changes with expertise with a weighted mean of 3.6 means excellent; Displays management skills with a weighted mean of 3.7 which means excellent; Sees colleagues share information willingly with a weighted mean of

the Secondary Schools in Borongan City Division: Response to Globalization.

3.8 which means excellent; Sees staff communicates effectively and Gives people genuine responsibility with same a weighted mean of 3.8 which means excellent; lastly, Feels like a professional at work and Links with community with a weighted mean of 3.9 which means excellent. In Leading principal governance, it shows that the respondents are willing to follow their leaders and are not prone to rocking the boat whenever issues crop up.

**Table 6. ORGANIZING. Quality of Teaching in the Secondary Schools in Borongan City Division: Response to Globalization.**

ORGANIZING	AVERAGE	DESCRIPTION
Sees colleagues encourage student responsibility.	3.5	Excellent
Shows all the authority in the job.	3.4	Excellent
Sees staff plan and execute changes with expertise.	3.6	Excellent
Displays management skills.	3.7	Excellent
Sees colleagues share information willingly.	3.8	Excellent
Sees staff communicates effectively.	3.8	Excellent
Gives people genuine responsibility.	3.8	Excellent
Feels like a professional at work.	3.9	Excellent
Links with community	3.9	Excellent

The table 7 below shows how the respondents answered each of the statements that showed **Controlling** on the Quality of

3.28 – 4.00	Excellent
2.52 – 3.27	Very Satisfactory
1.76 – 2.51	Satisfactory
1.00 – 1.75	Not Satisfactory

As can be gleaned from Table 7 below on the Controlling Principal Governance that: Has recognition from colleagues with a weighted mean of 3,8 which means 3.8; Shows performance at its peak with a weighted mean of 3.4 which means excellent; Results to control the quality of my work with a weighted mean of 3.5 which means excellent; Work is appraised professionally with a weighted mean of 3.6 means excellent; Shows flexibility enough for needed changes with a weighted mean of 3.7 means excellent; Shows work as a sense of accomplishment with a weighted mean of 3.8 means excellent; Reviews performance professionally with a weighted mean of 3.9 means excellent;

Teaching in the Secondary Schools in Borongan City Division: Response to Globalization

Encourages innovation with a weighted mean of 3.7 which means excellent. The other variables on controlling are all very satisfactory: Gains recognition from higher-ups; Feels mistakes as a chance to learn; Addresses students' underachievement and Gives feedback on performance. This is consistent with their preference for teamwork rather than individual work and their willingness to work with colleagues who have a different culture than they do, as seen in their respect for diversity in the workplace.

Table 7. CONTROLLING. Quality of Teaching in the Secondary Schools in Borongan City Division: Response to Globalization.

CONTROLLING	AVERAGE	DESCRIPTION
Has recognition from colleagues.	3.8	Excellent
Shows performance at its peak.	3.4	Excellent
Results to control the quality of my work.	3.5	Excellent
Work is appraised professionally.	3.6	Excellent
Shows flexibility enough for needed changes.	3.7	Excellent
Shows work as a sense of accomplishment.	3.8	Excellent
Reviews performance professionally.	3.9	Excellent
Encourages innovation.	3.7	Very Satisfactory
Gains recognition from higher ups.	3.2	Very Satisfactory
Feels mistakes as a chance to learn.	3.1	Very Satisfactory
Addresses students' underachievement.	3.1	Very Satisfactory
Gives feedback on performance.	3,1	Very Satisfactory

B. QUALITY TEACHER.

Table 8. Teacher's capability in teaching. Quality of Teaching in the Secondary Schools in Borongan City Division: Response to Globalization.

3.28 – 4.00	Excellent
2.52 – 3.27	Very Satisfactory
1.76 – 2.51	Satisfactory
1.00 – 1.75	Not Satisfactory



As can be gleaned from table 8 on the quality of teachers: Teacher's capability of teaching with excellent rating from the respondents are: Familiarizes learner's background knowledge and experiences; Demonstrate concern for the holistic development of learners and Demonstrate mastery of the subject.

For very satisfactory rating from the respondents on teacher's capability are: Can develop myself professionally; Can provide pride in the work of colleagues; Shows her/his expertise developing and Provides information needed.

QUALITY TEACHER	AVERAGE	DESCRIPTION
Teacher's Capability in Teaching		
1. Teacher's Capability in Teaching	3.1	Very Satisfactory
2. Can develop myself professionally.	3.2	Very Satisfactory
3. Can provide pride in the work of colleagues	3.0	Very Satisfactory
4. Shows her/his expertise in developing	3.1	Very Satisfactory
5. Provide information needed.	3.4	Excellent
6. Familiarize learner's background knowledge and experience.	3.6	Excellent
7. Demonstrate concern for holistic development of learners	3.4	Excellent
8. Demonstrate mastery of the subject matter.		
Teacher's designing strategies		
	AVERAGE	DESCRIPTION
1. Create a feeling in helping students to achieve.	3.1	Very Satisfactory
2. Uses staff ideas.	3.2	Very Satisfactory
3. Conduct situation analysis in school to identify strength and awareness.	3.1	Very Satisfactory
4. Scan the environment outside the school to find out threats and opportunities.	3.1	Very Satisfactory
5. Set plan of actions and formulate policies.	3.6	Excellent
6. Implement program and projects.	3.6	Excellent
7. Evaluate results of activities.	3.5	Excellent
Teacher's Instructional materials		
	AVERAGE	DESCRIPTION
1. Facilitating learning.	4.0	Excellent
2. Align with lesson objective appropriate for learners.	4.0	Excellent
3. Are materials which fit the learners learning styles, goals and culture.	3.8	Excellent
4. Provide a meaningful learning experience for students	3.8	Excellent
Teacher's related teaching skills (instructional leadership)		
	AVERAGE	DESCRIPTION
1. Maintain discipline in a consistent way.	3.5	Excellent
2. Display trust in administration.	3.6	Excellent
3. Makes easy access to school information	3.7	Excellent
4. Commitment to the school.	3.7	Excellent
5. Exhibit support of colleagues.	3.1	Excellent
6. Create a feeling of importance in the school.	3.1	Excellent
7. Allow colleagues speak their minds fearlessly.	3.5	Excellent
8. Make colleagues welcome new staff	3.4	Excellent
9. Encourage climate conducive to learning.	3.4	Excellent
10. Creates workplace with positive ethics.	3.7	Excellent
11. Accommodate relaxed, open and understanding staff.	3.9	Excellent
12. Provide colleagues setting good example to students.	3.5	Excellent
13. Measure my effectiveness.	3.5	Excellent
14. Openly maintain colleagues seeking help from each other.	3.6	Excellent
15. Prioritize students' needs.	3.5	EXCELLENT
OVERALL WEIGHTED MEAN		

As to the quality of teachers in instructional materials: Facilitate learning and Align with lesson objectives appropriate for learners. with a weighted mean of 4.0 which means excellent; Are materials that fit the learners' learning styles, goals, and culture, and Provide a meaningful learning experience for students with a weighted mean of 3.8 which means excellent.

As to the quality of teachers in Teacher's related teaching skills (instructional leadership): Maintain discipline in a consistent

way; Display trust in administration; Make easy access to school information; Commitment to this school; Exhibit support of colleagues; Make colleagues welcome new staff; Encourage climate conducive to learning; Make colleagues; welcome new staff; Prioritize students' needs; Openly maintain colleagues seeking help from each other; Measure my effectiveness; Provide colleagues setting good ex. to students.



As to the quality of teachers in Teacher's designing strategies, these are the qualities which are excellent: Create a feeling in helping students to achieve with a weighted mean of 3.1 which means very satisfactory; Uses staff ideas with a weighted mean of 3.2 which means very satisfactory; Conduct situation analysis in school to identify strength and awareness and Scan the environment outside the school to find out threats and opportunities has a weighted mean of 3.1 which means unsatisfactory. The variables in teachers' designing strategies with excellent ratings from the respondents are: Set plan of action and formulate policies and Implement programs and projects with a weighted mean of 3.6 which means excellent and Evaluate results of activities with a weighted mean of which means excellent; Provide colleagues setting good ex. to students; Make colleagues welcome new staff; Make colleagues welcome new staff. The qualities satisfactory from the respondents on the qualities of Teachers are: Creating a feeling of importance in the school and Allowing colleagues to speak their minds fearlessly. The total overall weighted mean is 3.5 which means excellent.

Correlation

Table 9. H₀: There is no significant relationship between the Quality of Teaching in the Secondary Schools in Borongan City Division: Response to Globalization of the teachers in basic education schools.

Variables	Weighted Means
21st-century leadership zones	3.57
Generational attitudes in the teachers' work	3.48
Correlation	-0.19

There is no significant relationship between the Quality of Teaching in the Secondary Schools in Borongan City Division: Response to Globalization of the teachers in basic education schools.

The correlation of -0.19 shows a very weak negative correlation between the two, and since -0.19, is very close to zero, it is safe to say that there is almost no correlation between the two, and therefore, no significant relationship.

This shows that whatever the generation the respondents are in, they agree with the Quality of Teaching in the Secondary Schools in Borongan City Division: Response to Globalization and how they can be applied in today's organizations. The leadership zones are relevant to the respondents regardless of what generation they belong to.

Issues and Challenges Experienced by the Teachers

The teachers believe that today's Quality of Teaching in the Secondary Schools in Borongan City Division: Response to Globalization is empowered at different levels and in all areas of concern. However, they believe that such empowerment needs a high level of sophisticated accountability. Teachers have the leeway to implement innovative changes in the workplace but these should be monitored closely to see if it is not a waste of time and money. The teachers also pointed out that they are open to

This is another aspect their leader should take note of and allow teachers to advance in their chosen career paths. Interestingly, the respondents only agreed to the three other statements, which means they put lesser importance on these as compared to the others. Job security is less of a concern for them since their tenures are already protected by government labor laws. Bonus pay is also not much of a motivator for them, only getting an agreed rating. This shows a deep dedication among the respondents to the teaching vocation and that they chose this work not because of financial gain but because of the other rewards they get from it. Time off from work is also not an incentive for them, again, consistent with the respondents' deep dedication to their work, as shown in their attitudes towards monetary incentives in their work. They were also willing to attend impromptu meetings which may encroach on their rest time as teachers – all this showing their willingness to work over and above their call of duty. This is something their leaders should know about them and harness this dedication for the greater good of Quality of Teaching in the Secondary Schools in Borongan City Division: Response to Globalization.

any quality teachings, being Filipinos, they are sensitive to how the leaders give and accept the opinions of their constituents, and most importantly, deal fairly with all the staff.

This testimony comes from one of the respondents basing it on her personal experience. She reiterated that she was under a leader whose qualities were worth emulating. She inspired the teacher to do better at her job despite the existence of setbacks and challenges. This quality of hers was also shown to her older colleagues. Through this, their teachers all led them and the school to a better performance that school year. For this respondent, quality teachings can affect their performance.

The teachers pointed out that quality teachers face many challenges and these include being a good role model, having the ability to inspire others, having the capability to establish an effective organization, and which tasks to delegate to one's constituents. These are the main qualities the respondents said they are looking for in globalization. They all align with strategies for quality teachers as a response to globalization. The teachers also emphasized that for leaders to come up with a reasonable outcome, they should be aware of the needs, behavior, and feedback of the people in their organization. They also pointed out that leaders should keep their eyes and heart open to one's soul and they expect fairness to be executed at all times. The



teachers have also acknowledged how challenging today's workplace has been due to the COVID-19 pandemic. Their teachers have had to learn new skills and develop new modules for the blended learning and the online learning being pushed by the DepEd and the government. The reactions and attitudes of the teachers, newbies or veterans, to these difficulties depend largely on their ability to accept changes in the workplace such as changes and updates in classroom and school policies, issues involving varying workloads, dealing with the parents of their pupils, the never-ending demands for their work reports, and for the veteran teachers, the adjustments they have had to do the use of technology in teaching their students. These challenges are new for the principals so they have had to adjust on how to deal with them. The principals pointed out that the quality of teachings as a response to globalization plays a vital role on how to keep work-life balance among their teachers.

Quality Teachings Ability

A teacher should also be capable of building an operational organization composed of the learners, the teachers' and the community because as the respondents indicated, they cannot work alone and they need the help of other teachers. Everybody needs company to share with. This collaborative culture that is created in the school will definitely affect the quality of the instructional performance of the teachers. As one respondent puts it, a good leader can give her teachers exemplary supervision. The quality of the teachings of their teachers is the main force that will definitely affect their workplace and the people working in it. The respondents have also emphasized that an effective leader must first be a good follower.

Paperwork

One of the common complaints of teachers is the huge amount of paperwork and forms they have to fill up every quarter of every school year. For them, it is one of the most time-wasting responsibilities they have to fulfill, time which could be better used for teaching and preparing their lessons. This is one area principals have to look into and find out which paperwork works are redundant and can be abolished. A consensus needs to be reached between the DepEd, the principals, and the teachers themselves so that the latter is not overburdened by unnecessary paperwork.

Fair and Decisive Decision-Making

When it comes to decision-making, the respondents said to accept and respect everyone's decisions since that can maintain camaraderie in the organization. Being open-minded to the ideas of one's colleagues could foster good relationships among people who have diverse backgrounds. However, they want a leader that leads from the heart and comes out with fair decisions. During contentious debate, the leader's main role is to get the consensus of the team and be firm in decision-making. The respondents have observed that the younger the leader, the more aggressive and eager they are in decision-making, in contrast to the more

reflective and careful way older leaders make important decisions.

Teachers' decisions and strategies are critically important to institutional performance, scheduling, recruitment, faculty evaluation, attendance and discipline, Curriculum design, and student outcomes.

Managing Quality Teachings Generational Differences

Interestingly, when it comes to generational attitudes regarding generational gaps between the teachers, the respondents said that managing different generations of teachers needs a certain leadership style if the leader wants to achieve organizational success. One respondent puts a positive spin on it saying "Generational difference has a big impact on organization because their new ideas and knowledge can contribute much to the success of the organization." Furthermore, the researcher believes that understanding each other's views and values will allow different generations to increase their appreciation of one another. This, in turn, will lead to better communication and collaboration because people are now talking with a sense of appreciation and acknowledgment.

If everyone in the team accepts and embraces other people's differences and uniqueness, the respondents believe they will be in a successful team. It is a given that individual differences will come up so it would be better to work out their differences and meet halfway. An astute leader would know the characteristics of the different generations to be able to understand and work with them harmoniously.

Proposed Institutional Instructional Development Program Through Quality Teachings as Response to Globalization

The findings of this study showed how important the quality of teachings as response to globalization to the respondents. Leadership skills that encompass the ability to reflect and take action after it; recognizing the role and importance of the school in the society at large and the surrounding community at least; respecting and harnessing the diversity of one's team; finding ingenious solutions to new problems; having the ability to organize activities that pushes the learning community forward; and the ability to inspire one's teammates and colleagues to give their best in their work – all these traits are what the respondents expect from a 21st-century leader. Furthermore, a quality teaching response to globalization can also bridge any generation gap between the respondents, since the likelihood of a generation of older teachers working with fairly out-of-college newbie teachers is very likely. Ensuring that there is mutual respect among peers is an important ingredient to ensure that no issues regarding generational attitudes hamper the operations of the school.

Transformative Leadership Program through Quality Teaching as Response to Globalization

With these high expectations, the researcher proposes an institution instructional development program called it "Transformative Leadership Development Program" whose goal



is to find potential leaders among the teachers and train them on quality teachings as a response to globalization leadership skills. These potential leaders should not be discriminated against by age, gender, race, social status, educational background, or misplaced loyalties among the staff. The researcher proposes that it is the job of the present crop of principals and school leaders to look for potential new leaders in their team every school year and encourage them to attend the instructional development program “Transformative Leadership Development Program”. The most crucial step in this process is picking the right persons and the current crop of principals can observe for characteristics among one’s team – characteristics that show that this person has the capability to absorb the lessons in the six zones of the 21st century leadership skills and the ability to apply those skills in real life, as a real-life leader-educator.

The Leadership Training Program as Part of Teacher Professional Development through Quality Teachings as Response to Globalization

This institution’s instructional development program can be integrated into the professional development plan of the teachers. The respondents have emphasized how important professional development is for them as it is their opportunity to grow and be more productive. Professional development is important for the respondents because as teachers working in the field of education where change is constant, for them to cope with these changes that are happening in the educational system, they have to equip themselves with new knowledge, strategies, and skills that will help them to be effective in all various aspects of their work. It also opens up wide opportunities for them and helps them grow and develop. Professional development is part of their continuous education as teachers. It can help in their promotion and achieve their career dreams. The “Transformative Leadership Development Program” will definitely give them the skills and the knowledge in terms of becoming a competitive and global quality teacher. They pointed out that this program can help them become more effective and efficient channels of learning and education and help them grow and be better educators. Furthermore, leadership programs like these are important to teaching success and can help the respondents figure out why they make certain decisions and can help them personally examine the way they think and deal with certain situations.

Skills Needed to be Included in Leadership Program through Quality Teachings as Response to Globalization

Aside from the globally competitive quality teachings that will form the core of this leadership program, the researcher would also like to add the following skills that will strengthen the program as they serve to strengthen the leadership qualities of the chosen teacher-trainees. This leadership program should also be able to teach the following skills. The first is coaching. The principal herself can do it in the school setting as coachable moments can happen in the school setting every day, and a leader with strong coaching skills can seize these moments and turn them into valuable learning experiences for her teacher-trainees. Coaching

is one of the best ways the principal can leverage to unleash the full potential of their teacher-trainees, and they can immediately give feedback, which can be valuable to the teacher-trainee.

The second important skill to be taught in this leadership program is accountability. The most successful leaders know that their success hinges more on their team’s performance than their own. Leaders today are held accountable for their own results and actions, including their own, and are accountable for the outcome of the team’s performance whether they be good or bad. Through this training program, the teacher-trainee will realize the importance of accountability and honoring commitments.

The third skill and probably the most important and relevant to the training program right now changes management. This is illustrated by how the COVID-19 pandemic has turned the world upside down and how it has greatly affected the process of education. By training through change management, the future teacher-trainees can harness the power of vision, provide strong leadership under any type of stress or season (just like this COVID-19 pandemic happening right now), and capitalize on transitional times to improve performance.

The fourth skill is communication. In a leadership role in a school setting, communication happens at all hours of the day through large presentations, one-on-one conversations, Viber messages, FB Messenger messages, Zoom conferencing, and even through Facetime. A teacher is already expected to be an expert communicator due to the nature of the work, yet their communication skills are one that needs to be optimized in order to be fully relevant and useful to the members of the team they are handling.

The fifth skill is influence and negotiation. In today’s teaching landscape, the image of a leader who wields his or her authority using fear and intimidation will surely feel out of place as today’s teachers expect their leaders to inspire them, persuade them, and encourage them to participate in achieving the common goals of the school. Today’s school leaders need to be strong influencers and fair negotiators, and the idea of them flouting how much power they have, may not be the best method in influencing their co-teachers to work towards achieving results for the school. Today’s principals must be able to use these subtle skills of influence and negotiation to build relationships among the teachers and across the school community, align priorities especially since the school works on a tight budget, and find a win-win solution that ultimately leads to completed projects for the activities of the teachers and delivered performance results for the school.

Proposed Outline for Leadership Program for Quality Teachings as a Response to Globalization

Here is the proposed outline of the “Transformative Leadership Development Program” that the researcher is proposing to address the issues and challenges facing today’s teachers.

1. Basics of Leadership
 - 1.1 Self-Assessment
 - 1.2 Leadership Models
 - 1.3 Human Behavior



- 1.4 Motivation
2. Leadership Philosophies
 - 2.1 Transformational Leadership
 - 2.2 Social Leadership
 - 2.3 Authentic Leadership and Social Influence
 - 2.4 Servant Leadership
3. 21st Century Leadership Zone Skills
 - 3.1 Reflection;
 - 3.2 Society;
 - 3.3 Diversity;
 - 3.4 Ingenuity;
 - 3.5 People and
 - 3.6 Organization;
4. Addressing Generational Attitudes and Issues in the Teaching Workplace Skills Training
 - 4.1 Coaching
 - 4.2 Accountability
 - 4.3 Influence and Negotiation
 - 4.4 Change Management
 - 4.5 Communication
5. Supporting Skill
 - 5.1 Time Management
 - 5.2 Meetings
 - 5.3 Communication

6. Survey Evaluation of Leadership Program

Aside from the globally competitive quality teaching skills and the part that addresses the generational attitudes and issues in the teaching workplace, which form the core of this research, the researcher has added other important leadership topics to give the teacher trainees a stronger foundation in the development of their leadership skills. This includes a personal self-assessment, a discussion on the basics of leadership, an overview of human behavior and motivation, as well as training on the current skills needed by leaders to oversee their organization. Further supporting skills have also been added as meetings and time management will definitely help teacher-trainees focus more on the important issues to be addressed.

This suggested outline is not written in stone and can be modified after the evaluation period, based on the reactions, feedback, and suggestions of the participants. This way, it makes this leadership program more dynamic and current. It is also important to get the testimonies of the participants to gauge which parts of the leadership program are the strongest, most popular, most memorable, and most helpful – and which parts may need more tweaking. Caution must be followed when changing topics so that the trainers don't lose sight of the main goal of having the leadership program in the first place.

Evaluation of the Leadership Program through Quality Teachings as Response to Globalization

An Evaluation Plan that considers the outcomes needs data and proper analyses in obtaining results are needed to align the evaluation objectives with the program objectives. The researcher will use Kirkpatrick's Evaluation Framework which has four levels: Level 1 and Level 2 which are collected at the end of the

program, conveys the participants' perception and the extent to which knowledge and skills were acquired respectively. Level 3 and Level 4 are collected several months after the program implementation, which helps participants utilize their new skills on the job. This helps in the transfer of learning from the program to the new workplace. Although the researcher hopes that participants find the program a positive experience and learn new thoughts and perspectives, the DepEd should also expect to find positive changes like the transfer of learning from the program to the actual workplace. These measures focus on output like productivity. They may also focus on more intangible measures such as customer satisfaction, job satisfaction, and work habits. Level 5 calculations are based on Level 4 measures interpreted in a way that accounts for the school's overall performance, which the researcher thinks is the main reason why this leadership program was instituted in the first place. Data that may not be converted to monetary value like improved teamwork and networking are still important to collect as they represent intangible value.

IV. DISCUSSION

The focus of this study was to determine the Quality of Teaching in the Secondary Schools in Borongan City Division as a Response to Globalization.

The descriptive method was used in this study. An interview questionnaire was used to significant data needed in the study that involves collecting, analyzing, and integrating. It was divided into four (4) parts. Profile of the respondents, Quality of Teaching in the Secondary Schools in Borongan City Division: Response to Globalization. Specifically, the study answered the following questions.

1. What is the level of performance of the quality of teaching in the Secondary Schools in Borongan City Division in the province of Samar: Response to Globalization along the following indicators:

1.1 administrators' management functions in School Governance

- a. planning;
- b. leading;
- c. organizing; and
- d. controlling?

1.2 quality teachers'

- a. capability in teaching;
- b. designing of strategies;
- c. use of ICT;
- d. quality of instructional materials; and
- e. related teaching skills in pedagogy?

1.3 quality students' graduates

- a. learning competencies;
- b. results of general exams;
- c. extra-curricular activities; and
- d. awards/achievements?

2. What is the status of the learning environment atmosphere on the level of performance of the quality of teaching in the



Secondary Schools in Borongan City Division development program in the province of Samar?

3. What is the relationship of the status of the learning environment atmosphere between the development program on the level of performance of the quality of teaching in the Secondary Schools in Borongan City Division?

4. What development program could be proposed on the level of performance for the quality of teaching in the Secondary Schools in Borongan City Division?

The respondents for this study were Teachers 1-3, Master Teachers 1-2, and principals. They had an average of at least 13 years of service showing the high experience level of the respondents.

The respondents made their perceptions known on the Quality of Teaching in the Secondary Schools in Borongan City Division: Response to Globalization and the respondents want their leader to be able to delegate work and assign it to the right person. This leader knows which outcomes have to turn out successfully and can also deal with failure without assigning blame. Furthermore, they see a leader who gives time for reflection, allowing them to process their actions and know how to proceed when dealing with thorny issues within the teaching community.

Society Involving Quality of Teaching in the Secondary Schools in Borongan City Division: Response to Globalization refers to the leader's ability to serve the public surrounding the teaching community. Obeying the law is not just the expectation but doing good for the community – whether the work is environmental or any type of community work. By doing so, the leader is also involving the teaching community to participate in socially responsible actions. This civic duty is then extended by the teaching community to the community itself and its stakeholders like its barangay leaders and civic-minded citizens. This united front of cooperation can benefit the community since they are the beneficiaries of these community projects. Finally, any unethical actions by the leader are frowned upon by the members of the teaching community. Unethical actions and decisions have no part in helping society at large and leaders who do these actions should be sanctioned or called out.

The Diversity on the Quality of Teaching in the Secondary Schools in Borongan City Division: Response to Globalization involves collaborating well with people different from themselves. Racially, Filipinos don't really differ much from each other and these differences may be linguistic at best and regionalistic at its most. Since the country has more than 7,107 islands, it is but natural that different temperaments abound in the many different geographical areas of the country. Since within the country, there is migration, it would not be surprising that the teaching community featured in this study will have teachers coming from all over the country. Many Filipino teachers speak a third language depending on where they were born and each geographical group may have cultural nuances which are unique to that group. The teachers are open to the idea of working with fellow teachers with backgrounds different from themselves. By

doing so, they get to learn about other people's cultures and temperaments.

The many challenges and problems that the teachers will face every school year will test their skill of ingenuity. The teachers expect their leader to possess ingenuity as well, since by having this trait, the leader can help move the organization forward, instead of it being stuck in a rut. This is especially true now in this pandemic where many of the usual practices of the teachers and students have been disallowed, opening up the notion of distance learning via the Internet – a system of learning where the teachers have to use the latest in classroom technology, but all via their laptops, phones or tablets. It is a demand which has brought out the ingenuity of the teaching community including the parents of the pupils and students. It is clear to the teachers that they have to adapt to these tectonic changes and they need the wholehearted support of their leaders. Leaders who are anti-innovation and anti-change will leave the organizations stuck in the past. The teachers also understand that for innovation to prosper, the organization has to have a shared vision of the future. Arming themselves with these new skills, they are able to solve real-world problems by thinking clearly and engaging with others who can shed light on the problem. These trying times demand innovation, flexibility, and creativity not only among the members of the teaching community but especially among the leaders themselves.

Quality of Teaching is the task of the leader to bring out the best of each and every member of the team, to motivate them to always give their best on the tasks assigned to them. To be able to do that, the leader has to be emotionally engaged with the teachers, inspiring their trust, and respecting their opinions even if those opinions contradict that of the leader. Sometimes teachers are not open to expressing their opinions on matters or voicing out their concerns because past leaders have the tendency of taking it out on them. So instead of fostering an atmosphere of openness, there is an atmosphere of retribution and punishment on those teachers who think differently or are espousing new ideas that can rock the boat, so to speak. The teachers have emphatically said that they do not want leaders who punish teachers for having a difference of opinions.

The Quality of Teaching goal of the leader is to keep the organization on the right track in terms of achieving the educational goals of the district, in terms of the academic performance of the students. The teachers have pointed out that there are many difficulties in meeting the learner needs of those belonging to other cultures, especially since the pandemic has given even more challenges to both teachers and students. In organization, the teacher should be able to work with a diverse group of students, as well as a diverse group of teachers. Therefore, the leader has to be sensitive to the leadership needs of the communities they are serving. They must be able to apply the correct leadership styles that would suit the teaching community they are assigned to.



On the Quality of Teaching in the Secondary Schools in Borongan City Division: Response to Globalization, principals have had to encourage their teachers to learn new skills and develop new modules for the blended learning and the online learning being pushed by the DepEd and the government. These tectonic changes in the teaching methods have been met by varied reactions by both the students and the parents, yet many teachers forge on and learn the technologies that would allow them to hold classes. The challenge has also extended to the students themselves as many of them cannot afford to buy laptops or tablets or even the Android cellular phones needed by their children. Another challenge is the fluctuating and inconsistent service provided by the local broadband internet providers, making classes through any online meeting software app, a bit of a challenge depending on the quality of wi-fi connection of different geographical areas. These challenges are new for the principals so they have had to adjust on how to deal with these new challenges. Moreover, even with these new teaching challenges, the leaders would want to instill in their teacher constituents to keep a work-life balance always so that they do not suffer from fatigue or burnout.

In terms of the Quality of Teaching in the Secondary Schools in Borongan City Division: In response to the Globalization of secondary teachers, there has been relative harmony between the teachers of different generations. Although there should be differences in the attitude towards work between generations, the study was not able to detect them. While younger teachers may enjoy the flexibility being afforded by the current way of teaching, this may pose a problem for older teachers, especially those reaching the age of retirement. However, none of these manifested in the study, as even the supposedly older teachers embraced the new challenges of teaching and did not back down when they learned they had to study new technologies like Zoom and Google Classroom. It is also expected that younger people may have less loyalty towards the teaching profession. However, the current pandemic has shown that the public-school teachers have been the luckier members of society, as the security of tenure of their jobs has assured them of continuous compensation all throughout all the GCQ and ECQ periods, something which their counterparts in the private sector have not enjoyed. Many teachers in private schools have lost their jobs and are now part of the new unemployed. In terms of attitudes regarding respect and authority, all the teachers expected to get praise from their bosses so that it would continue to motivate them. They also respect the chain of command regardless of the ages of the people above them. The fourth generational attitude is training styles and needs and here, the teachers demanded that they be allowed to express their creativity and that they prefer working as a team rather than individually. They also said that trophies and plaques do not really motivate them, so the leader can do away with those token items since they are just a waste of money. Attitude towards supervision is the fifth generational attitude and the teachers value good working relationships with their colleagues. They go for teamwork instead of individualized work. They also have deep respect for diversity in the workplace. They also feel high about

their security especially when they get old, and strongly agree with the statement that they have a company retirement fund. They also feel comfortable communicating using electronic media, which has become the norm nowadays. The desire for work-life balance Quality of Teaching in the Secondary Schools in Borongan City Division: Response to Globalization has been very emphatic about their need to have some form of work-life balance. This is something that their leader should take note of and prepare for. They also want to have comprehensive life insurance which is consistent with their request for a company retirement fund. Finally, they also valued company advancement on the Quality of Teaching in the Secondary Schools in Borongan City Division: Response to Globalization. This is another aspect their leader should take note of and allow teachers to advance in their chosen career paths.

V. CONCLUSION

Based on the findings and analysis of this study, the researcher has come up with the following conclusions. Today's teachers practice the Quality of Teaching in the Secondary Schools in Borongan City Division: Response to Globalization so as to develop a harmonious working relationship with everyone in the teaching community. Speaking frankly is one area of Quality of Teaching in the Secondary Schools in Borongan City Division: Response to Globalization has to be since the Filipino temperament is not used to being talked directly to. There must be tact and diplomacy when talking to the constituents. Today's teachers expect their leaders to spearhead community-based projects where they can be involved in and serve some persistent needs of their surrounding community. This notion of *bayanihan* among the members of the community depicts how the leadership zone of 'society' works for the teaching community. A Quality of Teaching in the Secondary Schools in Borongan City Division: Response to Globalization the ability to bring out the best from each and every member of his or her teaching team. These teachers are the assets of the school and they should be given enough leeway and freedom to do their jobs – allowing for more creativity, innovation, and respect for each other's work. There are four separate and distinct generations working together in today's teaching communities. They are the traditionalists, Baby Boomers, Generation Xers, and Generations Years. However, there have been no prevailing negative generational attitudes that have persisted that the study has unearthed. There is prevailing harmony among the different teachers regardless of their age range. This has been a very welcome finding as it shows the deep level of respect the teachers have for each other regardless of their length of tenure and years of teaching experience. One interesting thing the study has uncovered is that the teachers do not necessarily want to rock the boat. They are dedicated to this profession and do not want to cause any major upheavals or controversies if they can be avoided. This loyalty and dedication to the profession runs in all the generations and the teachers pointed out that they do not have to use their 'strong voice' in making a point. The teachers have shown that they are willing to follow their leaders and are not prone to rocking the boat



whenever issues crop up. The Quality of Teaching in the Secondary Schools in Borongan City Division: Response to Globalization in its far-reaching impact on the educational system has been the most major issue the teachers and the leaders have had to deal with. The pandemic totally changed how schooling is done and has been very stressful to the principals, the teachers, the students, and their parents. There have been no significant differences between the profile of the Quality of Teaching in the Secondary Schools in Borongan City Division: Response to Globalization in the workplace of teachers. This means that the discussed Quality of Teaching is relevant to all members of the teaching community regardless of what generation they grew up in.

VI. RECOMMENDATIONS

Based on the findings, analysis, and conclusions of this study, the researcher has formulated the following recommendations for future researchers as well as those who have done research in the field of quality teaching. Knowing already that the teachers want a leader that practices the Quality of Teaching in the Secondary Schools in Borongan City Division: Response to Globalization, the researcher wants future researchers to extend the study to identifying case studies where each of the Quality of Teaching in the Secondary Schools in Borongan City Division: Response to Globalization has been tested severely. These specific case studies can serve as guides and lessons to fellow teachers who may have undergone similar stresses in their daily work.

Coordinate with the barangay leaders and other stakeholders in the community in coming up with a project that will involve the cooperation of everyone and will greatly benefit the members of the community. This can be one project per semester. If the pupils and students can participate, so much the better.

Come up with an activity where the members of the teaching community can interact with each other and share the best practices and learnings they can offer from their own ethnic and geographical backgrounds. It can be in terms of culinary expertise, or sewing skills, or even something cultural like a song or a dance. It will allow the teachers to appreciate their own native skills and knowledge, they will also learn something new about their other co-teachers.

For future researchers, to find more stark differences between the generational attitudes of the members of the teaching community, it would be interesting to set up a study where different problems are presented and find out if there are differences, if any, in the approaches to the problem depending on the generation which the teacher comes from.

This study will foster a better understanding Quality of Teaching in the Secondary Schools in Borongan City Division: Response to Globalization on how teachers of different generations approach all the challenges and what learnings each generation can pick up from each other. Furthermore, the institutional

instructional development program is a continuing work of progress. The activities that are used for training should always be updated and should stay relevant to the times – whether in terms of technologies being used as well as a more open attitude to new learnings in terms of leadership. A yearly evaluation of the development program is highly recommended to ensure that it retains its highest effectivity and impact on the teachers being trained as leaders. There may be a template to follow and a general text but each district is given enough freedom to tweak activities that they feel may appeal more to their trainees. The implementation is not ironclad, what is important is that by the end of the training program, there is a new batch of teacher-leaders who have imbibed all the major learnings in the Quality of Teaching in the Secondary Schools in Borongan City Division: Response to Globalization have the ability to lead their teaching community in achieving their yearly educational goals.

REFERENCES

1. Ariola, Mariano M. 2000. "The Filipino Administrator Today: Her Role in Nation Building" *The Modern Administrator*.
2. Barrientos, Gloria P. 2013. *School Leadership (Quezon City: Saint Bernadette Publications, Inc.)*
3. Bautista, H.A. 1993. "Work Oriented Upper Elementary and Secondary Education Teachers". *Phil. Journal of Education*. September 1993. p. 28.
4. Boiser, Diosdado. 2000. *Management Styles. (Manila: Rex Book Store, Inc.*
5. Calmorin, Laurentina P. 2000 "My Idea of A Good Educational Teachers". *The Modern Administrator*. Vol. XLV, No. 4 December. Page 281.
6. Carlos, C.P. 1993. "The Work-Oriented Curriculum: Its' Application in the Classroom management." *PPSTA Herald*. Quezon City, Philippines. September-October page 4.
7. Gonzales, Ma. Minerva, et al. 2009. *Teaching Strategies. Quezon City: Katha Publishing, Inc.*
8. Lauron, Maria Theresa. 2007 *Educational Management. (Manila: Ibon Philippines,)*
9. Lussier, Robert. 2013. *Human Relations to Organization. Illinois: Irvin Publications.*
10. Nage, Lucila. 2017. "Science and Technology II Instruction". *Thesis. Baguio Central University, Baguio City*
11. Nollado, Jose N. 1995. *The Education Act of the Philippines: Annotated. Metro Manila: National Bookstore.*
12. Pagoso, Cristobal M. 1992. *Inferential Statistics for Graduate School Students. Manila: Sinag-tala Publishers, Inc.*
13. Raymundo, Felix G. 2018. "Work Values and Performance of Public Elementary School Administrators of Bimmaley I District S.Y. 2001-2002". *Thesis. Don Mariano Marcos Memorial State University (DMMMSU- Graduate College), South La Union Campus, Agoo, La Union*
15. Rera, Filomena. 2018. *Toward Effective Teaching. Quezon City: National Bookstore, Inc.*
16. Rotherham, A.J., & Willingham, D.T. (2009). *21st Century Skills: The Challenges Ahead. Educational Leadership*, 67, 16-21.
17. Sanches, Custodia. 2006. *Methods and Techniques of Research. Manila: Rex Bookstore, Inc.*



ISSUES AND CHALLENGES ON INDIGENOUS KNOWLEDGE RESEARCH

Dr. Jangkhohao Hangshing

*Assistant Professor, Department of Library and Information Science,
University of Science and Technology, Meghalaya*

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ABSTRACT

The significance of Indigenous knowledge and its role are being recognized worldwide today. However, there is the grave danger of its extinction due to internal and external factors. That the preservation of indigenous knowledge is a pertinent and urgent matter is being acknowledged by the stakeholders – indigenous communities, governmental and non-governmental bodies and researchers alike. One of the most important approaches to this preservation is the research being carried out by academics and non-academics. Researching on indigenous knowledge, while it faces the same issues as researching on other subject areas, is also saddled with additional issues in connection with key contacts, authenticity, copyright and so on. This paper describes the common and uncommon issues associated with researching on indigenous knowledge based mainly on personal experiences of the researcher.

KEYWORDS : *Indigenous Knowledge, Research on Indigenous knowledge, Problems in Research, Issues and Challenges.*

INTRODUCTION

The cultural practices and way of life of indigenous communities worldwide are also known as indigenous knowledge. This knowledge has been transmitted for generations amongst the indigenous communities, mostly orally, and is a reflection of their history and identity. Over the years however, indigenous knowledge has been gravely threatened by factors like dilution and even extinction (due to misinterpretation by existing practitioners and death of the original practitioners) and replacement by modern practices, especially with the proliferation of computer technologies. Preservation of indigenous knowledge has thus become a war cry among stakeholders like the indigenous communities, governmental and non-governmental bodies as well as researchers.

Indigenous Knowledge (IK) is defined as a systematic body of knowledge acquired by local people through the accumulation of experiences, informal experiments and intimate understanding of the environment in a given culture (Rajasakeran, 1992). Indigenous knowledge can be seen as local or traditional knowledge that is unique to every culture or society. The knowledge influences planning as well as decision-making in local areas. It is the unique knowledge confined to a particular culture or society. It is also known as local knowledge, folk knowledge, people's knowledge, traditional wisdom or traditional science. This knowledge is generated and transmitted by communities, over time, in an effort to cope with their own agro-

ecological and socio-economic environments (Fernandez, 1994). It is generated through a systematic process of observing local conditions, experimenting with solutions and readapting previously identified solutions to modified environmental, socio-economic and technological situations (Brouwers, 1993).

IMPORTANCE OF RESEARCH ON INDIGENOUS KNOWLEDGE

Indigenous knowledge is crucial to development, hence it is frequently recommended that it be acquired and recorded in a systematic and cohesive manner (Brokensha et al. 1980; Warren et al. 1993). The importance of indigenous knowledge to development will become clear as more studies on it become available. According to the reasoning, these studies should be stored in databases at national and international centres so that the data in them may be carefully categorised. With the use of newsletters, journals, and other media, proper distribution and interchange among interested parties should be added to the gathering and storage of indigenous knowledge (Warren et al. 1993). The survival of the economies of emerging nations may be ensured by using local knowledge. Therefore, indigenous knowledge is crucial for fostering local community development. Even the wealthiest and most successful governments cannot meet all of the needs of the people, so it is important to consider indigenous knowledge as well in order to improve development (Atte, 1992). Indigenous information must be acquired, arranged,



and transmitted in the same organised manner as contemporary knowledge since it is crucial to progress (Agrawal, 1995).

Research on various aspects of indigenous knowledge is being carried out by scholars and non-scholars from various disciplines. While some report the existing status of such knowledge, others go farther and attempt to extend suggestions and solutions to issues facing indigenous knowledge. Researching on indigenous knowledge, while it faces the same issues as research on other subject areas, is also saddled with additional issues in connection with key contacts, authenticity, copyright and so on. Such knowledge being mostly rural centric also presents another set of issues for researchers. One of the means for preservation of indigenous knowledge is its documentation; collection, processing, preservation and dissemination. Documented knowledge is made accessible by governmental and non-governmental bodies. Following are the issues and challenges encountered while researching on indigenous knowledge.

ISSUES ON INDIGENOUS KNOWLEDGE RESEARCH

It takes careful consideration of ethical, cultural, and practical considerations to do research on indigenous knowledge, which is a complicated and sensitive task. Indigenous knowledge includes the customs, beliefs, and worldviews of indigenous peoples and frequently relates to topics like ecology, medicine, agriculture, spirituality, and more. When conducting study on indigenous knowledge, it's important to be mindful of the following issues:

- **Respect for diversity and cultural sensitivity:** Indigenous knowledge is closely entwined with indigenous peoples' traditions and identities. Respect for these cultures and traditions must be shown in how researchers do their research. Before starting their investigation, they should interact with local residents, authorities, and elders to get their approval.
- **Informed consent** is essential for indigenous research. Before beginning any study operations, researchers must get explicit, informed permission from community people. This includes describing the study's objectives, the manner in which data will be utilised, and any possible advantages or dangers.
- **Intellectual Property Rights:** Indigenous knowledge is frequently considered to be community or common property. Indigenous communities' intellectual property rights must be respected by researchers, who must also make sure that information is used for the community's advantage rather than being exploited for their own or other peoples' financial gain.
- **Involvement of the Community:** Indigenous communities should be actively included in all stages of the research process, from developing the research questions to gathering and analysing the data. As opposed to conventional, top-down techniques, collaborative and participatory research procedures are frequently more suitable.
- **Data Ownership and Control:** The information and data gathered throughout the research should be within the ownership and control of the indigenous populations. The

sharing and release of data should be decided upon in accordance with the community's rights to ownership and control.

- **Preventing Harm:** Researchers need to be conscious of the possible harm that might result from their work, such as cultural appropriation, misrepresentation, or adverse effects on the community. There should be precautions made to lessen these dangers.
- **Language and Translation:** Native knowledge is frequently passed down through the use of native tongues. To guarantee correct comprehension and portrayal, researchers may need to collaborate with interpreters or translators who are attentive to the intricacies of indigenous languages and cultures.
- **Benefit Sharing:** Researchers should think about how the included indigenous people could profit from their research's findings. This might involve disclosing study findings, offering chances for training and capacity-building, or assisting neighborhood-based projects.
- **Long-Term Relationships:** It's critical to forge enduring bonds of trust with indigenous populations. Researchers should be devoted to continual cooperation and assistance rather than doing "hit-and-run" studies.
- **Ethical Review:** Research utilising indigenous knowledge should go through ethical review procedures that are culturally sensitive and take into account the particular ethical issues of the community being investigated.
- **Compliance with Local and National rules:** Researchers should be aware of and adhere to local and national rules and regulations that apply to indigenous research, particularly those relating to cultural heritage, intellectual property, and human subjects.

CHALLENGES OF INDIGENOUS KNOWLEDGE RESEARCH

- **Lack of clarity:** The nature of indigenous knowledge is vast and complex in nature. The practices and knowledge of indigenous people differs with difference in climatic condition and the regions they live in. Topography and geographical conditions of the regions offer different cultures with different lifestyles. This results in developing different survival skills and involvement of different knowledge to bolster the origin of locally developed instruments. This indigenous knowledge is varied in nature and sometimes researchers make the mistake of confusing between a broad area and a specific topic or sub-topic leading to generalizations and vague results. It requires the study to focus on one nature of indigenous knowledge for it is difficult to cover the vast complex knowledge in a given limited time.
- **Inaccessibility:** Studies conducted on indigenous knowledge require participation and involvement of the stakeholders and practitioner in collecting the local knowledge. This often requires the researchers to live among the people under study, to observe their daily activities. Practitioners of indigenous



knowledge often live in most remote and inaccessible corners of the regions. This leads to difficulty in identifying and locating them. Moreover, in most cases, it is found that the topography of the areas are challenging, the places are often out of network coverage areas and there is sudden change in the climatic conditions. The researchers on the other hand are mostly urban citizens, unused to such conditions. It takes time for them to adjust to such new conditions. Some are unable to adjust. This sometimes affects the research process to the extent that some researchers may resort to vague and even manipulated data. One of the most challenging issues in the study of local indigenous knowledge lies in the language. Lack of knowledge of the local language is an issue, for language is the only effective communication medium that will lead to accomplishment of the objective of the study. Researchers have to take help from interpreters, a practice which is sometimes fraught with problems in terms of finance, equation with interpreter, accommodation of interpreter etc.

- **Lack of relevant information sources:** It is universally accepted that indigenous knowledge is orally passed down from generation to generation. Therefore, written records of this knowledge are not maintained unless studies are being conducted specifically. It also appears that most of the local people are not in a position to maintain records of the knowledge, one of the main reasons being illiteracy and ignorance of its necessity for the future. This lack of literature on indigenous knowledge tends to limit the research design which presents problems for the researchers. This in turn limits the number of research projects being carried out and hence lack of research articles on a specific topic. However, this can also be a blessing in disguise in that it makes pioneers of those who venture into these unknown areas.
- **Financial constraints:** Studies conducted on indigenous knowledge require the researchers to move from their comfort zone and equip themselves with all the tools and materials vital for collection and preservation of data collected from the field. The field for indigenous study as mentioned before tends to be a remote area, far from urban comforts. This requires travelling long distance and finding the right people to extract the valid knowledge. All of this incurs financial costs. It is thus important for the researchers to have a proper financial funding to support themselves for executing the perfect study.
- **Time constraints:** Academic study or research is often constrained by time obligations set up by the funding body. It thus requires the researchers to wind up in the allotted time period. However, the indigenous knowledge of a specific community is often vast and complex in nature. Moreover it requires participation of the locals to extract the minute details of the original knowledge embedded in their environment. Indigenous knowledge covers all the basic knowledge of a particular community which they had been practicing since time immemorial to sustain their livelihood. A thorough and

precise study of any indigenous knowledge becomes quite impossible, given such time constraints.

- **Lack of key people:** One of the most common reasons for the extinction of indigenous knowledge is lack of key people who can share (describe) such knowledge accurately. These are the original practitioners who have a hold over authentic information. As mentioned earlier, the oral nature of transmission of knowledge poses problems like dilution and even extinction (due to misinterpretation by existing practitioners and death of the original practitioners) of vital indigenous knowledge.
- **Wariness:** One of the common issues in indigenous knowledge research is the wariness of the stakeholders or practitioners towards any 'outsiders' and their activities. Of course, such suspicion on their part can be justified in their past negative experiences - such as of being cheated of their knowledge. Copyright issues continue to plague indigenous knowledge. Local knowledge of many communities has been reported to be misused without the consent of the stakeholders which led to wariness on the part of the locals. Such wariness can sometimes become so extreme as to pose a danger to the very lives of the researchers. It is advisable for researchers to tread carefully when researching on indigenous knowledge. Background knowledge as well as sensitivity towards the local conditions and practices can go a long way in facilitating the research work. Taking help from native guides can be very helpful. Being a native of the research site can help even farther.

CONCLUSION

In conclusion, researching indigenous knowledge involves a strong commitment to moral ideals, cultural sensitivity, and involvement in the community. Throughout the study process, researchers should put the rights, welfare, and self-determination of indigenous populations first. To do competent and ethical research in this area, collaboration, transparency, and respect are essential. The world is waking up to the urgency of identifying, locating and preserving indigenous knowledge. This is mostly done through research. Such research however is not without issues, as mentioned above. Nevertheless, such issues should not hinder the flow of research on such a vital area as indigenous knowledge. Proper background check along with the necessary precautions and care need to be taken to ensure continuous research on this area.

REFERENCES

1. Fernandez, M.E. (1994) *Gender and indigenous knowledge. Indigenous Knowledge & Development Monitor* 2: 6-7.
2. Brouwers, J.H.A.M. (1993) *Rural people's response to soil fertility decline: The Adja case (Benin). Wageningen Agricultural University Papers* 93-4.
3. Rajasekan B., & Arren, M. (1992). *A framework for incorporating IKSs into agricultural extension organization for sustainable agricultural development in India. Paper*



presented at 9th Annual Conference of the Association for International Agricultural and Extension Education. Arlington, Virginia USA.

4. Warren, D.M., Liebenstein, G.W.V. & Silkkerveer, L. (1993) *Networking for Indigenous Knowledge. Indigenous Knowledge and Development Monitor* 1(1):2-4.
5. Brokensha, D., Warren, D. & Werner, O. (1980). *Indigenous Knowledge Systems and Development* (Eds.). Lanham: University Press of America.
6. Atte, O.D. (1992). *Indigenous local knowledge as a key to local level development: Possibilities, constraints, and planning issues. Studies in Technology and Social Change*, (20)
7. Agrawal, A. (1995). *Indigenous and scientific knowledge: Some critical comments. Development and change*, 26(3), 413-439.



SHINING A LIGHT ON FINANCIAL TRANSPARENCY: BIBLIOMETRIC INSIGHTS INTO SEGMENT REPORTING

Dilipkumar Suthar

Senior Research Fellow, Gujarat University

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ABSTRACT

Segment reporting is a crucial component of financial reporting, allowing stakeholders to gain insights into the performance and risks associated with various business segments. Our purpose in this comprehensive bibliometric analysis is to trace the evolution of segment reporting research from 1981 to 2023, identify influential contributors, and uncover emerging trends. Our findings reveal a substantial growth in publications and citations, particularly after 2015, indicating the increasing significance of segment reporting in the academic community. Key authors, such as those published in the "Journal of International Accounting, Auditing and Taxation" and the "International Journal of Accounting," have significantly shaped the discourse in this field. Highly cited articles emphasize the practical implications of accounting standards and market forces on segment reporting practices.

KEYWORDS: *Segment Reporting, IFRS 8, Disclosure practices, IAS 14, Chief operating Decision maker, Bibliometric analysis*

INTRODUCTION

Consolidated financial statements are no longer sufficient for users to make educated financial decisions due to the increasing complexity of companies (Di Carlo et al., 2016). Analyzing previous performance and forecasting future results has become problematic in significant organizations, where complex operations cover numerous products or market segments (Chen et al., 2007). The specific performances of each operating segment, which display significant variances in terms of returns, risks, and profitability, determine how well these organizations operate overall (Troberg et al., 2010). Unfortunately, conventional consolidated financial statements may hide the cash flows, profitability, risks, and returns connected with these unique sectors (Barneto & Ouvrard, 2015). As a result, stakeholders cannot assess the firm's true financial health since they lack a thorough understanding of all of its aspects (Janet et al., 2022). Thus, the urgency arises to furnish comprehensive segment-wise information for an accurate assessment (Street & Shaughnessy, 1998).

Segment reporting refers to the practice of disclosing financial information about an organization's different business segments in its financial statements (Talha, Sallehuddin, et al., 2008). By providing detailed information about each segment, segment reporting enables investors, analysts, and stakeholders to understand the financial performance and risks associated with different parts of the organization (Cereola et al., 2017). The reporting of segments typically includes information such as revenues, expenses, assets, liabilities, and other relevant financial data for each segment (Talha, Salim, et al., 2008). The segment information is often presented in a tabular format,

allowing users to compare and analyze the performance of different segments within the organization (Kajüter & Nienhaus, 2017).

Segment reporting in India traces its origins back to the implementation of Accounting Standard (AS) 17, aptly named "Segment Reporting," by the ICAI. This milestone was crucial to aligning Indian accounting practices with global standards, particularly IAS 14. However, the evolution of segment reporting practices in India did not stop there. Segment reporting procedures have become more uniform globally as a result of the integration of Indian Accounting Standards (Ind AS) and International Financial Reporting Standards (IFRS). In 2016, the ICAI introduced Ind AS 108, "Operating Segments," which closely mirrors IFRS 8. This standard requires Indian companies to reveal segment data based on the information the CODM reviewed it. It also includes additional disclosure requirements specific to Indian regulations, such as geographical segments. In summary, the evolution of segment reporting standards demonstrates a progression from voluntary disclosures to formal accounting standards. The development of FASB Statement No. 14, IAS 14, FASB Statement No. 131, IFRS 8, and Ind AS 108 has significantly improved the transparency and comparability of segment information.

2. METHODOLOGY

This study used a systematic approach to review literature, avoid bias, and add scientific validity to its findings. We present our analytic processes using Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA), which supports writers in enhancing systematic



review reporting. We chose PRISMA above other current protocols because of its comprehensiveness, widespread use in multiple fields, and ability to improve review uniformity (Liberati et al., 2009; Pahlevan-Sharif et al., 2019; Chaudhary et al., 2022).

2.1 Establish a Strategy

We additionally employed the methodology of Jesson et al. (2011, p. 12) in our study, which includes the following steps:

- Develop a research question;
- Establish a strategy;
- Perform a search for relevant literature.
- Make use of inclusion and exclusion criteria;
- Perform a quality check; and
- Explore the findings

2.2 Develop a Research Question

A systematic evaluation approach is guided by study objectives that define the inquiry's subject, object, and scope (Booth et al., 2012). As a result, we developed the following study questions:

1. What intriguing trends have emerged in segment reporting practices from 1981 to 2023?
2. Which authors and journals have significantly shaped the field of segment reporting practices with their influential contributions?
3. What notable patterns emerge in terms of authorship and collaboration within the field of segment reporting research?

2.3 Perform a Search for Relevant Literature

We chose Scopus as our primary source for content to assure the scientific quality and inclusiveness of our research. We came up with a preliminary list of keywords associated with our research topic: Segment Reporting, IFRS 8, Segmentation, Operating Costs, Disclosure, SFAS 131 Financial Reporting, Operating Segments, Firm Performance, Financial Performance, Segment Disclosure, IAS 14, IAS 14R, Disclosure Quality, Accounting Standards. We chose articles, review articles, book chapters, and books as our source types. We only considered papers in the disciplines of management, business, and accounting. Furthermore, we omitted publications written in languages other than English to avoid

understanding challenges and improve our research's replicability among the international community. We retrieved articles published between 1983 and 2023.

The search string used in Scopus was as follows: TITLE-ABS-KEY ("Segment reporting" OR "operating segments") AND (LIMIT-TO (PUBSTAGE , "final")) AND (LIMIT-TO (SUBJAREA , "BUSI")) We retrieved the data from the Scopus database on June 20, 2023, which resulted in 146 documents.

2.4 Make use of inclusion and exclusion criterion

We thoroughly studied their titles, abstracts, keywords, and, when appropriate, complete texts to identify the relevance of publications and eliminate those deemed irrelevant (Booth et al., 2012). We discovered 128 articles that were judged to be relevant based on our content analysis since they were related to our research requests. We evaluated each article's significance, considering parameters such as the type of writing (e.g., article, conference proceeding, book, chapter), total citations, and citations per year (CPY). Although we did not adhere to strict quantitative guidelines, we considered the relative influence of the articles within their specific study topics/areas. As a result, we identified 33 papers as less relevant and excluded them from further analysis. We then searched for and obtained the full texts of 95 articles. However, we encountered difficulties in accessing 8 publications as they were not available through our institution. As a result, 87 full-text papers were thoroughly scrutinized for evaluation.

2.5 Perform a Quality Check

The study is based only on original research articles and review papers. To maintain the quality of the review, all duplications were checked thoroughly.

2.6 PRISMA Diagram

Figure 1 depicts the stages we took while using a PRISMA diagram that we modified to make it more suitable for a systematic qualitative review (Page et al., 2021). The PRISMA flow diagram depicts the flow of information through the stages of a systematic review. It illustrates the number of records discovered, included, and excluded and the reasons for exclusions.

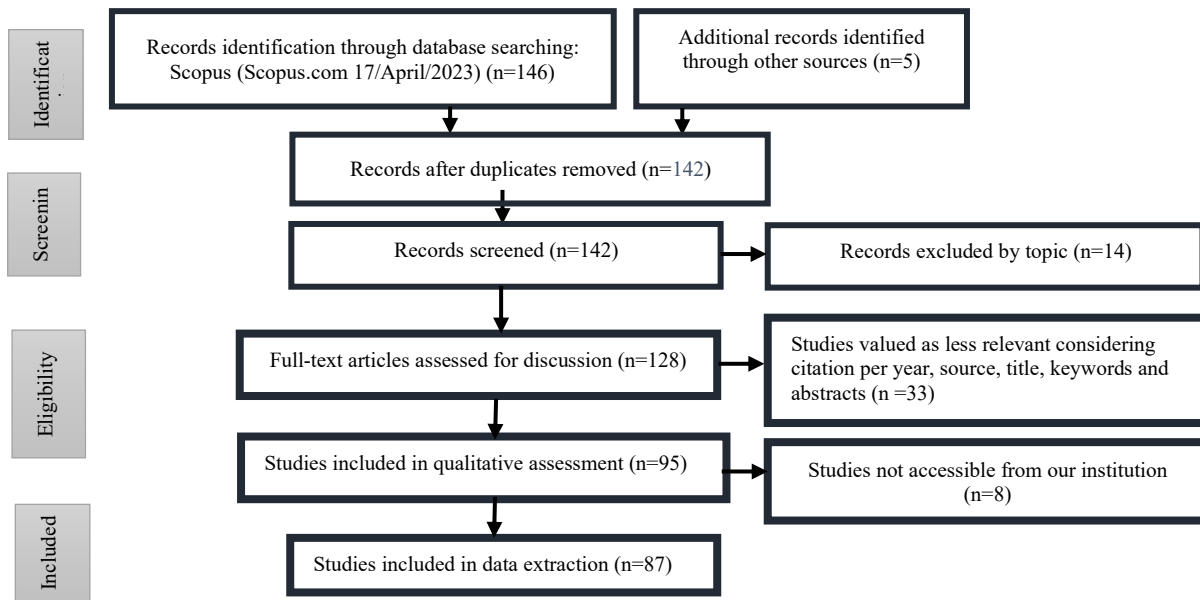


Figure 1: PRISMA Flow Diagram

3.1. Top Ten Countries In Citations

The Table 1 Shows The Total Citations (TC) And Average Article Citations For Various Countries In Segment Reporting Research. The Results Show A Diversified Environment, With The United States And Australia Leading In Terms Of TC, Suggesting Their Significant Research Production, And Both Countries Exhibiting Commendably High Average Article

Citations, Highlighting The Influence And Quality Of Their Contributions. Malaysia Shows A Lower TC But Exceptionally High Average Article Citations, Indicating That Its Research Has A Great Impact, Albeit Less In Volume. Singapore's Unusually High Average Article Citations Demonstrate The Extraordinary Effect Of Its Research Per Publication.

Country	TC	Average Article Citations
USA	927	23.2
AUSTRALIA	210	21
MALAYSIA	104	34.7
SINGAPORE	93	93
CANADA	55	18.3
GERMANY	27	9
SPAIN	19	9.5
FINLAND	15	15
NETHERLANDS	15	15
TUNISIA	15	7.5

Table 1: Top 10 Influential Countries in Segment Reporting Research (1983–2023)

3.2 Publication overall growth

Figure 2 depicts the frequency of publication of segment reporting literature by year from 1981 to 2023. Some years have been missing since there was no publication in 1982, 1983, 1985, 1987-1988, 1990, and 1992. The number of publications

has risen dramatically throughout the years. After 2015, there was a surge in segment reporting publications. The most successful publication years were 2018 and 2022 when the most papers (10) were published.

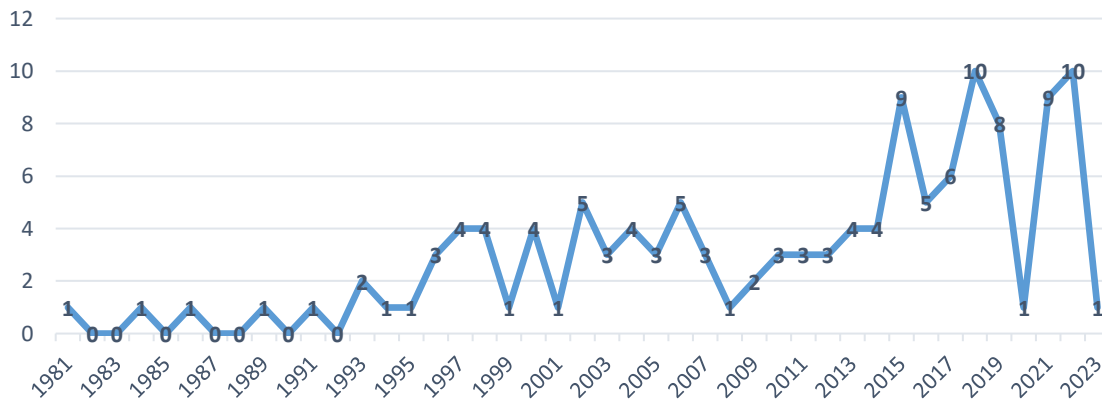


Figure 2. Publications Trend on Segment Reporting Research (1981–2023)

3.3. Top Ten Influential Research Journals

Table 4 lists the top ten research journals in the field of segment reporting literature. It demonstrates that four journals had more than five publications. With 14 publications, the journal

"Journal of International Accounting, Auditing, and Taxation" leads the chart, followed by the International Journal of Accounting with 8 articles.

Sources	Articles
JOURNAL OF INTERNATIONAL ACCOUNTING, AUDITING AND TAXATION	14
INTERNATIONAL JOURNAL OF ACCOUNTING	8
ACCOUNTING HORIZONS	6
JOURNAL OF BUSINESS FINANCE AND ACCOUNTING	6
ACCOUNTING REVIEW	5
JOURNAL OF ACCOUNTING RESEARCH	5
JOURNAL OF ACCOUNTING, AUDITING AND FINANCE	5
JOURNAL OF CORPORATE ACCOUNTING AND FINANCE	5
JOURNAL OF ACCOUNTING AND PUBLIC POLICY	4
JOURNAL OF APPLIED BUSINESS RESEARCH	4

Table 2 Most Influential Research Journals

3.4. Keyword Analysis

Figure 3 and 4 describe about authors' keyword analysis, Co-occurrence analysis is a sort of bibliometric mapping that seeks to determine the frequency and patterns of co-occurring terms or keywords in a collection of scholarly literature. This can be accomplished by comparing the frequency with which each term or keyword appears in the literature. This strategy helps find the most important themes or ideas being discussed and illuminating the thematic organization of a research field.

Multiple keywords were considered to analyze co-occurrences, with a minimum requirement of at least 5 occurrences for each

term. Figure 4 visually represents the outcome, indicating that 54 keywords successfully met the specified cutoff out of a total of 260 keywords. The size of the ball in the figure signifies the strength of the keyword network, while different shades within the ball represent distinct clusters. Notably, the top five keywords identified in the analysis are "Segment reporting", "IFRS 8", "Management approach", "Financial reporting" and "Disclosure" in descending order. Figure 3 presents a WordMap showcasing potential combinations relevant to the research inquiry to illustrate the associations between keywords further.



Figure 3 Word Cloud

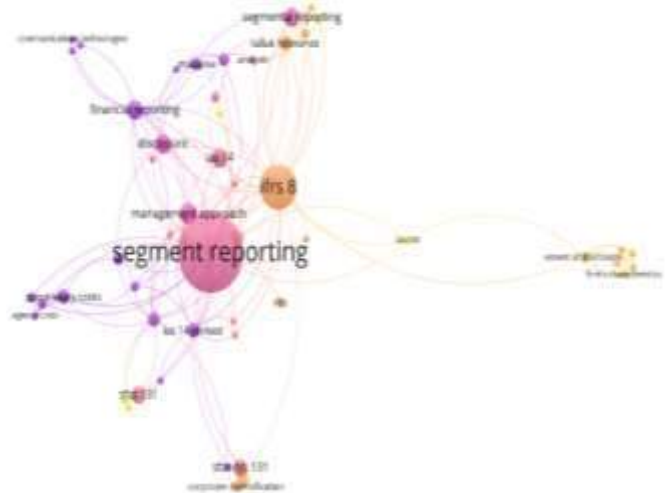


Figure 4. Co-occurrence network of author keywords

3.5. Three-Factor Analysis - Sources, Keywords and Countries

Figure 5 provides a visual representation of the interplay across subject topics (keywords), sources, and countries in the research on segment reporting. The analysis highlights the top five subject areas, including segment reporting, IFRS 8, Proprietary costs, SFS 131, geographical disclosure, and their relationship with five key sources: Journal of International Accounting, auditing, and taxation, International Journal of

Accounting, Journal of business finance and accounting, accounting horizons, Journal of accounting, auditing, and finance. Notably, these subject matters exhibit a strong connection with the two most influential nations in this field, USA and the Australia. This visualization underscores the significant contributions made by these countries in terms of research output related to segment reporting, emphasizing their prominence in the field.

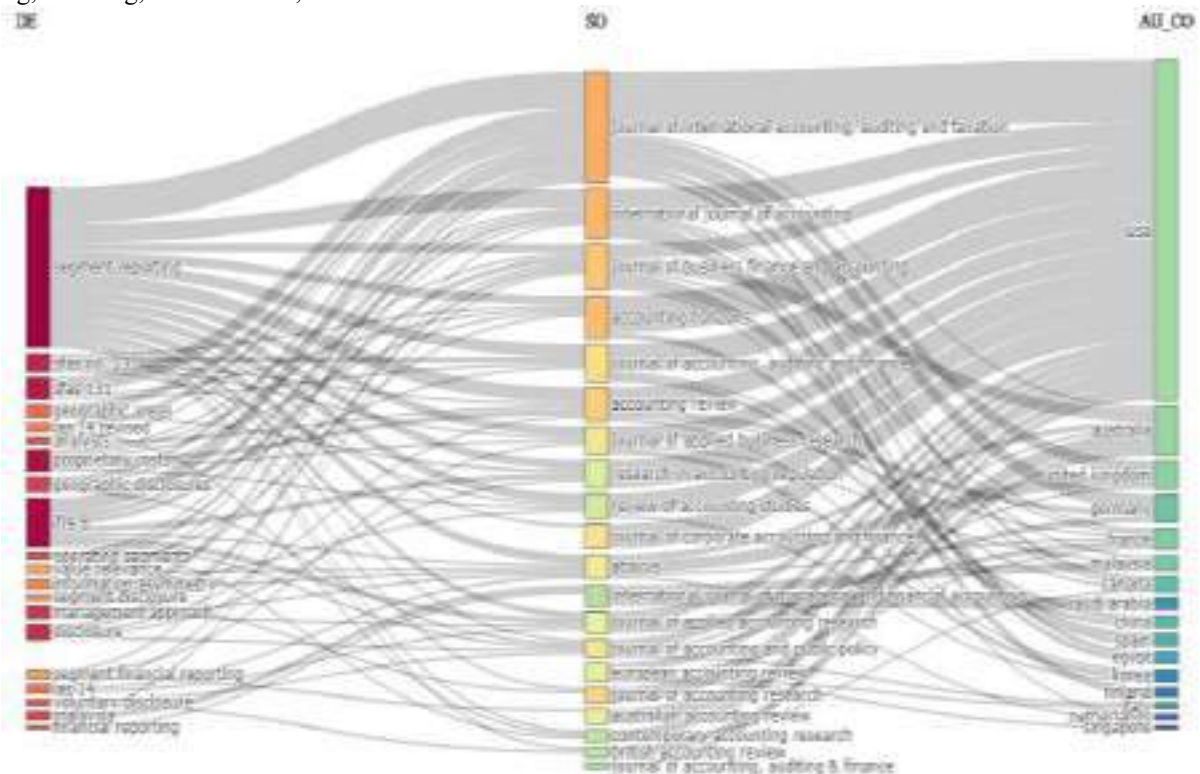


Figure:5 Three-Factor Analysis - Sources, Keywords and Countries



3.6. Countries of Corresponding Authors

This table presents a comparative overview of segment reporting research articles collaboration across various countries. It includes data on the number of articles focusing on single-country perspectives (SCP) and multiple-country perspectives (MCP), their frequency within the dataset, and the MCP ratio. Notably, the USA has the highest number of articles (40) with a moderate MCP ratio (0.175), while Australia and the

United Kingdom exhibit a more substantial interest in cross-country analysis with higher MCP ratios (0.2 and 0.6, respectively). Conversely, France primarily concentrates on its own practices, Canada emphasizes cross-country studies (MCP ratio of 0.666), and Saudi Arabia exclusively explores MCP. These figures collectively illustrate the global landscape of segment reporting research and the varying international perspectives adopted by researchers in different countries.

Country	Articles	SCP	MCP	Freq	MCP Ratio
USA	40	33	7	0.3125	0.175
AUSTRALIA	10	8	2	0.078125	0.2
UNITED KINGDOM	5	2	3	0.0390625	0.6
FRANCE	4	4	0	0.03125	0
CANADA	3	1	2	0.0234375	0.666
GERMANY	3	3	0	0.0234375	0
MALAYSIA	3	3	0	0.0234375	0
SAUDI ARABIA	3	0	3	0.0234375	1
CHINA	2	1	1	0.015625	0.5
SPAIN	2	2	0	0.015625	0

Table 3 The Intra-Country (SCP) and Inter-Country (MCP) Collaboration Indices During 1982–2023

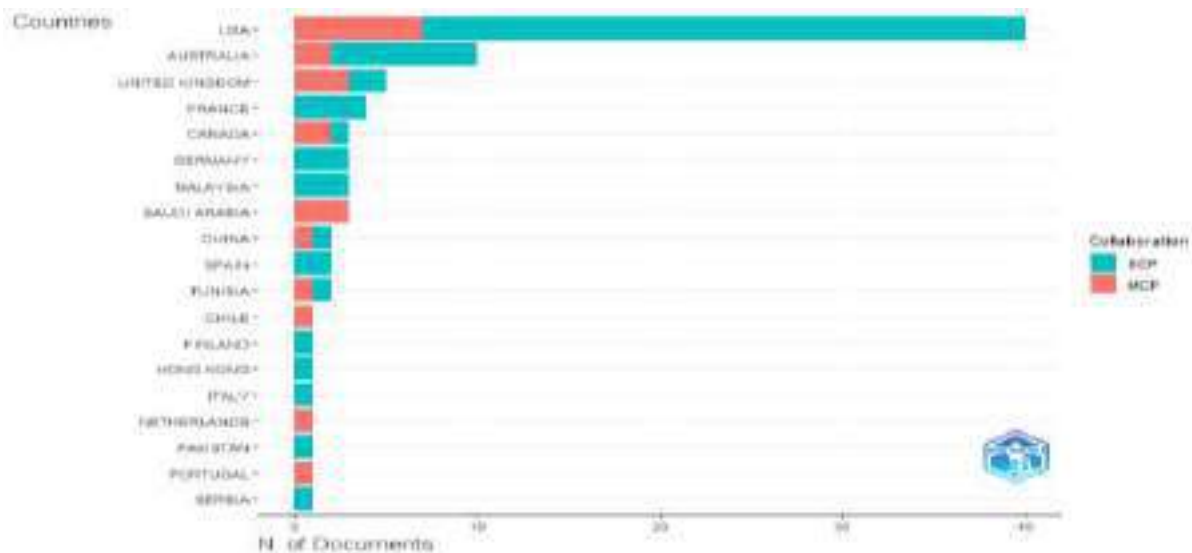


Figure:6 Corresponding author's country. Intra-country (SCP) and inter-country (MCP) collaboration (2017-2023)

3.7 Most Local Cited Sources

Table 4 presents a comprehensive compilation of academic journals and the corresponding count of articles about segment reporting referenced inside each journal. This study provides valuable insights into the prominent publications within the area, highlighting the Journal of Accounting Research as the most influential with 520 cited articles, closely followed by The

Accounting Review with 403. These statistics underscore the significance of these scholarly journals in segment reporting research while also providing insights into other noteworthy publications in this academic domain, like the Journal of Accounting and Economics, Accounting Horizons, and Journal of Financial Economics, among others.



Sources	Articles
JOURNAL OF ACCOUNTING RESEARCH	520
THE ACCOUNTING REVIEW	403
JOURNAL OF ACCOUNTING AND ECONOMICS	289
ACCOUNTING HORIZONS	154
JOURNAL OF FINANCIAL ECONOMICS	122
JOURNAL OF INTERNATIONAL ACCOUNTING	108
CONTEMPORARY ACCOUNTING RESEARCH	85
REVIEW OF ACCOUNTING STUDIES	82
JOURNAL OF BUSINESS FINANCE & ACCOUNTING	81
JOURNAL OF FINANCE	78

Table:4 Most local Cited Sources

3.8 Source Local Impact

The data shown in Table 5 offers significant insights into the local impact of scholarly papers in segment reporting research. The metrics examined in this study include the h-index, g-index, m-index, total citations (TC), number of publications (NP), and the starting year for segment reporting-related publications (PY_start) for each journal. These measures together assess the influence, citation performance, and historical engagement of the journals within the discipline. For

instance, the Journal of International Accounting, Auditing, and Taxation has achieved a noteworthy h-index of 9, which signifies a substantial scholarly impact within the academic world. In contrast, the Accounting Review distinguishes itself by having the most significant total amount of citations (431) among journals, which signifies its considerable influence in the field of segment reporting study. Researchers can use this table to differentiate prominent journals and evaluate their significance in accounting research.

Element	h_index	g_index	m_index	TC	NP	PY_start
JOURNAL OF INTERNATIONAL ACCOUNTING, AUDITING AND TAXATION	9	14	0.321	256	14	1996
INTERNATIONAL JOURNAL OF ACCOUNTING	6	8	0.222	192	8	1997
JOURNAL OF BUSINESS FINANCE AND ACCOUNTING	5	6	0.192	125	6	1998
ACCOUNTING HORIZONS	4	6	0.166	255	6	2000
ACCOUNTING REVIEW	4	5	0.210	431	5	2005
JOURNAL OF ACCOUNTING RESEARCH	4	5	0.142	779	5	1996
AUSTRALIAN ACCOUNTING REVIEW	3	3	0.176	45	3	2007
EUROPEAN ACCOUNTING REVIEW	3	3	0.15	263	3	2004
JOURNAL OF ACCOUNTING AND PUBLIC POLICY	3	4	0.075	49	4	1984
JOURNAL OF ACCOUNTING, AUDITING AND FINANCE	3	5	0.166	160	5	2006

Table:5 Source Local Impact



3.9 Annual Citation

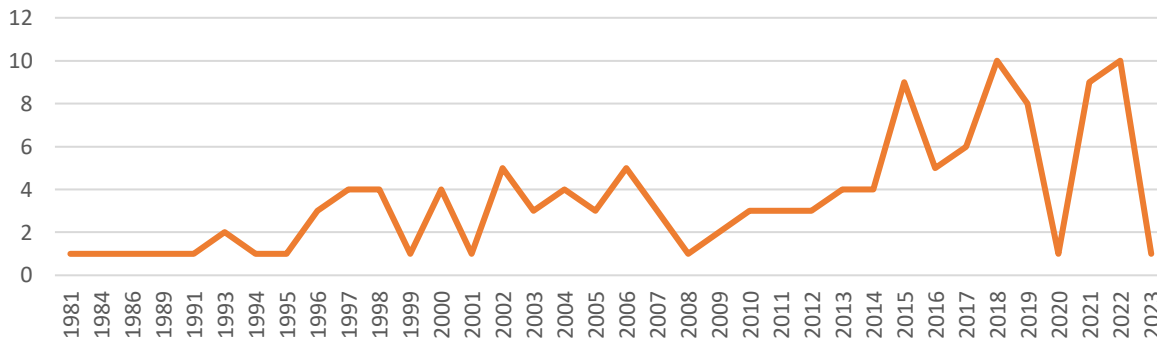


Figure:7 Annual Citation Pattern

The Figure 7 offers a chronological account of yearly citations for works pertaining to segment reporting, illustrating the frequency with which scholarly investigations in this domain have been referenced over the period spanning from 1981 to 2023. Researchers can use it to spot trends, evaluate the effects of particular articles or years, and track periods of rising interest in segment-reporting research. Notably, there has been a noticeable increase in citations between 2018, 2021, and 2022, which suggests a continued significance and focus on this particular field of research.

4. DISCUSSION & CONCLUSION

The study uncovers various noteworthy patterns in segment reporting (RQ1) practices. To begin with, it is evident that there has been a significant rise in the number of published works and citations about sector reporting since the onset of the 21st century, particularly with a marked upsurge observed following the year 2015. This observation indicates an increasing level of interest and acknowledgment of the significance of segment reporting within the field of accounting study. 2018 and 2022 are notable for their high volume of published articles, suggesting a significant surge in research effort during those timeframes. The observed phenomenon can be ascribed to the progressive development of accounting standards; more excellent practice has stimulated greater scrutiny regarding the practices employed in segment reporting.

Numerous writers and scholarly journals have made significant contributions (RQ2) to the domain of segment reporting practices. The "Journal of International Accounting, Auditing, and Taxation" is a prominent journal in this field, having published 14 articles demonstrating its substantial influence on the existing body of literature. The "International Journal of Accounting" is highly regarded in the academic community, having published eight articles. Significant emphasis has been devoted to widely referenced studies that examine the influence of accounting standards, such as SFAS No. 131, and competition on the decision-making process of segment reporting. This highlights the importance of regulatory changes and market dynamics in defining practices related to segment reporting. Examining nations of corresponding authors (RQ3)

uncovers intriguing trends regarding authorship and collaboration. The United States of America (USA) demonstrates a prominent position regarding the quantity of segment reporting articles. However, it is noteworthy that the USA also displays a comparatively lower ratio of multiple-country perspective (MCP), suggesting a considerable emphasis on domestic segment reporting practices. On the other hand, it is noteworthy that nations such as Australia and the United Kingdom demonstrate a heightened inclination for cross-country analysis, as evidenced by their comparatively larger MCP ratios. Canada has a noteworthy MCP ratio of 0.666, indicating a significant focus on examining segment reporting across various countries within Canadian studies.

However, it is crucial to recognize specific constraints inherent in this study. This study primarily utilizes data obtained from the Scopus database, which, although comprehensive, may not contain all pertinent articles on the subject. In conclusion, The bibliometric analysis proposed in this study provides a significant resource for scholars, policymakers, and practitioners seeking insights regarding the progression of segment reporting research.

5. REFERENCES

1. Aboud, A., Roberts, C., & Hussainey, K. (2019). *The impact of IFRS 8 on segment information quality in the European Union: a multi-dimensional analysis*. *International Journal of Disclosure and Governance*, 16(2-3), 100-115. <https://doi.org/10.1057/s41310-019-00059-9>
2. Aboud, A., Roberts, C., & Mansour Zalata, A. (2018). *The impact of IFRS 8 on financial analysts' earnings forecast errors: EU evidence*. *Journal of International Accounting, Auditing and Taxation*, 33, 2-17. <https://doi.org/10.1016/j.intaccudtax.2018.08.001>
3. André, P., Filip, A., & Moldovan, R. (2016). *Segment Disclosure Quantity and Quality under IFRS 8: Determinants and the Effect on Financial Analysts' Earnings Forecast Errors*. *International Journal of Accounting*, 51(4), 443-461. <https://doi.org/10.1016/j.intacc.2016.10.008>
4. Barneto, P., & Ouvrard, S. (2015). *Is the firm's business model related to segment reporting? Research in*



- International Business and Finance*, 35, 122–137.
<https://doi.org/10.1016/j.ribaf.2015.06.001>
5. Booth, A., Papaioannou, D., & Sutton, A. (2012). *Systematic Approaches to a Successful Literature Review (Issue January)*.
 6. Bens, D. A., Berger, P. G., & Monahan, S. J. (2011). *Discretionary Disclosure in Financial Reporting: An Examination Comparing Internal Firm Data to Externally Reported Segment Data*. *SSRN Electronic Journal*, 09. <https://doi.org/10.2139/ssrn.1476488>
 7. Birt, J., & Shailer, G. (2011). *Forecasting confidence under segment reporting*. *Accounting Research Journal*, 24(3), 245–267. <https://doi.org/10.1108/10309611111186993>
 8. Blanco, B., Lara, J. M. G., Carlos, U., Madrid, I. I. I. De, Jel, M., Barroso, A., Cohen, D., Osmá, B. G., Gassen, J., Gietzmann, M., Bazo, J. G., Giner, B., Healy, P., Mora, A., Olsson, P., Peñalva, F., Rodríguez, R., & Smith, D. (2015). *Journal of Business Finance & Accounting*, 42(3/4), 367–411. <https://doi.org/10.1111/jbfa.12106>.This
 9. Cereola, S. J., Nichols, N. B., & Street, D. L. (2017). *Geographic segment disclosures under IFRS 8: Changes in materiality and fineness by European, Australian, and New Zealand blue chip companies*. *Research in Accounting Regulation*, 29(2), 119–128. <https://doi.org/10.1016/j.racreg.2017.09.003>
 10. Cereola, S. J., Nichols, N. B., & Street, D. L. (2018). *The predictive ability of entity-wide geographic sales disclosures: IAS 14R versus IFRS 8*. *Research in Accounting Regulation*, 30(2), 121–130. <https://doi.org/10.1016/j.racreg.2018.09.002>
 11. Kajüter, P., & Nienhaus, M. (2017). *The Impact of IFRS 8 Adoption on the Usefulness of Segment Reports*. *Abacus*, 53(1), 28–58. <https://doi.org/10.1111/abac.12105>
 12. Kang, H., & Gray, S. J. (2014). *Corporate financial reporting in the bric economies: A comparative international analysis of segment disclosure practices*. *International Finance Review*, 15, 233–254. <https://doi.org/10.1108/S1569-376720140000015010>
 13. Kang, H., & Gray, S. J. (2019). *Country-specific risks and geographic disclosure aggregation: Voluntary disclosure behaviour by British multinationals*. *British Accounting Review*.
 14. Lee, K. W., & Yeo, G. H. H. (2016). *The association between integrated reporting and firm valuation*. *Review of Quantitative Finance and Accounting*, 47(4), 1221–1250. <https://doi.org/10.1007/s11156-015-0536-y>
 15. Page, M. J., McKenzie, J. E., Bossuyt, P. M., Boutron, I., Hoffmann, T. C., Mulrow, C. D., Shamseer, L., Tetzlaff, J. M., Akl, E. A., Brennan, S. E., Chou, R., Glanville, J., Grimshaw, J. M., Hróbjartsson, A., Lalu, M. M., Li, T., Loder, E. W., Mayo-Wilson, E., McDonald, S., ... Moher, D. (2021). *The PRISMA 2020 statement: An updated guideline for reporting systematic reviews*. *The BMJ*, 372. <https://doi.org/10.1136/bmj.n71>



ABOUT THE METHOD OF ACTUALIZATION OF WINGED WORDS

Isakova Guzalkhon Ne'matovna

Doctor of Sciences Philology, Docent, Uzbekistan State Institute of Arts and Culture

ABSTRACT

The way of updating the units plays an important role in the stylistics. This method is characterized by the perception of meaning in two different ways: in the form of expression and in the form of free associations. The extent to which the actualization method is used is discussed below using the example of winged words in Latin and French. It is analyzed using examples from literary texts.

KEY WORDS: *stylistic transformation, actualization, catchword, phrase, free combination, meaning, semantic change, structural change, analysis.*

INTRODUCTION

In their works, the authors use various stylistic techniques to create humorous, comic situations within a certain text. This state can manifest itself in various forms: cheerfulness, secret laughter, light humor, sarcasm, irony and sarcasm.

We know that there are many types of wordplay in language. One of them is the actualization of phraseological units. This technique differs from other techniques in satirical and comic productivity. In this regard, the study of I.V. Abramets includes: 1) cooperation, i.e. the use of both words and phrases in one text; 2) promotes reliance on authenticity, that is, on the basis of two semantic processes, such as the transfer of certain phraseological components from the figurative plan to authenticity [1, 1969].

Linguist A.V. Kunin expressed his progressive views on actualization. According to him, actualization is based on two different concepts - the use of a phraseological unit in the figurative and the original sense, or in the original sense of one or more components of the phrase [2, 1974].

Consequently, actualization is a stylistic method in which meaning is understood in two different ways: meaning in the form of a phrase and acceptance in the form of an arbitrary combination. In the phraseological unit used in this method, there is a change both semantically and structurally. The semantic change in it is explained by the appearance of ambiguity. It is understood that the actualization of phraseological units occurs at the speech level, and not at the language level.

ANALYSES OF APPROPRIATE LITERATURE

In studies of phraseological units, it is noticeable that the method of actualization is given in a slightly expanded form. In particular, A.E. Mamatov, studying the phraseological

expressions in the French language, on the basis of analyzes interpreted four different views of the method of actualization and expressed consistent views [3, 1989: 82-88].

Research on the analysis of the composition of phraseological units of the Uzbek language also shows several types of actualization of phrases. For example, in the monograph of A.Mamatov and B.Boltaeva: 1) the use of a compound in the form of a phrase and a free compound within a text; 2) actualization of one or several components of the phrasal verb; 3) strengthening the meaning of the phrase on the basis of various phrases; 4) types such as the use of phrases or components in specific texts to actualize common language phrases are explained [4, 2018].

ANALYSES AND RESULTS

As we explore winged words in Latin and French, we try to shed light on the extent to which the actualization method occurs on the basis of analyzes.

In winged words, the use of both compound expressions and free combinations within a text is observed: *La foi qui transporte (soulève) les montagnes lui donnait des ailes.* (J.L.Curtis, Les jeunes hommes).

In this case, *La foi qui transporte (soulève) les montagnes*, that is, the second part of the sentence (*lui donnait des ailes* - gave him wings) provides 2 different meanings of the phrase *Moves the Mountain of Trust*, and the actualization takes place in the full form of the phrase.

In winged words, the implementation of this technique seems to have become widespread by updating one or more of the components of the phrase. This situation is mainly used to create humor and increase sensitivity: *Le Plaisir de se prendre en cogitation sur des pensées morales, disputer avec soi, remettre en question les problèmes du monde que la force a*



tranchés, Passer le Rubicon ... non, rester sur le bord ... Passerons-nous ou non? (Rolland, Colas Breugnon).

Passer le Rubicon, which is used in context, means to cross the Rubicon "to take a decisive action, to take an irreversible step, to make an important decision." At this point, the understanding of this winged phrase even in the sense of free association is formed on the basis of the application of the *passer* component in the original sense: (...) Crossing the Rubicon ... no, staying on the shore ... Shall we pass or not? As a result, the phenomenon of actualization is manifested.

A similar situation can be observed in the following example: *Je ne suis pas heureusement comme Tite, ce fainéant Romain, qui geignait toujours qu'il avait perdu son temps. Je ne perdis rien. Je suis content de ma journée, je l'ai gagnée.* (Rolland, Colas Breugnon)

As you know, *Amis, j'ai perdu ma journée (mon temps)*, i.e. *Friends, I lost a day*, the winged phrase applies to a day or time spent in vain, without doing anything useful. In the context, as a result of the application of this phrase in the original sense of the components *perdre, journée* (... *I have not lost anything. I am happy with my day, I spent it useful*) there is a phenomenon of actualization.

In these places the winged component structure of the word is used without modification, and its actualization appears to have been effected through the basic components of the phrase.

In many cases, actualization is also achieved through the introduction of a component-specific identifier for the occurrence of one of the components of the winged expression in the original sense. For example, *Au revoir, étrange ami et inconnu, c'est bien de partir et je vous estime avec tendresse ... Mais revenons à nos blonds moutons.* (Groult, Le journal a quatre mains)

In the example given, the phrase *Revenir à ses moutons* (literally: return to one's sheep) includes adjectives (*blonds*) and means the phrase as a free combination, with the mention of "returning to one's subject". In this case, the component is concretized using a simple input, i.e. quality, and on this basis the actualization is achieved.

Or: *Mais? Dis-nous? Traître, est-ce par peur ou par cupidité que tu fais ce honteux métier? Que veux-tu qu'on te mette au cou? Quel écriteau? Voilà l'homme qui vendait sa ville pour trente deniers... Pour trente deniers? Pas si sot? Les prix ont augmenté depuis l'Isariote.* (Rolland)

We know that *Vendre pour trente deniers*, which means to sell for thirty silver coins, means "to betray treacherously." In the context, the addition of an adverb (*sa ville*) to this winged word and the use of its components in the form of a free combination also indicate an actualization: (...) Here is a man who sells his city for thirty dinars ... For thirty dinars? Isn't that stupid? After Iscariot, prices went up.

It seems that in the above contexts, actualization is achieved as a result of the addition of simple additions to the phrase structure and the actual application of a component. The use of winged words in such a situation gives the text an additional sense of meaning, increases the expressiveness, emotionality in the text.

In many cases, it can be seen that the complex additions added to the phrase structure contribute to the actualization of the winged phrase.

A.V.Kunin observed in English materials that on the basis of complex entries there are transformational changes of different phraseological units, i.e. change of position, special expression, introduction of new words and phrases [2, 1974].

Below, we attempt to analyze how winged words in artistic texts undergo changes based on complex entries.

La foi de notre père n'était pas celle qui soulève les montagnes, mais elle était lourde et encombrante comme le Mont Blanc. (H.Bazin, La vipère au poings)

Here the phrase *Foi qui transporte (soulève) les montagnes*, derived from the sacred texts, is used in the case of complex entries with the addition of the component of trust (*la foi*), which is the basis of the context: *mais elle (la foi) était lourde et encombrante comme le Mont Blanc*. The result was a satirical joke.

Or: *Et c'est pourquoi Jean Lagarde, la rage au coeur, s'excusera auprès du père de la Morinière, ne reculera devant aucune platitude, buvant jusqu'à la lie la coupe de l'humiliation impuissante.* (J.L.Curtis)

In this example, the phrase *Boire la coupe (le calice) jusqu'à la lie* is used. The main component of "la coupe" is updated by a complex input (*la coupe de l'humiliation impuissante* - a weak cup of insult).

The following example shows the actualization of the same phrase in the elliptical form: *En attendant c'est moi qui passe par les trente-six volontés. Il faut boire la coupe. Je la boirai. J'en ai bu d'autres.* (R.Rolland, Colas Breugnon)

In this context, the author has managed to actualize the component "la coupe" on the basis of concretization, i.e. *Je la (la coupe) boirai. J'en (de la coupe) ai bu d'autres*. Also, the omission of the last part of the phrase *Boire la coupe (le calice) jusqu'à la lie* indicates that an ellipsis event occurred in it.

In some cases it can be seen that there is a very strong state of transformation, i.e. that all the components of the phrase are transposed, not just some of the components. But the central image is preserved: *Je tisse un fil et, ma propre Ariane, je le suis pour sortir de mon labyrinthe. Et voilà que je fais marche arrière, mon fil se relâche et je me perds, je perd le fil de ce roman qui devait faire sa pelote avec autre chose que le destin de quelques personnages.* (Elsa Triolet, Le Grant jamais)



The phrase *Le fil d'Ariane* (Latin: Filo Ariadne), used in this context, is relevant in both components. In this case, the context serves as a stylistic actualizer. Apparently, using the compound at the same time as a phrase and as a free word combination, concretizing several components of the phrase has a great stylistic effect. Such use of expressions usually gives an ironic tone to the contrast. Demonstration of the original meaning of the components is done by repeating the component or using rhymes. Giving the original meaning of the components of the unit provides a further revival of the phrase.

Just like phrases, the meaning of existing winged words can also be actualized by adding another winged word or free phrase to the context. In this case, of course, the phrase or free phrase used is close to the meaning of the winged word in the context. Based on this, an enhancement in the general sense of the context, an increase in imagery, and an increase in comic productivity are achieved.

For example: *L'homme ne dira plus "Le maître l'a dit". L'homme est émancipé de l'homme. L'homme dira: "La vérité dit, la science dit".* (Leroux) - Man no longer says, "Master said." Man is free from man. Man now says, "Truth speaks, science speaks".

Apparently, the meaning of the winged phrase Master said, which is used mainly in the cut-off sense, is reinforced by the use of free phrases such as truth tells, science says. In the context, the development of science, the truth, the increase of transparency, figuratively reveals that the person is now protected from blindly following someone else. In addition to achieving meaning here, stylistic productivity has also been increased.

It can also be seen that the actualization event is also performed by using the antonym form of the existing component in the phrase: *Lancelot, elle alouette, volait en chantant, et ses longs cheveux au vent semblaient dire: Ralliez-vous à mon panache noir.* (Cesbron, Les innocents)

Actualization in this context was accomplished by using the antonym variant of the blanc component in the phrase (*Ralliez-vous à mon panache blanc*). In this case, the black hat (panache noir) is a stylistic actualizer.

Or: *Le gros loup allemande déguisé en Mère-Grand de l'Europe commence à montrer patte noir.* (Groult, Ibid)

The *Montrer patte blanche* used in the example (literally: to show the White Hoof), i.e. the use of the antonym variant of the *blanche* component in the phrase Say the Password, acquires a completely different meaning and creates a bright expressiveness.

CONCLUSION

As a result of the analysis, it can be said that the method of actualization in winged words can be implemented through different appearances. To do this, first of all, the context that ensures that the winged word is understood in both the

figurative and the original sense plays an important role. The fact that one or more components of a winged phrase come in the original sense or are repeated with the help of various rhymes, concretizing the components with the help of descriptive additions also creates actualization. Also, replacing a component in a winged word structure with an antonym variant also leads to two different interpretations of the phrase, and actualization is observed. It is observed that the actualization of winged expressions often occurs in conjunction with other methods of transformation.

REFERENCES

1. Abramets I.V. *Semanticheskie osnovy nekotorykh priemov preobrazovaniya frazeologicheskikh edinit (na materiale russkikh satiricheskikh zhurnalov 80-h godov 19 v.): avtoref. diss. kand. filol. nauk.* – Samarkand, 1969. – 19 s.
2. Kunin A.V. *Dvoynaya aktualizatsiya kak ponyatie frazeologicheskoy stilistiki.* – «Inostrannyye yazyki v shkole». 1974, №6.
3. Mamatov A.E. *Ocherki po frantsuzskoy frazeologicheskoy stilistike.* – Tashkent: "Ukituvchi", 1989. – B. 82-88.
4. Mamatov Abdugafur, Boltaeva Barno. *Frazeologik birliklarning lingvomadaniy va semantik-pragmatik tadkiki. Monografiya.* – Zhizzah, 2018.
5. *Uzbek tilining izohli lugati. 1-5-zhildlar. "Uzbekiston milliy entsiklopediyasi" Davlat ilmiy nashriyoti.* – Toshkent, 2006-2008.
6. Shulezhkova S.G. *Krylatye vyrazheniya russkogo yazyka, ih istochniki i razvitiye.* – Moskva: Azbukovnik, 2002. – Str.211.
7. *Le Petit Larousse illustré. Dictionnaire encyclopédique.* – Paris, 1993.



WAYS OF ENTRY OF GREEK-LATIN TERM-ELEMENTS IN ENGLISH HISTOLOGICAL TERMINOLOGY

Daulanova Xolida Iskandarovna

Researcher of Uzbekistan National university named after Mirzo Ulugbek

ABSTRACT

Histological terms are the least studied and still insufficiently regulated area of the terminological lexicon of medical and biological sciences. This article highlights the specific aspects that determine the appearance and use of histological terms in English. In order to clarify the characteristics of the introduction of Greek-Latin term-elements into English histological terminology at the initial and modern stages, the principles of international term creation are discussed.

KEY WORDS: *terminology, medicine, histology, antiquity, Greek-Latin, term- element, English language, acquisition.*

INTRODUCTION

Terminology as the basis of professional lexicon attracts the attention of many scientists from year to year. This is an indication of the importance of science in current society. With the development of sciences, the problem of regulating its terminology is becoming more relevant, especially in the medical-biological sciences, where several thousands of terms are used and characterized by complexity of understanding and versatility. Histological terms are the least studied and still insufficiently regulated area of medical-biological science terminologists. The relevance of research work on the histological terminology of the English language is very important not only for linguistic scientists, but also for medical workers.

LITERATURE REVIEW

In scientific researches, it has been given that the construction of a term based on Greek-Latin term-elements in new languages depends on at least two factors. For example, N.V.Vasilyeva says: "Firstly, in this case, the general predisposition of the content of each dictionary to foreign languages, which in turn is associated with the historical and cultural background of the language, and it determines the external aspect of analysis; secondly, the terminology of a particular scientific science is associated with the peculiarities of its formation, since the formation of each terminological system can be characterized by a different tendency and relationship to the vocabulary of a common language, and this represents its internal aspect".

According to the assertions of some researchers, ancient scientific texts cannot be approached with modern criteria, it is not necessary to look for a special nominative term fund that distinguishes them from words in general, which has the means of meaningfulness, relative stagnation, making a special word. Terminology of ancient texts, according to S.S.Averinsev: "It is *in statu nascendi*, i.e. "initial state terminology" where each word is pulled before the reader's eyes for terminological use of

everyday life and still vibrates like a newly caught fish" [1, 41-81].

The processes of formation of medical terminology can be said to have been studied much more deeply. For example, M.N.Chernyavsky argues that the scientific revolution of the 17th century, characterized by the formation of new scientific disciplines and fundamental scientific directions and leading to the creation of many new terms, caused the rapid development of medical science, and that from the end of the Renaissance, the language of medicine gradually became more adapted to the needs of the development of vibrant national languages [7, 411-425].

RESEARCH METHODOLOGY

New age terminology inherits not the principle of converting concepts from ancient languages into terms, but the units that are currently needed to create new terms, and some term-system – defining-word-making models, and in this way new terms are still being created.

The "live Latin" of the Renaissance, which embodied humanistic traditions in the activities of the Latin language, was marked by the Cicero language and therefore did not include words from other languages. The medieval lot of Scholastic science, on the other hand, freely introduced and absorbed Greek elements. Some similarities are observed here, the process of making modern terms based on Greek-Latin term-elements. In either case, it is clear that artificial language materials that allow different language combinations to be made are referenced, but not desemanized, but carry a certain semantic load, since they are somehow related to live language. Modern terminology receives from ancient languages not only specific elements and ready-made models, but also certain freedom of combining elements when creating new words.



ANALYSIS AND RESULTS

Below we will try to highlight specific aspects of histology that determine their appearance and application in English using the example of basic concepts and terms. At the same time, the main focus is on the initial and modern stage of the inclusion of Greek-Latin term-elements in English histological terminology. To clarify the specifics of this process, the principles of term creation in the sources of International term-elements are touched upon.

It is known that Latin prevailed until the 16th century, when it was considered the international written language of science. In the English scientific language, which is just being formed in the 16th century, a specific and contradictory situation arises. On the one hand, there was a great interest in the ancient scientific heritage, on the other - a sharp decline in the role of Latin and, as a privileged means of expressing the achievements of scientific thought, Latin began to lose its position. The process is also further complicated by the shift of old French to English influenced by the Norman conquerors (11th-14th centuries).

The problem of the collision of the English language with Latin B.N.Yarveva comments: "In the 16th century, English was not in the place of Latin in some traditional areas... in the Renaissance, the volume of new ideas and concepts open to all areas of human knowledge, new horizons of science, demanded a new weapon of thinking that was not connected with traditions. The Latin language, legislated by centuries-old medieval rhetoric, could not meet the new requirements..." [8].

On the other hand, English of the time did not contain all the riches of methods of expressing scientific thought, as in Latin. The lexical composition of the English language had to expand so that it became a means of expressing scientific conceptual and logical systems. The need of the language of science for new lexemes was great, which could be satisfied at the expense of internal possibilities, that is, the emergence of new meanings of existing lexemes, or external, that is first of all, the assimilation of words from Latin and Greek. Assimilation from classical languages was considered by English scientists of the 16th century as an inevitable phenomenon in the process of forming a terminological dictionary of the national language.

Reasons for the origin of scientific English from Latin and Greek, according to T.Savory, first of all, when Latin was used as a living language for a long time after the fall of the Roman Empire, the second reason is due to the peculiarities of Latin and Greek. The Greek-language sources of Athenian authors were distinguished by their beauty and elegance, which made this language an unattainable means of expressing thought and the most sublime form of human speech.

Latin also has many other unique qualities. Cicero's eloquence, Livy's grandeur, Gorky's poetic imagination possess the power and clarity inherent in perfect Latin. The short, succinct and sharpness of Latin sentences are qualities that are highly valued by all scientists in their scientific work.

T.Savory believes that English science can be divided into the following categories: 1) acquired; 2) intruded unchanged (imported); 3) discovered [6].

The author includes in the first category words from everyday speech, such as *berry*, *current*, *salt*, and words with a special history. According to him, the word *parasite* entered the English language from Greek in the 16th century as an adjective sentence, and originally meant "one who eats next to". It later lost its original original meaning and was used as an offensive word among the general public in the sense of "eating at someone else's expense". In medical terminology, however, the word appeared almost two centuries later, in 1727, in the sense of "organism living at the expense of another".

It can also be said that the *corpuscle* used in histological terminology is "small particle" or "small body" - in 1660, "particle (protoplasmic cell) of blood, lymph" - in 1741; from Greek *aither* "burn" - *Ether* "upper pure air" - in 1398, ether (chemical substance) - in 1757.

The second category is words that have entered unchanged from Latin and Greek. In this regard, G.Brandly, claims that the vocabulary content of the entire Latin language began to penetrate into English. Because Renaissance Scholars made extensive use of Latin dictionaries, and countless words were mastered directly. Greek words that entered unchanged did not form as many numbers as Latin words, while Greek words and elements entered English primarily through Latin.

The third category is explained by the fact that English scientists are words of their own creation using Greek and Latin. This was due to the rapid development of Science and the fact that new European languages were ahead of development. In English, such a wide flow of elements of classical languages was made on the basis of the previously entered assimilative words. The Greek and Latin words created in this way have entered the scientific texts of new languages. To linguistically study the history of medical terms, it is necessary to refer to the large Oxford Dictionary of the English language. Because in it the meanings of each word in English are given by the period. From this method E.Andrews used medical-biological terminology in the study of the history of development [2].

The roots of the origin of English medical language go back to the languages of antiquity. These languages have had a great influence on medico-biological terminology for many centuries and continue to this day. Greek medicine was strongly influenced by the Egyptian, Phoenician and Cretan-Mycenaean cultures, which were at a higher stage of development than the medical knowledge of the Ellins. The use of Cretan words to this day can be traced back to it is possible to know through the terms *porphira*; *elaia - olive, oil*; *toxon*, which are listed in the E.Andrews source.

The Greek medical language of the period of the physicians of Alexandria were Herophilus and Erasistratus (about 300-250 BC) is a norm of harmony and scientific accuracy, even from



the point of view of modern science. Greek had a strong influence on the medical language of the Romans. Latin is a language A.C.Celsus, has become a classic of medical science, absorbing the wealth of Hippocrates, the language of the Alexandrian healers.

Medical English borrowed Greek elements from Latin. Latin and latinized Greek forms were easily assimilated into English, and their assimilation was often limited to the loss of suffixes. In fact, in English medical terminology, the amount of words in the original English language is very small, but the Greek and Latin words of appropriation are so adapted to the English language that they are perceived as if they were the original English words.

E.Andrews suggests that English medical hellenisms can be divided into the following groups: 1) unaltered Greek words, 2) Greek words of latinized form, 3) Greek words without suffixes.

The first group contains words that do not retain their original meaning. The English medical language has acquired only the specific meaning of these words, and in this way has achieved its own linguistic wealth, adding to the English language what it lacks, that is, a special identity. Examples of this include *nucleus*, *nucleolonema*, *endocytosis*, *cytoskeleton*, *apoptosis*, *endomitosis*, *meiosis*, *parenchyma*, *aplasia*, *hyperplasia*, *hypoplasia*, *metaplasia*, *hypertrophica*, *hypotrophica*.

The second group is Greek words of latinized form (Greek suffixes are replaced by Latin suffixes). For example, *myocardium* – *myocardio* (Gr.), *periosteum* – *periosteon* (Gr.), *hypochondrium* – *hypochondrion* (Gr.) and others.

The third group is Greek words that have lost (or are unreadable-e) suffixes. From histological terms to this group: *cytoplasma* (Gr.) - *cytoplasm* (Eng.), *chromatinum* (Gr.) - *chromatin* (Eng.), *podosoma* (Gr.) - *podosome* (Eng.), *axonema* (Gr.)- *axoneme* (Eng.) can be cited.

It is noteworthy that when complex concepts had to be named, Greek had more advantages over Latin. This is evidenced by the dominance of Greek composites in English medical, since in Latin, in such cases, the assimilation of the Greek language prevailed. Many Greek composites do not have equivalents in Latin.

It can be said that the influence of the Latin language was strengthened by the time when medicine began to be studied in modern languages, that is, about two centuries ago. For example, in the early days of the creation of the «microscope», it was called differently in the sense of “sight tube”. In 1624 G.Galileo used a device of his own design, the “okkiolino” (ital. Occhiolino – a little eye). A year later, in 1625, the German botanist I.Faber introduced the term “microscope” into consumption based on the elements of the ancient Greek term-elements, and this form became widely popular.

According to E.Andrews, this was the case with almost every neologism in medical terminology. The author explains this by the fact that over the past two centuries almost every reader has been familiar with the ancient heritage of Cicero, Vergilius, Caesar, Homer, Xenophon, not even a doctor, not looking for a name from the works of Celsus, Hippocrates or Galen. Accordingly, if a doctor turns to a dictionary in order to create a new term, then it can be a dictionary of classical Latin, the technique of which is not at all reflected in the medical language.

Looking at the history of histology, histology was created long before a microscope was invented yet. The earliest definitions of tissue are found in the work of Aristotle, Galen, Ibn Sina, Vesalius. In 1665 R.Guk introduces the concept of a cell and observes the cellular structure of certain tissues under a microscope.

It is known that bilingualism still existed in England at that time, with major scholars publishing their works in both English and Latin. The English physician William Garvey, founder of modern physiology and embryology, also published his famous work “Exercitatio anatomica de motu cordis et sanguinis in animalibus” (1628) in Latin.

The idea of the existence of invisible living things in nature arose among many scientists (Hippocrates –5th century B.C., J.Fracastro – 16th century, A.Kircher – 17th century). But there was no information to support this. A.Levenguk observes microbes under a microscope and presents an image of bacteria for the first time in 1683.

It is assumed that the classification and nomenclature of bacteria appeared two centuries before the emergence of the concept of the existence of human bacteria. These two centuries distinguish the period of A.Levenguk discovery and L.Pasteur, who made the greatest discoveries in microbiology, when bacteria began to be studied by as well as his contemporaries. Levenguk described and based on all the morphological types known to science today, namely coccuses, bacteria, spiral forms. He created the first classification of microorganisms.

The historical development of histology in general is studied in three periods: 1) the pre-microscope period; 2) the microscope period; 3) the modern period.

1. **The period prior to the creation of the microscope** is associated with the evolution of perceptions of human body structure, and covers the period from the 5th century BC to 1665.

2. **The microscope period** is from 1665, when the English physicist R.Guk begins with creating a microscope. The discoverer conducts biological research and uses the term “cell” (cellule) for the first time. And to the widespread use of this term is N.Gruning’s source on plants [4] was the reason. Currently, there are more than 30 medical terms in English made from the this word, which are: *host cell*, *killer cell*, *helper cell*, *memory cell*, *adherent cell*, *precursor/progenitor cell*, *companion cell*, *mucous cell*, *basket cell*, *clear cell*, *fat cell*, *ghost cell*, *prickle cell*, *taste cell*, *wandering cell*, etc.



We try to interpret “*stem cell*” etymologically as *root cell*. Since stem cells are currently very actively used in cosmetology and plastic medicine, the term has become widely popular. According to the sources of the English language, the emergence of this term cited in M.R.Santos X.Villenbring’s researches. They have expressed their views on the historical aspects of the emergence of the term «stem cell». The term “stem cell” has been used in the scientific literature since 1868 by the famous German naturalist and philosopher E.Haeckel. E.Haeckel attempts to create a phylogenetic tree-based faunal system that describes sequential descent to common ancestors in the process of animal evolution. In this context, E.Haeckel used “Stammzelle” (Germ. - stem cell) used the term to describe a unicellular organism, which he assumed all multicellular organisms evolved from [5]. E.Haeckel, in the 3rd edition of “Anthropogeny”, proposes to shift some categories from evolutionism (filogenesis) to embryology (ontogenesis), as well as refer to a fertilized egg as a “stem cell”. Thus, E.Haeckel used the term “stem cell” in two senses: to designate the unicellular ancestor of all multicellular organisms and to designate the fertilized egg that causes all cells of the multicellular organism.

3. The beginning of the **modern era** in histology dates back to the first period of application of electron microscopes, 1950. In this century, further improvement of the methodology continued, which led to the formation of histology in its current form. Modern histology is closely related to cytology, embryology and other sciences. Histology has developed issues such as the patterns and differentiation of the development of cells and tissues, adaptation at the cellular and tissue level, problems of tissue and organ regeneration. The achievements of pathological histology are widely used in medicine, which makes it possible to understand the mechanism of development of diseases and indicate methods of their treatment.

CONCLUSION

It seems that the roots of the origin of the English medical language go back to the languages of antiquity as Greek and Latin. These languages have had a great influence on medico-biological terminology for many centuries and continue to this day. To English medical terminology, they appear to have been largely unchanged, either in their original or latinized form of Greek words. Terms created by English scholars using Greek and Latin also make up a large number. In them, changes are observed in their appendages, while the Greek-Latin basis is preserved.

REFERENCES

1. Averinsev S.S. *Klassicheskaya grecheskaya filosofiya kak yavlenie istoriko-literaturnogo ryada // Novoe v sovremennoy klassicheskoy filosofii. – Moskva, 1979. – P. 41-81.*
2. Andrews E. *A history of scientific English: The story of its Evolution based on a study of Biomedical Terminology. – New York: Richard R.Smith, 1947. – 342 p.*
3. Vasil'eva N.V. *Greko-latinskije elementi v lingvisticheskoy terminologii: Avtoref. dis. ... kand. filol. nauk. – Moskva, 1983. – 24 p.*
4. Grew Nelemian. *The Anatomy et Vegetables Begun. -London: Printed for S.Hickman, 1672. -198 p.*
5. Haeckel E. *Anthropogenie / E. Haeckel. – 1st edn. – Leipzig: Wilhelm Engelmann, 1874; – 3rd edn., 1877.*
6. Savory T.H. *The Language of science. – London, 1953.*
7. Chernyavskiy M.N. *Kratkiy ocherk istorii i problemi uporyadocheniya medisinskoy terminologii // Ensiklopedicheskiy slovar' medisinskix terminov. – M., 1984. – T.Z. – P. 411-425.*
8. Yarseva B.N. *Razvitie natsional'nogo literaturnogo angliyskogo yazika. – Moskva, 1969. – 286 p.*



THE CONTENT OF THE DEVELOPMENT OF LITERARY COMPETENCES OF STUDENTS ON THE BASIS OF EXAMPLES OF WORLD LITERATURE

Bobonazarova Gulnoza Tolibjonovna

Teacher of Uzbekistan State Institute of Arts and Culture

ABSTRACT

Nowadays, interest in studying examples of world literature is growing. It is important to develop and improve literary competence in students by expressing their thoughts and opinions in the process of working on an literary work. This article discusses the conditions for improving students' social activities and developing their literary competence based on examples of world literature.

KEY WORDS: *world literature, competence, analysis, development, improvement, value, painting, emotional culture, literary feeling.*

INTRODUCTION

At the core of any educational system lies, along with the fate of the future generation, the expansion of their cognitive potential and its further improvement. In order to realize these aspects, the personal qualities and qualities of the younger generation are at the forefront. With the qualities of the growing young generation, the level of professional erudition directly depends on the type, size and quality of education given to them on this day. Today, the development of competencies in all learners and its improvement are carried out in all aspects of the educational sphere. Of course there will be hardships and difficulties in achieving a high level. Only a person who can overcome these difficulties can achieve high results. Therefore, the theory of the development of competencies is tirelessly progressive, and methods have been sought that respond to all students in one way or another. As a result of these studies, technologically advanced methods of the educational process have arisen.

LITERATURE REVIEW

Examples of world literature and their educational significance, analysis of works of art, various aspects of improving the peculiarities of the heroes of the work have been studied by a number of researchers. For example, educational manuals aimed at the study of masterpieces of world literature on the basis of each period, its notable aspects and the development of analysis of works of art shed light on theoretical data for students today to study works of art in masterpieces of World Literature in a broad and meaningful way [4].

According to Ibn Sina, only when students study together do they respect each other and provide mutual support in the study of Sciences. If the child is educated alone, then this will make him unhappy. Ibn Sina said, " the school is superior in that students always study the sciences there with a good mood and

passion, mastering the rules of etiquette, trying not to lag behind each other. Private conversations between them on various topics will help improve the advice of other people. Such communication makes them Friends", [2].

Scientific research has been carried out on the history of world literature and their study and on the development of the analysis of works through the use of modern methods of Education [8].

RESEARCH METHODOLOGY

The most important breadwinner for the development of artistic competencies in students is the value-oriented stage. The value-oriented phase requires students to decide on an axiological awareness and attitude towards spiritual heritage. In the process of studying world literature, students are scientifically substantiated by the need to develop an interest in the culture of the peoples of the world, their artistic values, in particular, works of high artistic painting of unparalleled value in national and world art. In this case, the main focus is on:

- 1) the essence, main signs of artistic values, their close connection with certain historical, aesthetic concepts;
- 2) the value and functional significance of artistic values as national wealth and world masterpieces;
- 3) criteria for evaluating works of artistic painting (beauty, ascendancy, artistry);
- 4) the algorithm for perceiving, mastering, evaluating works of painting (rare examples of Fine Art) among high artistic values.

ANALYSIS AND RESULTS

On the basis of world literature, correct information can be obtained about the essence of values as a scientific category, their difference from other concepts, their objective basis and subjective perception, forms of manifestation. As they give, the concept of " value " is defined as a philosophical and social concept, the essence of which, firstly, is interpreted as the positive and negative value of one object, and secondly, as the



normative determinant-evaluative aspect of social consciousness (subjective values or values of consciousness) [1].

Value is a concept that applies to show the Universal, socio-moral, cultural-spiritual significance of certain phenomena from reality, and everything that is relevant to man and humanity, such as freedom, peace, justice, social equality, enlightenment, truth, goodness, beauty, material and spiritual assets, tradition, tradition, tradition, etc., are values. In some area of research work, where a study of value has been carried out, there is a desire to give a definition of this concept in this respect.

The word "value", as noted in the literature, is a philosophical concept that serves to reveal the meaning of the activity of an individual. In our opinion, the above-mentioned thoughts were able to fully express the essence of the concept of "value". As a Zero value, not only spiritual, but also material factors are recognized. Hence, from the above points it is understood that value is one of the structural elements of human life, which expresses the value of material and spiritual factors in the process of social development by humans. Value-tevarak is a concept that indicates the positive or negative importance of the surrounding things, of a person for society, and is the criterion and methods of evaluating this concept, expressed in moral principles, ideas, directions and purposes. Values include universal values – certain norms of morality, progressive, progressive cultural heritage. Value is a set of all things and phenomena (objects and processes) that are valuable to a person, meaning dignity.

Values are valued not only for the past, but also for the present and future development, which positively affect the development of society, one of the important links of values is considered spiritual values. Spiritual values, in turn, are a complex of artistic, religious, aesthetic, philosophical, moral, educational, cultural values.

The artistic value of a work of Fine Art, given in examples of world literature, is described in a way that emotionally embodied, embodied the aesthetic ideals, ideas of society [1]. The content of artistic value is a clearly historical, aesthetic ideal, reflected and assimilated reality according to the law of beauty in the content of the idea.

Students in the process of studying world literature should be exposed to the essence of artistic values, studied by their individual signs, presented with their specific content. To do this, students must be introduced to the criteria of high artistic values. Of course, such as knowledge of the logic of the work, analytical study, emotional-aesthetic perception of its ideological content, valuable attitude to the work being perceived artistically, are of great importance.

The spiritual and moral value of painting, given in the samples of world literature, is determined by the presence of its ability to indicate all aspects of the spiritual, aesthetic life of society, the phenomena of nature and society and the criteria for

aesthetic norms, beauty and ugliness in the behavior of the individual. The work of painting, given on the basis of samples of world literature, refines the emotional culture of the individual, brings artistic sensations, gives a person special joy.

The problem of the formation of students' interest in artistic values in the process of studying world literature, firstly, presupposes the consideration of artistic values, their essence, signs, content and assessment criteria; secondly, classical painting as an example of high artistic values. In the process of studying the General History of culture in a higher educational institution, the artistic culture, art of all eras and different countries of the world, it is advisable for students to familiarize themselves with the samples of world literature with the samples of painting.

World literature gives in the basic principles of Renaissance aesthetics: the exaltation of the human personality in integrity; an idealized vision of man as an infinitely creative potential, free, conscious and emotional being; its connection with beauty, exaltation, Valor; beautiful artisticism, creativity, means that the principle of the human personality is brought together in different proportions, symmetries, manifestations.

The study of world artistic values, especially Renaissance medieval literature, painting, is an important condition for the interest of students in artistic values in the process of studying the history of these periods of Western Europe. In the study of the artistic values of Renaissance literature, it is intended to pay attention to: general characteristics of the flourishing of artistic values during this period; the emergence of artistic-illustrative work on literary-artistic and historical books; (XIV–XV centuries), as well as the painting of later times – prints and illustrative miniatures on the walls.

In the development of students' interest in artistic values in the process of studying world literature, it is important to focus on the following psychological and age-related characteristics: the desire of students to expand and enrich their general and artistic knowledge; the need for a wide range of knowledge, including artistic knowledge; his priority interest, especially interest in the world of art,

For this, first of all, a special emphasis is placed on the activation of their activities in the areas of perception-research, intellectual-creative, communicative and social propaganda. In particular, "the importance of artistic literature, processes of spiritual activity for society and social entities, problems that reflect different aspects of life and the value of views, ideas, teachings, demands and needs that represent their solutions for real processes are of great importance" [5].

In our opinion, in the process of studying the history of World Literature Renaissance, the development of students' interest in artistic values was interpreted in the following way: the first interpretation: this is emotional-positive, social-personal and professional-based, realized motivational interest; General and clear-subject interest in artistic values, its educational, needy perception, enrichment in intellectual-communicative activity; the second interpretation: this is; it is an interest of the future



teacher aimed at acquiring, enriching and improving knowledge about the artistic values of different countries and periods, which will be necessary in future pedagogical activity.

The presence of a high emotional predisposition, interest and active desire for the process of developing an active and stable interest in world artistic values in students; understanding and understanding of the goal; knowledge of the essence, criteria of this process, the role and significance in the future professional-personal activity of students; it was determined that such characteristics are characteristic in students

In the development of artistic competencies in students, as the main indicators of the analysis of rare works of samples of World Literature, their aesthetic artistry and content, we can especially note the following: 1) the presence and its aesthetic specificity illuminated in works of Art; 2) the validity of the reflection of life in works; 3) the artistic reality described in masterpieces; 4) ; 7) artistic image and the ideological-emotional attitude of the artist to it.

In the artistic and aesthetic analysis of the works of world literature samples, the subject, plot, genre, content, idea, discourse, composition, pictorial means, structure, appearance, location of objects, objects are envisaged. As a result of the analysis of samples of world literature, it is necessary to rely on psychological conditions that improve the full-fledged artistic-aesthetic perception of artistic values in the development of artistic competencies in students, that is, to be attentive to the age characteristics of students and to rely on situations that successfully shape their interest in artistic values and take into account.

On the basis of samples of world literature, we can see the criteria for arousing interest in students in the following order: 1) arousing interest in the sphere of world artistic values, perception; 2) stimulating and rewarding interest in artistic values; 3) using the algorithm of perception, analysis, assessment in world learning; 4) creating emotionally-psychologically favorable conditions for students; 5) obtaining emotional, motivational, intellectual

In the perception and selection of artistic values of world literature, it is important to take into account both the historical-cultural, artistic, artistic-analytical knowledge and personal-creative abilities, artistic interests and needs of students [5].

The psychological conditions that improve the intellectual-creative, independent knowledge and social activities of students are associated with their interest in artistic values. The conditions for improving the intellectual and creative activity of students are as follows: 1) understanding, understanding the goals and objectives of the creative task and abstract; 2) Maximum perceptual Activity; 3) bold creative approach; 4) choosing topics of lectures, assignments according to the student's interest and ability, motivational, fully aware of their ability to implement; 5) remind students that requirements of a theoretical-practical nature can be socialized to varying degrees; 6) approve and encourage a unique creative, bold

approach to solving the problem, an intellectual-creative "product"; 7) emotional-positive orientation, maximum activation and planning of thinking; 8) a creative approach full of the process of creating and editing an intellectual-creative "product", perfecting it.

It is necessary to reveal in the process of independent activity the essence of motivation and motivation, which gives rise to the essence of independent knowledge acquisition in the artistic sphere, its main feature, emotional-psychological orientation and positive attitude, to study educational and additional literature as the main means and source of independent knowledge, the main form of increasing artistic culture in independent

The conditions for improving the communicative activities of students and the development of artistic competencies were also interpreted. Understanding the content and goals of students' interaction with each other as well as with the teaching team, students can show individuality, intelligence, creative imagination, logical thinking in socio-communicative activities (communication, speaking, discussion, etc.), achieve social commonality, remember the need to use various functions of communication in the communicative process, student interlocutor, in the process of communication with the audience, please); the choice of the most suitable type of communicative activity for communication (interpersonal, group, collective, public), as well as its means (direct communication, medium - radio, written); the use of linguistic and nonlinear means of communication, visual materials is important.

CONCLUSION

The development of improving and artistic competencies of students' social activities on the basis of the analyzes we have given above can be cited among the conditions: participation in activities of personal and social significance; identification of specific-subject activities in the social environment; concentration of Will, preparation for provoking certain emotions; attention to not only the subject, but also subjective factors; the content of this activity is formed from the assumption that it will depend on exhibition, emotionality, goals and motives, socio-personal content.

REFERENCE

1. Husanboyeva Q., Niyozmetova R. *Adabiyot o'qitish metodikasi*. – Tashkent: Innovatsiya-Ziyo, 2020. – 352 b.
2. Ibn Sina Abu Ali. *Kanon vrachebnoj nauki. Izbranniy razdeli. Ch.1. / Sostaviteli: U.I.Karimov*.
3. *Jahon adabiyoti tarixi. O'UM. O'zMU, 2011. O'zbek filologiyasi fakulteti kutubxonasi*.
4. Mahmudova S. *Jahon adabiyoti. Uslubiy qo'llanma*. – Tashkent, 2018.
5. Mirkomilov B. *Talabalarda badiiy qadriyatlariga qiziqishni rivozhlantirish. (Jahon tarixi misolida) Ped.fan.dok. (DSc) avto-ref.* – Tashkent, 2019. – 59 b.
6. Qosimov A., Hamdamov U. *Jahon adabiyoti. O'quv qo'llanma*. – Tashkent: "Barkamol fayz media", 2017. – 252 bet.



7. *O'zbek tilining izohli lug'ati. –Toshkent: “O'zbekiston milliy enciklopediyasi” Davlat ilmiy nashriyoti, 1-5 tomlar. 2006-2008.*
8. *Xasanov Sh.A. Adabiy talim zharayonida talabalarda analitik tafakkurni rivozhlantirish texnologiyasini takomillashtirish. Ped.f.f.d. (PhD) diss. – Namangan, 2020. – 150 b; Xazratqulov M.P. Adabiy talimda inshoning y'rnini va uni tashkil etishning ilmiy-metodik asoslari. Ped.f.f.d. (PhD) diss. – Samarqand, 2017. – 151 b.*



A REVIEW ON LEAD TOXICITY AS PER AYURVEDA

Dr. Anaghashree S¹, Dr. Chaitra H², Dr. Ranjeetha K³

¹PG Scholar, Department of Agada tantra, Sri Dharmasthala Manjunatheshwara Ayurvedic College and Hospital, Hassan, Karnataka, India, Orcid id - <https://orcid.org/0000-0003-4532-2081>

²Associate professor, HOD Department of Agada tantra, Sri Dharmasthala Manjunatheshwara Ayurvedic College and Hospital, Hassan, Karnataka, India, Orcid id - <https://orcid.org/0000-0002-6373-5739>

³PG Scholar, Department of Agada tantra, Sri Dharmasthala Manjunatheshwara Ayurvedic College and Hospital, Hassan, Karnataka, India

ABSTRACT

Lead poses the greatest threat to human health from environmental exposure. Because of its significant physicochemical characteristics, it has been helpful throughout history. It is a typical, significant, and perhaps hazardous metal that is present in our surroundings. In Ayurveda, lead is also referred to as a poisonous metal. Science and authentic Ayurveda scriptures are used to acquire data on lead poisoning. Ayurveda, on the other hand, processes numerous toxins using a variety of methods that eliminate their harmful properties, making them potent enough to be used as a very effective treatment when provided in a very small dose. Likewise, Lead can also be utilized as a very effective treatment after passing through a series of proper purifications. Ayurveda also claims that the administration of lead after improper cleansing will undoubtedly have negative effects. Additionally, it covers the potentially fatal symptoms and signs caused by the ingestion of lead that has not undergone the proper refinement. The claim that Ayurvedic treatments induce heavy metal poisoning is currently being made as a result of subpar metal processing performed by unstandardized companies prior to use in formulation. As a result, this article's primary emphasis is on the features of lead toxicity explained in the ancient works of Ayurveda.

KEY WORDS: Lead toxicity, Ayurveda formulations, lead pharmaceuticals, lead compounds, naga.

INTRODUCTION

Major heavy metals causing environmental threat constitutes lead, thallium, cadmium, and antimony, which are significantly more in industrial areas. The risks associated with these metals often outweigh their benefits. They can be hazardous to human body by causing various systemic effects. (1) Every year, around 1 million individuals die from lead poisoning, and more children experience long-term health problems. (2) Ayurveda clearly mentions lead as a toxic metal, and explains its toxicity features along with its treatment. It also specifies various detoxifying procedures of metal that retains their benefits without any adverse reactions. This review highlights the toxic consequences of lead mentioned in ayurveda and its relevance in present day study.

MATERIALS AND METHODS

Data is gathered from classical sources, various publications, and websites.

THEORY

Lead is described in Ayurveda using terms like seesa, naga, kuranaga, and sindoor karanam. It also offers a comprehensive explanation of lead, which is further separated into two groups kumara and samala. Where it is recommended to use kumara in rasakarya. It also outlines the qualities of good quality lead, such that it should be drutha dhavam (melts quickly), maha bharam (extremely heavy), have an internal surface that glows

blackly when cut, release foul odours when heated, and have a black exterior. (3) It states that lead should be strictly avoided if purificative treatments (shodhana) and methodical ash formation techniques (marana) are unsuccessful. Lead is regarded as a toxin, and its toxicity features are described. Humans are generally exposed to lead and its compounds through multiple sources. The manifestations of lead toxicity mentioned in Ayurveda and recent scientific findings are compared in this article.

RESULTS

According to recent studies, lead has an impact on almost all of the organs in the body, with the nervous system being the most frequently affected. It was shown that both adults and children who were exposed to high lead levels died as a result of serious brain and kidney impairment. (4) Ayurveda also says that exposure to unprocessed lead kills a person. (5) Below is an explanation of systemic toxicity features brought on by lead.

Hepatic Toxicity

As liver is one of the primary organ involved in the storage, biotransformation, and detoxification of all hazardous chemicals. Soft tissues of the liver retains majority of the absorbed lead is hence, it is the first organ to show histological changes. In a study during a histological analysis hepatocyte hypertrophy and hepatic cord disarray were two changes that were discovered. Furthermore, liver toxicity appears as cell vacuolation as a physiologic response to hazardous substances.



Cellular metabolism was unaffected since these substances were divided into vacuoles. Problems with lipid inclusions and fat metabolism have been proposed as the primary causes of cytoplasmic vacuolation. Following lead exposure, indications of liver injury include lymphocytic infiltration and sinusoidal blood congestion. (6) *Ayurveda* explains certain signs of toxicity such as *vahni mandya* (loss of appetite), *gulma*, *anaha*, (abdominal distension) *kamala* (jaundice), and *kshaya* (emaciation) which makes a clear reference of lead inducing hepatotoxicity. (5)

Renal Toxicity

According to recent studies, Depending on the duration of exposure, the age of the animals, and the target, the data showed that lead significantly affects the liver and kidneys. Moderate to high exposure of lead, produces free radicals, which in-turn causes oxidative damage to vital proteins, lipids, and macromolecules. An experimental study revealed, adult lead-exposed animals showing signs of nephropathy whereas, young lead exposed animals showed impairment of liver's ability to synthesize compounds than their kidneys.(7) *Ayurveda* explains *prameha* (5) as an ailment caused by lead toxicity, which includes various presentations of impairments in kidney, ureter, and bladder. This denotes the potentiality of lead inducing nephrotoxicity.

Nervous System

Recent studies have shown that the brain is the organ that is most sensitive to lead exposure. Adults who have been exposed to lead over an extended period of time do poorly on cognitive tests, which indicates a decline in brain functions. Lead also has an impact on the evolution of neurochemicals including neurotransmitters and the organization of ion channels. In addition to impairing neurotransmission, lead poisoning also causes loss of myelin sheath in neurons and slows neuronal growth and number. Blood concentrations of 100 g/dL were found to be associated with more severe diseases in adults, such as persistent central nervous system dysfunction. (4) Lead encephalopathy, a disorder that can cause sudden psychosis, confusion, and reduced awareness, may develop in extreme situations. Memory loss, slow reflexes, and decreased comprehension are some effects of prolonged lead exposure. People with average blood lead levels of less than 3 mol/l report reduced nerve conduction velocity and impaired cutaneous responsiveness as symptoms of peripheral nerve complaints, which can remain permanent in severe cases. (8) *Ayurveda*, mentions *pakshavadha* (paralysis) and *bahvo nischestatha* (absence or reduction in peripheral nerve conduction) symptoms as ailments caused due to lead.(5) This indicates neurotoxic action of lead explained in both the sciences.

Circulatory System

Recent investigations have found that the most obvious sign of chronic lead toxicity is anemia, due to disruption in hemoglobin production, and increased destruction of RBCs that in turn lead to increased bilirubin level. (8) Middle-aged and elderly people with prolonged lead exposure has been associated with anemia and a rise in blood pressure. (4) *Ayurveda*, clearly explains lead toxicity causes *kamala* (jaundice) that is considered to be the chronicity of ailment *pandu* (anemia). (5) By this *Ayurveda* has clearly indicated that lead toxicity causes destruction of RBCs and impairs production of RBCs.

1.1 Reproductive System

A miscarriage could occur if a pregnant woman is exposed to a high concentrations of lead. Chronic lead exposure has also found to reduce male fertility. (4) *Ayurveda* considers *shukra* to be the important *dhathu* responsible for proper functioning of reproductive system, which is the essence of all *dhatus*. Hence, when lead toxicity affects other tissues, it undoubtedly affects the functioning of reproductive system.

Integumentary System

Recent research has demonstrated that patients with mean BLLs of 11.58 g/dL or higher had symptoms of gingival brown pigmentation in 83.6% of cases, gingivitis in 82.8% of cases, and lead lines in 49.3% of cases. Subjects with noticeably increased BLLs and gingivitis were found to have the lead line. Patients showed significantly less elasticity and skin hydration as measured by corneometer. Which showed an increased risk of skin damage. (9) In *Ayurveda Rasatarangini* text explains first sign as loss of *shareera shobha*, which is loss of body's natural lustre and glow. Which shows that lead toxicity affects integumentary system initially. (10)

Gastro Intestinal System

According to recent studies, lead toxicity reduces intestinal motility, interferes with sodium transporter channels in the intestine, may result in pancreatitis, nausea, abdominal distention, constipation, and decreased appetite. (11) *Ayurveda* mentions various gastrointestinal manifestations like *anaha* (abdominal distention), *gulma*, *vahni mandya* (reduced appetite), *bhagandara* (fistula in ano), *shola* (severe piercing pain), *kshaya*, (emaciation) (10) Which clarifies that lead toxicity affects gastro intestinal system.



Below is a list of symptoms from Ayurveda that have been compared to modern research findings

SYMPTOMS MENTIONED IN AYURVEDA	MODERN CORRELATION	RECENT STUDIES
<i>SHAREERA SHOBHA</i>	Loss of body luster	Lead-intoxicated patients show lower levels of moisture and elasticity even in skin that appeared normal. This results implies that at detectable levels, lead may have damaging effects on the skin.(9)
<i>KAMALA</i>	Hepatotoxicity	Animal toxicology studies on lead's hepatocarcinogenic effects have sparked new investigation into the biochemical and molecular components of lead toxicology. Advances in understanding of the molecular mechanisms underlying leads effects on hepatic drug metabolizing enzymes, cholesterol metabolism, oxidative stress, and hepatic hyperplasia point to a potential role for lead in also harming extrahepatic systems, such as the cardiovascular system. The therapeutic potential of chelation treatment for treating animal models of lead induced hepatotoxicity is also effective.(12)
<i>SANDHIM PRAPEEDAYATHI</i>	Arthralgia	Heavy metal concentrations in serum samples from RA patients and healthy controls differ by a significant amount, indicating that heavy metals may play a role in the development of RA.(13)
<i>PAKSHA VADHA, BAHVO NISCHESTATHA</i>	Paralysis	Lead palsy is the result of peripheral nerve involvement, and it typically affects the hands, wrists, and fingers first ("wrist drop"). Children under the age of six, whose brains and nervous systems are still developing, experience the most serious consequences. (14) The organ most vulnerable to lead poisoning is the brain. Lead has a significant impact on synapse development in the cerebral cortex of a developing child's brain. Lead also obstructs ion channel organization and the synthesis of neurochemicals, such as neurotransmitters. Additionally, lead poisoning reduces the number of neurons, disrupts neurotransmission, and stunts neuronal growth in addition to causing myelin sheath loss in neurons. (4) In adults, it was shown that blood levels of 100 µg/dL were linked to more serious disorders, such as chronic central nervous system dysfunction. (4)
<i>GULMA, ANAHA</i>	Abdominal distention	Lead poisoning is a cause of unexplained Gastric dilatation.(15)
<i>PRAMEHA</i>	Disorders of the urinary system	Lead levels should be examined in people who seem to have gout, high blood pressure, or kidney disease. People who work in occupations where they are exposed to extremely high levels of lead are most likely to develop kidney disease associated to lead. The impact on kidney function at lower lead exposure levels (such as from drinking water) requires years of exposure (5 to 30 years) and should be minimal. (16)
<i>SHWAYATHU</i>	Swelling	Lead encephalopathy develops when whole blood lead levels are elevated and exceed 80–100 micrograms/dL. At such levels, lead penetrates the blood-brain barrier, causing the cerebrovascular endothelium to deteriorate and promote capillary leak and oedema.(17) The endoplasmic reticulum and mitochondria in particular were causing intracellular organs to swell, which led to the hypertrophy. (6)
<i>VAHNI MANDHYA</i>	Reduction in digestive fire	Decrease in appetite is noticed during lead intoxication (18)



KSHAYA	Emaciation	Loss of weight (18)
BAGANDHARA	Fistula	This investigation revealed a strong link between constipation and lead toxicity. Which would further progress to fistulas in chronicity. (11)
AMSA SHOTHA	Swelling in the region of the shoulders	
SHOLA	Piercing kind of pain	In 85% of instances, colic of the intestines, uterus, ureters, and blood arteries occur. Colic often happens at night, and the discomfort can be very intense. Individual attacks are short but might happen repeatedly over the course of several days or weeks. Vomiting and diarrhea might happen, but constipation is more common.(19) Abdominal pain is observed (18) Through a number of methodologies, lead can induce stomach pain. Additionally, there is proof that lead plays a part in acute pancreatitis which in-turn may lead to severe pain.(11)
MARANA	Death	Lead damages the brain and central nervous system at high exposure levels, resulting in unconsciousness, convulsions, and even death. (20)

Table 1

DISCUSSION

As lead is considered as harmful metal in Ayurveda, its usage is restricted unless it has undergone a variety of stringent procedures. However, lead also has a lot of therapeutic benefits in addition to its drawbacks. Hence, before employing lead compounds as a component of the medication, it is always advisable to subject it to procedures such as Samanya Shodhana, Vishesh Shodhana, and Bhasmikarana. These methods involve certain herbal-mineral ingredients that neutralizes the harmful effects. The use of medicinal herbs and natural products had significantly minimized experimentally induced heavy metal toxicity in lab animals. Traditional or plant-based medicine have proved to have better results in heavy metal toxicity (20).The metal becomes non-toxic and gets suitable for therapeutic utility. The quality of the finally obtained bhasma, is analysed through Varitara, Rekhapurna, Niruttha, Nischandratva, apunarbhava tests before using it in any formulation. These tests indicate the loss of its metallic and toxic properties. (21) Some pharmacies has missed to follow the procedure in authentic which has resulted into heavy metal toxicity in certain groups of people who took Ayurveda medications. Hence, Ayurveda Pharmacopoeia of India has standardized these practices, which ensures the eradication of negative effects and gives desired therapeutic outcomes.

CONCLUSION

In addition to its numerous medical advantages, lead is a hazardous metal. Before its use in the formulation adopting ayurvedic principles to eliminate their hazardous effects benefits the general population by providing them desired therapeutic effects. However, improper usage of these formulations can act as a toxin and may further cause heavy metal toxicity. As a result, the standards of manufacturing procedures should always be ensured before prescribing pharmaceuticals that include lead compounds.

REFERENCES

- Mitra S, Chakraborty AJ, Tareq AM, Emran TB, Nainu F, Khuroo A, et al. Impact of heavy metals on the environment and human health: Novel therapeutic insights to counter the toxicity. *J King Saud Univ - Sci.* 2022 Apr 1;34(3):101865.
- Almost 1 million people die every year due to lead poisoning, with more children suffering long-term health effects [Internet]. [cited 2023 Aug 5]. Available from: <https://www.who.int/news/item/23-10-2022-almost-1-million-people-die-every-year-due-to-lead-poisoning--with-more-children-suffering-long-term-health-effects>
- Mishra S N. *Ayurvediya rasashastra, naga prakarana. 11th ed. varnasi: chaukambha orientalia; 2001. 573 p.*
- Wani AL, Ara A, Usmani JA. *Lead toxicity: a review. Interdiscip Toxicol.* 2015 Jun;8(2):55–64.
- Mishra S N. *Ayurvediya rasashastra, naga prakarana. 11th ed. varnasi: chaukambha orientalia; 2001. 575 p.*
- Zidi I SA. *Hepatotoxic Effects of Lead Acetate in Rats: Histopathological and Cytotoxic Studies. J Cytol Histol [Internet].* 2014 [cited 2023 Jun 17];05(05). Available from:<https://www.omicsonline.org/open-access/hepatotoxic-effects-of-lead-acetate-in-rats-histopathological-and-cytotoxic-studies-2157-7099.1000256.php?aid=30306>
- Berrahal AA, Lasram M, El Elj N, Kerkeni A, Gharbi N, El-Fazâa S. *Effect of age-dependent exposure to lead on hepatotoxicity and nephrotoxicity in male rats. Environ Toxicol.* 2011 Feb;26(1):68–78.
- Järup L. *Hazards of heavy metal contamination. Br Med Bull.* 2003 Dec 1;68(1):167–82.
- Rerknimitr P, Kantikosum K, Chottawornsak N, Tangkijngamvong N, Kerr SJ, Prueksapanich P, et al. *Chronic occupational exposure to lead leads to significant mucocutaneous changes in lead factory workers. J Eur Acad Dermatol Venereol JEADV.* 2019 Oct;33(10):1993–2000.
- Sharma sadananda, shastri kashinatha, shastri haridatta. *rasatarangini. In: rasatarangini by pranacharya sadananda sharma. 11th ed. Chapter 19, verse 4 varanasi: mothilal banarasi das; p. 457.*
- Shabani M, Hadeiy SK, Parhizgar P, Zamani N, Mehrad H, Hassanian-Moghaddam H, et al. *Lead poisoning; a neglected potential diagnosis in abdominal pain. BMC Gastroenterol.* 2020 May 6;20(1):134.



12. Mudipalli A. *Lead hepatotoxicity & potential health effects.* *Indian J Med Res.* 2007 Dec;126(6):518–27.
13. IRFAN S, RANI A, RIAZ N, ARSHAD M, KASHIF NAWAZ S. *Comparative Evaluation of Heavy Metals in Patients with Rheumatoid Arthritis and Healthy Control in Pakistani Population.* *Iran J Public Health.* 2017 May;46(5):626–33.
14. *Lead poisoning | Definition, Causes, Symptoms, & Treatment | Britannica [Internet].* 2023 [cited 2023 Jun 18]. Available from: <https://www.britannica.com/science/lead-poisoning>
15. Begovic V, Nozic D, Kupresanin S, Tarabar D. *Extreme gastric dilation caused by chronic lead poisoning: A case report.* *World J Gastroenterol WJG.* 2008 Apr 4;14(16):2599.
16. *National Kidney Foundation [Internet].* 2016 [cited 2023 Jun 18]. *Lead Exposure and Kidney Function.* Available from: <https://www.kidney.org/atoz/content/lead-exposure-and-kidney-function>
17. Eastman KL, Tortora LE. *Lead Encephalopathy.* In: *StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2023 [cited 2023 Jun 22]. Available from: http://www.ncbi.nlm.nih.gov/books/NBK563167/*
18. *Lead poisoning | NHS inform [Internet].* [cited 2023 Jun 2]. Available from: <https://www.nhsinform.scot/illnesses-and-conditions/infections-and-poisoning/lead-poisoning>
19. Reddy KSN. *The essentials of forensic medicine and toxicology.* 15th ed. Hyderabad: K.Suguna devi; 1995. 434 p.
20. Bhattacharya S. *Medicinal plants and natural products can play a significant role in mitigation of mercury toxicity.* *Interdisciplinary Toxicology.* 3918;11(4): 247-254. <https://doi.org/10.2478/intox-2018-0024>
21. *Lead poisoning [Internet].* [cited 2022 Sep 8]. Available from: <https://www.who.int/news-room/fact-sheets/detail/lead-poisoning-and-health>



FROM LIKES TO SALES: UNWRAPPING SOCIAL MEDIA'S CONTRIBUTION TO E-COMMERCE SUCCESS

Vishva Shah

*Research Scholar, School of Commerce & Management,
 Dr. Babasaheb Ambedkar Open University, Ahmedabad, India*

ABSTRACT

Social media is used regularly by almost half of the world's population, and that number is rising. In India also, social commerce is expanding incredibly quickly. Due to a significant portion of the population using social media like Facebook, Instagram, and even TikTok, the increase was unstoppable, particularly in India. tier III and even rural areas were reached by social media thanks to content created in Indian communities. E-commerce businesses now frequently utilize influencer marketing to advertise their items on social media. According to a Forbes analysis, 81% of the Instagram users polled indicated they use the platform to read influencer reviews of products before making a purchase. The researcher used secondary data collecting for this work by reviewing government papers, websites, journal articles, and other sources. In this investigation, the researcher looked into a few firms and their social media marketing plans.

KEYWORDS: *Social media platforms, Influencer Marketing, Social media marketing*

INTRODUCTION

In social e-commerce, one does business through social networking sites like Facebook, Instagram, Pinterest, and Twitter. On social media platforms, many business owners start their online retail ventures. By adding shopping elements to social media networks, existing retailers improve their customers' online buying experiences. i.e., enabling them to make purchases without going to another website. The creation and distribution of content about products sold online, such as reviews, ratings, and images, can be improved by social media for both businesses and consumers. Any company with an online storefront should be knowledgeable of how these forms of content can have a big impact on potential buyers.

Facebook is currently the most popular social web media platform worldwide, with its core function being online communication and interaction. The purposes of social media are evolving into business activities (such as online sales, advertising, gaming, and others).

LITERATURE REVIEW

In this study, we found a number of variables that could boost social media's contribution to e-commerce growth, including influencer marketing, social media marketing, and the integration of social media platforms with e-commerce.

Sr. No.	Author Name, Topic Name	Findings
1.	Taqwa Hariguna, Berlilana Understanding of Antecedents to Achieve Customer Trust and Customer Intention to Purchase E-Commerce in Social Media, an Empirical Assessment	The higher the quality of information, quality of system and quality of service on e-commerce in social media, the higher the impact on customer trust, so the higher the public confidence on e-commerce will have an impact on the sustainability of the user intention in making purchase transactions.
2.	Arunakshi Pratap Singh Impact Of Social Media On E-Commerce	The availability of social media has made consumers more informed about brands when making purchase decisions and Majority of customers strongly agree to the statement that they are more exposed to marketing communication as a result of increased media use.
3.	Isaac Moreira, Paulo Stenzel, João M. Lopes, José Oliveira Do digital influencers successfully contribute to reducing the gap between customers and companies?	The motives for companies to adopt digital strategies based on influencers are essentially the construction / enhancement of the brand, the dissemination of products / services, to create awareness, and to increase sales. It should also be noted that the digital channels most used in digital communication strategies are Instagram and Facebook due essentially to the number of active users and the ease of communication on the part of influencers.
4.	Abhishek Srivastava, K. M. Pandey SOCIAL MEDIA MARKETING: AN IMPECCABLE APPROACH TO E-COMMERCE	social media marketing is an effective and natural formula for building new strategies for monitoring and enforcing the Code in light of emerging challenges, including suggested content.



OBJECTIVES OF THE STUDY

- *To study the relation between the social media platforms and e-commerce
- *To study the role of influencers to promote the products of e-commerce
- *To study the use of social media advertising in e-commerce marketing

Research Design	Descriptive Analysis
Collection of Data	Secondary data collection
Sources	Government publications, Websites, Books, Journal articles etc.

Social Media Platforms & E-commerce

The Internet has incorporated social media into its core functionality, and India is no exception. Every minor shift in India's digital environment is mirrored in the country's use of social media. Indians now use social media extensively for everything from daily routine updates to career-related activities. Social media has emerged as one of the most popular means of connecting with friends, family, business contacts, and future clients or consumers in India, where more than half of the population is already online. India is currently the second-most populated nation in the world with a population of 1.42 billion and expanding, and it has one of the planet's fastest-growing economies.

Total population in India	1.42 billion
Active social media users in India	0.467 billion
Number of Internet users in India	0.692 billion
Number of Mobile Internet users in India	0.627 billion

(Source:

www.theglobalstatistics.com)

The cause for the widespread increase in social media adoption is the simple accessibility of superfast internet at extremely low prices. 627 million people were using mobile devices to access the internet in 2023.

➤ Most used Social Media Platforms in India:

It's understandable why social media marketing is a desirable option for organizations of all sizes given that practically everyone has access to at least one social media site.

Top Social Network Platforms in India	%	Active Users (In Million)
Instagram	74.70%	516.92
Facebook	71.20%	492.70
Twitter	42.90%	296.87
LinkedIn	35.70%	247.04
Moj	29.50%	204.14
Pinterest	29.00%	200.68
Moj Life+	26.20%	181.30
Tik Tok	21.40%	148.09
Skype	20.30%	140.48
Helo	19.40%	134.25

(Source: www.theglobalstatistics.com)

In 2023, Instagram is expected to be the most widely used social media platform in India, with 74.70% of internet users joined.

The majority of Instagram's users are young people, particularly teens. It has become into an attractive source of revenue for vendors and an excellent sales channel for companies. Many well-known firms have also used Facebook to interact with their followers.

These figures for social media users demonstrate how widely used social media is in India, where it thus plays a key role in boosting online sales. For instance, if a company or a product goes viral online, sales may grow, brand recognition may rise, and there may be more direct interactions with customers through promotions and targeted advertising.

Customers can now access product reviews on websites such as Facebook, TikTok, Twitter, YouTube, Pinterest, Instagram, and Google Reviews. Social media has millions of users, therefore it's likely that every item has reviews on these channels. Businesses can connect their e-commerce websites to social networking platforms to enhance traffic, follower counts, and customer review posting and response capabilities. And in this way, social media helps e-commerce businesses grow their sales.

Influencer Marketing

At present, a significant portion of the methods presented by businesses includes influencer marketing. Social media platforms have started making significant investments in technologies that enable social promotion and selling because they recognize the potential of social commerce to increase their own visibility and traffic. Such as Instagram's product tagging features and checkout functionality and TikTok's purchasing links.

In social media marketing, influencers have grown to be an enormous asset. Brands may reach new audiences and increase the legitimacy of their goods or services by utilizing their sizable followings and social influence.

The biggest social media networks are driving huge visibility for items and brands:

- According to a survey of Instagram users, 81% use the app to research things before making a purchase.
- A Forbes survey from 2021 found that nearly 70% of people have bought something after seeing a friend or acquaintance post about it.

The following are some significant ways that influencers might contribute to a social media marketing strategy:

- ✓ Brand Awareness: By sharing a brand's message and products with their following, influencers can assist improve brand awareness.
- ✓ Product Promotion: By showcasing the characteristics and advantages of a product, influencers can market it to their followers.
- ✓ Credibility: Brands may benefit from the credibility and trust that influencers have established with their following by collaborating with them.

Ultimately, influencers may help to enhance brand awareness, promote products, build trust, and reach new audiences through social media marketing.

Social Media Advertising

E-commerce and social media go together like peas in a pod. Social media platforms are being used by ecommerce marketers to increase brand recognition, engage with consumers, and advertise products through targeted commercials and genuine posts.

Thus, if your objective is to increase brand awareness, you ought to do:

- ✓ Carousel, image, and video advertising that promote store visits, ad impressions, and interaction

Choosing the following strategy can help you increase sales:

- ✓ Advertising for products, collections, or shopping that promotes direct sales and visitors to product pages

The researcher looked at a few of the companies that are successfully using social media to increase their sales in this study.

1. Facebook Ads with High Frequency: The Souled Store

The Souled Store is India's most popular casual wear brand for men, women, and children's clothing. The younger generation has taken a liking to their casual wear range.



(Source: The Souled Store, Facebook Ads)

2. In-App purchases through Instagram Ads: everstylishcom

In-app shopping advertising are a significant tool used by the online store everstylishcom on Instagram. Clicking "Shop Now" immediately directs the customer to the product page. Without ever leaving Instagram, users may make purchases.



(Source: everstylishcom, Instagram Ads)

3. Increase in sales through Instagram stories: jokerandwich

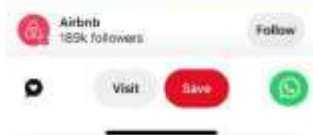
In order to post brief video snippets with its fans, the company jokerandwich makes advantage of Instagram's Stories feature. Additionally, they contain Instagram-famous components like swiping up to access a product URL.



(Source: jokerandwich, Instagram Ads)

4. Growing with Pinterest Ads: Airbnb

Utilizing the visit option, Airbnb directs customers from Pinterest to their website. Through this internet resource, landlords can advertise their properties as vacation rentals and travellers can locate a place to stay while they are away from home.



(Source: Airbnb, Pinterest)

Thus, these are some examples of e-commerce marketing via social media. It is possible to increase product sales by developing creative ads like these that make the most of each network's advantages.

Challenges and Risks

➤ Identifying the Right Platform:

The challenge that marketers confront is choosing which channels to engage with. The improper platforms could destroy your budget, especially if you frequently utilize paid advertisements.

➤ Competitive Exposure

Social media platforms link online platforms with their potential customers, thus they must be kept in mind. However, there are certain companies that, if they have a chance, would like to throw out all of the followers so it will be competitive if it has neither customers nor an audience.

➤ Understanding the Target Audience

Many firms have excellent in-store sales but dreadful in social media performance. The distinction is that people approach brands in brick-and-mortar establishments, whereas brands must seek out customers on social media. And marketing professionals first develop content before determining the target audience, which also increases the risk of increasing sales through social media marketing.

➤ Loss of IP and Sensitive Data

One potential issue with social media marketing is the loss of IP and sensitive information. It's crucial to ensure that no images, blogs, videos, etc. are used without the owner's knowledge or consent when any business uses social media platforms to market its goods.

CONCLUSION

It is simple to understand why social media marketing is a popular choice for companies of all sizes given that practically everyone has access to at least one social media platform. However, not all platforms are created equal, and India has its own distinct set of social media trends that can be used to

engage audiences or attract new clients. Furthermore, social media has spread beyond platforms such as Facebook and Instagram. According to the findings of this study, online platforms may benefit from an increase in the number of active social media users for social media marketing purposes. The second aspect, influencer marketing, has been shown to increase sales in a positive way. For example, according to a poll of 81% of Instagram users, people utilize the site to research items and consult influencer reviews before making a purchase. In order to increase brand recognition and strengthen consumer relationships, ecommerce marketers use marketing techniques including Facebook Ads, Instagram stories, and Pinterest pins. As a result, we draw the conclusion from this study that social media is now utilized for more than just liking and commenting; it is also used to market and sell things on online marketplaces.

REFERENCES

5. Hariguna, T., & Beriliana, B. (2017). Understanding of antecedents to achieve customer trust and customer intention to purchase e-commerce in social media, an empirical assessment. *International Journal of Electrical and Computer Engineering*, 7(3), 1240.
6. Singh, Manohar, and Gobindbir Singh. "Impact of social media on e-commerce." *International Journal of Engineering & Technology* 7.2.30 (2018): 21-26.
7. Moreira, I., Stenzel, P., Lopes, J. M., & Oliveira, J. (2022). Do digital influencers successfully contribute to reducing the gap between customers and companies?. *BBR. Brazilian Business Review*, 18, 662-678.
8. Srivastava, A., & Pandey, K. M. (2013). Social media marketing: an impeccable approach to e-commerce. *Management insight*, 8(2).
9. Qudsi, I. E. (2022, June 30). How Influencers Can Help Brands Stand Out In The Social Commerce Era. *Forbes*. <https://www.forbes.com/sites/forbesagencycouncil/2022/06/30/how-influencers-can-help-brands-stand-out-in-the-social-commerce-era/?sh=360318cc20b1>
10. DoneRemote, Social Media Agency 🇮🇳. (n.d.). The role of influencers in social media marketing. www.linkedin.com/pulse/role-influencers-social-media-marketing-doneremote
11. India Social Media statistics 2023 | Most used popular platforms. (2023, September 9). *The Global Statistics*. <https://www.theglobalstatistics.com/india-social-media-statistics/>
12. What are the Top Social eCommerce Platforms In India? (2021, October 26). *Browntape* <https://browntape.com/what-are-the-top-social-ecommerce-sites-in-india/#:~:text=How%20Does%20Social%20eCommerce%20Work%20in%20India%3F%201,your%20online%20store%20in%20under%20two%20minutes.%20>
13. Chouffani, R. (2022). Why is social media important for e-commerce? *Content Management*. <https://www.techtarget.com/searchcontentmanagement/answer/What-is-the-role-of-social-media-in-e-commerce>
14. Kristensen, E. (2023). 9 Ecommerce companies growing sales through social media. *ReferralCandy*. <https://www.referralcandy.com/blog/social-media-campaign#:~:text=9%20Ecommerce%20Companies%20Growing%20Sales%20Through%20Social%20Media,Stand%3A%20OREI%20Boycotts%20Black%20Friday%20.%20More%20items>



15. McConnell, B. (2023). 6 Ways to use social media for ecommerce in 2023. *Social Media Marketing & Management Dashboard*. <https://blog.hootsuite.com/social-media-ecommerce/>
16. FAQs, E. (2022). 9 Top Risks and Challenges of Social Media Marketing. *Understanding eCommerce*. <https://understandingecommerce.com/9-top-risks-and-challenges-of-social-media-marketing/>
17. Geysler, W. (2022). 5 of the Biggest Social Media Marketing Challenges. *Influencer Marketing Hub*. <https://influencermarketinghub.com/social-media-marketing-challenges/>



A STUDY OF SOCIAL SKILLS OF SECONDARY SCHOOL STUDENTS IN RELATION TO THEIR ACADEMIC ANXIETY

Dr. Suman, Anjali Solanki (22062003)²

¹Assistant Professor, Department of Education, Khanpur kalan, Sonipat

²M.Ed (2nd sem), Department of Education, Khanpur Kalan, Sonipat

ABSTRACT

The purpose of the study is to examine the relationship between social skills and academic anxiety of secondary school students of KGSSS Khanpur kalan , (Sonipat). 100 students of KGSSS composed a sample for this study. Social skills rating scale by Dr. Vishal sood , DR.(mrs.) Arti Anand and Suresh kumar and Academic anxiety Questionnaire by Prof. A. K. Singh , and Dr. A. Sen Gupta were employed to related the social skills and academic anxiety of students. Mean standard deviation and “ t’ test were used as statistical techniques to analyze the Data. The result of this study social skills and academic anxiety revealed a significant negative correlation and are to some extent related to each other.

KEY WORDS : Social skills , Academic Anxiety , secondary students

INTRODUCTION

Social skills refers to a set of abilities that help individuals to effectively communicate , build relationship , and interact with others in various social situations. they are provided with the opportunity to interact with others in a positive way .students often struggle with self confidence , effective communication and establishing positive relationships with their peers and teachers , these skills include but are not limited to :

1. **Active listening** : The ability to hear and understand what others are saying. It increase the skills of concentration , and reflect on what is being said . active listening needs to be fully involvement in the conversation . it improves social mutual understanding. It is a source of communication skills where we interact with society . Active listening means paying attention on a speaker , and listen carefully and comprehend the information.
2. **Empathy** : empathy means ,the ability of recognize and understand others ,emotions , perspectives, and feelings . the ability to share someone experiences and feelings by imagining what it would be like to be in that .it is a source of emotional intelligence . Empathy is a vast concept that refers to the emotional and cognitive response of an individual to observed feelings of another.
3. **Non – verbal communication** : The ability to interpret and use body language , facial expressions , and gestures to convey message and emotions. It is a type of communication in which message convey through facial expression, gestures and postures, eye contact, body language and sometimes by using some objects. it is helpful in communication with non – literate or people with hearing disabilities.
4. **Verbal communication** : The ability to effectively communicate thoughts, feelings and ideas through spoken or written words. Verbal communication is that type of

communication in which we use our convey message through verbally such as , speaking to someone over telephone , face to face , interview , presentation and so on...and in written communication we convey message through letters, E-mails, posters, charts, etc...

5. **Conflict resolution**: The ability to handle and resolve conflicts in a peaceful and respectful manners.
6. **Cooperation**: The ability to work with others towards common goals.
7. **Social awareness** : The ability to recognize and understand social norms and expectations in different situations .
8. **Self – regulations** : The ability to manage and control one ‘s own emotions, reactions, and behaviors in different social situations.
9. **Networking** : The ability to build and maintain professional and personal relationships.
10. **Adaptability** : The ability to adapt to different social environments and situations.

Academic Anxiety

Academic Anxiety also known as test anxiety , is a type of anxiety that occurs when individuals feel extreme worry or fear about their academic performances.

symptoms of academic anxiety may include :

1. Physical symptoms such as sweating , rapid heartbeat , nausea ,trembling.
2. Cognitive symptoms such as negative self – talk and catastrophizing.
3. Behavioral symptoms such as avoidance of academic tasks , procrastination , and reluctance to participate in class discussions or activities.

The causes of academic anxiety can vary, including excessive pressure from parents or teachers, fear of failure, embarrassment,



lack of confidence skills, and previous negative experiences with academic tasks or exams.

Managing academic anxiety may involve using relaxation techniques such as deep breathing, visualization and meditations, developing effective study habits, seeking supports from trusted individuals and taking steps to build self-esteem and confidences.

Review of The Literature

Review of the literature for both the variable it was done; a researcher observed that in India there are less experimental research in the social skills field's. That's why the researcher thought there was need to be study the effect of social skills training program on academic anxiety of secondary school students. The researcher decide to create the research to explore the effect of social skills on academic anxiety of secondary school students.

Objectives of Study

1. To find the social skills in relation to academic anxiety of secondary school students.
2. To compare the social skills of secondary school students
3. To compare the academic anxiety of secondary school students.

Hypothesis of the Study

1. H-1 There exists no significance relationship between social skills and academic anxiety of secondary schools students of KGSSS.
2. H-2 There exists no significant difference in social skills of secondary school students of KGSSS.

3. H-3 There exists no significance difference in social skills of secondary school students of KGSSS.

METHOD

Descriptive survey method was used in present study.

Population

All secondary student studying in IX and X in BPSMV of sonipat district cover the target Population of the study.

Sample

100 secondary school students of IX and X of BPSMV khandpur kalan, sonipat were selected For the sample of the study on the basis of random sampling methods.

Tool used

- Social skills rating scale (2012) by Dr. Vishal Sood & Dr. Arti Anand.
- Academic anxiety rating scale by Prof. A. k. Singh and Dr. A. Sen Gupta.

Statistical Techniques

- Mean
- Standard deviation
- 't' test and correlation were used to analyze the data.

Interpretation

H-1 There exists no significant relationship between social skills and academic anxiety of secondary school students of KGSSS.

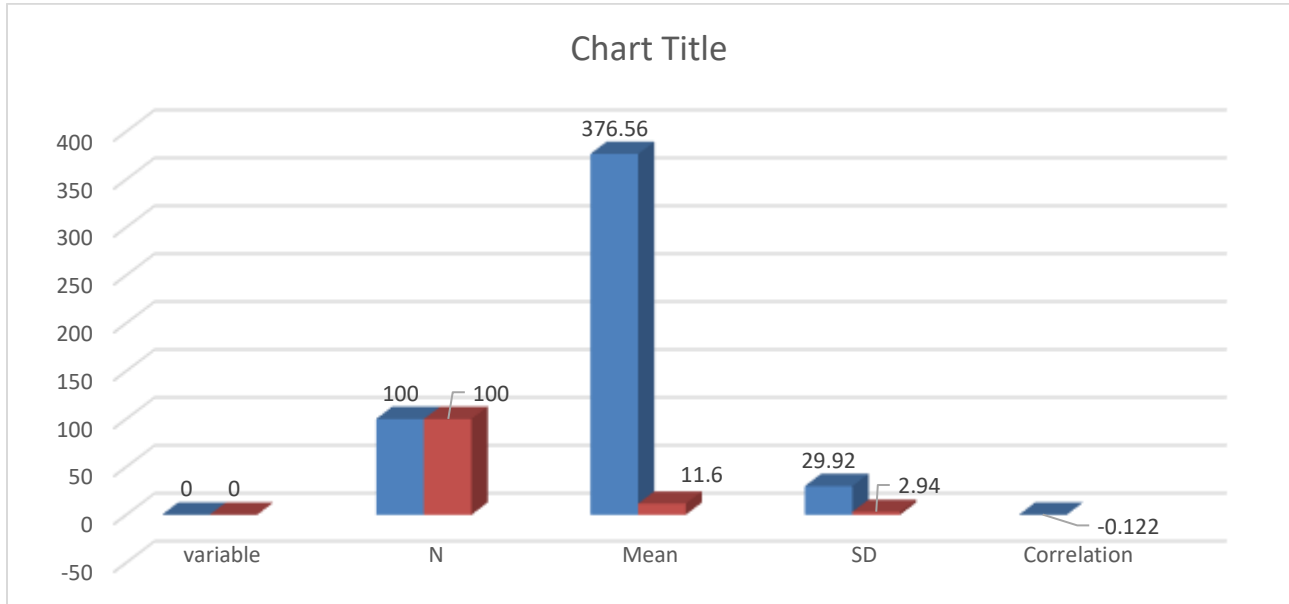
TABLE-1

Variable	N	Mean	SD	Correlation
Social skill	100	376.56	29.92	-0.122
Academic anxiety	100	11.60	2.94	

Interpretation

It is conclude from above table 1 that the computed 'r' value of social skill with academic anxiety is -0.122. so, it can be further interpreted that there is negative correlation etween social skill

and academic anxiety among student of KGSSS khandpur kalan bboth the variable are to some extend significantly related to each other. So the null hypothesis is rejected. Further it can be inferred that academic anxiety affect the social skill.



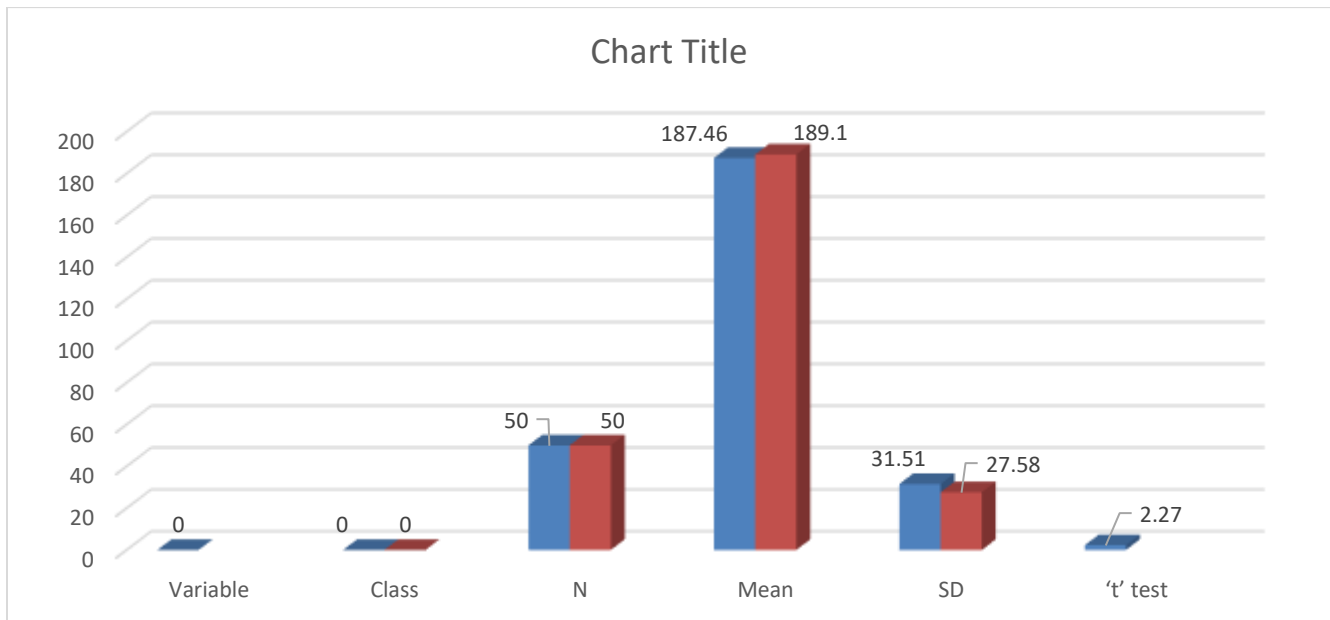
Interpretation

H-2 there exists no significant difference in social skill of 9th and 10th students of KGSSS khanpur kalan .

TABLE -2

Comparison of social skill of 9th and 10th students of KGSSS.

Variable	Class	N	Mean	SD	't' test
Social skill	9 th	50	187.46	31.51	2.27
	10 th	50	189.10	27.58	



Interpretation

From the above table 2 , it is a clear that the mean score of social skill of 9th class is 187.46 and 10th class students is 189.10 .the SD of 9th class and 10th class comes out be 31.51 and 27.58 respectively. 't' value between social skill and academic anxiety

is 2.27 . so the null hypothesis “ there exists no significant difference in social skill of 9th and 10th class student of KGSSS is rejected. The higher means score of 10th class student showed that social skill of 10th class students higher than the 9th class students.



H-3 there exists no significant differences in academic anxiety of 9th and 10th students of KGSSS.

TABLE-3

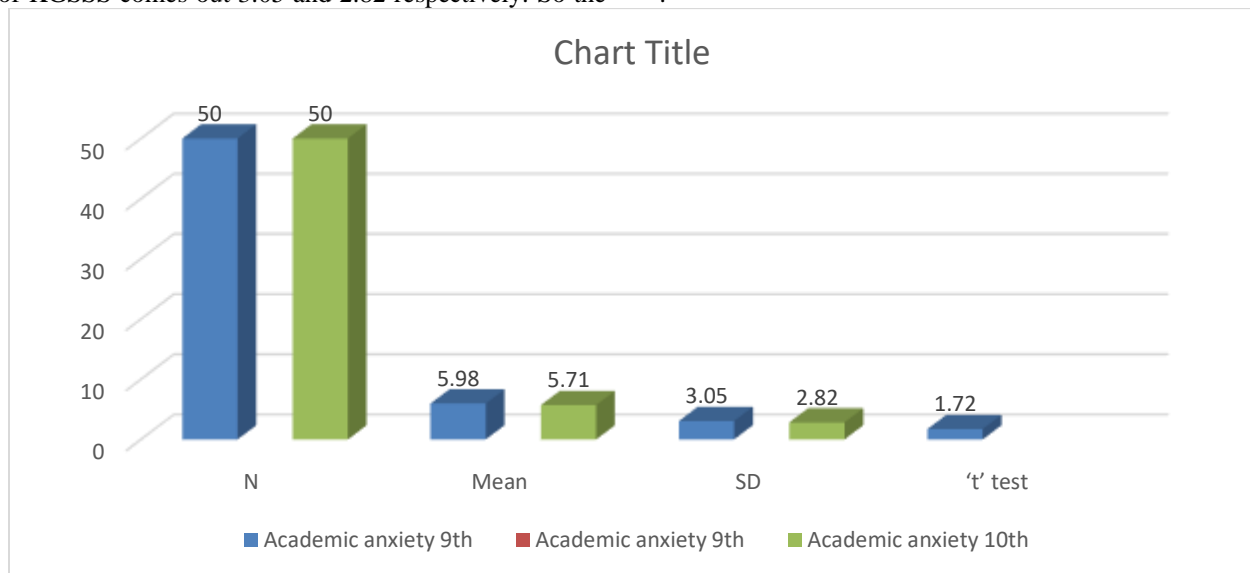
Comparison of academic anxiety of 9th and 10th students of KGSSS.

Variable	Class	N	Mean	SD	't' test
Academic Anxiety	9 th	50	5.98	3.05	1.72
	10 th	50	5.71	2.82	

Interpretation

From the table 3 , it is clear that the mean score of academic anxiety of 9th class students and 10th class students of KGSSS is 5.98 and 5.71 respectively. The SD OF 9th students and 10th student of KGSSS comes out 3.05 and 2.82 respectively. So the

null hypothesis “ there exists no significant differences in social skill of 9th and 10th student of KGSSS is rejected. it can be further inferred on the basis of higher mean score the academic anxiety are higher among 9th students in comparison of 10th class students



CONCLUSION

The result of the present study indicated that there is negative correlation between social skill and academic anxiety among secondary school students of KGSSS. On the basis of this result it can be concluded care should be taken social skill of 10th class is higher than the 9th class students . academic anxiety of 9th class student is higher than 10th class students. Finally the relation between of social skill and academic anxiety is negative.

REFERENCES

1. Academic anxiety rating scale by Prof. A.K. Singh and Dr. A. Sen Gupta .
2. Bandura „A „ (1997) . social learning theory,.. Englewood cliffs , NJ : prentice –hall .
3. Gresham ..F.M. & Elliot..... S, N (1990) . Social skills rating systems ... circle Pines ,, MN.; American guidance S
4. Huang H: y,.. L. & Chen „S. H.... (2014) . social skills ,, academic anxiety ,, and academic procrastination of college students... social behaviors and personality; An International journal , 42(9) .1493-1502 ...
5. McLeod , S.A..... (2015) . school phobia and others anxiety disorders in children .
6. Pekrun ,,R.... Eliot ;; A.J.. Maier ,, M. A. (2009) . Academic anxiety and achievements emotions . testing a model of their joint relations with academic performance...Journal of Educational psychology 101 (1)115-135,;;;
7. Rezaie R,,...kafipour,,R .(2013) .Relationship between social skill and academic progress of university ; Journals of educations and practice.....4,(26),.....;86-92...
8. Social skill rating scale by Dr. Vishal Sood ,Dr. (mrs.) Arti Anand and Suresh Kumar.
9. Spence, S..H.. (2003),, Social skills training with children and young people;::,,... Theory , evidence.. and practice. Child and adolescent Mental Health 8 (2) ,, , 84-96.....
10. Spielberger, C.D.. Gorsuch ,, R... L ... Lushene ,, R,,E Vagg ,,P...R.. Jacobs ,G..A.. : (1979)



DECOMPOSING MULTIDIMENSIONAL POVERTY: A CASE STUDY OF MAMIT DISTRICT, MIZORAM

Dr. C. Lalnunmawia¹, Prof. Lalhriatpui²

¹Assistant Professor, Department of Economics, Mizoram University

²Professor, Department of Economics, Mizoram University

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ABSTRACT

Purpose: The study intends to examine the incidence and intensity of multidimensional poverty in Mamit District of Mizoram.

Methodology: This study was based on primary data which was collected through a multi-stage stratified random sampling technique. At the first stage, Mamit District was selected solely based on socio-economic indicators for conducting the survey. The second stage involved random selection of 15 villages, five villages from each block. Requisite data were then collected randomly through structured questionnaires which was designed based on the requirement for computation of Multidimensional Poverty Index. From the collected data, the incidence of poverty (headcount ratio), the intensity of poverty and MPI were computed using Alkire-Foster Methodology. The study follows the 'Global MPI Brief Methodological Note, 2017' in the choice of dimensions, indicators, thresholds and weights assigned to each indicator.

Results: From the result of the analysis, the multidimensional poverty in the study area is moderate. The incidence of poverty across the study area is ranging between 0.32 - 0.38 while the intensity of poverty shows slight differences with negligible margin ranging between 0.39 – 0.411. Decompositions by indicators show that the nutrition has surpassed all other indicators with 22 percent contribution to overall MPI of Mamit district followed by year of schooling with 15 percent.

Applications of this study: The findings of the study can be based for formulation of government poverty reduction policies and can be used effectively in improving the existing poverty reduction strategies in the state.

KEY WORDS: Multidimensional Poverty, Decomposition, Mamit District, Mizoram.

INTRODUCTION

An accurate definition of poverty is crucial to help organizations and governments understand which citizens and communities are most in need. Many institutions and scholars have attempted to define poverty, but a concise and universally accepted definition of poverty has never been emerged. There is some arbitrariness in any definition of poverty if keeping an eye on different dimensions and the tools used to measure poverty. There are number of factors that cause poverty because of which there exist number of definitions of poverty. Poverty may include social, economic, and political elements. Encyclopedia Encarta defines poverty as “the condition of having insufficient resources or income”. According to the United Nations Human Development Report (UNHDR, 1998), poverty is defined as “a complex phenomenon that generally refers to inadequacy of resources and deprivation of choices that would enable people to enjoy decent living condition.”

A renowned Indian economist, Amartya Sen, (Sen.A, 1999) has argued that poverty should be seen as the deprivation of basic capabilities, where that deprivation limits the freedom of a person to pursue their goals in life. In the broadest sense, it means

survival but also contribution and participation to social daily activities. For Sen ‘capability deprivation’ is a better measure of poverty than lowness of income. From the various definitions given above, it is clear that the concept of poverty is a complex phenomenon influenced by large number of factors. The study and interpretation of poverty is not an easy task as there are many ways of measuring poverty as there are ways of defining it. The measurement and definition of poverty depend on how it is viewed, how one like to study and interpret. Poverty thus has been a complex concept, having a range of meaning.

SIGNIFICANCE OF THE STUDY

The measures of poverty, in India, are usually single dimension which missed out multiple aspects that contribute to poverty. Since, single dimension does not capture the multiple deprivations experienced by poor; therefore, there is a possibility of focusing the wrong targets when policies are being formulated for reduction of poverty. This is the impediment that led to failure of Government policies and programmes. To fill this measurement problem, MPI was introduced by OPHI and UNDP in 2010. Since, MPI measures those experiencing multiple deprivations, arguably it is a better measure of poverty than the single dimension. In



Mizoram, poverty has not been studied in terms of multidimensional aspects. It is therefore, an opportunity as well as a challenge to study incidence and intensity of multidimensional poverty in Mizoram.

Unlike other states in India, the urban population is more than rural population in Mizoram (except Goa). According to Census of India (2011), 52 per cent of the total population in Mizoram is in urban areas while 48 per cent lived in rural areas. However, despite the larger number of population in urban areas, poverty ratio according to Planning Commission has been higher in rural areas than that of urban areas. Besides, the Below Poverty Line (BPL) baseline survey 2016 conducted by Mizoram Statistical Development Agency, Directorate of Economics & Statistics, has also shown higher level of poverty in rural areas than in urban areas. This led to certain issues that need to be addressed such as why there has been higher incidence of poverty in rural areas, what are the factors responsible for higher incidence of poverty in rural areas. This study is therefore, the need of the hour to have an in-depth analysis to highlight the multidimensional aspects of poverty in the study area.

RESEARCH OBJECTIVES

1. To examine the incidence and intensity of poverty in the study area.
2. To compute and decompose MPI by dimensions in Mamit district.

METHODOLOGY

The study employed both secondary and primary data. Secondary data was collected from Mizoram Below Poverty Line (BPL)

baseline survey 2016, Village Profile and Developments Indicators 2017-18, Mizoram Economics Survey 2018-19, Mizoram Statistical Hand Book 2018. For the collection of primary data, a multi-stage stratified random sampling technique was adopted. At the first stage, Mamit district selected due to the fact that the district has poor socio-economic indicators among the eight districts in Mizoram. At the second stage, all the three Rural Development Blocks were covered from which fifteen villages were randomly selected for conducting the survey. Requisite data were then collected randomly through structured questionnaires which was designed based on the requirement for computation of MPI.

COMPUTATION AND DATA ANALYSIS

All the computation and analysis were carried out using Excel version 2016. For the computation of MPI (denoted as M_0) the study follows the global MPI Brief Methodological Note, 2017 in the choice of dimensions, indicators, thresholds and weights assigned to each indicator. Two steps are involved in the computation of MPI: Step 1: Individual assessment based on household achievements to determine if he/she is below the deprivation cut-off in each indicator. People below the deprivation cut-off are given a score of 1 and are considered deprived in that indicator. Step 2: The deprivation of each individual is weighted by the indicator's weight. If the sum of the weighted deprivations is 33 percent or more of possible deprivations, the person is considered to be multidimensionally poor or MPI poor. Table-1 presents the dimensions, indicators, deprivation cut-off, and weights used in the global MPI 2017.

Table-1: Dimensions, Indicators, Deprivation cut-off and Weightage of Global MPI 2017.

Dimensions	Indicators	Deprived if...	Weight
Education	Years of Schooling	No household member aged 10 years or older has completed five years of schooling.	1/6
	School Attendance	Any school-aged child is not attending school up to the age at which he/she would complete class 8	1/6
Health	Child Mortality	Any child has died in the family in the five-year period preceding the survey.	1/6
	Nutrition	Any adult under 70 years of age or any child for whom there is nutritional information is undernourished in terms of weight for age.	1/6
Living Standard	Electricity	The household has no electricity	1/18
	Improved Sanitation	The household's sanitation facility is not improved or it is improved but shared with other households.	1/18
	Improved Drinking Water	The household does not have access to improved drinking water or safe drinking water is at least a 30- minute walk from home, roundtrip.	1/18
	Flooring	The household has a dirt, sand, dung, or 'other' (unspecified) type of floor.	1/18
	Cooking Fuel	The household cooks with dung, wood or charcoal.	1/18
	Assets ownership	The household does not own more than one of these assets: radio, TV, telephone, bicycle, motorbike, or refrigerator, and does not own a car or truck.	1/18

Source: Global MPI Brief Methodological Note, 2017



MPI is a product of two parameters viz. (1) the incidence of poverty denoted as H and (2) the intensity of poverty denoted as A.

Formally, the first component is called the multidimensional headcount ratio (H) and can be expressed as;

$$H = \frac{q}{n}$$

Where, H is multidimensional headcount ratio, q is the number of people who are multidimensionally poor and n is the total population.

The second component measures the breadth of poverty and is calculated by following formula;

$$A = \frac{\sum_{i=1}^n C_i(k)}{q}$$

Where, A is the intensity of poverty, $C_i(k)$ is the censored deprivation score of individual i and q is the number of people who are multidimensionally poor.

The MPI is then calculated by multiplying the incidence of poverty (H) and the intensity of poverty (A) and can be expressed as; $M_0 = H \times A$.

1.10.3 Decomposition of MPI (M_0)

The study also decomposed MPI by population sub-groups and by dimensions and component indicators. Decomposition by population sub-group simply refers to calculation of MPI for a

particular group after which the contribution of each group can be calculated by the following formula;

$$\text{Contribution of Sub-Group to } M_0 = \frac{\frac{n_i}{n} \text{MPI}_i}{\text{Overall MPI}} \times 100$$

Where, M_0 the overall MPI, n_i is the population of i^{th} group and n is the total population. MPI_i is the MPI of i^{th} Group,

Decomposing by indicators has the same analogy with the above decomposition. It can be decomposed by computing the censored headcount ratio in each indicator multiplied by their respective weight assigned.

The censored headcount (CH) ratio of an indicator/ a dimension denotes the proportion of the MPI poor who are both multidimensionally poor and simultaneously deprived in that indicator/dimension. After decomposing by component indicators, the contribution of each indicator can be worked out by the following formula;

$$\text{Contribution of indicator } i \text{ to } M_0 = \frac{w_i \text{CH}_i}{\text{Overall MPI}} \times 100$$

Where, w_i is the weight of i^{th} indicator and CH_i is the censored headcount ratio of i^{th} indicator Contribution of each dimension is simply adding up the contribution of each indicator within the dimension.

RESULT AND DISCUSSION

The overall state of multidimensional poverty in Mamit district is shown in Table-2 below

Table-2: Status of Multidimensional Poverty, Mamit District, Mizoram.

Sl.No	Particulars	Mamit District
1	Headcount Ratio (H)	0.354
2	Intensity of Poverty (A)	0.403
3	MPI (Adjusted Headcount Ratio/ M_0)	0.143

Source: Calculated from Field Survey Data, 2019-2020

Table-2 clearly shows the overall multidimensional scenario of Mamit district. The district has an incidence of poverty (headcount ratio) of 0.355 and 0.403 intensity of poverty. The MPI in Mamit district is 0.143. The performance of Mamit district is similar to the various existing official records of Government of Mizoram. As per Mizoram Economic Survey 2018-19, Mamit district has the highest percentage of BPL household with 35.64 percent. Being a backward region in the state, National Institute for Transforming India Aayog (NITI Aayog) also identified the district to be one of the 117 aspirational districts in India.

Block-wise Decomposition of MPI in Mamit District

In decomposition of MPI by population sub-group (i.e. block-wise), we simply compute headcount ratio, intensity of poverty and MPI for each block in the district separately which is essential to highlight the geographical prevalence of poverty within the district as well as among the blocks in the district. It also gives us contribution of each block to the overall MPI of Mamit district. Table-3 below shows decomposition of MPI by Block-wise.



Table-3: Decomposition of MPI by Block-wise in Mamit District

Name of Blocks (Column-1)	H (Column-2)	A (Column-3)	MPI (Column-4)	Percentage Contribution to Mamit District MPI (Column-5)
Reiek	0.322	0.393	0.127	28
W. Phaileng	0.36	0.403	0.145	32
Zawlnuam	0.378	0.427	0.161	40
Mamit District	0.354	0.403	0.143	100

Source: Calculated from Field Survey Data, 2019-2020

Looking at the incidence of poverty in column-2 of Table-3, Zawlnuam block has the highest incidence of poverty followed by W.Phaileng block with headcount ratio of 0.378 and 0.36 respectively. Reiek block has the lowest incidence of poverty in Mamit district. From the result of the analysis, Mamit district has high incidence of poverty ranging between 0.32 - 0.38.

The intensity of poverty in column-3 also shows slight differences with negligible margin ranging between 0.39 – 0.411. Reiek block did not exceed 0.4 while the rest of the block viz. W.Phaileng and Zawlnuam exceed 0.4 indicating that multidimensional poverty is more severe in these two blocks. The highest intensity of poverty is seen in Zawlnuam block.

As explained above, analysis of incidence and intensity of poverty may look confusing and ambiguous since block with low incidence of poverty can be block with high intensity of poverty. In order to have a better understanding, these two pieces of information are bridged into a single number. This combined information on incidence and intensity of poverty is called MPI. If all households are multidimensionally poor (i.e. deprivation score $\geq 1/3$ of the indicators) then percentage of MPI poor will be 100 percent and 'headcount ratio (H) in this case will be 1 and hence MPI will be equal to the value of intensity of poverty (A). If MPI poor, on the other hand, are deprived in all the indicators then intensity of poverty (A) in this case will be 1 and the value of MPI will be equal to headcount ratio (H). Thus MPI reflects

the proportion of weighted deprivations that the poor experience in a society out of the total potential deprivations that the society could experience.

As seen in case of incidence and intensity of poverty, the values of MPI in various blocks are also compacted into a small range between 0.127- 0.161. The most deprived block identified on the basis of the 10 set of indices has been Zawlnuam with MPI value of 0.161 followed by W. Phaileng block with MPI value of 0.145. Reiek block has relatively lower value of MPI with 0.127. From the result of the analysis, it is clear that though there are variations in multidimensional poverty within Mamit district, yet the degree of variation is marginal.

Decomposition of MPI by Dimensions and Indicators in Mamit District

While decompositions by population sub-groups show the geographical pattern of multidimensional poverty, decomposition by dimensions and indicators tell the contribution of each dimension and indicator and is helpful to identify the degree of deprivation of various dimension and indicators. Table-4 below shows decomposition by dimensions and component indicators in Mamit district. It shows censored headcount ratio, percentage contribution of dimensions and indicators. Important point to be noted is that indicator having larger value of censored headcount ratio can have smaller contribution to MPI because of different weights assigned to indicators.

Table-4: Decomposition by Dimensions and Component Indicators

Dimensions	Indicators	Censored Headcount Ratio	Percentage Contribution by Indicators	Percentage Contribution by Dimensions
Education	Years of Schooling	0.130	15	21
	School Attendance	0.050	6	
Health	Child Mortality	0.090	10.5	32.5
	Nutrition	0.191	22	
Standard of Living	Electricity	0.013	0.5	46.5
	Sanitation	0.208	8.8	
	Drinking Water	0.202	8	
	Flooring	0.236	9	
	Cooking	0.350	14	
	Assets	0.165	6.5	

Source: Source: Calculated from Field Survey Data, 2019-2020



As shown in Table-4, the dimension of standard of living is the largest contributor to overall MPI of Mamit district with 46.5 percent. This signifies the overall low standard of living in the district. The second largest contributor to overall MPI of the district is the dimension of health with 32.5 percent. The least contributor is education dimension with 21 percent.

Decompositions by indicators show the degree of specific deprivations that people experienced. Nutrition has surpassed all other indicators with 22 percent contribution to overall MPI of Mamit district followed by year of schooling with 15 percent. These two indicators are also the first two contributors to overall MPI in the whole study area. Cooking fuel unexpectedly becomes the third largest contributor with 14 percent. This clearly indicates that cooking fuel, despite small and negligible weight assigned, is one of the most prevailing deprivations in Mamit district. The finding also expresses the need for urgency of climate action in Mamit district since many people are using wood as cooking fuel. Child mortality, with 10.5 percent, is one of the indicators that need more attention since child mortality indicates a lot and has a say not just about death of children but also the ignorance of family, their inability to avail health services and hence the complexity of poverty. Considering all these factors, the contribution of child mortality with 10.5 percent is an alarming result and requires special attention to improve. The contributions of the rest of the indicators show slight differences ranging between 6 percent and 9 percent except the indicator of electricity which does not exceed even 1 percent.

CONCLUSION

In this study the multidimensional aspects of poverty are measured using Global MPI Methodological Note, 2017, which follows the Alkire-Foster Methodology. The study clearly identified the incidence and intensity of poverty in the study area. By decomposing the MPI into population sub-groups and dimension, the pattern and distribution of poverty was also highlighted. The study concluded that the incidence and intensity of poverty in the study area was more or less moderate and is consistent with the existing records of the Government of Mizoram.

REFERENCES

1. Alkire, S & Roble, G. (2017), 'Multidimensional Poverty Index: Brief Methodological Note and Results', Oxford Poverty and Human Development Initiative, University of Oxford.
2. Beero Susanto Kumar (2014), 'Rural Poverty and Irrigation Performance in Odisha, India', *International Interdisciplinary Research Journal*, Vol.2 (11), November, pp. 66-78.
3. Dehury, et.al (2015), 'Regional Estimates of Multidimensional Poverty in India', *Economics, Discussion Paper No. 2015-34*, May, pp.1-23.
4. Dotter C., et.al (2014), 'The Concept of Relative Multidimensional Poverty: An Illustration Using Indian DHS Data', *IARIW, Netherlands*.
5. *Economics Survey (2018-19), Planning & Programme Implementation Department, Government of Mizoram.*
6. *Mizoram Below Poverty Line Survey (2016), Directorate of Economics & Statistics, Government of Mizoram.*
7. Mohanty (2011), 'Multidimensional Poverty and Child Survival in India', *Public Library of Science*, Vol.6, No. 10, pp.1-14, October.
8. Narayanamoorthy A. & Hanjra Munir A. (2010). 'What Contributes to Disparity in Rural-Urban Poverty in Tamil Nadu?: A District Level Analysis', *Indian Journal of Agricultural Economics*, Vol.65, No.2, pp.228-244, April-June.
9. *Population Census (2011), Registra General of India, Government of India.*
10. Preeti (2015), 'Interstate Comparison of Poverty Status in India' *International Journal of Management and Social Sciences Research (IJMSSR)*, Vol. 4, No. 5, (May), pp.39-43.
11. Pravathamma GL. (2014), 'A Review on India's Experience with Poverty Since Independence-Conceptual Framework, Trends and Approaches for its Eradication', *Global Journal for Research Analysis*, Vol-3, No-7, (July), pp.61-64.
12. Rao Jasmine (2010), 'The Caste System: Effects on Poverty in India, Nepal and Sri Lanka', *Global Majority E-Journal*, Vol. 1, No. 2, pp. 97-106, December.
13. Rouf Kazi Abdur (2015), 'While Poverty is a Global Problem Resulting from Global Issues, its Definition and Solution can only be Found Locally', *Global Journal of Management and Business Research: B Economics and Commerce*, Vol. 15, No.7.
14. Sarania Rahul (2015), 'Analysis of Poverty Profile and Determinants of Welfare among Rural Households: A Case Study of Udalguri District, Assam', *International Journal of Humanities & Social Science Studies*, Vol.-I, No.-IV, pp. 138-144, January.



A STUDY ON FINANCIAL EFFICIENCY AND WORKING CAPITAL MANAGEMENT OF TNPL INDUSTRY IN TAMILNADU

Dr. S. S. Muruganandam¹, Ms. S. Subhasini²

¹Associate Professor, Department of Commerce, Dr. N. G. P. Arts and Science College, Coimbatore, Tamilnadu

²B.COM(Student)Dr. N. G. P. Arts and Science College, Coimbatore, Tamilnadu

INTRODUCTION

Finance is the nerve centre and lifeline of any economic activity and is, therefore, omnipresent in every sphere of economic and business life. It plays an extremely crucial role in the continuity and growth of a business. An enterprise, which commits itself to an activity, requires finance. No business firm can be promoted, established and expanded without adequate financial resources. Success and survival of a business firm depends on how well its finance function is managed. The firm may have abundant resources, human and physical but if the available funds are not properly utilized for the benefit of the firm, it will come to an early end. Every effort should be made to render the finance function as effective as possible. Successful financial management of a business firm is manifested by certain benefits, like increased profitability, raising share prices, regular dividends to shareholders, attractive remuneration to employees and in short, the all round progress of the company.

Paper is one of the significant discoveries that turned the history of the world around. Paper pervades all sectors of our activity from books to bullets and from morning newspaper to nuclear technology. From the time immemorial, paper has played a key role in the evolution of our civilization. The importance of paper and paper products in the modern life is so obvious that no other manufactured product possesses such diversity of use. It is a basic medium of communication and dissemination of information. It helps all the human beings for the growth of education, reading, writing, storing, knowledge, quality of life, culture, and other sectors of the economy.

Modern people daily activities with morning newspaper and their activity end with writing of diary in the night. Kids to kings, all human beings, are using paper either directly or indirectly. It is very difficult to imagine modern life without paper. The fortune of paper industry is closely linked to the buoyancy in the economic development of a country.

Tamil Nadu Newsprint and Papers Limited (TNPL) were established by the government of Tamil Nadu during the early eighties to produce Newsprint and Printing & Writing Paper using bagasse, a sugarcane residue, as primary raw material. TNPL is the largest producer of bagasse-based paper in the world. Annual consumption of bagasse slated to touch 1 million tonnes per annum. TNPL exports about 15th of its production to more than 30 countries. Manufacturing of quality paper for the past two and half decades from bagasse is an index of the company's technological competence. Presently having an installed capacity of 230000 pa of Newsprint and Printing & Writing Paper in various combinations. TNPL has better economic of scale and higher capacity when compared to other leading players as BILT and Hindustan Paper Corporation Limited.

OBJECTIVES

- To measure the firm's liquidity and operational efficiency by using ratio analysis.
- To analyse and compare the financial performance changes over five years.
- To check the financial performance and progress of the company.
- To suggest measure to maintain adequate working capital.

ANALYSIS AND INTERPRETATION

LIQUIDITY RATIO CURRENT RATIO

$$\text{Current Ratio} = \frac{\text{Current Assets}}{\text{Current Liabilities}}$$

Table Showing Current Ratio

Year	Current Assets	Current Liabilities	Ratio
2018	1349.13	2139.15	0.63
2019	1563.25	2295.69	0.68
2020	1606.51	2254.95	0.71
2021	1387.09	2065.18	0.67
2022	1034.98	2190.48	0.47

Source: Annual Reports of TNPL



INTERPRETATION

A current ratio below 1 could indicate that a company might struggle to meet its short-term obligation. Above table indicates that the ratio is lower than the ideal ratio in all years. It shows the

firm's inability to pay off some of its debts. In the year 2020, the ratio is 0.71 which is more or less equal to ideal ratio. The company has the lowest ratio in 2022 that is 0.47. The company need to increase its assets to meet off its debts.

QUICK RATIO

$$\text{Quick Ratio} = \frac{\text{Quick Assets}}{\text{Current liabilities}}$$

Table showing Quick Ratio

Year	Quick Assets	Current Liabilities	Ratio
2018	864.96	2139.15	0.40
2019	702.46	2295.69	0.30
2020	760.47	2254.95	0.33
2021	709.21	2065.18	0.34
2022	592.27	2190.48	0.27

Source: Annual Reports of TNPL

INTERPRETATION

A company has a quick ratio of less than 1 may not be able to fully pay off its current liabilities in the short term, while a company having a quick ratio higher than 1 can instantly get rid

of its current liabilities. Here the company has the lowest ratio in 2022 that is 0.27 and the highest ratio in 2018 that is 0.40. Even though it is higher it cannot satisfy the good quick ratio of 1.

SOLVENCY RATIOS

INTEREST COVERAGE RATIO

$$\text{Interest Coverage Ratio} = \frac{\text{Earnings Before Interest and tax (EBIT)}}{\text{Interest Expense}}$$

Table showing Interest Coverage Ratio

Year	EBIT	Interest Expense	Ratio
2018	216.65	21.06	10.29
2019	461.75	30.01	15.39
2020	414.33	78.38	5.29
2021	75.98	71.66	1.06
2022	178.45	70.25	2.54

Source: Annual Reports of TNPL

INTERPRETATION

A coverage ratio below 1 indicates a company cannot meet its current interest payment obligations and, therefore, from the above table we may see the ratios are above the ideal ratio. In the

year 2019 the ratio is 15.39 which is higher and the year 2021 has the lowest ratio of 1.06. Hence the interest coverage is good in all years.

TURNOVER RATIOS

INVENTORY TURNOVER RATIO

$$\text{Inventory Turnover Ratio} = \frac{\text{Net sales}}{\text{Average inventory}}$$

Table Showing Inventory Turnover Ratio

Year	Net Sales	Average Inventory	Ratio
2018	3098.33	484.17	6.45
2019	4082.71	860.79	4.74
2020	3471.11	846.04	4.10
2021	2768.18	677.88	4.08
2022	4020.29	442.71	9.08

Source: Annual Reports of TNPL



INTERPRETATION

From 2018 to 2019, the company's net sales had a considerable increase of almost 32%. However, the net sales fell by about 15% and 20%, respectively, in 2020 and 2021. A significant increase of almost 45% in net sales was seen in 2022. The average inventory shows a fluctuating trend, with the highest

inventory being in 2019 and the lowest in 2022. It is important to note that a high inventory level may not always be desirable, as it could indicate slow sales or an overstocked inventory, leading to additional costs for the company.

PROFITABILITY RATIOS

OPERATING PROFIT MARGIN

$$\text{Operating Profit Ratio} = \frac{\text{Operating Profit} \times 100}{\text{Net Sales}}$$

Table Showing Operating Profit Margin

Year	Operating Profit	Net Sales	Ratio
2018	40464.19	3098.33	13.06
2019	64915.09	4082.71	15.90
2020	60779.14	3471.11	17.51
2021	26020.89	2768.18	9.40
2022	35820.78	4020.29	8.91

Source: Annual Reports of TNPL

INTERPRETATION

In 2018, the operating profit margin was 13.06%. In 2019, the operating profit margin improved to 15.90%, indicating that the company became more efficient in generating profit from its operations. In 2020, the operating profit margin further increased to 17.50%. However, in 2021, the operating profit margin

decreased significantly to 9.41%, which may indicate that the company faced some challenges in generating profits from its operations during that year. This trend continued in 2022, where the operating profit margin decreased further to 8.91%, indicating that the company's profitability may have declined.

COMPARITIVE BALANCE SHEET FOR THE YEAR 2022, 2021

(Rs.in Crs)

PARTICULARS	Mar-22	Mar-21	Change in Value	Change in %
EQUITIES AND LIABILITIES				
Equity Share Capital	69.38	69.38	0	0
Total Share Capital	69.38	69.38	0	0
Reserves and Surplus	1,519.76	1,527.39	-7.63	-0.50205
Total Reserves and Surplus	1,519.76	1,527.39	-7.63	-0.50205
Total Shareholder's Funds	1,589.14	1,596.77	-7.63	-0.48013
Non-Current Liabilities				
Long Term Borrowings	1,603.69	1,947.05	-343.36	-21.4106
Deferred Tax Liabilities [Net]	219.27	215.31	3.96	1.805993
Other Long Term Liabilities	10.21	16.3	-6.09	-59.6474
Long Term Provisions	161.51	142.72	18.79	11.63395
Total Non-Current Liabilities	1,994.68	2,321.38	-326.7	-16.3786
Current Liabilities				
Short Term Borrowings	618.95	336.35	282.6	45.65797
Trade Payables	1,115.64	833.78	281.86	25.26442
Other Current Liabilities	434.53	868.79	-434.26	-99.9379
Short Term Provisions	21.37	26.26	-4.89	-22.8825
Total Current Liabilities	2,190.48	2,065.18	125.3	5.720207
Total Capital And Liabilities	5,774.30	5,983.33	-209.03	-3.62001
ASSETS				



NON-CURRENT ASSETS				
Tangible Assets	3,289.90	3,513.52	-223.62	-6.79717
Intangible Assets	2.52	3.74	-1.22	-48.4127
Capital Work-In-Progress	1,357.11	939.24	417.87	30.79117
Other Assets	10.84	5.26	5.58	51.47601
Fixed Assets	4,660.38	4,461.77	198.61	4.26167
Non-Current Investments	0.61	0.55	0.06	9.836066
Long Term Loans And Advances	28.44	38.68	-10.24	-36.0056
Other Non-Current Assets	49.89	95.24	-45.35	-90.9
Total Non-Current Assets	4,739.32	4,596.24	143.08	3.018999
CURRENT ASSETS				
Inventories	442.71	677.88	-235.17	-53.1206
Trade Receivables	257.56	377.47	-119.91	-46.5561
Cash And Cash Equivalents	13.5	12.22	1.28	9.481481
Short Term Loans And Advances	17.11	16.92	0.19	1.110462
Other Current Assets	304.1	302.6	1.5	0.493259
Total Current Assets	1,034.98	1,387.09	-352.11	-34.0209
Total Assets	5,774.30	5,983.33	-209.03	-3.62001

INTERPRETATION

Comparing the figures from March 2022 to March 2021, the company's total shareholder's funds decreased by 0.48%. The company's long-term borrowings decreased by 21.41%, while its short-term borrowings increased by 45.66%. The company's total non-current liabilities decreased by 16.38%, and its total

current liabilities increased by 5.72%. The company's total non-current assets increased by 3.02%, while its total current assets decreased by 34.02%. The company's total assets decreased by 3.62%. The balance sheet also shows that the company has contingent liabilities of Rs. 843.42 crore as of March 2022, a decrease of 21.95% compared to the previous year.

Statement Showing Changes in Working Capital of TNPL For the year 2021, 2022

(Rs.in Crs)

PARTICULARS	Mar-21	Mar-22	Increase	Decrease
Current Assets				
Inventories	677.88	442.71		235.17
Trade Receivables	377.47	257.56		119.91
Cash And Cash Equivalents	12.22	13.5	1.28	
Short Term Loans And Advances	16.92	17.11	0.19	
Other Current Assets	302.6	304.1	1.5	
Total Current Assets (A)	1,387.09	1,034.98		352.11
Current Liabilities				
Short Term Borrowings	336.35	618.95	282.6	
Trade Payables	833.78	1,115.64	281.86	
Other Current Liabilities	868.79	434.53		434.26
Short Term Provisions	26.26	21.37		4.89
Total Current Liabilities (B)	2,065.18	2,190.48		125.3
Net working capital (A-B)	-678.09	-1155.5		

Source: Annual Reports of TNPL

INTERPRETATION

The net working capital has decreased from a negative amount of -648.44 in March 2020 to a more negative amount of -1155.5 in March 2022. This indicates that the company's ability to meet its short-term obligations has deteriorated over the period, which could be a cause for concern.

The decrease in net working capital is mainly due to a significant increase in the company's current liabilities,

primarily driven by the increase in short-term borrowings and trade payables. At the same time, there has been a decrease in the company's current assets, mainly driven by the decrease in inventories and trade receivables. Overall, the decreasing trend in net working capital is seen in the study.

CONCLUSION

The study was undertaken on the financial performance of the company. Tools such as ratio analysis, comparative balance



sheet, and statement of working capital have been used to find out the company's efficiency in performing all its functions. The analysis has shown fluctuations and have both good and bad sides during years. The analysis reveals that the short term solvency position is not good, but the long term solvency position is satisfactory. So, the firm has a healthy condition of finance for long term. The cash balances have a positive sign in all the five years but it has decreased over the years.

The growing consciousness for preservation of forests and maintenance of ecological balance and biodiversity during the last few years is further reducing the availability of raw materials to this industry. As the paper industry is suffering from certain setbacks, they should be properly identified and controlled. The paper industry has ample scope and growth to become an eco-friendly industry leading to the economic prosperity and wealth of the nation.



IMPACT OF STARTUP ECOSYSTEM ON THE STARTUPRENEURS (With Special Reference to Tirunelveli)

Dr.Sheeba.E¹, Mr.S.Subbiah Vijayakanth²

¹Head of the Department, Department of Commerce, Merit Arts and Science College, Idaikal, Tirunelveli.

²Assistant Professor, Department of Commerce, Merit Arts and Science College, Idaikal, Tirunelveli.

ABSTRACT

The growing younger generation needs gainful employment and their talents can be best extracted through the setting up of new ventures. Unlike the previous generations, the modern younger generations have digital knowledge and have a higher awareness level towards entrepreneurship as a career. They are aware of changes taking place in the business environment. Keeping the younger generation idle would be detrimental to economic growth. Retaining the younger generation and creating suitable alternatives becomes the modern strategy to tackle the issue of unemployment.

KEY WORDS: *New venture, Entrepreneurship, Startup ecosystem, Startuppreneurs and Startups.*

INTRODUCTION

'Startup' is usually an entrepreneurial venture, formed as a small business, is in the first stage of its operation, financed initially by their founders, which is designed to develop, grow fast and scale up to higher with its business model which focuses on an innovative product, service, process, platform or solutions to address various business and economic problems pertaining to the target market, in which the founders strongly believe in. The Indian startup ecosystem has emerged quite recently. The situation post liberalization of the Indian economy in 1995-1996, India saw more youngsters moving to the US and Europe as IT professionals and this had made India gain a lot of experience and knowledge. Since the millennium there has been a conscious attempt to start new ventures. Though the startup ecosystem in India is still not reached the maturity stage, it has contributed to the Indian economy in multiple ways and there is every need to study the patterns of the growing startup ecosystem and its various interrelated and interactive components. The recent pandemic COVID-19 has disturbed some entrepreneurs but not entrepreneurship.

Startups with innovative technological solutions are addressing pressing problems such as healthcare, education, poverty, employment in developing countries like India which is making the lifestyles of its people simple and enhances the way of living. Most of the active startup ecosystems are concentrated in Silicon Valley, New York City, London, Singapore, Bengaluru, Tirunelveli, Moscow, Paris, Chicago, and Berlin. The increase in the number of startups has contributed to job opportunities and economic growth across countries. The growing trend of startups is triggered by various factors, such as the increased willingness of investors to invest in high growth startups, the willingness of consumers to buy products from startups, and the strategies of using multiple channels to sell, which are cost-effective and preferred by customers.

NEED FOR THE STUDY

The increasing population, growing internet usage, mobile penetration, and growing economy are more favorable to the startup entrepreneurs to start a venture in India. The mobile market and exponentially growing online retailing have set the stage for India to be one of the biggest startup destinations and therefore the startup entrepreneurs should avail the advantages of the same for better growth. The government of India's digital push has improved the connectivity and the cheap data is helping everyone and startups will have an easier line to tap into markets, territories, and even traditional businesses. The tax rebates, easy formation, and exit and highly cooperative ecosystem are highly congenial and one has to avail the same for the betterment of society. The amazing featured startup ecosystem with facilitates such as the availability of seed capital, technology and ease of doing business has enhanced business opportunities for startup entrepreneurs, hence there is a need for startup entrepreneurs to avail these facilities. The present study concentrated on researching the problems, challenges and the opportunities available for the startups with reference to Tirunelveli.

STATEMENT OF THE PROBLEM

The success and failure of any business in general and startups in particular largely depend on coping with challenges that emerged like the commercialization of novel technique or technology prepositions into viable revenue-generating products or services. Besides this financing, the startups were also troublesome to the investors due to a lack of adequate return for a longer period of time with the aggregated risk involved in it. Further, positioning of the product or service is also another threat to the entrepreneur since it does not give any guarantee to have sustainable demand from the consumers. The technology-based startup companies are registering in higher numbers than non-high tech companies because of their growing importance in the new knowledge economy.



The young graduates from various universities are entering into the startup business without understanding the ecosystem. Since the rate of generation and innovation in knowledge has become very fast, the rate of obsolescence of technology has also become fast and consequently, the rate of mortality of startup companies has also gone up. The quick disruptions with big shifts in consumer behavior on the one hand and the young entrepreneurs with lack of knowledge, entrepreneurial skill set, predicting quick results without a proper practical plan, and imagination on the other hand have reduced the life cycle of a company to two or three years. Many entrepreneurs who initiate business will never reach its establishment and some close within one year of its establishment and among them, a small percentage of 10 startups sustain and become successful. The commercialization of the novel technology of startup entrepreneurs is not easy but can be attained with difficulty. Hence the researcher made an attempt to study the numerous challenges confronted by startups in Bengaluru and their role in the startup ecosystem.

OBJECTIVES OF THE STUDY

- ❖ To explore the impact of the startup ecosystem on the entrepreneurs in Tirunelveli

FRAMED HYPOTHESIS

- ❖ There is no impact of the startup ecosystem on the startup entrepreneurs.

SCOPE OF THE STUDY

The research on startups was primarily done to understand the factors that led the startup entrepreneurs in Tirunelveli to start their businesses. Further, the study was restricted to the dimension of startups entrepreneurs, their problems, awareness of startup policies, challenges encountered and the opportunities available to them, it was also limited to an empirical analysis of samples selected through a well-drafted questionnaire. The study was confined to startups from Tirunelveli regions. The incubators, accelerators and other stakeholders were contacted to know about the startup ecosystem and its functioning and through snowball reference; the startup entrepreneurs were contacted to analyze the area of startups, problems, and prospects and challenges the startup entrepreneur's encounter and their awareness about the government policies. The study was limited to understanding the perspective of startups in their journey with reference to the Tirunelveli startup ecosystem only.

LIMITATIONS OF THE STUDY

- ❖ The study was primarily focused on the perspective of startup entrepreneurs with regard to the Tirunelveli startup ecosystem only
- ❖ The sample taken was not quite large due to the nature of the study. Meeting entrepreneurs was a little difficult.
- ❖ The data collected from respondents were assumed to be unbiased.

- ❖ The model of the dimension of the startup ecosystem is designed by the researcher on the basis of conceptual study and it is not tested for the purpose of the study.

REVIEW OF LITERATURE

Brown.R & Rocha.A (2020) in their research illustrated how the covid-19 crisis affected the sources of finance for startups and small and medium-sized enterprises in the United Kingdom. The research showed that equity investments had reduced drastically and resulted in a fall in seed investment in early stage startups.

Chokhani.R (2021) revealed that skilled talent was hesitant to join startups as they had witnessed mass firing and downsizing. In addition to this challenge, raising the capital was the biggest challenge for startups for a very long time. The researcher further stated that in startups employment is uncertain due to companies reaching scale and then downsizing for better efficiencies

Devi.P (2022) in her study discussed the effect of corona virus on various sectors in India, such as MSME, employment and supply chain and others. The researcher suggested the need for change in the business environment and the revival support from the Government which can play a vital role in reviving the economy.

Research Gap: The researcher felt the need for conducting very specific research pertaining to Tirunelveli, one of the most important startup hubs in Asia where a lot of experiments are taking place in the startup scenario. Hence the present study on "Startups in India-Challenges and Prospects of selected units in Tirunelveli" becomes relevant.

RESEARCH METHODOLOGY

Research instrument: A structured questionnaire was developed to collect the required information from the respondents.

Sample of the study: To understand the challenges and prospects of startups, the sample of selected startup companies from various startup verticals in Tirunelveli was studied. A sample size of 200 startup companies was covered under the study where the appropriate weightage was given based on the geographical area.

Sampling Technique: The Snowball sampling technique was performed to collect valid data from startup entrepreneurs.

Sources of data: The present research considered both primary and secondary data. The primary data was collected through questionnaires Secondary data was compiled from websites, e-journals, research articles and books.

Statistical tools: The data that was collected from different sources were computed, classified, tabulated, analyzed and interpreted. Frequency and percentages were worked out for all socio-economic demographic variables of the respondents. Quantitative techniques like Chi-square and ANOVA were used to analyze and interpret the data to measure the variation and good fit of data.



Sample Frame

Sl.no	Location of start-ups	No.of respondents
1.	Palayamkottai	40
2.	Sankarankoi	40
3.	Ambasamudram	40
4.	Cheranmahadevi	26
5.	Kalakadu	34
6.	Valliyur	20
Total		200

Source: Secondary Data (<https://platform.fynd.com/>)

ANALYSIS AND INTERPRETATION OF DATA

Profile of Respondents

Table 1
Distribution on profile of respondents

Particulars	Majority	No.of respondents	Percentage
Age	25-30 years	68	34
Academic background	Commerce & finance	40	20
	Marketing	40	20
Occupation background	Business owner	90	45
Characteristic profile	Sole entrepreneur	70	35
Attribute & key strength	Leadership skill	40	20
Period of start-up	1-3 years	68	34
Classification of start-up	Private Ltd Co	75	38
	Liability partnership	75	38

Source: Primary Data

Table 2
Distribution on Classification of sectors

Type of sector	No of respondents	Percentage
Agriculture	22	11
Manufacturing	16	8
Transport & logistics	16	8
Insurance	5	3
Healthcare	13	7
Finance	19	10
E-commerce	15	8
Telecommunication	11	6
Education	21	10
Media & Entertainment	6	3
Sports & Recreation	10	5
Hospitality	5	3
Travel & Tourism	16	8
Mobile Service	13	7
Electronic	8	4
Social Commerce	4	2
Total	200	100

Source: Primary Data



IMPACT OF STARTUP ECOSYSTEM ON THE STARTUPRENEURS

Table 3
Distribution on impact of startup ecosystem on the Startupreneurs

Particulars	Agree	Neutral	Disagree
Economic impact			
Facilitates in raising of finance/capital	154	39	07
Facilitates in talent acquisition	163	32	05
Creates competitive advantage	112	33	55
Facilitates in regional innovation	126	39	35
Facilitates networking	177	14	09
Facilitates with incubation and acceleration	134	39	27
Provides required resources	126	46	28
Technological impact			
Impacts regional innovation mechanism	172	26	02
Efficient transformation of ideas and innovations	126	73	01
Influences the competitive positioning of a region	173	23	04
Encourages entrepreneurial behaviour	168	29	03
Assists in research activities	184	10	06
Social impact			
Networks are organized to enable efficient knowledge flows and value creation	53	112	35
Creates emphasis on locallabour force and production leading to spill over and non-market Interaction	182	16	02
Social benefit can spill over into delivery of new products and services that benefits the society	179	19	02
Collective value creation and public social impacts	136	28	36
Overall improvisation of society	180	18	02

Source: Computed Data

ANOVA

Table 4
Distribution on ANOVA – Economic Impact

Source of variation	Ss	Df	m-s	F-ratio	5% F-limit (from the F-table)
Between Sample	59550.10	(3-1)=2	$59550.10/2 = 29775$	$29775/327.14 = 91.02$	(2,18) = 3.68
Within Sample	5888.57	(21-3)=18	$5888.57/18=327.14$		
Total	65438.67	(18-1)=17			

Source: Computed Data



Table 5
Distribution on ANOVA – Technological Impact

Source of variation	ss	df	m-s	F-ratio	5% F-limit (from the F-table)
Between sample	74034.53	(3-1)=2	74034.53/2 = 37017.27	37017.27/359.07 =103.09	(2,12) =3.88
Within sample	4308.80	(15-3)=12	4308.80/12 =359.07		
Total	78343.33	(15-1)=14			

Source: Computed Data

Table 6
Distribution on ANOVA – Social Impact

Source of variation	Ss	Df	m-s	F-ratio	5% F-limit (from the F-table)
Between sample	48548.93	(3-1)=2	48548/2 = 24274.47	24274.47/1704.70 =14.24	(2,12) =3.88
Within sample	20456.40	(15-3)=12	20456.40/12 =1704.70		
Total	69005.33	(15-1)=14			

Source: Computed Data

Hypothesis Result

Economic Impact		
H ₀	There exist no economic impact of startup ecosystem on the startup entrepreneurs	Reject
H ₁	There exist economic impact of startup ecosystem on the startup Entrepreneurs	Accept
Technological Impact		
H ₀	There exist no technological impact of startup ecosystem on the startup entrepreneurs	Reject
H ₁	There exist technological impact of startup ecosystem on the startup entrepreneurs	Accept
Social Impact		
H ₀	There exist no social impact of startup ecosystem on the startup entrepreneurs	Reject
H ₁	There exist social impact of startup ecosystem on the startup entrepreneurs	Accept

FINDINGS OF THE STUDY

Economic impact: revealed data on the economic impact of startups eco system on the startup enterprises. The impacts vary from anticipated increase in facilitating capital to providing required resources. Variation analysis reveals that 88.5% (177) found that ecosystem has facilitated startups to network, 81.5% (163) opined that ecosystem has facilitated in acquiring the required talent. 77% (154) respondents received the required finance for their business. 67% (134) respondents got the incubation or acceleration facilities from the ecosystem. 63% (126) each opined that the Bengaluru startup ecosystem has facilitated regional innovation and provided required resources to start and run the business smoothly. Most of the startup entrepreneurs have agreed about the economic benefits that they received from the ecosystem, in the form of getting required capital, talent, networking, incubation and acceleration and other resources. The ecosystem also facilitated in creating a regional innovation and created a competitive atmosphere to come up with new innovative products and services to meet the regional needs. ANOVA statistical tool failed to accept H₀ and accepts H₁ and therefore it was concluded here that there exist significant economic impact of startup ecosystem on the

startup entrepreneurs.

Technological Impact: regarding the technological impact of startups ecosystem on the startups. These impacts vary from impacts of regional innovation mechanism to effectively assisting in research activities. Table revealed that 92% (184) startups opined that technology has assisted them in conducting the research about its customers, target market and the competitors. 86.5% (173) startups have agreed that the ecosystem has created competitive position in the region. 86% (172) startups have expressed that the technology has impacted the regional innovation mechanism and 84% (168) agreed that the environment has encouraged entrepreneurial behaviour. While 63% (126) startups agreed that there is efficient transformation of ideas and innovations due to impact of technology in the ecosystem. ANOVA test fails to accept H₀ and accepts H₁ and hence it was concluded here that there exist significant impact of technology on startups.

Social Impact: revealed information about social impact of startup eco system on startup enterprises. These social impacts vary from networks being organized to enable efficient



knowledge flows and value creation to overall improvisation of society. Variation analysis revealed that 91% (179) startups agreed that the ecosystem has created emphasis on local labour work force and production leading to spill over and even non market interactions. 89.5% (179) startups have expressed that the social benefit derived from startup ecosystem can create spill over into delivery of new products and services that can intern benefit the society. 68% (136) startups have agreed that the ecosystem have created value and has impacted public. The need for strengthening the organized networks was felt by the majority of the entrepreneurs, so that they can get the information which can add value its business and inturn to the society. ANOVA test failed to accept H_0 and accepts H_1 and hence it was stated that there exists social impact of startup ecosystem on the startup entrepreneurs.

SUGGESTIONS OF THE STUDY

- With the increase in number of research centres and rapid technological changes Bengaluru is ahead of other ecosystems in India. But there is need for the government, both central and state to simplify the process and set up high class research labs and technological facilities that can be easily accessible to every startup entrepreneur.
- The collaboration between startups and the big corporate not only provides an opportunity to foster innovation but also get lot of support in the form of finance from global investors, networking facilities worldwide and other infrastructural support.
- Since there is shift in the change in culture and mindset of young people, they feel it very cool to join the startups at their initial stages of career, but later they move towards big companies for better prospects. Most of the startups recruit early leading to absorption of resources at the early stage itself and high burn out rate. The startups should start hiring the employees only when it is needed and create better rewarding system for their employees and drive the point that startups are a ground for creating entrepreneurial skillset which even when the employees move towards matured companies is required, thereby ensuring that they are motivated to stay in the business and learn for a longer duration of startup's lifecycle.
- Though there is lot of technology support available to startups, they need to be smart by hiring an internal resource to validate the technology so they do not overpay outsourcing services and make costly mistakes by sourcing a wrong technology partners.
- There is need to have a strong network between various stakeholders. The interaction between successful or failed startups with various educational institutions provides the relevant knowledge and inputs for the young budding entrepreneurs. The educational institutions also need to bring in the relevant curriculum on startup entrepreneurship in consultation with various key stakeholders of the ecosystem.
- It is found that majority of startups fail as they suffer from adequate skills required to manage the business. There could be inter discipline interactions such as a tech student interacting with management student, leading to understanding and learning from each other that can

strengthen the business with complementary skills.

- There is increasing trend of B2B startups in Tirunelveli. Unlike B2C, the B2B startups face lot of challenges with regard to creating a brand. If the B2B startups have to sustain, they need to work on understating their niche target market and generate the leads at the earliest and ensure that the sale cycle doesn't take much of their time.

CONCLUSION

The research on **IMPACT OF STARTUP ECOSYSTEM ON THE STARTUPRENEURS (With special reference to Tirunelveli)** was conducted with an objective of examining startups and startup entrepreneurs and to understand the various challenges encountered to establish and pool the required resources such as finance, marketing, human resource, establishment and other related challenges. The awareness level of various government policies and initiatives by the startups were studied. The impact of startup ecosystem on the startupreneurs and the role played by startups were analyzed. The impact of recent pandemic covid-19 crisis on startups was also studied.

The Tirunelveli startup ecosystem with its various stake holders has created a favorable environment for startups. The young startupreneurs have knowledge about the entrepreneurship and they desire to be independent. There is a positive change in the behavior and acceptance of entrepreneurship as a career. The ecosystem has seen the increasing trend of e-commerce B2C startups and since 2017 the B2B segment has also started gaining the attraction.

REFERENCE

1. Agarwal, S. (2016). *Entrepreneurship and Entrepreneurial practices: Prerequisites for the robust growth of Indian economy with special reference to startups*. *International Journal of Research in IT and Management*, 16(10), 105–105.
2. Berger, A. N., & Udell, G. F. (1998). *The Economics of Small Business Finance: The Roles of Private Equity and Debt Markets in the Financial Growth Cycle*. *Journal of Banking & Finance*, 613–673. <https://doi.org/10.2139/ssrn.137991>
3. Calvino, F., Criscuolo, C., & Menon, C. (2015). *Cross-country evidence on start-up dynamics*. *OECD Science, Technology and Industry Working Papers*, 1–61. <https://doi.org/10.1787/5jrxtkb9mxtb-en>
4. Colombo, M. G., & Grilli, L. (2007). *Young firm growth in high-tech sectors: The role of founders' human capital*. *Innovation, Industrial Dynamics and Structural Transformation*, 67–86. https://doi.org/10.1007/978-3-540-49465-2_5
5. Motoyama, Y., & Watkins, K. K. (2014). *Examining the Connections within the Startup Ecosystem: A Case Study of St. Louis*. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.2498226>
6. Nikhil, N. K., Joy, V., & Saraswathy, S. (2015). *Problems and Prospects of start-ups in Kerala - A Study with Special reference to Cochin Startup Village*. *International Journal of Physical and Social Sciences*, 5(9), 276–289.
7. Okrah, J., & Nepp, A. (2017). *Factors Affecting Startup Innovation and Growth*. *Journal of Advanced Management Science*, 34–38. <https://doi.org/10.18178/joams.6.1.34-38>



8. Sarkar, A. (2016). *Startup India - A New Paradigm for Young Entrepreneurs (A Conceptual Study)*. SSRN Electronic Journal. <https://doi.org/10.2139/ssrn.2835322>
9. Ven, A. H. V. D., Hudson, R., & Schroeder, D. M. (1984). *Designing New Business Startups: Entrepreneurial, Organizational, and Ecological Considerations*. *Journal of Management*, 10(1), 87–108. <https://doi.org/10.1177/014920638401000108>.



EFFECTIVENESS OF PERFORMANCE APPRAISAL SYSTEM WITH SPECIAL REFERENCE TO TAMILNADU POLICE CONSTABLES IN KANNIYAKUMARI DISTRICT

Dr.M.Karthika¹, Dr.T.Chandrakala²

¹Assistant Professor of Commerce, Infant Jesus College of Arts and Science for Women, (Run by the Council of the ICM Educational Institutions), Mulagumoodu, Kanniyakumari.

²Assistant Professor of Commerce, Infant Jesus College of Arts and Science for Women, (Run by the council of the ICM Educational Institutions), Mulagumoodu, Kanniyakumari.

ABSTRACT

The concept of Performance appraisal (PA) has been transformed over the time period. Performance was usually associated with the yearly appraisals which determine or assess the entire year's effort of an employee wherein numbers are used for assessment. A performance management system is not about trying to control employees, but rather to focus on improving overall performance. Performance Management System (PMS) can be a good instrument which can be comprehensively designed and executed or implemented in all sincerity. Changes can be made to improve the effectiveness of PMS and can be more effective. With any other organizational system, performance management system's effectiveness is heavily dependent upon the way it is designed and implemented and perhaps, the reason for it being one of the "most praised, criticized and debated management practices for decades.

KEY WORDS: *Performance appraisal (PA), Performance Management System (PMS) and Performance Appraisal System.*

INTRODUCTION

The performance evaluating process to evaluate the performance of the employees is as old as the origin of the business itself. The merit rating system is often confined to the immediate superior who evaluates the performance of the subordinates on certain set of parameters. The frequency of the appraisal is often once in a year. The evaluation process lead to shifting of performance appraisal process from traditional to development oriented appraisal. The performance appraisal acted as a technique to identify competences of the employee across various levels of management. Performance appraisal is the process of getting desired results from subordinates, teams and organizations, in a desired and agreed framework to achieve excellence at all levels of management. It is a planning process for the development of the competencies of the subordinates by evaluating their performance on set standards. The performance appraisal process is a three stage process including setting of goals, review of performance and development of competencies of the subordinates ¹.

The performance appraisal is the procedure of evaluating human being's efficiency by way of evaluating actual efficiency with set parameters. These standards have already been explained to the workers, consequently providing feedback about their work effectiveness rank for improving their efficiency as required by the business concern. There are

various purposes of performance evaluation or uprising to identify concert of each worker at workplace, consequently to choose whether instruction is required to specific worker or to give encouragement with supplementary increment².

STATEMENT OF THE PROBLEM

Performance appraisal as an informal process has no doubt existed among employers since the time at which the first employee began working. The formal process of evaluating or appraisal is newer, growing in use since 1940. Performance appraisal includes defining responsibilities, setting expectations, providing the necessary resources, giving ongoing feedback, periodically appraising performance, and utilizing the resulting information. Uses include making human resources decisions, solving individual and organizational problems, and developing people and organizational system. The appraisal of performance is but one aspect of the broader process of performance management. Performance appraisal looks back and asks the question, "How well was the work done?" Follow-up issues might include what can be done to improve future performance. Performance management, by contrast, asks a future oriented question: "What can be done to help employees perform as effectively as possible?"

The present day problem of the nation is to enhance the quality of the performance of the staff, so their performance should be

¹ Chatterjee ,Leena.(1996).Towards an Effective Performance Appraisal System. *Decision* 23(1-4),169-178

² Lies & Zhang 2015, 'Behaviourally Anchored Rating Scales: A Review of the Literature', *Personnel Psychology*, vol. 28, no. 4.



controlled properly, monitored properly. This research will help in their development and thereby help to solve the problem of quality in the performance of police (constables). The researcher is planning to study the existing assessment system of the performance of constables and analyze it in terms of five factors of performance appraisal system³. This analysis will help to bring out the discrepancies and negative and positive aspects in the system of assessment of the performance of constables in the study area (Kanniyakumari District).

NEED OF THE STUDY

The subject of performance appraisal appears a major subject of controversy in management circles, while business leaders see the need for appraisal systems; they are frequently disappointed in them because of various challenges that derail its objectives. One of the responsibilities of management is to ensure that an organization functions effectively and efficiently. In order to achieve these goals, managers must be able to determine and assess performance levels of both an organization and its individual employees. Performance appraisal has been described as a management tool designed to encourage communications in the office, improve the quality of work produced, and promote individual accountability. This is the concept underpinning the legal requirement that all agencies evaluate employee performance. Performance appraisal as an organizational system comprising deliberate processes for determining staff accomplishments, through rating, to improve staff effectiveness Performance appraisal provides a good opportunity to formally recognize employees’ achievements and contributions to the organization, and to ensure that a clear link is established and maintained between performance and reward. Thus one of the key objectives of performance appraisal is to reward performance and address weaknesses. In other words, it provides valuable feedback and instruction to employees and gives superiors a useful framework from which to assess the subordinate’s performances⁴.

SCOPE OF THE STUDY

1. For police department: The study is absolutely being more beneficial for the police departments as each department is ridden by performance appraisal system. This study is

SAMPLE SIZE

Table 1
Distribution on Sample unit in Kanniyakumari district

Sl.no	Divisions	No of police stations	Number of Constables			Total
			Head	G-I	G-II	
1.	Kanniyakumari Sub Division	7	30	69	89	188
2.	Nagercoil Sub Division	7	21	51	68	140
3.	Thuckalay Sub Division	13	34	76	83	193
4.	Colachel Sub Division	10	24	51	69	144
	Total	37	109	247	309	665

Source: Primary Data

³ Prasetya, Arik & Kato, Masanori 2011, ‘A critical examination of performance appraisals’, *The Journal for Quality and Participation*, vol. 30, no. 1, pp. 20-25.

providing the results drawn from the feedback from the constables of the selected police departments under the study related to the applicability and implementation of performance appraisal practices. This will further help the department to improve their efficiency and performance for future growth and also guide how the constables can be satisfied in the competitive edge.

2. For constables: This study results in a detailed pros and cons of performance appraisal system at workplace. It is also define the main measures performance of the constables in diverse workplace. This study serves best performance appraisal practices for constables at workplace in the police department.

3. For Academicians, Researchers and Students: The research provides frequent information related to the study to the academicians, researchers and students who are interested in the performance appraisal practices for higher performance of the constables in police department.

OBJECTIVES

To study the effectiveness of performance appraisal system (perception, attitude, level of satisfaction, performance) in Tamilnadu Police Constables in Kanniyakumari district.

RESEARCH METHODOLOGY

- ✓ Sample size - 665 respondents,
- ✓ Respondents - Constables
- ✓ Sampling Method - Stratified sampling method,
- ✓ Sample Plan - Interview schedule (Primary Data)
- ✓ Sample Unit – 4 divisions.
- ✓ Study area – Kanniyakumari district
- ✓ Data analysis - SPSS (IBM 25.0)

LIMITATIONS

- The study is confined to the respondents (Constables) in police departments of Kanniyakumari district only.
- The study is individual member oriented and factors selected are personal in character.
- The primary data were collected through interview schedule method which is subjected to recall bias.

⁴ Ali, MH & Opatha, HHDNP, 2008, ‘Performance appraisal system and business performance: An Empirical study in Sri Lankan apparel industry’, *Sri Lankan Journal of Human Resource Management*, vol. 1, no. 2.



Table 2
Distribution on Sample unit and Sample size taken for the study

Sl.no	Police stations	Divisions	Constables			Total
			Head	GI	GII	
1.	Kanniyakumari P.S	Kanniyakumari Sub Division	10	15	22	
	South Thamaraiikulam P.S		7	14	18	
	Suchindirum P.S		5	17	19	
	Anjugramam P.S		3	9	11	
	Rajakkamangalam P.S		2	8	10	
	Eathamozhy P.S		1	3	5	
	AWPS, Kanniyakumari District		2	3	4	
	Total		30	69	89	
2.	Kottar P.S	Nagercoil Sub Division	9	15	24	
	Vadasery P.S		4	10	14	
	Aralvaimozhy P.S		2	9	14	
	Bhoothapandy P.S		1	7	9	
	Nesamony Nager P.S		2	4	4	
	Asaripallam P.S		1	3	2	
	AWPS, Nagercoil		2	3	1	
	Total		21	51	68	
3.	Thuckalay P.S	Thuckalay Sub Division	3	9	9	
	Kottiyode P.S.		3	8	9	
	Kaliyakkavilai P.S		3	7	8	
	Palugal P.S		4	9	7	
	Arumanai P.S		3	2	5	
	Kadayalumoodu P.S		3	6	6	
	Arukani P.S		2	9	6	
	Kulasekharam P.S		2	8	8	
	Petchiparai P.S		2	3	4	
	Thiruvattar P.S		2	5	5	
	Kuzhithurai P.S		2	4	6	
	Keeriparai P.S		3	3	8	
	AWPS, Kuzhithurai		2	3	2	
	Total		34	76	83	
4.	Manavalakuricy P.S	Colachel Sub Division	6	8	11	
	Vellichanthai P.S		4	9	8	
	Mondaicadu P.S		3	9	9	
	Eraniel P.S		2	6	9	
	Colachel P.S		1	2	5	
	Karungal P.S		2	3	6	
	Puthukadai P.S		1	3	5	
	Kollencode P.S		2	3	5	
	Nithiravilai P.S		1	4	6	
	AWPS, Colachel		2	4	5	
	Total		24	51	69	
Total :					665	

Source: Primary Data



ANALYSIS OF DATA

Profile of respondents

Table 3
Distribution on profile of respondents (majority)

Sl.no	Particulars	Variables	Frequency	Percentage
1.	Age	26-30 years	255	38
2.	Gender	Male	468	70
3.	Marital status	Unmarried	501	75
4.	Educational qualification	Under graduates	406	61
5.	Salary per month	Rs. 15,001 – 25,000	283	43
6.	Years of service	5-10	282	43

Source: Primary Data

Related information

Table 4
Distribution on related informations (majority)

Sl.no	Particulars	Variable	No. of respondents	Percentage
1	Promotion	Nil	386	58
2	Medal & awards	No	484	73
3	Assessment	Yes	665	100
4	Appraisal period	Annually	465	70
5	Appraisal method	Ranking method	279	42
6	Appraisal system	Self-assessment system	413	62
7	Responsible for appraisal	Higher authority	346	52
8	Information on performance appraisal	In the meeting	459	69
9	Responsible for fixing performance appraisal	The department	446	67

Source: Primary Data

ANALYSIS ON TESTING OF HYPOTHESIS

Ho1: There is no significant relationship between demographic profile of respondents and level of satisfaction towards performance appraisal.

Ho2: There is no significant relationship between related information of respondents and attitude towards performance appraisal.

Table 5
Distribution on Chi-square @ 5% level of significance

Sl.no	Independent variables	Dependent variables	Sig value	Chi-square value	d.f	Result
1.	Age	Level of satisfaction towards performance appraisal	.035	40.113	45	Significant
	Gender		.003	16.919	15	Significant
	Marital status		.000	16.919	15	Significant
	Educational qualification		.000	50.998	30	Significant
	Salary per month		.000	28.869	60	Significant
	Year of experience		.003	40.113	30	Significant
2.	Promotion	Attitude towards performance appraisal	.002	40.113	57	Significant
	Medal & awards		.004	16.919	19	Significant
	Assessment		.005	21.026	19	Significant
	Appraisal period		.001	12.592	57	Significant
	Appraisal method		.004	79.490	57	Significant
	Appraisal system		.000	79.490	57	Significant
	Responsible for appraisal		.000	28.869	15	Significant
	Information on performance appraisal		.000	50.998	60	Significant
	Responsible for fixing performance appraisal		.003	100.425	38	Significant

Source: Computed Data

Ho3: There is a no significant association between demographic profile of respondents and Perception on performance appraisal.



Table 6
Distribution on ANOVA test [@ 5% level of significance]

Dependent	Independent	P-Value	Result
Perception towards performance appraisal	Age	0.003	Associated
	Gender	0.000	
	Marital status	0.001	
	Education qualification	0.003	
	Grade	0.003	
	Salary per month	0.001	
	Year of service	0.002	

Source: Computed Data

Ho4: There is significant relation between performance and perception-appraisal & perception-appraisal system.

Table 7

Performance and perception on performance appraisal & perception on performance appraisal system – Correlation

Sl.no	Dependent variables	Factors – Perception	
		Performance Appraisal	Performance Appraisal System
1	PM – 1	0.472	0.167
2	PM – 2	0.449	0.260
3	PM – 3	0.412	0.232
4	PM – 4	0.409	0.171
5	PM – 5	0.312	0.209
6	PM – 6	0.425	0.180
7	PM – 7	0.400	0.198
8	PM – 8	0.435	0.078
9	PM – 9	0.423	0.001

Source: Computed data

NB: significance @ 1% level of significance

Variables	PM	PPA	PPAS
PM	1.000	0.003	0.001
PPA		1.000	0.003
PPAS			1.000

Ho5: There is no association within the factors of Performance measures.

Table 8

Opinion on Performance measures – Factor analysis

Factors	F1	F2	F3	F4	F5	F6	F7	F8	F9
F1	1.000								
F2	.987	1.000							
F3	.996	.983	1.000						
F4	.995	.980	.998	1.000					
F5	.990	.994	.991	.987	1.000				
F6	.992	.977	.994	.993	.988	1.000			
F7	.984	.990	.984	.979	.996	.987	1.000		
F8	.993	.763	.991	.987	.998	.763	.776	1.000	
F9	.994	.994	.993	.977	.994	.990	.994	.776	1.000

Source: Computed Data

FINDINGS OF THE STUDY

➤ **Chi-square:** For testing chi-square statistics for demographic profile of respondents and level of satisfaction towards performance appraisal p value is associated with alpha level, as the p value is less than the designated alpha level (0.05), the null hypothesis is rejected and the alternative hypothesis [H_a: There is significant relations between demographic profile of respondents and level of satisfaction towards performance

appraisal] is accepted. It is concluded that there is a significant relationship between demographic profile of respondents and level of satisfaction towards performance appraisal.

➤ For testing chi-square statistics for related information of respondents and attitude towards performance appraisal p value is associated with alpha level, as the p value is less than the designated alpha level (0.05), the null hypothesis is rejected and the alternative hypothesis [H_a: There is



significant relations between related information of respondents and attitude towards performance appraisal] is accepted. It is concluded that there is a significant relationship between related information of respondents and attitude towards performance appraisal.

- **ANOVA:** The significance value of the statistics based on comparison mean was less than the designated alpha level (0.05), thus the null hypothesis was rejected and the alternative hypothesis [H_a : There is significant association between demographic profile of respondents and Perception on performance appraisal] was accepted. It was concluded that there is a significant association between There is a no significant association between demographic profile of respondents and Perception on performance appraisal.
- **Correlation:** The Correlation statistics -Kendall and Pearson Correlation for Performance and perception on performance appraisal & perception on performance appraisal system it indicates positive relationship with each variables. The correlation between PM and PPA was 0.003, PM and PPAS was 0.001 and between PPA and PPAS was 0.003, here the values are less than the designated alpha level (0.05) hence the result of Pearson and Kendall correlation shows high positive correlation i.e. a perfect positive linear reliability is found between the factors, therefore the null hypothesis was rejected and the alternative hypothesis [H_a : There is significant relation between Performance and perception on performance appraisal & perception on performance appraisal system] was accepted.
- **Factor analysis:** For the purpose of analysis the variables are coded as (F1 to F9), F1: Output, F2: Quality, F3: Punctuality, F4: Job knowledge, F5: Initiative, F6: Teamwork, F7: Resourcefulness, F8: Honesty and F10: Leadership. From the loading it was concluded that there is positive loading at 0.05 level of significance for all the factors, the main diagonal (1.000) indicates the variable perfectly correlated with itself, it was also evident that almost all the values are factor loaded > 0.65 which implies a strong association between the variables.

Other Findings

- Performance appraisals adjust the individual performances to the progressive targets and moreover review their performance. The system must be established on a significant regard for people and see that laborers are the hugest resource. However, the most significant ramifications are that the input of workers about it must be investigated critically.
- Performance appraisal should be treated as “Psychological Development Tool” for employees. It bridges the gap between the appraisers and appraise.

SUGGESTIONS

- ❖ Grade 1 police constables are wanted to increase because they are lower than numbers are employed in the department. It will help to increase their performance and responsibilities and then it will automatically improve the outcome of the police constables.

- ❖ Grade 2 police constables are not awarded for any rewards and medal. If the department provide some rewards to the police constables to motivate their job performance appraisal.
- ❖ Nowadays, records are maintained in systemised basis. So the department should more concentrate to provide training about computer knowledge. It will help to maintain the record easily and faster. And also improve the performance appraisal system.
- ❖ Generally male bachelors should not have quarter's facility. Due to that many of the employees are travelled for long distance. This will create some uncomfortable feelings in their working place and lacking in their performance. If Government will provide quarters to bachelors, they put hard work to achieve the organisation goals. Then it will automatically increase their performance and helpful to appraise their performance system in effective manner.
- ❖ New model of performance appraisal system to improve the appraisal system effectively. Feedback of the employees is more important to improve the appraisal system. So, I suggested you to get the feedback about the performance appraisal from the employees. It clearly shows the performance appraisal system will be effective or not.
- ❖ Proper training sections should also be providing at the work place for understanding performance appraisal system.

CONCLUSION

The present study concludes that the performance appraisal system that was traditionally followed by the police department is 70% effective and at the same time this system was having some lacking to arrive at their employee strength and weakness. According to the present performance appraisal system, the employees are satisfied with the results showing that 30% of the responses are ineffective in the performance appraisal system. For the reason is feedback was not collected from the employees and also the appraisal method result was not shown to the employees. For that gap, the new performance appraisal system was having a universal feedback approach to rectify the ineffectiveness of the performance appraisal system.

The new system for finding the strength and weaknesses of the employees from the results helps the management to deliver the rewards to the strengthened employee and to organizing some training to the low performed employees. The new system of the universal feedback approach in the performance appraisal system helped to found the effectiveness of the performance appraisal system and it was carried out by the management in a transparent manner. From this universal feedback approach involving all the employees of an organization, it helps to improve the level of employee engagement with their respective fields. Through this process, the level of performance may be increased.



REFERENCE

1. Ali, MH & Opatha, HHDNP, 2008, 'Performance appraisal system and business performance: An Empirical study in Sri Lankan apparel industry', *Sri Lankan Journal of Human Resource Management*, vol. 1, no. 2.
2. Chatterjee, Leena.(1996).Towards an Effective Performance Appraisal System. *Decision* 23(1-4),169-178.
3. Iqbal, MZ 2012, 'Expanded dimensions of the purposes and uses of performance appraisal', *Asian Academy of Management Journal*, vol. 17, no. 1, pp. 41.
4. Lies & Zhang 2015, 'Behaviourally Anchored Rating Scales: A Review of the Literature', *Personnel Psychology*, vol. 28, no. 4.
5. Prasetya, Arik & Kato, Masanori 2011, 'A critical examination of performance appraisals', *The Journal for Quality and Participation*, vol. 30, no. 1, pp. 20-25.
6. Risher & Howard 2012, 'Training programs For Performance appraisal: A Review', *Academy of Management Review*, vol. 11, no. 1, pp. 22-40
7. Singh Anupriya. 2013, 'Perceptions of Software Professionals regarding Performance Management Processes: An Exploratory Study', *Vikalpa*, vol. 38, no. 2, pp. 39-59.
8. Varsha Dixit & Agarwal, BB 2019, 'Performance Management revisited', *British Journal of Social Science*, vol. 1, pp. 1-4.



IMPACT OF PERSONALITY TRAITS IN MUTUAL FUND SELECTION (With Special Reference to Tiruppur)

Dr.S.Kalaiyarasi

HOD in Commerce, NIFT-TEA College of Knitwear Fashion, Tiruppur

ABSTRACT

There are a lot of investment avenues available today in the financial market for an investor with an investable surplus. He can invest in Bank Deposits, Corporate Debentures, Mutual funds and Bonds where there is low risk but low return. He may invest in Stock of companies where the risk is high and the returns are also proportionately high. The recent trends in the Stock Market have shown that an average retail investor always lost with periodic bearish trends. People began opting for portfolio managers with expertise in stock markets who would invest on their behalf. Thus we had wealth management services provided by many institutions. However they proved too costly for a small investor. These investors have found a good shelter with the mutual funds. Personality traits imply consistency and stability someone who scores high on a specific trait like extraversion is expected to be sociable in different situations and over time. Over the years investment decision has become more complex, but in many occasions lot of factors like feelings, past experience and beliefs impact investment decisions and investors act in unexpected, irrational and unwise manner. When individuals and the financial advisor make financial decisions need to be aware of relevant personality traits as well as level of financial risk tolerance.

KEY WORDS: *Investment decision, Risk tolerance, Personality traits.*

INTRODUCTION

Personality traits and their attitude towards risk have greater impact of one's investment behaviour. Behaviour is the range of actions and mannerisms made by organisms, systems, or artificial entities in conjunction with their environment, which includes the other systems or organisms around as well as the physical environment. The combination of psychology and economics which explains the why and how aspects of investors relating to stock market anomalies is termed as behavioural finance. According to American Psychological Association "Personality" refers to individual differences in characteristic pattern of thinking, feeling and behaving. Risk tolerance is one of the important components in investing which is mainly depended on investment objectives and attitude of the investor. It is referred as the degree to which an investor is willing and able to accept the possibility of an uncertain outcome to an economic decision. Numerous studies on investment behaviour have also proved that personality traits and risk tolerance of an investor play a major role in the investment decision of an individual. At the time of investment decisions the investor has to come across certain cognitive and emotional weakness.

Investors are provided with numerous savings and investment avenues such as bank deposits, provident fund, insurance schemes, mutual funds, equity shares, debentures, commodities and gold. Mutual fund acts as a popular investment tool for middle and high income group of individual investors as it offers a convenient and cost-effective way to invest in the financial markets. A mutual fund is a trust that pools the savings of number of investors who share a common financial goal and invest their savings in capital

market and money market securities. It plays an important role in mobilising the household savings for deployment in capital market. Mutual fund also brings the benefit of diversification and money management to the individual investors by providing an opportunity for financial success that was once available only to a select few. It acts as a professional intermediary between the investors and the capital markets.

Many of the retail investors are not having adequate knowledge for informed investment decision. They are not aware of risk profile of the investment type (Ministry of Corporate affairs -Under the aegis of Investor Education and Protection Fund). To take a wise investment decision, the investors should have right information, planning and ability to assess the investment. Keeping this in mind, the study focuses on personality traits of individual investors which influence the investment decision.

STATEMENT OF THE PROBLEM

An investor can invest directly in securities or indirectly through financial intermediary. The number of investors participating in the financial markets has risen due to the availability and introduction of new financial products. Normally retail investors' trade with small amount of investment when compared to the institutional investors. Mutual fund provides liquidity, diversification and professional management for the fund invested. Retail investors always select mutual fund as one of the best suitable investment avenues for surplus amount.

Each investor is unique in his character, knowledge and ability to tolerate risk. Retail investors differ in financial planning,



needs and expectation towards investment. Investment size and choice of investment decisions depend on their personal characteristics and their risk attitude towards investment avenues. Retail investors fall under highly distinctive clusters, under this background, the following research questions have been raised: Why do people save and invest and where do they invest? and Does the personality of the investors influence their investment decision?

SCOPE OF THE STUDY

The study mainly concentrates on individual investors of Coimbatore district and their attitude towards mutual funds. The purpose of the study is to understand the influence of personality traits in mutual fund selection by retail investors. Their investment objectives, preferred investment avenues and personality characteristic among individual investors are the focal points of the study. The unit of observation and analysis of survey is only individual investors in any of the mutual fund schemes. The fund performance and appraisal of fund houses are beyond the purview of the study.

REVIEW OF LITERATURE

Olweny, Namusonge and Onyango (2020) have classified financial attributes into home ownership and monthly income level, to analyse the effect of financial attributes in investors risk tolerance level. 500 Central Depository System account holders constitute the sample for the study and statistical tools such as ANOVA and Ordinal Logistic regression model were employed to determine the effect on each variable and to establish the effect of financial attributes on risk tolerance. The study explains that the home owners were more risk-tolerant than non-owners, earning and income of the respondents influence the risk tolerance level of an individual investor. The authors concluded that the wealthy people are not willing to accept higher risks, financial risk tolerance increases with income level and wealth.

Arshi A. Tahseen and S. Narayana (2019) carried out a study to understand the consumer attitude towards financial products, particularly the mutual funds and their risk attitude of the respondents. Systematic sampling method was used to collect data from 200 consumers of Oman and applied a Pearson product moment correlation and multiple standard regressions in order to find probable relationship between the items. The Oman people generally seemed to be risk-averse

towards capital markets and are very cautious about the risk involved in the investment while making the financial decisions.

To increase the risk appetite of the people and make more people to investment in mutual funds, the authors suggested to the asset management companies and professionals to offer more variety of funds which provides new opportunities in capital markets. The study concluded that implementing suitable strategies will increase the attraction towards mutual funds in Oman.

OBJECTIVES OF THE STUDY

To find answers to the above questions the following objectives were framed:

1. To understand the investment objectives and preferred investment avenues of individual investors.
2. To analyse the influence of personality traits in mutual fund selection.
3. To ascertain the association between the personality traits of the investors and the preferred investment types.

FRAMED HYPOTHESES

Based on the objectives, the following null hypotheses were tested:

1. **H₀:** Personal variables of the individual investors do not have an impact on their savings and investment pattern.
2. **H₀:** There is no association between personality traits of the individual investors and their attitude towards investment channels.

LIMITATIONS OF THE STUDY

1. The sample selected from each taluks was restricted to 100, which results in 720 valid samples; it may not adequately represent the national market. Hence the findings cannot be generalised.
2. The results are based on the information collected from the respondents. So there may be a chance of bias.
3. The mutual fund investors have also invested in different investment channels. So their personality traits may affect the research findings.



CONCEPTUAL FRAMEWORK

Table 1-Big five factor model

I	Openness to Experience		
	Curious investor	V _s	Conservative investor
II	Extraversion		
	Extrovert (Talkative and Sociable)	V _s	Introvert (Shy and reserved)
	Risk		
	Risk avoider (Prefers to avoid risk)	V _s	Risk taker (Prefers to take risk)
	Return		
	Economic investor (Highly focused on return than risk)	V _s	Highly economical investor (Thinks that return as a part of investment)
III	Conscientiousness		
	Careless / Spontaneous investor (The people are careless and spontaneous)	V _s	Cautious investor (Planned or organised before any work)
	Dependability		
	Independent investor (They are independent and always take decision on their own)	V _s	Dependent investor (They depend others for information)
IV	Agreeableness		
	Suspicious investor (They are always suspicious)	V _s	Trusting investor (They believe others)
V	Neuroticism		
	Relaxed / Confident investor (Stable and relaxed in taking decisions)	V _s	Emotional investor (Take decision based on emotions)

RESEARCH DESIGN AND METHODOLOGY

The data needed for the study is primary in nature. In order to fulfill the objectives, the study was undertaken by using a well-framed questionnaire that was duly filled in by the respondents. The questionnaire is comprised of five sections. The first section deals with the profile of the investors, their savings and investment information. The second section has 17 statements to understand the personality traits of the investors and their risk profile. This is based on “Big five” factors in personality traits. The responses of the investors were measured with five-point Likert’s scaling technique (strongly disagree, disagree, neutral, agree and strongly agree). The last portion deals with the source of information about mutual fund, investment method and their preferred mutual fund schemes.

A pilot questionnaire was first administered to small samples of 50 mutual fund investors after pre-testing, necessary modifications were made in the questionnaire to fit in the track of the present study. The final collection of data was initiated in the month of November 2012 and completed by the end of May 2013 with a response rate of 90 per cent.

Testing validity and reliability of the instrument- In order to ascertain the validity of the instrument, the questionnaire so drafted was circulated among some research experts, mutual fund investors, agents and research scholars for a critical review with regard to wording, format, sequence and the like. The questionnaire was re-drafted in the light of their comments.

The reliability was measured by using the Cronbach- Alpha Coefficient. The correlation coefficient attained from the questionnaire on investment objective was 0.721 and current attitude towards investment type was 0.715. The correlation co-efficient attained for personality traits assessment with 17 items was 0.727. The result indicated that the instruments were reliable as the reliability coefficients were more than 0.700.

Sample size selection and sampling techniques - The universe of the study consists of all retail investors in each taluks of the Coimbatore district. From each taluks, 100 respondents were selected using non-probabilistic convenient and judgment sampling method and the total sample size was 800 retail investors initially. A well-structured questionnaire was issued to all the 800 retail investors, Out of which 80 questionnaires were found to be incomplete and were rejected. Finally 720 questionnaires which were found to be valid in every respect were considered for the study. Thus the response rate was at 90 per cent. The sample for the study is 720 individual investors for primary data collection.

Statistical tools used for analysis- The difference in the extent of selecting the mutual funds between the different types of respondents based on their age, gender, educational qualification, marital status, family size, employment status, source of income annual income, number of earning members in the family, annual savings and investment time horizon was studied by means of percentages, averages, ranges, standard deviation, two-way classification tables and Chi-Square test



ANALYSIS OF DATA

Table 2
Demographic profile of the retail investors

Variables	Categories	Number of respondents	
		(Total =720)	Percentage (%)
Age in Years	Below 30 Years	102	14.1
	30-40 Years	408	56.7
	41-50 Years	169	23.5
	Above 50 Years	41	5.7
Gender	Male	528	73.3
	Female	192	26.7
Educational Qualification	School level	201	27.9
	Graduate	332	46.1
	Post graduate	114	15.8
	Diploma	53	7.4
	Professional degree	20	2.8
Marital status	Married	657	91.2
	Unmarried	63	8.8
Family size	Upto 3 members	169	23.5
	4-5 members	421	58.5
	Above 5 members	130	18.0
Employment status	Agriculturist	35	4.9
	Business	463	64.3
	Professional	31	4.3
	Retired	22	3.1
	Employed	134	18.6
	Home-maker	35	2.9

Source: Primary data

Table 2 reveals that 56.7 per cent of the respondents are in the age group of 31-40 years, 73.3 per cent of them are male; 46.1 per cent of them are found to be graduates. 91.2 per cent of them are married and 58.5 per cent of the respondents have 4-5 family members. 64.3 per cent of them are doing business. Majority of the respondents (73.3 per cent) are found to be male, who fall under the category of middle age (30-40 years), married and are doing business. They are responsible for their family member's financial needs and also for most of the financial decisions.

Table 3
Income profile of the investors

Variables	Categories	Number of respondents	
		(Total =720)	Percentage (%)
Source of Income *	Salary	82	24.3
	House property	31	4.1
	Capital gains	15	2.0
	Business/profession	495	66.0
	Others (interest and dividend)	39	5.2
Annual Income	Below Rs.1,00,000	41	5.7
	Rs.1,00,001- Rs. 3,00,000	478	66.4
	Rs.3,00,001- Rs. 5,00,000	157	21.8
	Above Rs.5,00,000	44	6.1
Number of Earning Members	One member	282	39.2
	Two members	370	51.4
	Above two members	68	9.4
Annual savings	Less than Rs.10,000	319	44.3
	Rs.10,001-Rs.50,000	298	41.4
	Rs.50,001 to Rs.1,00,000	55	7.6
	Above Rs.1,00,000	48	6.7

Source: Primary data

*** Indicates Multiple responses**

Table 3 reveals that 66 per cent of the respondents have income from their business or profession. 66.4 per cent of the respondents are earning an annual income between Rs.1, 00,001 and Rs.3, 00,000. 51.4 per cent of them have two earning members in their

family and 44.3 per cent of them save less than Rs.10, 000 annually. More than 50 per cent of the respondents have business/profession as their source of income and have two earning members in their family.



Table 4
Investment profile of the select retail investors

Variables	Categories	Number of respondents	
		(Total =720)	Percentage (%)
Source of information for investment *	Offer document	4	0.6
	Self- analysis	223	31.0
	SEBI website	15	2.1
	Newspaper, TV and Radio	87	12.01
	Broker	523	72.6
	Website of particular mutual fund	51	7.1
	Friends and relatives	226	31.4
Percentage of Savings invested in mutual fund	Less than 20%	542	75.3
	20-30%	93	12.9
	31-40%	30	4.2
	41-50%	29	4.0
	More than 50%	26	3.6
Channels preferred for investment in mutual fund	Direct investment	50	6.9
	Brokers	166	23.1
	Banks/ financial advisors	442	61.4
	More than 1 channel	62	8.6
Mode of investment in mutual fund	One-time investment	91	12.6
	Systematic Investment Plan (SIP)	629	87.3
Period of investment in mutual fund	Less than 1 year	26	3.6
	Upto 2 years	115	16.0
	Upto 3 years	320	44.4
	More than 3 years	259	36.0

Source: Primary data

* indicates multiple responses

Table 4 shows that 72.6 per cent of the respondents are aware of mutual fund investment schemes through brokers. 75.3 per cent of the respondents used less than 20 per cent of their annual savings for mutual fund investment. 61.4 per cent of the respondents preferred to pay through banks /financial

advisors. 87.3 per cent of the respondents have invested through Systematic Investment Plan (SIP) in mutual fund. 44.4 per cent of the respondents have invested in mutual funds for a period of 3 years.

Table 5
Investment objectives of the respondents

Investment objective	Extremely important	Very important	Somewhat important	Somewhat unimportant	Not at all important
Number of respondents = 720					
Capital preservation and regular income	437 (60.7%)	197 (27.4%)	10 (1.4%)	52 (7.2%)	24 (3.3%)
Tax reduction	218 (30.3%)	299 (41.5%)	112 (15.6%)	51 (7.1%)	40 (5.6%)
Meeting contingencies	155 (21.5%)	210 (29.2%)	292 (40.6%)	46 (6.4%)	17 (2.4%)
Children’s education	457 (63.5%)	220 (30.6%)	34 (4.7%)	3 (0.4%)	6 (0.8%)
Wealth creation	465 (64.6%)	238 (33.1%)	17 (2.4%)	-	-
Provision for safe retirement	459 (63.7%)	166 (23.1%)	35 (4.9%)	33 (4.6%)	27 (3.8%)
Meeting medical expenses	236 (32.8%)	202 (28.1%)	248 (34.4%)	24 (3.3%)	10 (1.4%)

Source: Primary data

(Figures within parenthesis are percentages)

Table 5 reveals the investment objectives of the respondents. The investment objectives which were considered ‘extremely important’ by more than 60 per cent of the respondents include income and capital preservation (60.7 per cent), children’s

education (63.5 per cent), wealth creation (64.6 per cent) and provision for retirement (63.7 per cent). 41.5 per cent of the respondents rated tax reduction as ‘very important’ investment objectives. Meeting contingencies (40.6 per cent) and covering



medical expenses (34.4 per cent) were rated as 'somewhat important' by the respondents. As most of the respondents are married, middle-aged people and are financially responsible for their dependents they prefer income and capital preservation,

children's education, wealth creation and provision for retirement as extremely important objectives for their investment.

Table 6
Attitude towards investment types

<i>Investment types</i>	<i>Highly favourable</i>	<i>Favourable</i>	<i>Somewhat favourable</i>	<i>Not very favourable</i>	<i>Not at all favourable</i>
Number of respondents = 720					
Government securities	231 (32.1%)	265 (36.8%)	129 (17.9%)	64 (8.9%)	31 (4.3%)
Bank deposit	208 (28.9%)	348 (48.3%)	80 (11.1%)	45 (6.3%)	39 (5.4%)
Provident fund/PPF	156 (21%)	332 (46.1%)	110 (15.3%)	72 (10.0%)	50 (6.9%)
Insurance scheme	521 (72.4%)	148 (20.6%)	46 (6.4%)	5 (0.7%)	0 (0.0%)
Mutual funds	538 (74.7%)	126 (17.5%)	48 (6.7%)	7 (1.0%)	1 (0.1%)
Share/debentures	285 (39.6%)	224 (31.1%)	167 (23.2%)	43 (6.0%)	1 (0.1%)
Commodities(gold)	176 (24.4%)	253 (35.1%)	189 (26.3%)	89 (12.4%)	13 (1.8%)
Real estates	358 (49.7%)	178 (24.7%)	137 (19.0%)	39 (5.4%)	8 (1.1%)

Source: Primary data (Figures within parenthesis are percentages)

Table 6 highlights that 74.7 per cent of the sample investor of Coimbatore considered mutual funds, followed by insurance schemes (72.4 per cent), real estates (49.7 per cent) and share/debentures (39.6 per cent) as highly favourable investment types for them. On the other hand, the respondents having favourable opinion towards government securities

account for 36.8 per cent, bank deposit with 48.3 per cent, provident fund/PPF with 46.1 per cent and commodities (gold) with 35.1 per cent. It is noted from the present study that 74.7 per cent of the respondents considered mutual funds as highly favourable investment type.

Table 7
Investment objectives in relation to mutual funds

Objectives	Category	Number of Respondents (720)	Percentage (100)
Return	Regular Income	290	40.3
	Growth	335	46.5
	Both	95	13.2
Stability	Safety	385	53.5
	Speculation	281	39.0
	Both	54	7.5
Marketability	High liquidity	413	57.4
	High profitability	248	34.4
	Both	59	8.2
Tax benefit	Tax Saving	419	58.2
	Non-tax saving	266	36.9
	Both	35	4.9

Source: Primary data

Table 7 reveals that 46.5 per cent of the respondents have invested in mutual funds with an aim to get growth in their returns. 53.5 per cent of the respondents find mutual fund as a safe place to park their funds. High liquidity is the investment

objectives of 57.4 per cent of the respondents and 58.2 per cent of the respondents have chosen mutual funds for tax saving purpose.



Table 8
Preferred Mutual Fund Schemes by Investor Respondents

Variables	Mutual Fund Schemes	No. of Respondents (720)	Percentage (100)
Structure-wise	Open-ended schemes	468	65.0
	Closed-ended schemes	236	32.8
	Interval scheme	18	2.5
Nature-wise	Equity fund	418	58.1
	Debt fund	328	45.6
	Balanced fund	100	13.9
Sponsor-wise	Bank-sponsored	332	46.1
	Institutional-sponsored	342	47.5
	Private-sponsored	105	14.6

Source: Primary data

It is identified from Table 8 that 65.0 per cent of the respondents have invested in open-ended schemes of mutual funds, 58.1 per cent of the respondents invested in equity fund and 47.5 per cent of the respondents invested in institution-sponsored mutual funds.

To identify the personality type of the selected respondents, seventeen statements were used for analysis and the details are furnished in Table9.

Table 9-Personality assessment of the investors

Factors	SDA	DA	N	A	SA
Number of respondents=720					
I preferred to invest in innovative products	8 (1.1%)	10 (1.4%)	37 (5.1%)	128 (17.8%)	537 (74.6%)
I usually invest in traditional or familiar type of investment	1 (0.1%)	10 (1.4%)	22 (3.1%)	326 (45.3%)	361 (50.1%)
I am more a listener than a talker	1 (0.1%)	10 (1.4%)	33 (4.6%)	306 (42.5%)	370 (51.4%)
I enjoy socialising with large group of people	2 (0.3%)	11 (1.5%)	14 (1.9%)	312 (43.3%)	381 (52.9%)
I always prefer my money to be safer from risk	4 (0.6%)	15 (2.1%)	95 (13.2%)	283 (39.3%)	323 (44.9%)
I am prepared to risk some of my money when making an investment	3 (0.4%)	14 (1.9%)	89 (12.4%)	401 (55.7%)	213 (29.6%)
I am always a risk taker as risk and return go together	11 (1.5%)	14 (1.9%)	39 (5.4%)	322 (44.7%)	334 (46.4%)
I am highly focused on return than risk while investing	4 (0.6%)	9 (1.3%)	18 (2.5%)	403 (56.0%)	286 (39.7%)
I consider return as a part of my investment	4 (0.6%)	2 (0.3%)	58 (8.1%)	276 (38.3%)	380 (52.8%)
I am very careful in planning and selecting a suitable investment option	4 (0.6%)	16 (2.2%)	20 (2.8%)	325 (45.1%)	355 (49.3%)
I tend to be careless and unorganised	39 (5.4%)	107 (14.9%)	43 (6.0%)	339 (47.1%)	192 (26.7%)
I am totally ignorant and exclusively depend on financial advisor	569 (79.0%)	35 (4.9%)	33 (4.6%)	46 (6.4%)	37 (5.1%)
I always pay attention to details and can easily make decision by myself	91 (12.6%)	12 (1.7%)	82 (11.4%)	293 (40.7%)	242 (33.6%)
I tend to trust the information as received	11 (1.5%)	83 (11.5%)	54 (7.5%)	405 (56.3%)	167 (23.2%)
I don't simply believe the information from people/ I tend to find fault with others	9 (1.3%)	26 (3.6%)	139 (19.3%)	317 (44.0%)	229 (31.8%)
I take an investment decision only based on my emotions	32 (4.4%)	37 (5.1%)	131 (18.2%)	297 (41.3%)	223 (31.0%)
I am always relaxed and confident in my decision	17 (2.4%)	22 (3.1%)	91 (12.6%)	256 (35.6%)	334 (46.4%)

Source: Primary data

(Figures within parenthesis are percentages)

SDA= strongly disagree; DA= Disagree; N= Neutral; A= Agree; SA= Strongly agree



Table 9 reveals that out of 720 respondents, 537 (76.4 per cent) of them strongly agree towards the statement “I preferred to invest in innovative products” followed by 128 (17.8 per cent) respondents agree towards it. With regard to the statement “I usually invest in traditional or familiar type of investment”, majority (50.1 per cent) of the respondents have given the opinion as strongly agree, continued by 326 (45.3 per cent) respondents agree about the statement. Regarding the statement “I am more a listener than a taker”, 370 (51.4 per cent) respondents have given the opinion as strongly agree, followed by 306 (42.5 per cent) respondents have given as agree. About the statement “I enjoy socialising with large group of people”, majority (52.9 per cent) of the respondents had given the opinion as strongly agree, continued by 312 (43.3 per cent) of them as agree.

With reference to the statement “I always prefer my money to be safer from risk”, majority (44.9 per cent) of the respondents strongly agree followed by 283 (39.3 per cent) of the respondents agree towards the statement. Regarding the statement “I am prepared to risk some of my money when making an investment” majority (55.7 per cent) the respondents agree about it; whereas 213 (29.6 per cent) respondents strongly agree about the statement. With regard to the statement “I am always a risk taker as risk and return go together”, the maximum of 334 (46.4 per cent) respondents have given the opinion as strongly agree, followed by 322 (44.7 per cent) respondents agree towards it. As far as the statement “I am highly focused on return than risk while investing”, the maximum of 403 (56.0 per cent) respondents agree about it; whereas 286 (39.7 per cent) respondents strongly agree about the statement. Regarding the statement “I consider return as a part of my investment”, 380 (52.8 per cent) respondents strongly agree

about it and 276 (38.3 per cent) investor respondents agree towards the statement. About the statement “I am very careful in planning and selecting a suitable investment option”, 355 (49.3 per cent) of the total respondents have given the opinion as strongly agree and 325 (45.1 per cent) respondents have given as agree. With reference to the statement “I tend to be careless and unorganised”, majority (47.1 per cent) of the respondents agree towards it, whereas 192 (26.7 per cent) respondents strongly agree about it.

As far as about the statement “I am totally ignorant and exclusively depend on financial advisor”, maximum of 569 (79.0 per cent) respondents have given the opinion as strongly disagree. About the statement “I always pay attention to details and can easily make decision by myself”, 293 (40.7 per cent) of the respondents agree about it, whereas 242 (33.6 per cent) respondents strongly agree about it. With reference to the statement “I tend to trust the information as received”, majority (56.3 per cent) of the respondents agree towards it and 167 (23.2 per cent) respondents strongly agree about it. 317 respondents (44.0 per cent) out of the total respondents gave the opinion as agree and 229 (31.8 per cent) respondents strongly agree about the statement “I don’t simply believe the information from people/ I tend to find fault with others”. As far as the statement “I take an investment decision only based on my emotions”, a majority (41.3 per cent) of the respondents have given the opinion as agree; followed by 223 (31.0 per cent) respondents have given as strongly agree. Finally, as far as the statement “I am always relaxed and confident in my decision”, a maximum of 334 (46.4 per cent) respondents strongly agree with that statement, followed by 256 (35.6 per cent) investor respondents agree about the statement.

Table 10
Classification of investors based on the personality traits of Big 5 factor

Factor No.	Personality Traits	No. of Respondents (Total=720)	%
I	Openness to Experience		
	Conservative investor	405	56.3
	Curious investor	315	43.8
II	Extraversion		
	Extrovert	236	32.8
	Introvert	484	67.2
	Risk		
	Risk avoider	266	36.9
	Risk taker	454	63.1
	Return		
	Economic investor	245	34.0
	More economic(highly focused on return)	475	66.0
III	Conscientiousness		
	Careless / Spontaneous investor	367	51.0
	Cautious investor	353	49.0
	Dependability		
	Independent investor	408	56.7
	Dependent investor	312	43.3



Factor No.	Personality Traits	No. of Respondents (Total=720)	%
IV	Agreeableness		
	Suspicious investor	190	26.4
	Trusting investor	530	73.6
V	Neuroticism		
	Relaxed / Confident investor	340	47.2
	Emotional investor	380	52.8

Source: Based on Primary data

Table 10 reveals that 56.3 per cent of the respondents are conservative, that is, they prefer traditional investment method. 67.2 per cent of the respondents belong to introvert type. They are found to be shy and reserved. 63.1 per cent of the investors are ready to take risk, 66 per cent of select investors are more economic, focusing only on returns. 51 per cent of the investors are spontaneous or careless in nature and 56.7 per cent investors are independent, that is they take decision on their own. 73.6 per cent of the investors belong to

the trusting personality, that is, they trust/depend on others for information. 52.8 per cent of the investors are emotional in nature.

Association between personality traits of the investors and investment types

H₀: There is no significant association between the personality traits of the investors and the preferred investment types.

Table 11
Association between personality traits and investment types

Personality Traits	Chi-Square value	p-value	Result
Openness to Experience	62.631	0.000	Reject
Extraversion	173.145	0.000	Reject
Conscientiousness	427.791	0.000	Reject
Agreeableness	306.936	0.000	Reject
Neuroticism	171.805	0.000	Reject

Source: Based on primary data

Association between personality traits and investment types reveals that there is a significant relationship between the five personality traits, namely openness to experience, extraversion, conscientiousness, agreeableness and

neuroticism and preference on various types of investment. The results of the present study are different from the results found by Chitra et al (2011).

Table 12
Relationship between investors personality and different investment types – Kruskal Wallis test statistics

Investment types	Chi-Square	df	'p' Value
Government Securities	194.36	2	0.000**
Bank Deposits	231.83	2	0.000**
Provident Fund / PPF	160.68	2	0.000**
Insurance Schemes	127.22	2	0.000**
Mutual Funds	150.00	2	0.000**
Share / Debentures	95.57	2	0.000**
Commodities (Gold)	80.43	2	0.000**
Real Estates	9.89	2	0.007**

Source: Based on primary data

Note : ** - Significant at 1% level

Table 12 indicates that there is a significant difference between investment personalities, namely risk takers, curious investors and traditional investor and types of investments namely government securities, bank deposits, provident fund / PPF, shares / debentures, insurance schemes, mutual funds, real estates and commodities (gold), and the 'p' values of all these variables are significant.

Major Findings and Suggestions

(a) More than 60 per cent of the investors felt income and capital appreciation as extremely important investment

- objective for them. It may be suggested to the investors to invest in balanced schemes and equity-linked service schemes (ELSS) to attain their investment objective.
- (b) The investor is advised to consider all factors of the schemes before investing in a particular type of mutual fund.
- (c) Mutual funds are the best tools for long-term wealth creations. They should identify the top performing mutual funds which will help in achieving their financial goals.
- (d) They should identify their investment objective, time horizon of investment and risk appetite to arrive at their investment plan. Investing in best performing mutual fund through SIPs will give good returns.



- (e) Besides the return and risk the investor should consider the age of the fund, expenses ratio, standard deviation and overall risk grades of the fund. Funds with a good track record for the last 5 to 10 years should be preferred. A good mutual fund will have a low Standard Deviation, high alpha and low beta.

CONCLUSION

The emergence of various mutual fund products with different risk- return combination induces the investor to invest in select mutual fund products. Among the five personality types, namely openness to experience, extraversion, conscientiousness, agreeableness and neuroticism, the personality trait 'conscientiousness' influences the mutual fund selection. It can be concluded that the personality traits help the mutual fund investors to take wise investment decisions.

REFERENCES

1. Olweny, Namusonge and Onyango (2013), "Financial attributes and investor risk tolerance at the Nairobi Securities Exchange – a Kenyan perspective", *Asian Social Science*, Vol. 9, No. 3, February, Pp. 138-147.
2. Arshi A. Tahseen and S. Narayana (2012), "Do consumer attitudes matter in capital markets? A study on mutual funds in Oman market", *Journal of Finance and Investment Analysis*, Vol.1, No.1, February, Pp.107-126.
3. Thomas and Rajendran (2012), "BB&K five-way model and investment behavior of individual investors: Evidence from India", *International Journal of Economics and Management*, Vol.6, No.1, Pp. 115-127.
4. *A first step to investing - A beginner's guide*, Ministry of Corporate Affairs (Under the aegis of Investor Education and Protection Fund), Second edition, July 2011
5. Bailard, Biehel and Kaiser(1986) "Investors: The Bailard, Biehl and Kaiser five –way model", *Managing investment portfolios: A dynamic process*, 2nd Edition, Warren, Gorham & Lamont, Boston.
6. *Behavioural factors in mutual fund flows*, Working Paper, Yale School of Management, International Centre for Finance. Madhusudan, Jambodekar, V. (1996).
7. *Marketing Strategies of Mutual Funds – Current Practices and Future Directions*. Working Paper, UTI – IIMB Centre for Capital Markets Education and Research, Bangalore.

WEBSITES

1. www.rbi.co.in
2. <http://web.csulb.edu/~msaintg/ppa696/696regmx.htm>
3. <http://www.amfiindia.com/research-information/mf-history>
4. <http://portal.amfiindia.com/showhtml.aspx?page=mfconce pt#B>



EFFECT OF CULTURAL INTELLIGENCE (CI) ON PATIENT CARE SERVICES IN PRIVATE HOSPITALS (With Special Reference to Qatar)

Dr. R.Geethalakshmi¹, Dr.M. Magheswari²

¹Associate Professor and Head, Department of Commerce (Banking & Insurance), PSG College of Arts & Science, Coimbatore.

²Guest lecture, Department of Business Administration, Raja Doraisingam Government Arts College, Sivagangai.

ABSTRACT

The effect of cultural intelligence (CI) on patient care services is an important concept in which it was studied by many researchers. The purpose of this study is to examine the effect of Cultural Intelligence (CI) on patient care services in private hospitals at Qatar. Private hospitals in Qatar receive patients with diverse cultural backgrounds. Nurses have been having a challenge understanding the culture of various patients making it difficult to serve them in the best way possible. This is because patients from different cultures behave differently and also have a different perception on various issues making it difficult for nurses without knowledge about their culture to serve them appropriately. Nursing employees have interacted with patients despite their cultural differences with the patients which has been a challenge in understanding one another. This led to necessity of studying the effect of nurse's cultural intelligence on the patient care services in the private hospitals at Qatar.

KEY WORDS: Cultural intelligence, Patient, nurses, Cognitive dimension, Metacognitive dimension, motivation dimension and Behavioral dimension.

I.INTRODUCTION

Cultural intelligence is the skill and ability to work and relate effectively in places and situations which are culturally diverse. It is the ability to cross boundaries and do well in multiple cultures. Cultural intelligence is the ability to understand and blend in various cultures. Having cultural intelligence helps in acquiring in depth understanding of the practices, beliefs and values of other cultures. At work, cultural intelligence helps a person understand each other which cultivates their relationship leading to better results. People are able to demonstrate better trust, tolerate as well as understanding of people from different cultural backgrounds. In its job of multiculturalism, Qatar is one of the effective countries in handling the good and bad timing of the financial instability situation. One of the examples is in the working environment where we see the opacity of the various foundations of cultures. Healthcare professionals and their personnel typically have one goal in mind: to provide the best and most comprehensive care for their patients. Nurses are regarded as an extremely important part of the hospital staff because they directly deal with the pain and recovery of patients¹.

II.STATEMENT OF THE PROBLEM

Private hospitals have given a priority to patient care services in Qatar Governorate. This is because it plays a significant role in ensuring the patients are comfortable and have a good environment as they recover. The hospital industry has grown tremendously as a result of increase in diseases as well as the population in the sultanate of Qatar. The increasing need for medical care has led to demand for private medical institutions which offer more personalized care. Most of the patients have grown to prefer private medical attention as compared to public medical care due to the better services offered. The nurses are responsible for taking care on the patients in the hospitals. Nurses play an important role in all health sectors because they provide essential pre-hospital and out-of-hospital care. Services can be provided in both emergency and non-emergency situations, and nurses in hospitals play important roles in terms of injury/illness prevention and determining patients' long-term outcomes because

¹ Gabel-Shemueli, R., Westman, M., Chen, S. and Bahamonde, D., (2019). Does cultural intelligence increase work engagement? The role of idiocentrism-allocentrism and

organizational culture in MNCs. Cross Cultural & Strategic Management.



they are highly trained to provide healthcare directly to patients².

III. SIGNIFICANCE OF THE STUDY

Cultural intelligence plays a significant role in ensuring, whether nurses understand the cultures of their patients hence they are able to take care of them efficiently. Nurses in private hospitals have to learn, understand and accommodate the cultures of their patients in the hospital to be able to carry out their duties and responsibilities appropriately. Therefore, it is important to understand the various levels in the four dimensions of cultural intelligence which comprise of cognitive, metacognitive, behavioral and motivational dimension of cultural intelligence. This research is useful to health sector and patients for improving patients' relationship with nurses AlUbaidi (2020). When there is a better relationship between nurses and patients, the patient care services are better since both parties are satisfied. The health sector will also benefit from this research since it will be able to understand the impact that cultural intelligence of nurses has on patient care services in the private hospitals in the Governorate of Qatar. This will help in improving some aspects which will improve the efficiency of patient care services and also motivate the nurses to improve their services to their patients³.

IV. OBJECTIVES OF THE STUDY

1. To find out the level of Cultural intelligence in four dimensions (cognitive dimension, metacognitive dimension, motivational dimension, behavioral dimension) among the nurses in private Hospitals at Qatar.
2. To examine the relationship between nurse's demographic factors and the level of cultural intelligence in private Hospitals at Qatar.
3. To evaluate the effect of nurse's cultural intelligence (cognitive dimension, metacognitive dimension, motivational dimension and behavioral dimension) on the patient care services in private hospitals at Qatar.

V. SCOPE OF THE STUDY

The scope of study focuses on the effects that cultural intelligence of nurses has on patients who are in private hospitals in Qatar. The level of nurses involved in this study comprises of certified nursing assistants, licensed practical nurses, registered nurses and advanced practice registered nurses. The research paper discusses the level of cultural intelligence which comprise of metacognitive

dimension, cognitive dimension, motivational dimension and behavioral dimension. Also, it discusses the relationship between the demographic factors of nurses and their cultural intelligence in the private hospitals of Qatar⁴.

VI. LIMITATION OF THE STUDY

- The private hospitals covered only in Qatar, due to time constraints remaining regions will not be involved.
- Getting permission from the hospitals, during this Covid is a problem to complete the questionnaire as per sample size decided.
- The respondents of this survey are nurses, who are in busy schedule. Getting complete data is a problem for this study.
- The research was only for private hospitals hence didn't include public hospitals.
- The study focus on the four dimensions of cultural intelligence hence omitting other parameters.

VII. RESEARCH METHODOLOGY

- 1) Research Design: Descriptive research design was used in the study and method used in this study is quantitative method
- 2) Research collection methods: Research instrument used is questionnaire; the questionnaire contains two section- one section covers the demographic details. Related to: Gender, Educational level, Age group, Experience, ward details and Department, and the second section covers statements related to four dimensions of Cultural intelligence and patient care services.
- 3) Research respondents: The researchers used a non-probability snowball sampling technique in this study. Study target respondents are nurses from Al-Khor Hospital, Al-Wakrah Hospital, Al-Ahli Hospital, Al-Emadi Hospital, Aster Hospital, Doha Clinic Hospital, Hazm Mebareek General Hospital, Naseem Healthcare, Qatar Rehabilitation institute, Rumeilah Hospital.
- 4) Data collection: This study's primary data gathering method would be to distribute a questionnaire to respondents. The cooperation of the respondents.
- 5) Data analysis: SPSS V26 statistical software was used to examine the data collected using various methods which are: Quartile method, crosstab method, Chi square, means score and Multiple regression analysis to assess the relationship's strength and value, as well as illustrations and tables.

² Al-Busaidi, I. S., Al Suleimani, S. Z., Dupo, J. U., Al Sulaimi, N. K., & Nair, V. G. (2019). Nurses' knowledge, attitudes, and implementation of evidence-based practice in Qatar: A multi-institutional, cross-sectional study. *Qatar medical journal*, 34(6), 521.

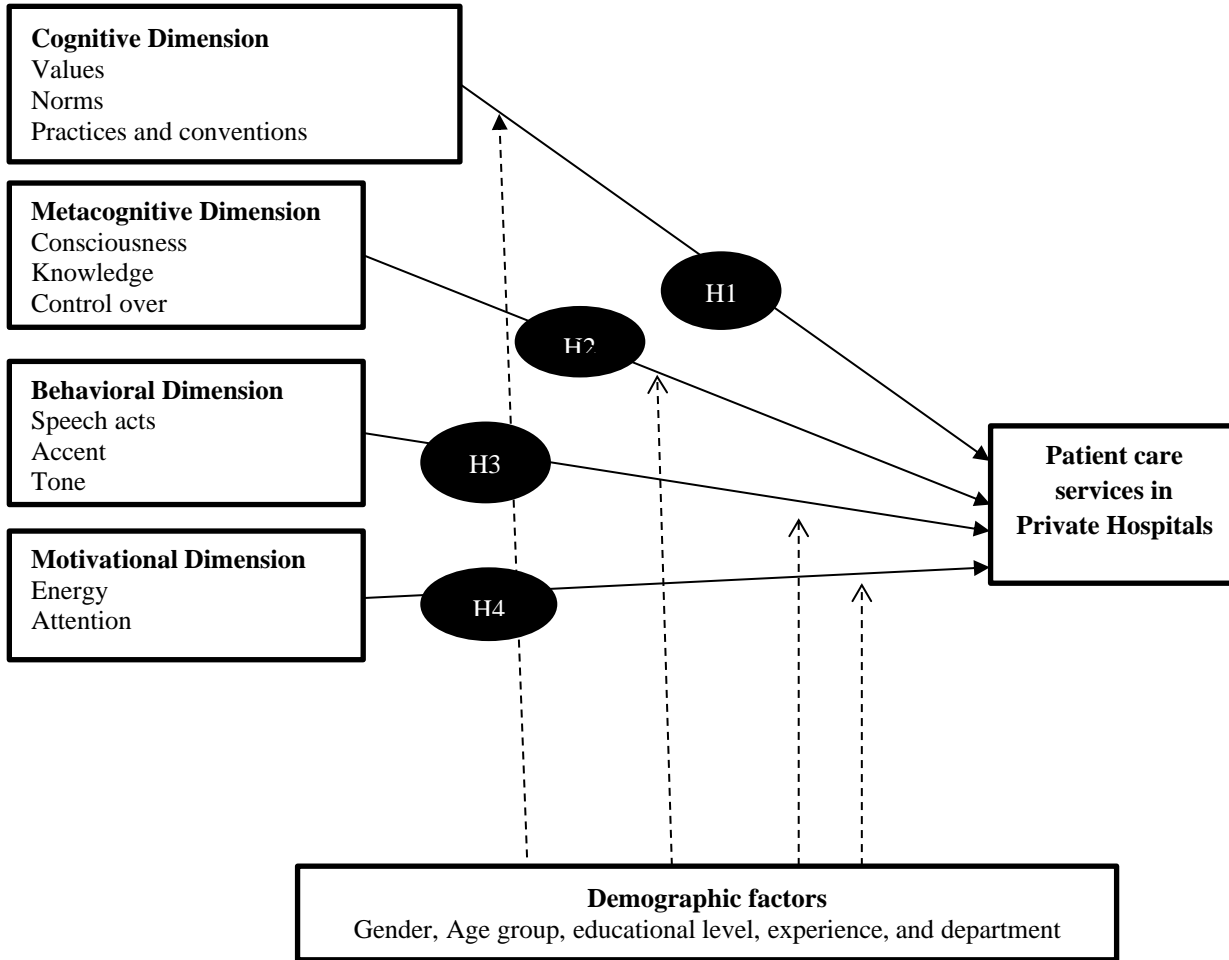
³ Gabel-Shemueli, R., Westman, M., Chen, S. and Bahamonde, D., (2019). Does cultural intelligence increase work engagement?

The role of idiocentrism-allocentrism and organizational culture in MNCs. *Cross Cultural & Strategic Management*.

⁴ Al-Ubaidi, A., AlLawati, J., AlZadjali, S., AlBalushi, M., & Porkodi, S. (2020). Impact of Emotional Intelligence on Job Performance of Paramedical Employee's in Public Vs Private Hospitals: A Comparison. *American Journal of Multidisciplinary Research & Development (AJMRD)*, 2(10), 38-45.



VIII. CONCEPTUALFRAMEWORK



IX. ANALYSIS OF DATA

Table 1
Reliability Statistics - Cronbach's Alpha

Constructs	No. of Items	No. of respondents	Reliability Statistics (Cronbach's Alpha)
Cognitive Dimension	5	144	.948
Meta-Cognitive Dimension	5	144	.901
Motivation Dimension	5	144	.850
Behavior Dimension	5	144	.863
Patient Care Services	10	144	.942
Overall	30	144	.955

Source: Primary Data



Table 2
Demographic profile of respondents

Particulars	Variable	Frequency	Percentage
Gender	Female	87	60.4
	Male	57	39.6
	Total	144	100.0
Age	Below 25	22	15.3
	26 to 35	53	36.8
	36 to 45	35	24.3
	46 to 55	23	16.0
	Above 56	11	7.6
	Total	144	100.0
Educational level	Bachelor level	56	38.9
	Master level	42	29.2
	Others	46	31.9
	Total	144	100.0
Experience in Qatar	Less than 1 year	29	20.1
	1 to 5	45	31.3
	6 to 10	39	27.1
	Above 10 years	31	21.5
	Total	144	100.0
Ward details	Inpatient ward	78	54.2
	Outpatient ward	66	45.8
	Total	144	100.0
Department	ICU	21	14.6
	General medicine	27	18.8
	Dermatology	16	11.1
	Cardiology	17	11.8
	Pediatrics	24	16.7
	Psychiatry	15	10.4
	Others	24	16.7
	Total	144	100.0

Source: Primary Data

Table 3
Level of cultural intelligence in four dimensions

Dimensions	Level	Frequency	Percentage
Cognitive	Low	39	27.1
	Medium	45	31.3
	High	60	41.7
	Total	144	100.0
Meta-Cognitive	Low	38	26.4
	Medium	46	31.9
	High	60	41.7
	Total	144	100.0
Motivation	Low	50	34.7
	Medium	38	26.4
	High	56	38.9
	Total	144	100.0
Behavioural	Low	58	40.3
	Medium	29	20.1
	High	57	39.6
	Total	144	100.0



Overall cultural	Low	41	28.5
	Medium	55	38.2
	High	48	33.3
	Total	144	100.0

Source: Computed Data

Table 4
Level of cultural intelligence

P	Variables	Level			Total
		L	M	H	
Gender	Female	30	28	29	87
		20.8%	19.4%	20.1%	60.4%
	Male	11	27	19	57
		7.6%	18.8%	13.2%	39.6%
Total	41	55	48	144	
		28.5%	38.2%	33.3%	100%
Age	Below 25	4	9	9	22
		2.8%	6.3%	6.3%	15.3%
	26 to 35	21	20	12	53
		14.6%	13.9%	8.3%	36.8%
	36 to 45	11	15	9	35
		7.6%	10.4%	6.3%	24.3%
	46 to 55	3	9	11	23
		2.1%	6.3%	7.6%	16.0%
Above 56	2	2	7	11	
	1.4%	1.4%	4.9%	7.6%	
Total	41	55	48	144	
		28.5%	38.2%	33.3%	100%
Educational level	Bachelor level	17	22	17	56
		11.8%	15.3%	11.8%	38.9%
	Master level	13	16	13	42
		9.0%	11.1%	9.0%	29.2%
	Others	11	17	18	46
	7.6%	11.8%	12.5%	31.9%	
Total	41	55	48	144	
		28.5%	38.2%	33.3%	100%
Experience in Qatar	Less than 1 year	11	7	11	29
		7.6%	4.9%	7.6%	20.1%
	1 to 5	14	20	11	45
		9.7%	13.9%	7.6%	31.3%
	6 to 10	10	16	13	39
		6.9%	11.1%	9.0%	27.1%
	Above 10 years	6	12	13	31
4.2%		8.3%	9.0%	21.5%	
Total	41	55	48	144	
		28.5%	38.2%	33.3%	100%
Ward details	Inpatient ward	23	32	23	78
		16.0%	22.2%	16.0%	54.2%
	Outpatient ward	18	23	25	66
		12.5%	16.0%	17.4%	45.8%
	Total	41	55	48	144
		28.5%	38.2%	33.3%	100%



Department	ICU	3	10	8	21
		2.1%	6.9%	5.6%	14.6%
	General medicine	9	10	8	27
		6.3%	6.9%	5.6%	18.8%
	Dermatology	4	7	5	16
		2.8%	4.9%	3.5%	11.1%
	Cardiology	5	7	5	17
		3.5%	4.9%	3.5%	11.8%
	Pediatrics	8	5	11	24
		5.6%	3.5%	7.6%	16.7%
Psychiatry	5	7	3	15	
	3.5%	4.9%	2.1%	10.4%	
Others	7	9	8	24	
	4.9%	6.3%	5.6%	16.7%	
Total	41	55	48	144	
	28.5%	38.2%	33.3%	100%	

Source: Computed Data

Table 5
Testing of hypothesis (chi-square)

Demographic Variable	Value	d.f	P Value	Significance at 5%
Gender	4.868	2	.088	Not significant
Age	14.261	8	.075	Not significant
Educational level	1.216	4	.875	Not significant
Experience in Qatar	6.019	6	.421	Not significant
Ward details	1.174	2	.556	Not significant
Department	7.233	12	.842	Not significant

Source: Computed Data

Table 6
Testing of hypothesis (multiple regression)

Dimension	Unstandardised coefficients		Standardised coefficients	t	Sig
	B	Std. Error	beta		
Constant	3.517	.406		8.667	.000
X1	.377	.062	.009	2.105	P<0.001*
X2	.451	.053	.086	4.969	
X3	.391	.066	.121	1.372	
X4	.262	.067	.081	5.928	

a. Dependent Variable: Patient Care Services a Note: **sig. at 1% level

Source: Computed Data

Table 7
Descriptive statistics of all the statements

Statement	SDA	DA	NS	A	SA	Total	Mean Score
COGNITIVE DIMENSION							
1	3	7	2	47	5	144	4.42
2	6	5	5	60	69	144	4.24
3	4	7	2	57	74	144	4.32
4	2	2	3	62	75	144	4.43
5	4	4	4	64	68	144	4.31
META-COGNITIVE							
6	2	3	6	63	70	144	4.36
7	2	3	2	69	68	144	4.38
8	3	3	7	67	64	144	4.29



9	3	3	8	64	66	144	4.30
10	0	6	3	70	65	144	4.28
MOTIVATION							
11	0	1	3	58	82	144	4.53
12	3	5	6	66	64	144	4.27
13	3	3	5	61	72	144	4.36
14	2	3	6	60	73	144	4.38
15	2	4	3	70	65	144	4.36
BEHAVIOUR							
16	3	1	9	54	77	144	4.38
17	3	3	4	71	63	144	4.33
18	1	0	8	63	72	144	4.40
19	2	2	8	60	72	144	4.31
20	3	3	4	67	67	144	4.42
PATIENT CARE SERVICE							
21	0	3	3	60	78	144	4.38
22	1	2	4	59	78	144	4.33
23	2	2	3	64	73	144	4.48
24	2	2	5	68	67	144	4.36
25	1	2	10	56	75	144	4.40
26	1	3	4	55	81	144	4.47
27	2	1	3	59	79	144	4.47
28	2	2	4	64	72	144	4.40
29	1	0	6	58	79	144	4.49
30	3	4	5	54	78	144	4.38

Source: Computed Data

XL.FINDINGS OF THE STUDY

Data Reliability: The reliability of the statements used in the questionnaire concerning the dimensions of cultural intelligence and patient care services is calculated and presented in the table above, the total reliability score was (.955), indicating that the construct is highly reliable.

Demographic Details: The personal detail of respondents; the variables taken for the study are Gender, Age, Education level, Experience in Qatar, Ward detail and Department. Gender: 60.4% are female respondents and 39.6 % are male respondents, it means that most of the nursing respondents are female communal. Age: 15.3% of the respondents are below 25 years. Were 36.8% of the respondents are between 26 to 35 years. In addition, the age group from 36 to 45 years represents 24.3%. Remaining 16% of the respondents are from 46 to 55 years and only 7.6 percent of the respondents are above 55 years. It means the majority of nursing respondents are from 26 to 35 years. Educational level: majority of nurse respondents are holding bachelor level by 38.9% of the study and 29.2 per cent hold master level the remains 31.9% have others degrees. Experience in Qatar: 20.1% of nurse respondents have less than one year of experience in Qatar, whereas, 31.3% are with 1 to 5 years' of experience. Hence 27.1% are having experience from 6 to 10 years and the rest 21.5% of the respondents with more than 10 years of experience. Ward details: majority of the respondents are working in the inpatient ward

which are around 54.2% whereas, 45.8% are working in the outpatient ward. Department: 14.6% of the respondents are working in the ICU department, 18.8% in General department, 11.1% in Dermatology, 11.8% in Cardiology, 16.7% in Pediatrics, 10.4% in Psychiatry, 16.7% working in other departments.

Objective 1: To find out the level of Cultural intelligence in four dimensions (metacognitive CI, cognitive CI, motivational CI and behavioral CI) among the nurses in private Hospitals at Qatar. Cognitive: Nurses who are the respondents of this research having high level of cognitive dimension which is around 41.7% and 31.25% of nurses having medium level of cognitive dimension, the remaining 27.08% are having low level of cognitive dimension. Meta-Cognitive: 41.67% of the respondents having high level of cultural intelligence in the meta-cognitive dimension. In addition, 31.94% having medium level of meta-cognitive. On the other hand, the rest 26.39% of the respondents having low level of cultural intelligence in the meta-cognitive dimension. Motivation: The high level of motivational cultural dimension of nurse respondents by 38.89%, Medium level by 26.39%, Low level by 34.72%. Behavioural: 40.28% of the respondents are having low level of cultural intelligence in the behavioral dimension, 39.58% are having high level, and 20.14% are having medium level of cultural intelligence in the behavioral



dimension. The reason could be the nurses might feel difficult to speak the different languages of patients from diversified culture.

Overall Cultural: The majority of the respondents are having medium level of cultural intelligence in all the dimensions which is 38.19%. On the other hand, 33.33% respondents are having high level and 28.47% only having low level of cultural intelligence in all the dimensions.

Level of Cultural Intelligence

Gender: 20.8% of female respondents and 7.6% of the male respondents show up the low level of cultural intelligence. On the other hand, 20.1% of female respondents and 13.2% male respondents view the level of cultural intelligence are having high level. In addition, 19.4% of female respondents and 18.8% of male respondents are the highest percentage of the research respondent show up the level of cultural intelligence is having medium level. **Age:** Majority of respondents represents the level of age group and the level of cultural intelligence is having low level, by 14.6% of the respondent between 26 to 35 age group. In addition, only 1.4% of the age group above 55 years view the cultural intelligence is having both low and medium level. **Educational level:** majority of respondents the level of educational and the level of cultural intelligence are having medium level by 15.3% of the respondents holding bachelor level. On the other hand, only 7.6% of the respondents holding other level view the cultural intelligence having low level. **Experience in Qatar:** majority of nurses with 1 to 5 years experiences in the hospital having medium level, by 13.9% of the cultural intelligence, 6.9% of the respondents with 6 to 10 years. In addition, only 4.2% of the respondents with above 10 years having low level. **Ward details:** 22.2% of the respondents are having medium level of inpatient ward. On the other hand, 12.5% of the respondents having low level of outpatient ward. **Department:** most research nursing respondents view the level of cultural intelligence to be high, by 7.6% of the respondent works in the pediatrics department, 6.9% in General department, 3.5% in Dermatology, 4.9% in Cardiology, 16.7% in Pediatrics, 10.4% in Psychiatry. In addition, only 2.1% works in ICU and Psychiatry having low and high level.

Testing of hypothesis (Chi-Square): The p values (.088,.075,.875,.421,.556,.842) which are more than 0.05 ($p > 0.05$), and the chi square (4.868,14.261,1.216,6.019,1.174,7.233a) respectively, suggest that there is no significant relationship between demographic variables and the level of cultural intelligence, hence the null hypothesis is accepted. It means there is no significant relation between the demographic variables of the respondents and the level of cultural intelligence.

Objective 3: To evaluate the effect of nurse's cultural intelligence (metacognitive CI, cognitive CI, motivational CI and behavioural CI) on the patient care services in private hospitals at Qatar.

Hypothesis (H01): "There is no significant relation between dimensions (cognitive, meta-cognitive, motivational, and behavioural) of cultural intelligence and the patient care service".

Testing of Hypothesis(Multi regression): The variable X1 representing the cognitive dimension of cultural intelligence and the p value is $p < 0.001^{**}$, which is significant at 1% level, indicating that there is a relation between patient care services and the cognitive dimension of cultural intelligence. As well as X2 demonstrating the meta cognitive dimension of cultural intelligence and the p value is $p < 0.001^{**}$, which is significant at 1% level, denoting that there is a relation between patient care services and the meta cognitive dimension of cultural intelligence. Also, the item X3 representing the motivation dimension of cultural intelligence and the p value is $p < 0.001^{**}$, which is significant at 1% level, revealing that there is a relation between patient care services and the motivation dimension of cultural intelligence. The variable X4 signifying the behavioural dimension of cultural intelligence and the p value is $p < 0.001^{**}$, which is significant at 1% level, representing that there is a relation between patient care services and the behavioural dimension of cultural intelligence. Hence, for the entire null hypothesis rejected and the alternative hypothesis accepted for all the four independent variables. It infers from this multiple regression analysis, that the four dimensions (Cognitive Dimension (X1), Meta Cognitive Dimension (X2), Motivation Dimension (X3), and Behaviour Dimension (X4)) of cultural intelligence are significantly related with the good patient care services.

XII.CONCLUSION

The impact of cultural intelligence on nursing is a vast topic that has been researched in various ways, with only a few academics looking into different aspects of cultural intelligence. The purpose of this study was to learn more about the impact of cultural intelligence (CI) on patient care services in private hospitals in Muscat, Qatar. Cognitive, metacognitive, motivational, and behavioral dimensions of cultural intelligence were determined through a literature analysis as the most important. The level of cultural intelligence was measured in all four dimensions in this comprehensive study. The research was carried out at private hospitals and focuses on nurses as they are the most important party in the healthcare industry as their day-to-day employment requires them to interact with a wide range of patients. As the questionnaire includes statements to test how these dimensions are impacting nursing personnel in their patient care services in the private sector, the study's findings reveal that there is a relationship between cultural intelligence and patient care services. The findings of the study reveal that the four aspects of cultural intelligence, cognitive dimension, metacognitive dimension, motivation dimension, and behavioral dimension are all linked to high-quality patient care. Furthermore, the demographic factors (age, gender, degree of experience and



education, department, and ward information) did not demonstrate that there is a significant relationship between level of cultural intelligence and demographic characteristics, and this implies that the null hypothesis was accepted in this research.

Moreover, the study discovered that among the four dimensions, the cognitive component had the greatest level. When it comes to total cultural intelligence, 38.19 percent of respondents have a medium degree of cultural intelligence across all domains. Based on the research findings, the alternative hypotheses were accepted in all four dimensions, meaning that cultural intelligence in cognitive, metacognitive, motivational, and behavioral dimensions is all strongly connected with patient care services. In light of these considerations, understanding the impact of cultural intelligence on nurses is crucial because it enhances nurses to improve their patient care services. With a better relationship between nurses and patients, the care services will be better managed, allowing both parties to be satisfied.

REFERENCES

1. Al-Busaidi, I. S., Al Suleimani, S. Z., Dupo, J. U., Al Sulaimi, N. K., & Nair, V. G. (2019). Nurses' knowledge, attitudes, and implementation of evidence-based practice in Qatar: A multi-institutional, cross-sectional study. *Qatar medical journal*, 34(6), 521.
2. Al-Ubaidi, A., Allawati, J., AlZadjali, S., AlBalushi, M., & Porkodi, S. (2020). Impact of Emotional Intelligence on Job Performance of Paramedical Employee's in Public Vs Private Hospitals: A Comparison. *American Journal of Multidisciplinary Research & Development (AJMRD)*, 2(10), 38-45.
3. Australian industry and skills committee (2020). *Ambulance and paramedic*. Retrieved on February 8, 2020 from: <https://nationalindustryinsights.aisc.net.au/industries/health/ambulance-and-paramedic>.
4. Barzykowski, K., Majda, A., Szkup, M. and Przyłęcki, P., 2019. The Polish version of the Cultural Intelligence Scale: Assessment of its reliability and validity among healthcare professionals and medical faculty students. *PloS one*, 14(11), p.e0225240.
5. Bilal, A & Ahmed, W., (2017). The Impact of Emotional Intelligence on Job Satisfaction and Performance in the Healthcare Sector of Pakistan. Retrieved on January 29, 2020 from http://www.qurtuba.edu.pk/jms/default_files/JMS/12_4/09.pdf.
6. Brant, J. M., Al-Zadjali, M., Al-Sinawi, F., Mushani, T., Maloney-Newton, S., Berger, A. M., & Fink, R. (2021). Palliative Care Nursing Development in the Middle East and Northeast Africa: Lessons From Qatar. *Journal of Cancer Education*, 1-9. (Brant et al., 2021).
7. Charoensukmongkol, P., & Pandey, A. (2020). The influence of cultural intelligence on sales self-efficacy and cross-cultural sales presentations: does it matter for highly challenge-oriented salespeople?. *Management Research Review*. (Charoensukmongkol et al., 2020)
8. Gabel-Shemueli, R., Westman, M., Chen, S. and Bahamonde, D., (2019). Does cultural intelligence increase work engagement? The role of idiocentrism-alloccentrism and organizational culture in MNCs. *Cross Cultural & Strategic Management*.
9. Gol, İ., & Erkin, Ö. (2019). Association between cultural intelligence and cultural sensitivity in nursing students: A cross-sectional descriptive study. *Collegian*, 26(4), 485-491.
10. Mozdbar, R. and Rahimaghaee, F., *Nursing Practice Today, NCSI Monthly Report*. (2021 September). *Monthly statistical bulletin*. Retrieved October 20th, 2021. from https://www.ncsi.gov.om/Elibrary/LibraryContentDoc/bar_bar_bar_September%2020203_4599e1fa-d34b-4d63-b42e-47aa18f97476.pdf.
11. Porkodi, S. Haque, A. (2012). *Human Resource Issues: Special Emphasis On Maintenance and Retention Of Paramedic Employees In Private Hospitals*. *Journal of Organisation and Human Behaviour* 1 (2), 19-31. Retrieved on February 19, 2020 from: https://www.researchgate.net/publication/266153802_Human_Resource_Issues_Special_Emphasis_On_Maintenance_And_Retention_Of_Paramedic_Employees_In_Private_Hospitals.
12. Rahman, M. H., Majumder, S. C., & Rana, M. (2020). The Reasons Behind the Shift of Patients from Public to Private Hospitals: Evidence from Public Hospitals in Cumilla City Corporation. *Int J Pub Policy Admin Res*, 7(2), 69-78.
13. Steyn, R., & Solomon, A. (2017). Cultural intelligence: Concepts and definition statements. *South African Journal of Business Management*, 48(2), 67-74.



BRIDGING DISTANCES, ENHANCING CARE: THE TELEHEALTH REVOLUTION IN OBG NURSING

Gisha Jose

Associate Professor, OBG Nursing & F.O.N Department, Mar Baselios College of Nursing, Kothamangalam.

ABSTRACT

Telehealth is revolutionizing the field of healthcare, and obstetric and gynecological (OBG) nursing is no exception. This research article explores the growing role of telehealth in OBG nursing, highlighting its benefits, challenges, and implications for both patients and healthcare providers. We discuss the utilization of telehealth in prenatal care, postpartum support, gynecological consultations, and education for patients and nurses. By examining current research and practical examples, the researcher aims to shed light on the transformative potential of telehealth in OBG nursing.

KEYWORDS: Telehealth, OBG nursing, Prenatal care, Postpartum support, Gynecological consultations, Patient education, Nurse education.

INTRODUCTION

The field of healthcare is undergoing a transformative evolution, and at the heart of this change is the growing influence of telehealth. In an era marked by rapid technological advancements and the pressing need for accessible and efficient healthcare, telehealth has emerged as a beacon of innovation. Obstetric and gynecological (OBG) nursing, a vital component of women's healthcare, stands to benefit significantly from the integration of telehealth solutions. This research article embarks on an exploration of this transformative journey, casting a spotlight on the ever-expanding role of telehealth in OBG nursing.

THE MODERN HEALTHCARE LANDSCAPE

As the boundaries of healthcare continue to expand beyond traditional brick-and-mortar settings, telehealth has emerged as a powerful force reshaping the way healthcare is delivered. The convergence of telecommunication technologies, medical expertise, and patient-centric care has ushered in a new era where geographical and logistical barriers no longer dictate the accessibility of healthcare services. In this era, telehealth serves as an enabler, fostering connections between patients and healthcare providers in ways unimaginable a few decades ago.

THE ESSENCE OF OBSTETRIC AND GYNECOLOGICAL NURSING

Obstetric and gynecological nursing, often referred to as OBG nursing, occupies a unique and crucial niche within the broader realm of healthcare. It encompasses the care of women across their lifespan, from adolescence through pregnancy and childbirth to the postmenopausal years. OBG nurses are entrusted with the responsibility of providing comprehensive care, addressing both the physical and emotional aspects of women's health. Their role extends to encompass prenatal and postpartum care, family planning, gynecological consultations, and patient education.

THE PINNACLE OF WOMEN'S HEALTHCARE

Women's health holds a position of paramount importance within the healthcare ecosystem. The well-being of women is intrinsically linked to the health of families, communities, and societies at large. Recognizing the critical nature of this field, healthcare providers have continually sought ways to enhance the quality and accessibility of OBG nursing care. It is within this context that telehealth emerges as a game-changer, offering innovative solutions to some of the longstanding challenges faced by both patients and healthcare providers in OBG nursing.

PURPOSE OF THE ARTICLE

This research article sets out with a clear and resolute purpose: to provide a comprehensive exploration of the integration of telehealth into OBG nursing practice. The researcher aims to unravel the multifaceted dimensions of telehealth in OBG nursing, shedding light on its diverse applications, the manifold benefits it brings, and the challenges it poses. From reimagining prenatal care to empowering postpartum support, from streamlining gynecological consultations to enriching patient and nurse education, this article seeks to unveil the transformative potential of telehealth in the field of OBG nursing.

METHODOLOGY

To gather information for this research article, the researcher conducted a review of relevant literature from 2010 to 2023. Electronic databases such as PubMed, CINAHL, and Google Scholar were used to identify peer-reviewed articles, systematic reviews, and meta-analyses related to telehealth in OBG nursing. The search terms included "telehealth," "telemedicine," "OBG nursing," "prenatal care," "postpartum support," "gynecological consultations," "patient education,"



and "nurse education." The articles were selected based on their relevance to the topic and the quality of the research.

TELEHEALTH IN PRENATAL CARE

Benefits

Telehealth in prenatal care has shown significant promise in improving access to care for pregnant women, particularly those in rural or underserved areas. Some key benefits include:

1. **Increased Accessibility:** Telehealth eliminates geographical barriers, allowing pregnant women to access specialized care, consultations, and monitoring without the need for extensive travel.
2. **Continuity of Care:** Telehealth enables ongoing monitoring, facilitating early detection of potential issues and ensuring consistent care throughout the pregnancy.
3. **Patient Empowerment:** Pregnant women can actively engage in their care through telehealth platforms, accessing educational resources, tracking their health, and communicating with healthcare providers.

Challenges

Despite its potential, telehealth in prenatal care also presents challenges:

1. **Technological Barriers:** Not all pregnant women have access to the necessary technology or a reliable internet connection for telehealth appointments.
2. **Lack of Physical Examinations:** Telehealth cannot replace physical examinations entirely, and some aspects of prenatal care, such as ultrasounds, require in-person visits.

TELEHEALTH IN POSTPARTUM SUPPORT

Benefits

Telehealth continues to play a crucial role in postpartum support:

1. **Convenient Follow-up:** Telehealth offers convenience for postpartum check-ups, allowing new mothers to receive necessary care without the need to travel with an infant.
2. **Mental Health Support:** Postpartum depression and anxiety screening and support can be effectively provided through telehealth, promoting early intervention.

Challenges

Challenges associated with telehealth in postpartum support include:

1. **Physical Examination Limitations:** Certain postpartum assessments and examinations, such as wound care or breastfeeding support, may require in-person visits.
2. **Privacy Concerns:** New mothers may have privacy concerns when discussing postpartum mental health issues through telehealth.

TELEHEALTH IN GYNECOLOGICAL CONSULTATIONS

Benefits

Telehealth is transforming gynecological consultations:

1. **Improved Access:** Women with gynecological concerns can consult specialists remotely, reducing wait times and improving timely access to care.
2. **Convenience:** Telehealth appointments offer convenience, making it easier for women to seek guidance for various gynecological issues.

Challenges

Challenges in gynecological telehealth include:

1. **Physical Examinations:** Some gynecological exams and procedures necessitate in-person visits, limiting the scope of telehealth consultations.
2. **Privacy and Confidentiality:** Ensuring patient privacy and confidentiality in gynecological consultations conducted remotely is essential.

TELEHEALTH IN PATIENT EDUCATION

Benefits

Telehealth has revolutionized patient education in OBG nursing:

1. **Customized Education:** Telehealth platforms provide opportunities for tailored, patient-specific education on prenatal care, birth plans, contraception, and more.
2. **Accessible Resources:** Educational materials are readily accessible to patients, empowering them to make informed decisions about their health.

Challenges

Challenges in patient education via telehealth include:

1. **Digital Literacy:** Ensuring patients have the digital literacy to navigate telehealth platforms and access educational resources is crucial.
2. **Engagement:** Encouraging active patient engagement and adherence to educational programs can be challenging through remote methods.

TELEHEALTH IN NURSE EDUCATION

Benefits

Telehealth extends its advantages to nurse education in the OBG field:

1. **Continuing Education:** Nurses can access training and continuing education programs online, enhancing their knowledge and skills.
2. **Simulation and Skill Enhancement:** Virtual simulations and training programs allow nurses to practice critical OBG nursing skills.

Challenges

Challenges in nurse education via telehealth include:

1. **Hands-On Training:** While some skills can be taught online, hands-on training remains essential for certain OBG nursing competencies.
2. **Resource Allocation:** Ensuring nurses have access to the necessary resources and technology for online education can be a logistical challenge.

CONCLUSION

Telehealth is transforming the landscape of OBG nursing, offering innovative solutions to improve access to care, enhance patient education, and provide ongoing support. While it presents challenges, the benefits of telehealth in prenatal care,



postpartum support, gynecological consultations, patient education, and nurse education are evident. As technology continues to advance and healthcare systems adapt, the integration of telehealth into OBG nursing practice promises to revolutionize women's healthcare, ultimately leading to improved patient outcomes and experiences.

REFERENCES

- Shaw, R. J., et al. (2014). The design and implementation of an automated system for evaluating the quality of online health information for pediatric surgery. *Journal of Pediatric Surgery*, 49(1), 149-152.
- Bhat, A., et al. (2017). Use of telemedicine in the management of women with high-risk pregnancies in rural and underserved areas. *Journal of Telemedicine and Telecare*, 23(5), 536-542.
- Walters, K. M., et al. (2021). Telehealth in postpartum care: A systematic review and meta-analysis. *Maternal and Child Health Journal*, 25(3), 346-355.
- Cohen, J. R., et al. (2018). Telehealth for gynecologic consultations: A prospective cohort study. *Journal of Telemedicine and Telecare*, 24(6), 387-394.
- Chen, X., et al. (2017). Evaluating the effectiveness of telehealth interventions in improving maternal and child health in rural and remote areas: A systematic review. *Telemedicine Journal and e-Health*, 23(10), 771-781.
- Schultz, P. N., et al. (2019). The impact of telehealth on patient education in obstetric and gynecological nursing. *Journal of Obstetric, Gynecologic & Neonatal Nursing*, 48(3), 312-319.
- Park, J. E., et al. (2016). Telehealth nursing education: A review of the literature. *Nurse Education Today*, 39, 50-57.
- Ferguson, A. S., et al. (2013). Telehealth and prenatal care: A systematic review. *Telemedicine Journal and e-Health*, 19(5), 385-392.
- Abbott, J. H., et al. (2014). Telehealth in women's health: A scoping review. *International Journal of Telemedicine and Applications*, 2014.
- Ray, R. A., et al. (2020). Telehealth and patient education in OBG nursing during the COVID-19 pandemic: A qualitative study. *Journal of Perinatal & Neonatal Nursing*, 34(4), 340-347.
- Martin, C. J., et al. (2011). Telehealth and remote monitoring in OBG nursing: A systematic review. *Journal of Obstetric, Gynecologic & Neonatal Nursing*, 40(2), 210-219.
- Kim, E. S., et al. (2015). Telehealth for prenatal education: A pilot study. *International Journal of Medical Informatics*, 84(7), 516-527.
- Carpenter, M., et al. (2023). The use of telehealth in nurse education: Current practices and future possibilities. *Journal of Nursing Education*, 62(1), 41-47.
- Atkinson, J., Hastie, R., Walker, S., Lindquist, A., & Tong, S. (2023). Telehealth in antenatal care: recent insights and advances. *BMC medicine*, 21(1), 332.
- Footman, K. (2023). Revolution in abortion care? Perspectives of key informants on the importance of abortion method choice in the era of telemedicine. *Sexual and Reproductive Health Matters*, 31(1), 2149379.
- le Roux-Kemp, A. (2023). Telemedicine in the United Kingdom: From a Patchwork of Services and Regulations to a Connected Health and E-health Revolution. *TechREG Chronicles CPI: Competition Policy International*, 3-14.
- james, arun, Role of nurse in fostering awareness on the hidden epidemic: recognizing and addressing domestic violence and abuse (september 12, 2023).
- singh, a., jose, s., & james, a. role of nurse in fostering awareness on the hidden epidemic: recognizing and addressing domestic violence and abuse., available at [ssrn: https://ssrn.com/abstract=](https://ssrn.com/abstract=)
- Shamsabadi, A., Qaderi, K., Mirzapour, P., Mojdeganlou, H., Mojdeganlou, P., Pashaei, Z., ... & Mehraeen, E. (2023). Telehealth Systems for Midwifery Care Management during the COVID-19 Pandemic: A Systematic Review. *Journal of Iranian Medical Council*.
- Hegazy, A. A., Abdelhai, R., Aboushady, A. T., Elessawy, R., & Seddik, S. (2023). Telemedicine during the COVID-19 pandemic: Egyptian healthcare professionals' views. *Oxford Open Digital Health*, oqad009.
- Lew, E., Tan, S. F., Teo, A., Sng, B. L., & Lum, E. P. (2023). Perceptions and Attitudes of Patients and Health Care Stakeholders on Implementing a Telehealth Service for Preoperative Evaluation: A Qualitative Analysis. *Telemedicine Reports*, 4(1), 156-165.
- Kunjumon, S. (2023). The role of telehealth in cardiothoracic nursing: advantages and limitations. *EPRA International Journal of Multidisciplinary Research (IJMR)*, 9(8), 325-327.
- Crouch, J., Winters, K., Zhang, L., & Stewart, M. W. (2023). Telehealth during the pandemic: Patient perceptions and policy implications. *Journal of Nursing Scholarship*, 55(1), 141-148.
- Rajak, P., Augustine, J., Kumar, S., Singh, A., James, A., Noble, E. S., & Wilson, K. P. (2023). Empowering maternal wellness: the vital role of nursing advocacy in maternal mental health. *EPRA International Journal of Multidisciplinary Research (IJMR)*, 9(8), 339-341.
- Singh, A., Jose, S., & James, A. Role of nurse in fostering awareness on the hidden epidemic: recognizing and addressing domestic violence and abuse.
- Poulose, A. C., & Thomas, B. T. S. L. (2023). Navigating the emotional terrain of surgery: the crucial role of nurses in patient well-being. *EPRA International Journal of Multidisciplinary Research (IJMR)*, 9(9), 19-21.
- Rajak, P., Augustine, J., Kumar, S., Singh, A., James, A., Noble, E. S., & Wilson, K. P. (2023). Empowering maternal wellness: the vital role of nursing advocacy in maternal mental health. *EPRA International Journal of Multidisciplinary Research (IJMR)*, 9(8), 339-341.



REVOLUTIONIZING MENTAL HEALTH CARE: THE TRANSFORMATIVE POWER OF TELEHEALTH IN NURSING

Santhosh Kumar J¹, Megha Manjula Gaikwad², Shalini kumar³, Arun James⁴

¹Assistant Professor & PhD, Psychiatric Nursing Dept, Amrita College of Nursing Amrita Vishwa Vidyapeetham, Kochi

²PhD research Scholar, Psychiatric Nursing Department, People's University, Bhopal MP & Staff Nurse, Super Speciality Hospital Medical College NSCB, Jabalpur, MP

³Assistant Professor, Psychiatric Nursing Department Indira Gandhi college of Nursing, Jabalpur, MP

⁴Assistant Professor, Psychiatric Nursing Department, College of Nursing Nirmala Medical Centre, Kerala

ABSTRACT

Telehealth has emerged as a transformative force in the field of healthcare, including mental health nursing. This article explores the integration of telehealth technologies in mental health nursing practice, examining its benefits, challenges, and implications for both patients and practitioners. Drawing on recent research and case studies, we delve into the key aspects of telehealth in mental health nursing and its potential to revolutionize the delivery of mental health care.

KEYWORDS: Telehealth, Mental Health Nursing, Telepsychiatry, Teletherapy, Remote Mental Health Care

INTRODUCTION

Mental health nursing plays a crucial role in the provision of mental health care, offering support and treatment to individuals experiencing a wide range of psychological and emotional challenges. Traditionally, mental health nursing has primarily occurred within the confines of healthcare facilities, with face-to-face interactions between patients and practitioners being the norm. However, the landscape of mental health care is rapidly evolving, and telehealth is emerging as a ground-breaking solution to many of the challenges faced by mental health nurses and their patients.

In recent years, telehealth has gained significant traction across various medical specialties, including mental health care. The integration of telehealth technologies into mental health nursing practice is reshaping the way mental health services are delivered. This article aims to explore the evolving role of telehealth in mental health nursing, shedding light on its advantages, challenges, and the potential it holds for improving access to and the quality of mental health care.

I. THE EVOLUTION OF TELEHEALTH IN MENTAL HEALTH NURSING

Historical context of telehealth in healthcare

Telehealth's roots trace back to the early 20th century with the invention of the telephone, which allowed for remote consultation. Over time, advancements in technology, such as video conferencing and internet connectivity, paved the way for more sophisticated telehealth applications.

The rise of telehealth in mental health care

The emergence of telehealth in mental health care is a response to several contemporary challenges. The increasing demand for mental health services, particularly due to the COVID-19 pandemic, has accelerated the adoption of telehealth. Additionally, improvements in the quality and reliability of internet connections have made telehealth more feasible and attractive for both providers and patients.

Definition and scope of telehealth in mental health nursing

Telehealth in mental health nursing encompasses a range of remote healthcare services, including telepsychiatry, teletherapy, and telemonitoring. Telepsychiatry involves psychiatric evaluations and consultations conducted via video conferencing. Teletherapy, on the other hand, extends to various forms of therapy, including cognitive-behavioral therapy (CBT), dialectical behavior therapy (DBT), and more. Telemonitoring involves remote tracking of patient progress through the use of wearable devices and mobile apps.

II. ADVANTAGES OF TELEHEALTH IN MENTAL HEALTH NURSING

Improved access to mental health care

Telehealth significantly improves access to mental health care, especially for individuals residing in rural or underserved areas. Patients no longer need to travel long distances to access specialized mental health services, reducing barriers to timely treatment.

Overcoming geographical barriers

In regions where mental health resources are scarce, telehealth bridges the gap by allowing mental health nurses to provide



services remotely. This not only extends their reach but also minimizes the burden on patients who would otherwise face long journeys to access care.

Enhanced patient engagement and satisfaction

Telehealth offers a more convenient and flexible option for patients. With the ability to attend sessions from the comfort of their homes, patients often experience increased engagement and satisfaction with their treatment, leading to better outcomes.

Reduction of stigmatization

Mental health stigma remains a significant barrier to seeking help. Telehealth reduces stigma by providing a private and discreet environment for consultations. Patients can receive care without the fear of judgment from others.

Cost-effectiveness

Telehealth can be more cost-effective for both patients and healthcare systems. It reduces travel expenses, eliminates the need for physical infrastructure, and streamlines administrative processes, resulting in potential cost savings.

III. CHALLENGES AND CONSIDERATIONS

Privacy and security concerns

Privacy and security are paramount in telehealth. Adequate measures, such as encrypted communication platforms and secure data storage, must be in place to protect patient information and ensure confidentiality.

Technological barriers

Not all patients have equal access to technology, and some may struggle with internet connectivity or lack familiarity with digital platforms. Mental health nurses must be prepared to address these technological challenges to ensure equitable access to care.

Regulatory and licensure issues

Telehealth often crosses state and national borders, posing challenges related to licensure and regulatory compliance. Mental health nurses must navigate these complex regulations to practice legally and ethically.

Establishing therapeutic rapport remotely

Building a therapeutic relationship is a cornerstone of mental health nursing. Telehealth introduces the challenge of establishing trust and rapport through a screen. Nurses must employ strategies like active listening and empathy to foster a therapeutic connection.

Addressing emergencies and crisis situations

Mental health nurses must have protocols in place to address emergencies during telehealth sessions. This includes identifying signs of crisis and having a plan to connect patients with immediate help if necessary.

IV. TELEHEALTH MODALITIES IN MENTAL HEALTH NURSING

Telepsychiatry

Telepsychiatry involves providing psychiatric evaluations, diagnoses, and treatments via secure video conferencing platforms. Mental health nurses can conduct comprehensive assessments, offer medication management, and engage in therapy sessions remotely.

Teletherapy

Teletherapy encompasses various forms of therapy, such as individual counseling, group therapy, and family therapy. Mental health nurses can adapt evidence-based therapeutic approaches to the virtual setting, ensuring effective treatment delivery.

Remote monitoring and assessment

Telehealth enables mental health nurses to remotely monitor patient progress through wearable devices and mobile applications. This data-driven approach allows for more personalized care and early intervention when needed.

Digital mental health interventions

The integration of digital mental health interventions, including mobile apps, online self-help resources, and chatbots, complements telehealth services. Mental health nurses can recommend and guide patients in using these tools for ongoing support and self-management.

V. FUTURE DIRECTIONS AND IMPLICATIONS

The role of artificial intelligence and predictive analytics

Discuss the potential of AI and predictive analytics in enhancing telehealth services for mental health nursing. These technologies can assist in diagnosing and predicting mental health conditions, guiding treatment decisions, and improving patient outcomes.

Telehealth's potential impact on mental health research

Explore how the data collected during telehealth interactions can contribute to mental health research. Large-scale data sets from telehealth sessions offer valuable insights into mental health trends, treatment efficacy, and the development of evidence-based practices.

The integration of telehealth into mental health nursing education

Highlight the importance of incorporating telehealth training into mental health nursing education programs. Future mental health nurses need to be equipped with the skills and knowledge to effectively deliver care in virtual environments.

CONCLUSION

In conclusion, telehealth is revolutionizing mental health nursing by expanding access to care, enhancing patient engagement, and addressing barriers to treatment. While challenges exist, ongoing advancements in technology and regulatory frameworks continue to support the integration of telehealth into mental health nursing practice. As we look to the



future, the potential for telehealth to transform mental health care and improve patient outcomes is promising.

REFERENCES

- Barnett, P., Mathews, S., Torous, J., & Bucci, S. (2018). New digital therapeutics for obsessive-compulsive disorder. *Current Treatment Options in Psychiatry*, 5(3), 342-352.
- Brooks, E., Turvey, C., & Augusterfer, E. F. (2013). Provider barriers to telemental health: Obstacles overcome, obstacles remaining. *Telemedicine and e-Health*, 19(6), 433-437.
- Centers for Medicare & Medicaid Services. (2020). *Telehealth*. <https://www.cms.gov/Medicare/Medicare-General-Information/Telehealth>
- Hilty, D. M., Ferrer, D. C., Parish, M. B., Johnston, B., Callahan, E. J., & Yellowlees, P. M. (2013). The effectiveness of telemental health: A 2013 review. *Telemedicine and e-Health*, 19(6), 444-454.
- Hubley, S., Lynch, S. B., Schneck, C., & Thomas, M. (2016). Review of key telepsychiatry outcomes. *World Journal of Psychiatry*, 6(2), 269-282.
- Luxton, D. D., Pruitt, L. D., & O'Brien, K. (2014). Best practices for remote psychological assessment via telehealth technologies. *Professional Psychology: Research and Practice*, 45(1), 27-35.
- National Council for Behavioral Health. (2021). *Telehealth resource center* <https://www.thenationalcouncil.org/topics/telehealth-resource-center/>
- Norman, S., & Calhoun, P. S. (2015). Telemedicine delivery and PTSD treatment for rural veterans. *Journal of Anxiety Stress Coping*, 28(4), 390-398.
- Shore, J. H., Schneck, C. D., Mishkind, M. C., & Bernard, J. (2007). Doarn, C. R. A lexicon of assessment and outcome measures for telemental health. *Telemedicine and e-Health*, 13(5), 529-533.
- Simpson, S., Richardson, L., Pietrabissa, G., Castelnuovo, G., & Reid, C. (2017). Videotherapy and therapeutic alliance in the age of COVID-19. *Clinical Psychology & Psychotherapy*, 27(2), 186-189.
- Smith, A. C., Thomas, E., Snoswell, C. L., Haydon, H., Mehrotra, A., Clemensen, J., & Caffery, L. J. (2020). Telehealth for global emergencies: Implications for coronavirus disease 2019 (COVID-19). *Journal of Telemedicine and Telecare*, 26(5), 309-313.
- Yellowlees, P. M., Burke Parish, M., González, Á. M., Chan, S. R., & Hilty, D. M. (2010). *Telepsychiatry and health technologies: A guide for mental health professionals*. Arlington, VA: American Psychiatric Publishing, Inc.
- Danesh, V., Rolin, D., Hudson, S. V., & White, S. (2019). Telehealth in mental health nursing education: health care simulation with remote presence technology. *Journal of Psychosocial Nursing and Mental Health Services*, 57(7), 23-28.
- Farrar, F. C. (2015). Transforming home health nursing with telehealth technology. *Nursing Clinics*, 50(2), 269-281.
- Zhou, X., Snoswell, C. L., Harding, L. E., Bambling, M., Edirippulige, S., Bai, X., & Smith, A. C. (2020). The role of telehealth in reducing the mental health burden from COVID-19. *Telemedicine and e-Health*, 26(4), 377-379.
- Kunjumon, S. (2023). The role of telehealth in cardiothoracic nursing: advantages and limitations. *EPRA International Journal of Multidisciplinary Research (IJMR)*, 9(8), 325-327.
- Rajak, P., Augustine, J., Kumar, S., Singh, A., James, A., Noble, E. S., & Wilson, K. P. (2023). Empowering maternal wellness: the vital role of nursing advocacy in maternal mental health. *EPRA International Journal of Multidisciplinary Research (IJMR)*, 9(8), 339-341.
- Singh, A., Jose, S., & James, A. (2023). A role of nurse in fostering awareness on the hidden epidemic: recognizing and addressing domestic violence and abuse.
- Thomas, J., Rajak, P., & James, A. (2023). Exploring factors influencing the acceptance of third covid-19 vaccine dose: a qualitative study in madhya pradesh, india. *epra international journal of multidisciplinary research (ijmr)*, 9(8), 342-345.
- Poulouse, A. C., & Thomas, B. T. S. L. (2023). Navigating the emotional terrain of surgery: the crucial role of nurses in patient well-being. *EPRA International Journal of Multidisciplinary Research (IJMR)*, 9(9), 19-21.
- Rajak, P. (2023). Technology And Innovation In Nursing Education: Discussing The Use Of Technology And Simulation In Nursing Education To Train Nurses For Both Psychiatric And Cardiothoracic Care, An Interdisciplinary Insight.
- Singh, A. (2023). A study to determine the knowledge and attitude of mothers regarding prevention of child sexual abuse in a selected rural area of jabalpur, madhya pradesh. *EPRA International Journal of Multidisciplinary Research (IJMR)*, 9(8), 244-246.
- Sahoo, S., Sahoo, J., Kumar, S., Lim, W. M., & Ameen, N. (2023). Distance is no longer a barrier to healthcare services: current state and future trends of telehealth research. *Internet Research*, 33(3), 890-944.



THE IMPACT OF SOCIAL NETWORKING ON NIDRA(SLEEP): A REVIEW OF THE LITERATURE

Bilachi Sachin G¹, Kamath Nagaraj²

¹P.G. Scholar, ²Associate Professor,

Department of Shareera Kriya, Sri Dharmasthala Manjunatheshwara College of Ayurveda & Hospital, Hassan-573201, Karnataka, India

ABSTRACT

Social networking sites (SNSs) are virtual spaces where users can connect with others based on shared interests, create public profiles, and interact with real-life friends. They offer a variety of benefits, such as access to academic resources, learning opportunities, entertainment, social connection, news and information, and networking opportunities. However, SNSs can also have harmful effects, such as addiction, cyberbullying, body image issues, reduced productivity, and increased risk of depression. Ayurveda considers sleep (nidra) to be one of the three pillars of health, along with diet (ahara) and exercise (vyayama). Nidra is essential for physical and mental well-being. It helps to restore the body's energy, improve cognitive function, and boost the immune system. There are four types of nidra: tamasika, swabhaviki, vaikarika, and kalaswabhavaj. The physiology of sleep is explained by four theories: tamoguna theory, kapha dosha theory, depression theory, and svabhava theory. The text provides a comprehensive overview of social networking and sleep in the context of Ayurveda. It discusses the benefits and harmful effects of SNSs, as well as the importance of nidra for physical and mental health. The text also provides an overview of the four theories that explain the physiology of sleep.

SOCIAL NETWORKING USAGE refers to the ways in which people use social networking sites and apps to connect with others, share information, and build relationships. Social Networking Sites are virtual communities where users can create individual public profiles, interact with real-life friends, and meet other people based on shared interests. SNSs are online platforms that allow users to create public or private profiles, within a limited scope connect with other users, and view their connections.^[1]

Primarily, SNSs were used for making friends online, fostering interpersonal relationships and building business networks.^[2] Lately, due to its enriching quality, greater reach and huge accessibility, youngsters utilizing these websites for academic purposes, like sharing assignments and online discussions, extending their reach to mass gatherings for political propagandas, and voicing for social causes, and entertainment like streaming online, playing games and listening songs.^[3]

Specifically, one of the study argues that there are five different types of cyber addiction, namely computer addiction (i.e., gaming addiction), information overload (i.e., internet surfing addiction), net compulsions (i.e., online betting or shopping addiction), online sexual addiction, and online-relationship addiction.^[4] SNS appears to come under last category since their

main purpose is to build and maintain relationships, both online and offline.

The internet has created a global village where people from all over the world can come together to learn, share, and grow. A number of social networking sites have created dynamic social contexts that make it easy for users to form and maintain online communities. These sites facilitate communication and social connections, which helps groups, communities, and people with shared interests stay connected. (E.g. Live streaming: Users can broadcast live video to their followers, which allows them to connect with others in real time. Shared groups and communities: Users can join groups and communities based on their interests, which gives them a way to connect with others who share their passions).

BENEFITS

Academics: Social networking sites can provide access to research papers, articles, and other academic resources. For example, researchers can use Twitter to follow experts in their field and stay up-to-date on the latest research.^[5] **Learning:** Social networking sites can be used to learn new things. For example, students can use YouTube to watch educational videos or follow experts on Twitter who share educational content.^[6] **Entertainment:** Access to entertainment: Social networking sites can provide access to entertainment content, such as movies, TV



shows, music, and games. For example, users can watch videos on YouTube or listen to music on Spotify.^[7] Socializing: Social networking sites can be used to socialize with friends and family. For example, users can chat with friends on Facebook or Instagram or play games with friends on Discord.^[8] Information: Access to news and information: Social networking sites can provide access to news and information. For example, users can follow news organizations on Twitter or join groups on Facebook that share news and information.^[9] Networking: Social networking sites can be used to network with people who share similar interests. For example, users can join groups on LinkedIn that are relevant to their industry or follow people on Twitter who work in their life.^[10] Socialization: Connecting with friends and family: Social networking sites can be used to connect with friends and family who live far away. For example, users can chat with friends on Facebook or Instagram or send messages on WhatsApp.^[11] Making new friends: Social networking sites can be used to make new friends who share similar interests. For example, users can join groups on Facebook or Discord that are relevant to their interests or follow people on Twitter who have similar interests.^[12]

HARMFUL EFFECTS

Addiction: Social media addiction is a real problem, and it can have a number of negative consequences for mental and physical health. People who are addicted to social media may experience anxiety, depression, and loneliness. They may also neglect their work, school, or relationships.^[13] Cyberbullying: Cyberbullying is a form of bullying that takes place online or through electronic devices. It can be just as harmful as traditional bullying, and it can lead to a number of negative consequences, including depression, anxiety, and even suicide.^[14] Body image issues: social media can be a breeding ground for body image issues, as people are constantly bombarded with images of idealized bodies. This can lead to low self-esteem and eating disorders.^[15] Reduced productivity: social media can be a major distraction, and it can lead to reduced productivity at work or school. People who are constantly checking their social media accounts may find it difficult to focus on their tasks.^[16] Increased risk of depression: Studies have shown that excessive social media use can increase the risk of depression, especially in young people. This is likely due to the fact that social media can lead to social comparison, loneliness, and a distorted sense of reality.^[17] Sleep deprivation: Excessive social media use can lead to sleep deprivation, as people may stay up late at night scrolling through their feeds or checking notifications. This can lead to a number of health problems, including fatigue, difficulty concentrating, and mood swings.^[18]

NIDRA (Sleep)

Ayurveda regards *Nidra* as one of the most essential factors responsible for a healthy life. It is one of the *Trayopastambhas* or three great supporting pillars on which the health of a person is firmly balanced.^[19]

When the mind is exhausted or inactive, the sense organs are unable to perceive their objects. This results in a lack of stimulation for the mind, which leads to sleep.^[20] So, When the mind is exhausted, it is no longer able to process information as effectively. This can lead to a decrease in alertness and concentration.

Nidra is mentioned as one among the thirteen *AdharaneeyaVegas*.^[21] The happiness, nourishment, strength, virility, knowledge and life depend on the proper or adequate sleep.^[22]

Acharya's have called the Sleep as *BhutaDhatri* which occurs by nature of *ratri* (night), that sustains all the living things. Some quoted it as a *SvabhavikaRoga*.^[23] The getting enough sleep is a sign of good health because it allows the body to the adequate repair itself and restore its normal functions.^[24] Like *Aahara*, Sleep is key to keeping the body healthy and functioning at its best.^[25]

Sleep is often referred to as "*Vaishnavimaya*" in a metaphorical sense. It is a physiological process that provides nourishment to the body and helps to maintain health.^[26] Human beings have four basic instincts or needs: hunger, thirst, sleep, and sexual satisfaction.^[27] *Acharya's* have described the importance of sleep during fetal life. they have emphasized The fetus in the womb is able to get a better rest and feel more comfortable when the mother sleeps during pregnancy.^[28] *Nidra* (sleep) is described as a state in which the *Atma* doesn't have desire for anything and also doesn't dream anything and this condition is called *Sushuptavastha* of *nidra*(sleep).^[29] *MaharshiPatanjali* has defined *Nidra* to be the mental operation having the absence of cognition for its grasp. A commentator noted that sleep is a state of unconsciousness, but there is still a level of awareness present. This awareness is of the unconscious state itself.^[30]

SYNONYMS OF NIDRA

In *Amarkosha*, four synonyms have been mentioned; *Shayanam*, *Svapah*, *Svapnah*, *Samvesh*.

Similarly in *VaidyakaShabdaSindhu*, three synonyms are available; *Sambhashah*, *Suptih*, *Svapanam*. In *CharakaSamhita*, *Bhutadhatri* has been used as a synonym and in *SushrutaSamhita* the word *VaishnaviMaya* is used.

TYPES OF NIDRA

Nidra has been classified in the following manner according to causes.^[31]

Tamobhava- caused by *tama*, *Shleshmasamudbhava*- caused by vitiated *kapha*, *Manah-sharirshramasaambhava*- caused by mental and by physical exertion, *Agantuki*-indicative of bad prognosis leading imminent death, *Vyadhyanuvaritini*- caused as a complication of other disease like *Sannipatajajwara* etc., *Ratri-svabhavaprabhava*- caused by the very nature of the night.



Acharya Dalhana has classified *Nidra* into three types on the basis of *SushrutaSamhita*.^[32]

Tamasik- when *sangyavahastrotas* become filled with *shleshma* dominated by *tamoguna*, *TamasiNidra* is produced. *Swabhaviki*- this type of *Nidra* occurs naturally and daily in all living beings.

Vaikariki- If there is any disturbance in *mana* and body, *Nidra* does not occur. But if *Nidra* is occurred, it is *vaikarikiNidra*.

Acharya Vagbhata has classified in seven types as following manner.^[33]

Kalaswabhawaj- it is produces at the accustomed time. i.e. nights,

Amayaja- it is produced due to effect of diseases, By fatigue of

mana- when *mana* is exhausted, By fatigue of *sharira*- when body

is exhausted, *Shleshmaprabhavaj*- it is produced due to

predominance of *kapha*, *Agantuka*- this type of *Nidra* is produced

by external factors e.g. traumatic etc., *Tamobhava*- it is produced

by predominance of *Tamoguna*.

PHYSIOLOGY OF SLEEP

Four theories for explaining mechanism of sleep *Tamoguna* Theory.^[34]

- ✓ *KaphaDosh*a Theory.
- ✓ Depression Theory
- ✓ *Svabhava* Theory
- ✓ *Tamoguna* Theory

***KaphaDosh*a Theory**- when *tamas* accumulate in *chetana*, *kapha* obstructs the sensory channels in the body, leading to sleep.

Depression Theory-When the mind and the sense organs are tired to an extent that they cannot be aroused by activity, then the person goes to sleep. This can occur as a result of natural processes as well as pathological processes.

***Svabhava* Theory**-Natural instincts are the most powerful cause of sleep, and the night serves as the causative factor.

***Tamoguna* Theory**-In the *darshanik* theory of sleep, *tamas* is the *guna* (quality) that is responsible for ignorance, inertia, inattention, and sleep. At night, the higher centers of the mind are overpowered by *tamas*, which leads to sleep. Additionally, if *tamas* covers the seat of consciousness, the heart, then the person goes to sleep.

Benefits of Sleep

A good, quality sleep provides,^[35]

- ✓ *Sukha* (wellness)
- ✓ *Pushti* (nourishment)
- ✓ *Bala* (strength)
- ✓ *Vrishata* (potency)
- ✓ *Jnana* (knowledge)
- ✓ *Jiva* (life or longevity)

Sleep is a vital part for the normal functioning of the human body in Ayurveda. It is one of the three *upastambhas* or subpillars, of

health in Ayurveda, along with *bhrahmacharya* (celibacy) and *aahara* (diet). Good quality and quantity sleep provides one with wellness, strength, knowledge, potency, nourishment, and life or longevity. On the other hand, inadequate sleep leads to weakness, illness, ignorance, impotency, emaciation, and even death.

Harmful Effects of Sleep Deprivation

Reduced cognitive performance: Sleep deprivation can impair cognitive functions such as attention, memory, and learning. For example, a study by the University of California, Berkeley found that sleep-deprived students performed worse on tests of attention and memory.^[36]

Mood disorders: Sleep deprivation can also lead to mood disorders such as depression and anxiety. For example, a study by the University of Pittsburgh found that sleep-deprived people are more likely to experience symptoms of depression.^[37]

Increased risk of suicide: Sleep deprivation has been linked to an increased risk of suicide. For example, a study by the University of Pennsylvania found that people who are sleep-deprived are more likely to attempt suicide.^[38]

DISCUSSION

Social networking has become an integral part of our lives, and the amount of time we spend on social media is increasing. However, ongoing research suggests that social networking use can have a negative impact on sleep.

One study found that people who used social media for more than two hours per day were more likely to report sleep problems than those who used social media for less than one hour per day. Another study found that people who checked their social media accounts before bed were more likely to have trouble falling asleep and to wake up during the night. There are a few reasons why social networking use can interfere with sleep. First, the blue light emitted from electronic devices can suppress the production of melatonin, a hormone that helps regulate sleep. Second, social networking can be stimulating and can make it difficult to relax and fall asleep. Third, social networking can be addictive, and people who are addicted to social media may find it difficult to turn off their devices at night.

CONCLUSION

In conclusion, *Trayopastamba*, or the three pillars of health, is a concept in Ayurveda that emphasizes the importance of diet (*ahara*), sleep (*nidra*), and sexual moderation (*brahmacharya*). *Nidra* (sleep), is one of the most important pillars of health. Blue light emitted from electronic devices can suppress the production of melatonin, a hormone that helps regulate sleep. Social networking can also be stimulating and can make it difficult to relax and fall asleep. It is important to note that more research is needed to fully understand the impact of social networking on sleep. However, the current evidence suggests that it is best to limit social media use if you want to get a good night's sleep.



REFERENCES

1. Boyd DM, Ellison NB. Social network sites: Definition, history, and scholarship. *J Comput Mediat Comm.* 2008;13 :210–230.
2. Utpal, V. K. J. (2017). Social networking sites: A boon or bane? A study on the benefits and drawbacks of social networking sites. *International Journal of Social Science Research*, 4(1), 1-10.
3. Orchard, L., Fullwood, C., Galbraith, N., & Morris, L. (2014). Social networking sites and the well-being of young people: A systematic review. *Computers in Human Behavior*, 30, 338-352.
4. Young K. Internet addiction: Evaluation and treatment. *Student Brit Med J.* 1999; 7 :351–352.
5. Kaur, G., & Kaur, K. (2020). Role of social networking sites in academic research. *International Journal of Scientific Research and Development*, 8(6), 292-295.
6. Dwivedi, Y. K., & Srivastava, S. K. (2018). Social networking sites and academic performance: A systematic review of literature. *Computers & Education*, 122, 119-138.
7. Sundar, S. S., & Limpert, C. (2013). Social media and the news: Uses and gratifications and pathways to exposure. *Journal of Broadcasting & Electronic Media*, 57(4), 508-526.
8. Ellison, N. B., Steinfield, C., & Lampe, C. (2007). The benefits of Facebook "friends": Social capital and college students' use of online social network sites. *Journal of Computer-Mediated Communication*, 12(4), 1143-1168.
9. Kim, J., & Sundar, S. S. (2018). Social media use for news: Effects on political knowledge, participation, and attitudes. *Communication Research*, 45(6), 878-905.
10. Ellison, N. B., & Vitak, J. (2015). *The networked self: Identity, community, and culture on social network sites.* New York: Oxford University Press.
11. Park, N., & Jun, S.-H. (2016). Social capital of social network sites: Facebook use and social capital among Korean adolescents. *Cyberpsychology, Behavior, and Social Networking*, 19(2), 122-127.
12. Valkenburg, P. M., & Peter, J. (2007). The differential effects of online and offline communication on adolescents' peer relations, trust, and well-being. *Communication Research*, 34(4), 434-459.
13. Andreassen, C. S., Pallesen, S., & Griffiths, M. D. (2016). The relationship between addictive use of social media and symptoms of depression and anxiety: A population-based study. *Depression and Anxiety*, 33(4), 353-360.
14. Hinduja, S., & Patchin, J. W. (2010). Cyberbullying: An overview and synthesis of the research. *Cyberpsychology, Behavior, and Social Networking*, 13(2), 1-17.
15. Tiggemann, M., & Slater, A. (2013). The impact of social media on body image concerns: A systematic review. *Body Image*, 10(1), 10-20.
16. Pierce, L., & Stavropoulos, V. (2015). The impact of social media use on productivity at work: A systematic review. *Computers in Human Behavior*, 49, 333-340.
17. Primack, B. A., Greenfield, D. N., Kilpatrick, D. G., & Kaiser, L. L. (2017). Social media use and depression in adolescents: A longitudinal study. *Journal of the American Medical Association Pediatrics*, 171(4), 347-355.
18. Chou, C.-H., & Lee, M.-C. (2012). The relationship between problematic social networking site use and sleep quality among college students. *Computers in Human Behavior*, 28(6), 2345-2351.
19. Acharya JT. Caraka Samhita. 1st ed, Varanasi; Chowkamba Prakashan; Reprint 2009; p 74.
20. Charaka Samhita, Sutrasthana, 30.1.
21. Acharya JT. Caraka Samhita. 1st ed, Varanasi; Chowkamba Prakashan; Reprint 2009; p 49.
22. Acharya JT. Caraka Samhita. 1st ed, Varanasi; Chowkamba Prakashan; Reprint 2009; p118.
23. Acharya JT. Sushruta Samhita by Sushruta. reprint ed, Varanasi; Chowkamba Sanskrit Sansthan; 2010; p114.
24. Tewari PV. Kashyapa Samhita. 1st ed, Varanasi; Chaukambha Visvabharati; Reprint 2008; p469.
25. Acharya JT. Caraka Samhita of Caraka. 1st ed, Varanasi; Chowkamba Prakashan; Reprint 2009; p119.
26. Acharya JT. Sushruta Samhita by Sushruta. reprint ed, Varanasi; Chowkamba Sanskrit Sansthan; 2010; p358
27. Dr. Madhan Shetty Suresh Babu. Yoga Ratnakara; Vol I. Varanasi; Chowkambha Krishnadas Academy; 2005; p88.
28. Brahmashankara Mishra, Bhavaprakasha Vol I; 9th ed: Varanasi; Chowkambha Sanskrit Sansthan; 2006;
29. Swami Krishnananda. Mandakya Upanishad; The Devine Life Society, Rishikesh, 1996; p42.
30. Iyengar B.K.S, Light on Yoga Sutras of Patanjali, Paperback Ed, Thorsons Publications, 1993, p 52.
31. Acharya JT. Caraka Samhita. 1st ed, Varanasi; Chowkamba Prakashan; Reprint 2009; p 119.
32. Acharya JT. Sushruta Samhita by Sushruta. reprint ed, Varanasi; Chowkamba Sanskrit Sansthan; 2010; p 359.
33. Jyotirmitra Acharya, Astanga Sangraha; 2nd ed: Varanasi; Chowkambha Sanskrit Series, p 94.
34. Deore, n., & pani, s. (2020). A review on significance of nidra (sleep) towards maintaining the human health. *World journal of pharmaceutical and medical research*, 6(12), 332-336.
35. Hiremath, S., Math, S. A., & A. (2018). Ayurvedic View on Sleep (Nidra): A Pillar Of Health - A Review Article. *INTERNATIONAL AYURVEDIC MEDICAL JOURNAL*, 6(2), 383-387.
36. Walker, Matthew P. Why We Sleep: Unlocking the Power of Sleep and Dreams. Simon & Schuster, 2017.
37. Spiegel, K., Tasali, E., Penev, P., & Van Cauter, E. "Brief communication: Sleep curtailment in healthy young men is associated with decreased leptin levels, elevated ghrelin levels, and increased hunger." *Annals of Internal Medicine* 143.4 (2005): 265-269.
38. Hale, L., Morgan, K., & O'Connor, D. B. (2014). The impact of pre-sleep mobile phone use on sleep quality among young adults. *Journal of Sleep Research*, 23(6), 699-706.



IMPACT OF DEMOGRAPHIC FACTORS ON THE EMPLOYEE ENGAGEMENT OF EMPLOYEES IN THE IT INDUSTRY

Mrs. V V Sushmita R P

Research Scholar

ABSTRACT

Employee is an asset to an organization. Employee performance directly or indirectly affects the growth of the organization. Employee retention is dependent on the employee motivation is on the whole dependent on the employee engagement in an organization. This paper tries to bring out all the factors that affect this employee engagement in the IT industry across the country. Among the factors it's been observed that demographic factors also affect the performance of the employee and their engagement. So, the paper through literature tries to bring out the various demographic and other factors affecting the employee engagement.

KEYWORD: *Employee engagement, Employee, demographic factors, Age, gender, experience, designation, education, models of employee engagement.*

INTRODUCTION

The employee of every organization is an asset to the company as his work outcome contributes to the organization's performance and profits. There are many factors that impact the performance of the employee in an organization. These factors are.

1. Work environment and Culture
2. Teamwork
3. Organizational leadership
4. Inter-organizational relationship
5. Demographic factors
6. Performance appraisal and recognition
7. HR policies

Work environment and Culture

The employee spends around 8-10 hours in an organization and the work environment and culture plays an important role in an employee lifestyle. The more positive in the environment and more would be the improvement in the performance of the employees. A positive atmosphere can be developed by motivation, great training, appreciation, and a great support system. Organization should be able to develop a strong work environment and culture. A positive work environment and encouraging team support helps in this growth. This environment is created by the managers and the top management of the organization.

Teamwork

The team members help the employee to grow in the organization. Every employee shows a great inclination towards a team member who is open to support and learning. The employee learns from the work and from the environment created by the organization and this learning helps in the career growth of the employee.

Organizational Leadership

A great support system for the employees is the managers and the top management of the organization. Training, support, and motivation provided to the employees can help them grow in their career. There are many onsite training courses that are organized regularly to help the employee to get equipped with the right skill set to grow and have a successful career in the organization. Apart from the career development support, great leadership supports the employees emotionally.

Demo Graphic Factors

The demographic factors that help the employee in their growth are Age, Experience, Qualification, Family, Family Income, Mother tongue. The employee's family support affects the performance of an employee. Family support works on the emotional part of the employee which affects the stress levels and the daily mind set of the employee. This helps the employee to adapt and learn in his work and perform the work allotted successfully.

Performance Appraisal and Rewards

Employees in an organization can be motivated and inspired through good appraisal and rewards systems. Recognition for the work is important in the career path of the employee in any organization. Employee retention is more in the organizations where there is a good and fair appraisal and reward system. Regular feedback sessions can work well in this regard. Better performance of the employee is directly and indirectly connected with the employee engagement of the employee.



HR Policies and Training

HR operations and training help to motivate the employees and improve employee performance. Many policies and strategies must be developed and implemented in the organization for improvement of employee engagement. Employee engagement in any organization depends on the involvement and performance of the employee.

METHODS

Methods for measurement and assessment can be either qualitative or quantitative. There have been many models proposed by many researchers for the increase of employee engagement in an organization. From Kahn to the Deloitte engagement models there has been huge research happening for this cause. This humongous research has great contribution from many researchers to identify the various variables and the way to handle them to increase employee engagement. (Muthu perumal, 2021)

1. **W.A. Kahn (1990)** conceived of it being made up of two distinct elements:

Emotional Engagement

A situation in which employees have strong emotional ties to their managers, feel their opinions matter and feel that their managers give them development input.

Cognitive Engagement

A situation in which employees know what is required of them, know their purpose or mission, are provided opportunities to develop, and are given feedback about how to progress in organization.

Kahn believed that employees have three psychological conditions for their work engagement and disengagement of work. These three factors are meaningfulness, availability, and safety. To understand more about these factors involved Kahn interviewed counselors and organizational members of an architectural firm. From the data collected he found out that workers were more engaged in work situations that offered them more psychological safety and when they were psychologically available.

2. Maslach, Schaufelli and Leiter Model

Another model of engagement is from the research work of Maslach, Schaufeli and Leiter on "Job burns out" in the year 2001. This model throws light on the characteristics that help in the engagement of the employee like the sustainable workload, Feeling of choice and control, Appropriate recognition and reward, supportive work community, Fairness and justice and meaningful and valued work. This model also gives the link between the six work life factors and various work outcomes. The research further argued that job characteristics, especially feedback and autonomy have been constantly related to the burnout process.

This model has given preference to the workload and the burnout faced by the employees. (Choudury, July - 2018)

3. Robinson, Perryman, and Hayday Model (2004)

The model has been developed by Robinson, Perryman and Heyday (2004), where it is described, that engagement is a two-way relationship between the employer and the employees. In the research paper "The drivers of employee engagement" it's been suggested that employee engagement is a positive attitude held by the employees towards the organization and its values. The model also suggests that an engaged employee is one who is aware of the business context and works with colleagues to improve performance within the job to add value to the organization. The model also emphasizes the commitment of employees that is possible when the organization continues to focus on developing and nurturing the employees. (Muthu perumal, 2021)

4. Saks Model 2006

The conceptual model for the employee engagement has been developed by Saks in the year 2006 in the context of his research work on "Antecedents and Consequences of Employee engagement" which focused on the three aspects which are employees and their psychological make up and experience, ability of the employer to create a conducive environment that promotes employee engagement and third is the interaction between employees at all levels. The researcher developed an evaluation process and showed the interconnection between three parameters: antecedents, employee engagement and consequences. Factors like Job satisfaction, Training and Development, awards and recognition and assertive relationship with peers and supervisors have been taken as antecedents that directly impact the state of engagement of employees that can be attributed to the factors like commitment, ownership, satisfaction, participation etc. The "consequence" are the result of the evaluation process that can be evaluated with customer satisfaction and enhanced performance measures. (Muthu perumal, 2021)

5. The Aon Hewitt Model

The Aon Hewitt model which was developed in 2011 examines both the individual state of engagement as well as the organizational antecedents. Engagement is stated as an emotional and intellectual involvement that motivates employees to do their best at work. This model has a global validation supported by over 15 years of research in organizational psychology. According to this model, engagement is an individual, psychological, and behavioral state and the behavior of satisfaction, increased sales, and other positive extra role behaviors.

Further according to this model, there are typically six engagement drivers and twenty-two organizational antecedents attached to these drivers that lead to individual's engagement in an organization. Engagement drivers are identified as

1. Quality of life
2. Work
3. People
4. Opportunities
5. Total rewards
6. Company practices



However, apart from the people factor rests are resulting through the people factors itself. Hence the people factor is the most crucial element driving the rest of the factors. Further the models say that the engagement drivers are interrelated, and they do not operate in isolation. (Muthu perumal, 2021)

6. Zinger model

The Zinger model was created by Psychologist and Educator David Zinger. This model focuses on strategy and organization. This model identifies employee's finite energy as a key factor to achieve the goal of genuine happiness. Zinger model helps in connecting, authenticating, recognizing, and engaging the employee. This model helps in maximizing employee performance and achieving great results for the organization. The Zinger model identifies developing career, leverage energies and experience of wellbeing as the factors affecting the employee engagement. Employees, when identified in an organization, feel connected with the organization and this factor will help in employee retention. The inter relation between employees and teams in an organization makes the work life positive and this motivates the employee to relate to the community. The employees of an organization feel engaged and motivated to work for customer satisfaction. All these factors help to achieve organizational results. (Choudury, July - 2018)

7. Deloitte model of employee engagement:

The Deloitte model developed in 2019 suggests that the employees should be engaged by creating a culture in the workplace where the employees would get involved, challenged, and respected. The managers in an organization should be able to create a workplace that is positive and irresistible to the employees. This model also comprises of five elements of the workplace culture which has its own relatable actions. The five drive elements of this model are meaningful work, Hands on management, Positive work environment, Growth opportunity and trust – in leadership.

A few of the innumerable models introduced by the researchers for better employees' engagement. A study of these models helps us to arrive at the variables that directly or indirectly affect the employee engagement in an organization. These variables affecting can be categorized by the following conceptual design. (Muthu perumal, 2021)

RESULTS AND DISCUSSIONS

From the model of employee engagement, we find that the variables that effect the employee engagement in an organization can be categorized as Work environment and culture factors, Job Security factors, Awards and appraisal system, Demographic factors, The factors that affect the employee emotionally plays a crucial role in the employee engagement. These are the demographic factors which are.

1. Age
2. Gender
3. Experience
4. Place of work
5. Income
6. Marital Status
7. Designation
8. Mother tongue
9. Educational Qualification

Age

Employees cooperate life starts at an age of 20 and depends on the company continues even after 60 years. Employees between the ages of 20- 25 years look out for high pay, challenging work and innovation in the work. Employees of the ages 25-30 years are mostly employees who are looking out for settlement in life and would have taken loans for various personal requirements. These employees are enthusiastic and thoughtful. They would like to jump in jobs only if the profile and raise is enough to fulfill their needs and ambitions. They are choosy and careful about such shifts.

Employees of the ages 30 -35 are mostly married and are little settled. Their needs are different, and they are satisfied with the job by choice, and they would not look out for a shift of jobs until unless there is a major issue in the existing organization.

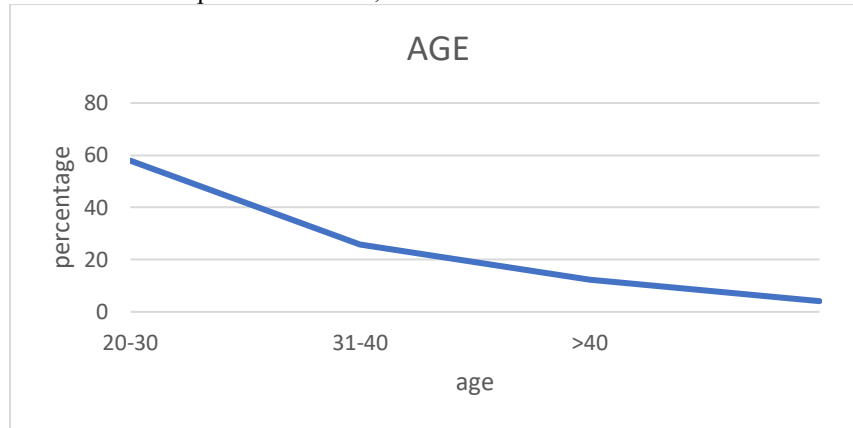
Employees of the ages 35-40 years are employees who are settled and would not look out for change until there is anything severe issue relating to the organization or personal issues. Employees in this age group would have personal responsibility and would have seen many increments in their experience. These employees are more interested in completing the assigned job with best and would be interested in the salary hike to support their family. These parameters as also applicable for employees over 40 years working in an organization.

Employees' needs and requirements also change as per the age group, so for the employee engagement of the employees, age is one of the factors it is dependent on. From various literature papers the statistics of the various age group of employees working in and IT organization shows that the respondents in an organization or different age groups are

1. 20-30 - 64.4% ,31-40 - 25.9 % and above 40 - 9.7 % (praveen kumar, 2016)
2. 25-35 – 44%, 35-45 – 51.3% and 45-50 -4.7% (Bhargavi V, 2015)
3. 21-25 -43% ,26-35 -39.2% and 46 -55 -1.5% (Kishore, 2018)
4. Below 25 -12% ,26-30 -40.9% ,31-35 – 31.3% and above 36 -15.9% (Suganthiya, 2020)
5. 20-30 -57.9%,30-40 :25.7% ,40-50:12.3%, above 50 :4.1% (Tatiparti, 2019)



By analyzing the collected data below is the pattern observed,

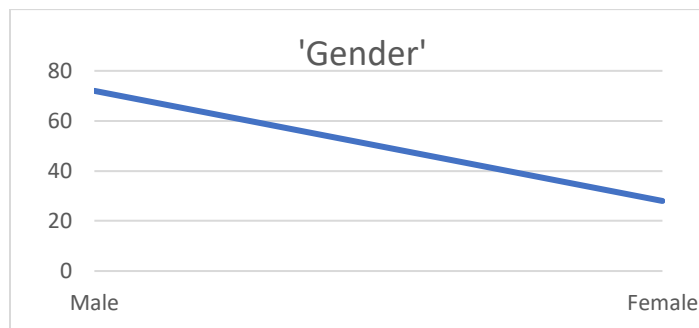


Gender

Every employee in an organization holds a great responsibility to make sure the overall performance of the organization increases periodically due to their performance. It doesn't matter if it is a male or female, every employee has equal responsibility. Employee engagement and Employee retainment have different impacts on the different genders. From various literature papers the statistics of the various age group of employees working in

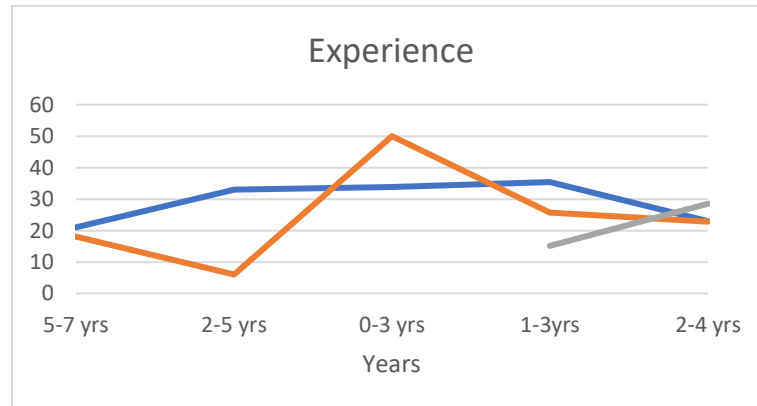
and IT organization shows that the respondents in an organization or different gender are

1. Male:60%, Female:40% (Monica, 2020)
2. Male:89.3%, Female:10.7% (Ranjan, 2021)
3. Male:35.7%, Female:64.3% (Tatiparti, 2019)
4. Male:78.38%, Female:21.61% (Pawar, 2016)
5. Male:72%, Female:28% (Rao, 2018)
6. Male: 74.7%, Female:25.3% (Bhargavi V, 2015)



3. Experience: Employees attain experience as they work and due to which there are many changes in their viewpoint and the way they handle the work. Experience improves proficiency in work. An experience employee understands his/her priorities at work, knows how to balance time and understand how to handle a stressful situation. Experienced employee engagement becomes crucial as they carry great knowledge and skill. From various literature papers the statistics of the various experience group of employees working in and IT organization shows that the respondents in an organization or different experience groups are

1. 5- 7 years -61%: 8-10yrs – 21%:>10 – 18% (Rao, 2018)
2. 2-5 -42%: 6-10-33%:11-15 – 6%:16-20-17.38%:>21 – 2% (AnanthaGowda, 2018)
3. <3 – 16.1%:3-7-33.9%:>7 -50% (Nidhan, 2016)
4. 1-3 – 21%:3-5-35.4%:5-7-25.7%:7-10-15.1%:>10-2.7% (Jha, 2019)
5. 2-4 -25.8%:4-6-23%:6-10-22.8%:>10-28.5% (Kumari, 2018)



Marital Status

Employee marital status impacts the employee engagement. Retention of employee depending on the marital status depends on many factors like the family income, Family dependents etc. From various literature papers the statistics of the employees working in, an IT organization shows that the respondents in an organization.

1. Married – 60%: Unmarried -36.7%: Widower- 3.3% (Bhargavi V, 2015)
2. Married- 70.8%: Unmarried – 29.2% (Jha, 2019)

Data has been collected from the different PHD papers and journals for the study of the impact of the demographic factors on

the employee engagement in the IT industry in various states of India. The analysis has been presented graphically and in the tabular form for the better understanding of the demographic factors impact on the employee engagement through different dependent factors and variables. Employee engagement can be measured through motivation, an appraisal system and other factors. Below are few findings of the employee engagement of the employees impacted by the demographic factors all over the sub- continent India. The data involves the significant impact of the demographic factors on the employee engagement of the employee in various IT industries.

Table 5.5 Demographic variations in Employee Engagement and its determinants

S.No	EE, Enablers of EE	Gender			Age			Education			Overall Years Of Experience			Designation		
		F value	Significance	Result	F value	Significance	Result	F value	Significance	Result	F value	Significance	Result	F value	Significance	Result
1	EE	11.008	0.001	✓	0.169	0.681	✗	8.05	0	✓	4.114	0.585	✗	4.857	0.008	✓
2	SOC/SUP	9.425	0.002	✓	0.001	0.971	✗	5.592	0.001	✓	2.212	0.775	✗	2.316	0.1	✗
3	COMM	12.159	0.001	✓	0.062	0.804	✗	1.907	0.15	✗	2.858	0.779	✗	0.162	0.85	✗
4	JC	1.529	0.218	✗	0.41	0.522	✗	9.48	0	✓	1.244	0.111	✗	3.857	0.022	✓
5	CSE	3.553	0.06	✗	0.996	0.319	✗	5.347	0.001	✓	4.524	0.049	✗	0.985	0.373	✗
6	CDP	27.31	0	✓	0.506	0.477	✗	4.861	0.002	✓	2.066	1.56	✗	2.491	0.084	✗

(Monica, 2020)

1. The above data, we can understand that the employee engagement of the employee (EE) in Coimbatore is impacted by the Gender, Education and Designation. Age and experience don't show significant impact in the employee engagement of the employees in the IT industry of Coimbatore.
2. In the research done by Jagdeep Singh in 2013, analysis of the correlation existence between job experience and the employee engagement factor was done and the degree of correlation obtained was mild between both variables and it was positive i.e., 0.011 which stated that there was no impact of the in-job

experience on the employee engagement factor absorption. In the same research to understand the correlation of Gender and marital status and the employee engagement. As per the analysis, no significant differences were recorded among the average employee engagement factor absorption response pattern of the male and female respondents. Similarly, there were no significant differences recorded among the average employee engagement factor absorption response pattern of the married and single respondents' studies in the research study. (Singh, 2013)

Table 4.6 Discriminant analysis of different demographic variables with respect to engagement of respondents

	Wilks' Lambda	F	df1	df2	Sig.
Gender	.997	1.088	2	847	.337
Marital Status	.992	3.225	2	847	.040
Age	.963	16.280	2	847	.000
Qualification	.999	.229	2	847	.795
Designation	.905	44.398	2	847	.000
Present Salary	.939	27.680	2	847	.000

(Source: Compiled by the researcher)

Wilks Lambda is a statistical test used in multivariate analysis of variance to test whether there are differences between the means of identified groups of subjects on a combination of dependent variables. As per this test we find that the Marital status, age, designation, and salary are the variables that are likely to impact employee engagement status. Designation has an impact on engagement status. A significant outcome of the study is the role of salary as a factor that is likely to impact engagement status. (N, 2017)

gives an outlook on the significant factors influencing employee engagement. In this research a few of the demographic factors have been researched for their impact on the employee engagement of the employees and these factors are age group, experience, designation, mother tongue and marital status. The finding shows that the age group of employees of 20-30 years of age show high employee engagement in the organization with respect to the three factors and others don't have significant impact. Similarly, marital status has less impact on the employee engagement of the employee. Mother tongue and experience has impact on the employee engagement. To arrive at the conclusions Anova, T – Test, and Cronbach's alpha procedure has been applied on the collected data which includes 550 employees of 10 different software companies in Bangalore. (Phily, 2018)

3. In the research study done by Philcy Philip in June 2018 on the impact of the three factors i.e. Professional commitment, Career development and Job enrichment on the employee engagement of the employees of IT organizations of Bangalore. This research



The chart represents the high engagement of the employee with respect to the three factors considered i.e., professional commitment, Career development and Job enrichment. (Phily, 2018)

4. During Bhargavi V R research in July 2015, around 12 variables had been identified impacting the employee engagement of the employees in the global companies of Bangalore. The identified variables are regarding the work environment, Organizational culture, Leadership



style, Job Satisfaction and Involvement, Resource Support, Compensation Benefits-Employees Support, Senior Management, Company human resources policies and procedures, Quality of work life, Opportunities and Empowerment. The highest impact is because of the resource support which has mean percentage of 73.7% and least mean percentage is the compensation benefits which has mean of 62%. (Bhargavi V, 2015)

- The research done by Dr Shailashri V T, in February 2019 on "Introduction to the concept of employee engagement" there are great insight which can be adapted from it. This research gives an outlook on the various factors and their impact on employee engagement. We find employee engagement analyzed in 5 parameters, extremely dissatisfied, Dissatisfied Neither satisfies nor dissatisfied, Satisfies and extremely satisfied. We found.

- 59% of females more satisfied and this has impact on the retention factors of the organization compared to 5% male who expressed extremely dissatisfied in the research.

- Employees of Age group 40-50 are more engaged and are more likely to retain in an organization compared to 3% of 30 -40 and above 50 years age group employees who expressed extremely dissatisfied during the research.

- 53 % of the employees holding a postgraduation are more satisfied as compared to 22% of the undergraduate employees.

- Employees with experience of 4-6years are more likely to be satisfied compared to the 12% of employees having 2-4 years of experience. (Shailashri V, 2018)

CONCLUSION

Factors that affect the employee engagement can be classified in three ways i.e., Work related, HR policies which are top management related and personal factors that are employee related. Every factor has a significant impact on employee engagement.

From the data collected from the various Journals and Research papers we can understand a lot of research has been invested in understand the various factors and their influence of the employee engagement in an organization. There are a few highlighted research points which point towards the interdependency of the salary and monetary benefits and the employee engagement. Another aspect is the work life balance where the demographic factors come to picture to understand this engagement. Peace of mind and great outcome in work, such would be the influence of these factors on the employee engagement of the employees in the IT industry. One of the gaps that have surfaced during the data collection is the qualitative and quantitative analysis of the demographic factors influence on the employee engagement in a

detailed way. For example, Influence of family on the psychological behavior of the employee in an organization. This research can be extended to virtual and hybrid platforms.

REFERENCES

- Monica R, 2020, "Identifying the determinants and its impact on employee engagement in IT sector Coimbatore", <http://hdl.handle.net/10603/345203>.
- Rakesh Ranjan, 2021, "Impact of Employee Engagement on Career Development A Study in Manufacturing Industries", <http://hdl.handle.net/10603/363205>
- Suhasini Tatiparti, 2019 "Employee Engagement s Moderating Impact over the Antecedents of Job Satisfaction and Employee Loyalty Empirical Evidence from Indian IT Sector", <http://hdl.handle.net/10603/289880>
- Bhargavi V R, 2015, "A Study on Employee Engagement and Its Impact on Organizational Effectiveness In Select Global Companies In Bangalore City", <http://hdl.handle.net/10603/85984>
- S. Sangeetha, 2020, "Employee retention strategies in IT industry – A study of select IT companies in Chennai city", <http://hdl.handle.net/10603/278071>
- Anantha gowda K, 2018, "A study on employee engagement practices with special reference to I T and manufacturing industries , Bangalore and Mysore regions", <http://hdl.handle.net/10603/264046>
- Philcy Philip, 2018, "Factors influencing employee engagement and its impact on three components of organizational commitment in IT Organizations, Bengaluru", <http://hdl.handle.net/10603/314074>.
- Rao, Geeta Kalyankar, 2018, "Impact of employee engagement on retention of employees a study of selected information technology and Information technology enabled services IT and ITES in Pune City. <http://hdl.handle.net/10603/375976>.
- Priyadhasini nihdan, 2016, "A study of impact of organization culture of employee engagement in selected firms in India, <http://hdl.handle.net/10603/175975>
- Kumar, K R Kishore, 2018, "Employee engagement strategies adopted in IT companies Chennai, <http://hdl.handle.net/10603/280053>
- Mr P V Muthu Perumal and Dr P Umarani , 2021, "Models of Employee engagement", *IJCRT, Volume -6, Issue - 8, ISSN - 2320-2882*
- Dr Sasmita Choudhury, Dr Manoj Kumar Mohanty, July 2018, "A Conceptual Model of employee engagement from the perspective of manufacturing Industry", *Research review international journal of multidisciplinary, Volume - 3 Issue- 07, ISSN - 2455-3085*
- Swathi Jha, 2019, "Impact of employee welfare programs on employee engagement in IT sector of Rajasthan, <http://hdl.handle.net/10603/338367>, (Jha, 2019)
- Sharma, Praveen Kumar, 2016, "Employee engagement and retention: a study of software professionals , <http://hdl.handle.net/10603/124704> , (praveen kumar, 2016)
- Shailashri V T , 2018, "Assessment of employee engagement practices in service sector in Mangalore , Karnataka, <http://hdl.handle.net/10603/267598>, (Shailashri V, 2018)
- Suganthiya M S, 2020, "Organizational Climate and employee engagement a study with reference to selected employees from information technology organizations, <http://hdl.handle.net/10603/350881>, (Suganthiya, 2020)



17. Indhira .N,2017, "A empirical study of factors contributing to employee happiness among millennials in Information technology industry,
<http://hdl.handle.net/10603/232155>, (N, 2017)
18. Batra G S, 2013, *Employees Engagement and Family initiatives – A study of selected corporate enterprises in India*,
<http://hdl.handle.net/10603/32454>, (G S, 2013)
19. Pawar Avinash Vilas,2016, *A study on analysis and evaluation of employee value proposition of IT companies in Pune*,
<http://hdl.handle.net/10603/190592>, (Pawar, 2016)
20. Nancy Kumari,2018, *Factors influencing the retention of employees in the IT services Industry in Bengaluru*,
<http://hdl.handle.net/10603/208142>, (Kumari, 2018)
21. Jagdeep Singh ,2013, *Employees engagement and family friendly initiatives – A study of selected corporate enterprises in India*, <http://hdl.handle.net/10603/32454>. (Singh, 2013)



DIETARY MANAGEMENT IN POLYCYSTIC OVARY SYNDROME: REVIEW

Paula Bernarda Toledo Caguana ¹, Jocelyne Karina Ordóñez Brito ²,
Juan Sebastián Marca Cabrera ³, Tatiana Melissa Cárdenas Ávila ⁴,
Ariel Andrés Quizhpe Montesdeoca ⁵

¹General Nutritionist at "MediCenter Salud Integral", Faculty of Nutrition, Universidad de Cuenca. Cuenca. Azuay - Ecuador ORCID <https://orcid.org/0009-0009-5995-6529>

²General Nutritionist at "CETAD FE Y ESPERANZA", Faculty of Medical Sciences, Universidad del Cuenca. Cuenca. Azuay - Ecuador ORCID <https://orcid.org/0009-0000-9943-1385>

³General Nutritionist in Independent Practice, Faculty of Nutrition, Universidad de Cuenca. Cuenca. Azuay - Ecuador ORCID <https://orcid.org/0009-0001-0501-006X>

⁴General Practitioner in Independent Practice, Faculty of Medical Sciences, Universidad de Cuenca. Cuenca. Azuay - Ecuador ORCID <https://orcid.org/0009-0009-6774-3208>

⁵General Practitioner at "MediCenter Salud Integral", Faculty of Medical Sciences, Universidad de Cuenca. Cuenca. Azuay - Ecuador ORCID <https://orcid.org/0009-0002-7647-4643>

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ABSTRACT

Introduction: polycystic ovarian syndrome (PCOS) is an endocrine-gynecological disorder that affects and worsens the quality of life of women by altering their physiology and psychology in reproductive age. People with PCOS are more likely to develop insulin resistance, obesity, metabolic syndrome, systemic inflammation, or a combination of these chronic conditions. All of these conditions or diseases increase the risk of diabetes, cardiovascular disease, and other diseases. There are several methods to reduce the chances of suffering from these diseases, among which are proper dietary management, which is why this review has been developed, whose purpose is to gather the information available to date.

Objective: describe actual and available dietary treatments for polycystic ovary syndrome (PCOS).

Methodology: a total of 67 articles were analyzed in this review, including review and original articles, as well as clinical cases, of which 39 bibliographies were used because the other articles were not relevant for this study. The sources of information were PubMed, Scopus and Web of Science; the MeSH keywords "Polycystic Ovary Syndrome" "Diet" "Treatment" and DeCS "Síndrome de ovario poliquístico" "Tratamiento" "Dieta" were used.

Conclusions: currently there are diets and supplements that have been rigorously investigated (through clinical trials) within which certain benefits have been observed with respect to body composition and biomarkers. Within these diets and supplements we find the following diets: ketogenic, mediterranean, low glycemic index, pulse-based, DASH and restricted feeding. At the moment, the number of studies, their magnitude and duration remain insufficient to guarantee reliable recommendations for patients, which is why it is essential that larger studies be carried out to guarantee adequate therapy for the benefit of patients.

Keywords: Polycystic Ovary Syndrome. PCOS. Diet. Dietary Treatment. Treatment. Hyperandrogenism.

INTRODUCTION

Polycystic ovary syndrome (PCOS) is an important cause of both menstrual irregularity and excess androgenic hormones in women, making it the most common endocrinopathy that affects this type of patient (1). Polycystic ovary syndrome can be diagnosed in different ways, but is most easily diagnosed when women present with classic features such as hirsutism, irregular menstrual cycles, and polycystic ovary morphology on transvaginal ultrasound (TVUS). At present there is considerable controversy over the specific diagnostic criteria when not all of these classic features are evident (2).

With respect to the treatment of PCOS, a large number of advances have been identified with respect to non-pharmacological management, and in some cases, it is possible to start with the implementation of exercise and a modification in diet as a first-line treatment (3).

METHODOLOGY

A total of 67 articles were analyzed in this review, including review and original articles, as well as clinical cases, of which 39 bibliographies were used because the other articles were not relevant for this study. The sources of information were PubMed, Scopus and Web of Science; the MeSH keywords "Polycystic Ovary Syndrome" "Diet" "Treatment" and DeCS



“Síndrome de ovario poliquístico” “Tratamiento” “Dieta” were used.

The choice of articles was based on relevance to the contribution on polycystic ovary syndrome and its treatment and updates on the implementations of nutritional interventions for its management.

DEVELOPMENT

Overview

Polycystic ovary syndrome (PCOS) is one of the most common pathologies among women of reproductive age. This endocrine alteration, which affects 8-13% of the female population of childbearing age, presents great variability with respect to the symptoms that can manifest (4). Up to 70% of affected women remain undiagnosed worldwide (5).

Diagnosis

Although there are currently no agreed upon diagnostic criteria for adolescent polycystic ovary syndrome (PCOS), hyperandrogenism is essential for the diagnosis. All conditions that mimic PCOS should be ruled out before confirming the diagnosis of PCOS. Although obesity itself is not considered part of the differential diagnosis, obesity is associated with insulin resistance or any condition associated with severe insulin resistance, which may manifest clinically in the same way as polycystic ovary syndrome (6). Obesity can unmask characteristics of polycystic ovary syndrome in women genetically predisposed to this syndrome. The following pathologies should be considered in the differential diagnosis of PCOS (7,8):

- Hypothyroidism.
- Ovarian hyperthecosis.
- Drugs (androgenic progestogens, danazol).
- Congenital adrenal hyperplasia (late onset).
- Patients with menstrual disorders and signs of hyperandrogenism.
- Familial hirsutism.
- Idiopathic hirsutism.
- Cushing's syndrome.
- Tumors of the adrenal glands or ovary (rapid appearance of signs of virilization).
- Hyperprolactinemia.
- Stromal hyperthecosis (valproic acid).
- Use of exogenous anabolic steroids.

Treatment

The choice of treatment for PCOS depends on the type and severity of symptoms, the woman's age, and her plans for pregnancy (6,8).

Pharmacotherapy

Pharmacological treatments are reserved for so-called metabolic disorders, such as anovulation, hirsutism and menstrual irregularities. Medications for such conditions include oral contraceptives, metformin, prednisone, leuprolide, clomiphene, and spironolactone (9).

Non-pharmacological treatment

Certain lifestyle changes, such as diet and exercise, are considered first-line treatment for adolescents and women with

polycystic ovary syndrome (PCOS). The American College of Obstetricians and Gynecologists (ACOG) and the Society of Obstetricians and Gynecologists of Canada (SOGC) indicate that lifestyle modifications, such as weight loss and increased exercise, along with a change in diet, consistently reduce the risk of diabetes (10,11).

This approach has been found to be comparable or better than drug treatment and should therefore be considered first-line treatment in the treatment of women with polycystic ovary syndrome (PCOS). These modifications have been effective in restoring ovulatory cycles and achieving pregnancy in obese women with polycystic ovary syndrome. Weight loss in obese women with PCOS also improves hyperandrogenic characteristics (9,12).

Women with a BMI greater than 27 kg/m² are considered overweight and are often insulin resistant. Women with a BMI > 30 kg/m² are considered obese and almost always have insulin resistance. Weight loss, even 5% to 7%, can decrease the number of circulating androgens and will therefore induce ovulation. Weight loss is also associated with reduced insulin and testosterone levels and an improved lipoprotein profile. These patients generally have better outcomes when many members of a healthcare team, including a nutritionist, are actively involved in their care (13).

Dietary and Nutritional Management

Lifestyle modification, physical exercise, and especially dietary intervention focused on healthy weight loss, are considered the first line of treatment. Evidence shows that lifestyle changes with small goals achieve clinical benefits. Likewise, it is important to follow the corresponding pharmacological and/or hormonal treatment depending on the case (14).

The composition of the optimal diet for women with PCOS generally follows the pattern of the Mediterranean diet and it has been established that nutritional intervention should achieve not only short-term weight loss and improvement in symptoms and fertility, but also, reduce the long-term risk of type 2 diabetes mellitus, cardiovascular disease and other associated complications (15).

In general terms, the diet should limit the intake of saturated fat, include moderate amounts of monounsaturated fat, which does not induce harmful metabolic effects, and increase the intake of fiber and low glycemic index foods (16).

Weight reduction in women with PCOS has been shown to improve metabolic disorders and body composition, but there is no consensus on the ideal dietary pattern or macronutrient composition (17). Below are some of the dietetics proposals for the management of PCOS:

Ketogenic Diet (Keto diet)

The ketogenic diet (KD) is a low-carbohydrate diet that is rapidly showing promising benefits not only in obesity but also in the treatment of other metabolic diseases such as PCOS. This is demonstrated by some studies that reveal benefits ranging



from a reduction in BMI to a decrease and/or control of blood sugar and insulin levels and other biomarkers (18).

In the first of the studies reviewed, a ketogenic Mediterranean diet with phyoextracts (KEMEPHY) was applied for 12 weeks after which a decrease in both body weight (-9.43 kg) and BMI (-3.35) was observed. kg/m²), while in the laboratory tests a significant decrease in blood glucose and insulin levels was

observed, along with a significant improvement in HOMA-IR, on the other hand, a significant decrease was observed in the lipid panel of total cholesterol, triglycerides and LDL along with an increase in HDL levels. The LH/FSH ratio, total and LH-free testosterone, and blood DHEAS levels were also reduced but minimally (19). The composition of the diet used in the research is described below:

Table 1. KEMEPHY* Diet Composition

	g	% Total E	Kcal
Daily total energy			1672 ± 90
Carbohydrate	20.3 ± 5.2	4.8 ± 1.2	81.5 ± 18.9
Fat	132.4 ± 11.7	71.1 ± 9.3	1188.2 ± 100.2
Protein	100.8 ± 8.6	24.1 ± 5.6	403.4 ± 45.3
Fats distribution		% total fats	
Saturated		38.8 ± 6.9	
Monounsaturated		50.9 ± 6.5	
Polyunsaturated		9.7 ± 5.6	
Protein (g/Kg body weight)	1.23 ± 0.8		

*Mediterranean eucaloric ketogenic protocol (about 1600/1700 kcal/day) with the use of some phytoextracts.

Source: Paoli A, Mancin L, Giacona MC, Bianco A, Caprio M. Effects of a ketogenic diet in overweight women with polycystic ovary syndrome. *J Transl Med* (19).

Another study conducted in 2021 studied the ketogenic diet applied in patients with liver dysfunction, resulting in the KD group reporting a significant reduction in anthropometric characteristics and body composition. No significant differences were observed with respect to baseline hormones in contrast to the results at the end of the study. On the other hand, the KD group significantly reduced liver function markers compared to the control group ($p < 0.05$). Signs of fatty liver disappeared in six out of seven participants with fatty liver in the KD group after 12 weeks of intervention, while only one in 10 participants with fatty liver in the control group disappeared (20).

In another clinical trial carried out in 2022, the KD was compared with the Mediterranean diet, resulting in significant changes in anthropometric and biochemical parameters in both groups after both diet therapies, with statistically significant differences ($p < 0.001$). However, reductions in all parameters were significantly greater in the KD group than in the MD group (21).

Mediterranean Diet

One of the dietary interventions evaluated in women with PCOS is the Mediterranean diet (MD), which has been shown to have a benefit in trying to reduce body weight in addition to an anti-inflammatory effect. DM is based on the regular consumption of fiber, vitamins, antioxidants, as well as unsaturated fats, low GI carbohydrates and a moderate intake

of animal protein. The anti-inflammatory effect of this diet is attributed to the production of short-chain fatty acids derived from the microbiota induced by dietary fiber and the high intake of omega-3 polyunsaturated fatty acids and antioxidants (22). A 2019 study found that in the treatment of polycystic ovary syndrome, MD helped in reducing the inflammatory state demonstrated by a reduction in CRP ($p < 0.001$), insulin resistance, and hyperandrogenemia. In conclusion, a novel direct association between MD adherence and clinical disease severity was reported in women with PCOS (23).

Low Glycemic Index Diet

These diets are characterized by being composed mostly of carbohydrates with a low GI. This type of diet has become popular in the treatment of PCOS. Apparently, women with PCOS have a lower concentration of glutathione peroxidase than healthy women (24).

In a study carried out in 2010 in which patients were evaluated using the insulin sensitivity index derived from the oral glucose tolerance test (ISI OGTT), which improved ($p = 0.03$) more in the patients who followed a low-GI diet compared to patients who followed a conventional healthy diet (mean ± SEM: 2.2 ± 0.7 compared with 0.7 ± 0.6 , respectively). There was a significant benefit between diet and metformin ($p = 0.048$), with greater improvement in OGTT ISI among women prescribed metformin and a low-GI diet (25).



Table 2. Sample diets for the 2 dietary groups

	LGI diet ¹	CHD ¹
Breakfast	1 cup LGI cereal ²	1 cup high-fiber, high-GI cereal ³
	200 mL low-fat milk	200 mL low fat milk
	1 medium orange	1 cup diced rockmelon
Snack	1 medium apple	1 medium banana
Lunch	2 slices whole-grain bread ⁴	2 slices whole-meal bread
	50 g tuna in spring water	50 g tuna in spring water
	1 cup salad vegetables	1 cup salad vegetables
	50 g avocado	50 g avocado
Snack	2 LGI crispbreads ⁵	2 whole-meal crispbreads
	2 Tbsp hummus	2 Tbsp hummus
	4 slices tomato	4 slices tomato
Dinner	100 g lean pork	100 g lean pork
	2 cups mixed vegetables	2 cups mixed vegetables
	3/4 cup Asian noodles	3/4 cup brown rice ⁶
	1 tsp olive oil	1 tsp olive oil
	1 tsp soy sauce	1 tsp soy sauce
Snack	150 g low-fat fruit yogurt	150 g low-fat fruit yogurt
	1 small pear	1 cup diced watermelon
Energy (kJ)	6620	6590
CHO (%)	50	50
Protein (%)	23	23
Fat (%)	27	27
Dietary fiber (g)	34	32
GI (%)	40	59
GL (g)	74	109

1: LGI, low glycemic index; CHD, conventional healthy diet; GI, glycemic index; CHO, carbohydrate; GL, glycemic load. 2: Guardian; Kellogg's Australia, Sydney, Australia. 3: Bran Flakes; Kellogg's Australia. 4: Tip Top 9-Grain Multigrain bread; Tip Top Bakeries, Sydney, Australia. 5: Ryvita Multigrain Rye Crispbread; The Ryvita Company, Sydney, Australia. 6: Sunbrow Quick rice; SunRice, Leeton, Australia.

Source: Marsh KA, Steinbeck KS, Atkinson FS, Petocz P, Brand-Miller JC. Effect of a low glycemic index compared with a conventional healthy diet on polycystic ovary syndrome. *Am J Clin Nutr.* 2010 Jul 1;92(1):83–92 (25).

Pulse-Based Diet (PBD)

Some foods that contain high amounts of fiber are legumes such as peas, lentils, chickpeas and beans. This high amount of fiber gives them a low GI, they are also a food with high quality proteins, they are low in fat and are an essential source of micronutrients. In people without pathologies, it has been shown that this type of diet prevents or reduces IR (26).

In a study carried out in 2018, the effects of a diet based on low-glycemic index legumes were compared with the diet of therapeutic lifestyle changes (TLC) along 16 weeks in women with PCOS, obtaining the results that the PBD group had a better response on the 75 g oral glucose tolerance test, reduction in diastolic blood pressure, decrease in triglycerides, decrease in LDL, and a greater increase in HDL-C than the TLC group (27).

There is another very similar study carried out in 2020 that also compares a PBD with TLC but this time focuses on its impact on body composition and bone density. The results indicated that after 16 weeks, both groups had a reduction in BMI, total body fat mass and fat percentage, however decreases were observed in bone mineral density (BMD) of the femoral neck (28).

Restricted Feeding (Intermittent Fasting)

Al momento solo existe 1 investigación que de manera rigurosa analice este tipo de dieta. El estudio fue publicado en 2021 y analizó la evolución de 15 paciente durante 6 semanas a la cuales se les indicó que podía comer libremente de 8 am a 4 pm y que ayunaran de 4 pm a 8 am obteniendo al final del estudio cambio significativos en el IMC, BF%, grasa visceral, testosterona total, globulina fijadora de hormonas sexuales y resultados de glucosa en sangre (29).

DASH Diet

Within some of the research that analyzes the effects of the Dietary Approaches to Stop Hypertension (DASH) eating plan, we can observe 2 studies that contrast similar results. In the first, carried out in 2015, the DASH diet was applied for 8 weeks, obtaining a significant decrease in weight, body mass index, decrease in triglycerides and LDL cholesterol levels, in addition, higher concentrations of total antioxidant capacity were found. (TAC) and total glutathione (GSH) in the DASH group compared to the control group (30). On the other hand, the second study was carried out in 2015 and obtained the results that adherence to the DASH eating pattern resulted in a significant reduction in serum insulin levels, HOMA-IR score and serum CRP levels compared to the DASH diet. control;



Furthermore, a significant reduction in waist (-5.2cm; $p=0.003$) and hip circumference (-5.9; $p<0.0001$) was also observed in the DASH group compared to the control group (31).

Supplementation

There are currently some supplements that have been studied regarding their possible beneficial effect on PCOS. Some are cited below:

- **Vitamin D:** some studies indicate that the administration of 20,000 IU of cholecalciferol weekly for 24 weeks may be associated with a significant increase in 25-hydroxyvitamin D and a significant decrease in plasma glucose at 60 minutes during the oral glucose tolerance test (OGTT) (32).
- **Inositol:** regarding this supplement, there are 2 presentations that are usually used in patients who want to improve insulin sensitivity: Myo-inositol (MI) and d-chiro inositol (DCI). The main difference between these 2 is that myo-inositol helps with the activation of transporters and the use of glucose by the body, while d-chiroinositol participates in the synthesis and storage of glycogen (33). Some of the benefits that have been observed with the use of inositol are:
 - **Regulation of the menstrual cycle:** when patients were treated for 6 months with MI + ICD (550 + 150 mg, ratio 3.6:1) twice a day and CHC (ethinyl estradiol 20 μg + drospirenone 3 mg) once a day, it was observed a regulation in the cycles, which was maintained up to 3 months after finishing the treatment (34).
 - **Reduce insulin resistance and lipid profile:** intake of 2-4g myo-inositol for 12-24 weeks in women with polycystic ovary syndrome had beneficial effects on glycemic control, triglyceride and VLDL cholesterol levels and genetic expression of peroxisome proliferator (PPAR- γ) (35,36).
- **Curcumin:** some studies indicate that the consumption of 500 mg of curcumin three times a day could be related to a decrease in fasting plasma glucose (FPG) and dehydroepiandrosterone (37,38).
- **Magnesium and Zinc:** Reductions in inflammatory markers such as serum high-sensitivity C-reactive protein were observed when administered 250 mg of magnesium oxide plus 220 mg of zinc sulfate (containing 50 mg of zinc) twice daily for 12 weeks. (hs-CRP) and protein carbonyl (PCO) (39).

CONCLUSIONS

Currently there are diets and supplements that have been rigorously investigated (through clinical trials) within which certain benefits have been observed with respect to body composition and biomarkers. Within these diets and supplements we find the following diets: ketogenic, mediterranean, low glycemic index, pulse-based, DASH and restricted feeding. At the moment, the number of studies, their

magnitude and duration remain insufficient to guarantee reliable recommendations for patients, which is why it is essential that larger studies be carried out to guarantee adequate therapy for the benefit of patients.

BIBLIOGRAPHY

1. Sadeghi HM, Adeli I, Calina D, Docea AO, Mousavi T, Daniali M, et al. Polycystic Ovary Syndrome: A Comprehensive Review of Pathogenesis, Management, and Drug Repurposing. *International Journal of Molecular Sciences* 2022, Vol 23, Page 583 [Internet]. 2022 Jan 6 [cited 2023 Aug 21];23(2):583. Available from: <https://www.mdpi.com/1422-0067/23/2/583/htm>
2. Patel S. Polycystic ovary syndrome (PCOS), an inflammatory, systemic, lifestyle endocrinopathy. *J Steroid Biochem Mol Biol* [Internet]. 2018 Sep 1 [cited 2023 Sep 17];182:27–36. Available from: <https://pubmed.ncbi.nlm.nih.gov/29678491/>
3. Hoeger KM, Dokras A, Piltonen T. Update on PCOS: Consequences, Challenges, and Guiding Treatment. *J Clin Endocrinol Metab* [Internet]. 2021 Mar 1 [cited 2023 Sep 17];106(3):E1071–83. Available from: <https://pubmed.ncbi.nlm.nih.gov/33211867/>
4. World Health Organization. Polycystic ovary syndrome [Internet]. 2023 [cited 2023 Sep 17]. Available from: <https://www.who.int/news-room/fact-sheets/detail/polycystic-ovary-syndrome>
5. Belenkaia L V., Lazareva LM, Walker W, Lizneva D V., Suturina L V. Criteria, phenotypes and prevalence of polycystic ovary syndrome. *Minerva Ginecol* [Internet]. 2019 [cited 2023 Sep 17];71(3):211–25. Available from: <https://pubmed.ncbi.nlm.nih.gov/31089072/>
6. Legro RS, Arslanian SA, Ehrmann DA, Hoeger KM, Murad MH, Pasquali R, et al. Diagnosis and treatment of polycystic ovary syndrome: an Endocrine Society clinical practice guideline. *J Clin Endocrinol Metab* [Internet]. 2013 [cited 2023 Sep 17];98(12):4565–92. Available from: <https://pubmed.ncbi.nlm.nih.gov/24151290/>
7. Al Wattar BH, Fisher M, Bevington L, Talaulikar V, Davies M, Conway G, et al. Clinical Practice Guidelines on the Diagnosis and Management of Polycystic Ovary Syndrome: A Systematic Review and Quality Assessment Study. *J Clin Endocrinol Metab* [Internet]. 2021 Aug 1 [cited 2023 Sep 17];106(8):2436–46. Available from: <https://pubmed.ncbi.nlm.nih.gov/33839790/>
8. Escobar-Morreale HF. Polycystic ovary syndrome: definition, aetiology, diagnosis and treatment. *Nat Rev Endocrinol* [Internet]. 2018 May 1 [cited 2023 Sep 17];14(5):270–84. Available from: <https://pubmed.ncbi.nlm.nih.gov/29569621/>
9. Jin P, Xie Y. Treatment strategies for women with polycystic ovary syndrome. *Gynecol Endocrinol* [Internet]. 2018 Apr 3 [cited 2023 Sep 17];34(4):272–7. Available from: <https://pubmed.ncbi.nlm.nih.gov/29084464/>
10. Lin AW, Kazemi M, Jarrett BY, Brink H Vanden, Hoeger KM, Spandorfer SD, et al. Dietary and Physical Activity Behaviors in Women with Polycystic Ovary Syndrome per the New International Evidence-Based Guideline. *Nutrients* [Internet]. 2019 Nov 1 [cited 2023 Sep 17];11(11). Available from: <https://pubmed.ncbi.nlm.nih.gov/31089072/>
11. Joham AE, Norman RJ, Stener-Victorin E, Legro RS, Franks S, Moran LJ, et al. Polycystic ovary syndrome. *Lancet Diabetes Endocrinol* [Internet]. 2022 Sep 1 [cited 2023 Sep 17];10(9):668–80. Available from:



- <http://www.thelancet.com/article/S2213858722001632/fulltext>
12. Huddleston HG, Dokras A. Diagnosis and Treatment of Polycystic Ovary Syndrome. *JAMA [Internet]*. 2022 Jan 18 [cited 2023 Sep 17];327(3):274–5. Available from: <https://pubmed.ncbi.nlm.nih.gov/35040896/>
 13. Szczuko M, Kikut J, Szczuko U, Szydłowska I, Nawrocka-Rutkowska J, Ziętek M, et al. Nutrition Strategy and Life Style in Polycystic Ovary Syndrome-Narrative Review. *Nutrients [Internet]*. 2021 Jul 1 [cited 2023 Sep 17];13(7). Available from: <https://pubmed.ncbi.nlm.nih.gov/34371961/>
 14. ACOG Practice Bulletin No. 194: Polycystic Ovary Syndrome. *Obstetrics and gynecology [Internet]*. 2018 Jun 1 [cited 2023 Sep 17];131(6):e157–71. Available from: <https://pubmed.ncbi.nlm.nih.gov/29794677/>
 15. McCartney CR, Marshall JC. CLINICAL PRACTICE. Polycystic Ovary Syndrome. *N Engl J Med [Internet]*. 2016 Jul 7 [cited 2023 Sep 17];375(1):54–64. Available from: <https://pubmed.ncbi.nlm.nih.gov/27406348/>
 16. Neves LPP, Marcondes RR, Maffazioli GDN, Simões RS, Maciel GAR, Soares JM, et al. Nutritional and dietary aspects in polycystic ovary syndrome: insights into the biology of nutritional interventions. *Gynecol Endocrinol [Internet]*. 2020 [cited 2023 Sep 17];36(12):1047–50. Available from: <https://pubmed.ncbi.nlm.nih.gov/32960105/>
 17. Cowan S, Lim S, Alycia C, Pirotta S, Thomson R, Gibson-Helm M, et al. Lifestyle management in polycystic ovary syndrome - beyond diet and physical activity. *BMC Endocr Disord [Internet]*. 2023 Dec 1 [cited 2023 Sep 17];23(1). Available from: <https://pubmed.ncbi.nlm.nih.gov/36647089/>
 18. Gupta L, Khandelwal D, Kalra S, Gupta P, Dutta D, Aggarwal S. Ketogenic diet in endocrine disorders: Current perspectives. *J Postgrad Med [Internet]*. 2017 Oct 1 [cited 2023 Sep 17];63(4):242–51. Available from: <https://pubmed.ncbi.nlm.nih.gov/29022562/>
 19. Paoli A, Mancin L, Giacona MC, Bianco A, Caprio M. Effects of a ketogenic diet in overweight women with polycystic ovary syndrome. *J Transl Med [Internet]*. 2020 Feb 27 [cited 2023 Sep 17];18(1):1–11. Available from: <https://translational-medicine.biomedcentral.com/articles/10.1186/s12967-020-02277-0>
 20. Li J, Bai WP, Jiang B, Bai LR, Gu B, Yan SX, et al. Ketogenic diet in women with polycystic ovary syndrome and liver dysfunction who are obese: A randomized, open-label, parallel-group, controlled pilot trial. *Journal of Obstetrics and Gynaecology Research [Internet]*. 2021 Mar 1 [cited 2023 Sep 17];47(3):1145–52. Available from: <https://onlinelibrary.wiley.com/doi/full/10.1111/jog.14650>
 21. Cincione IR, Graziadio C, Marino F, Vetrani C, Losavio F, Savastano S, et al. Short-time effects of ketogenic diet or modestly hypocaloric Mediterranean diet on overweight and obese women with polycystic ovary syndrome. *J Endocrinol Invest [Internet]*. 2023 Apr 1 [cited 2023 Sep 17];46(4):769–77. Available from: <https://link.springer.com/article/10.1007/s40618-022-01943-y>
 22. Muscogiuri G, Verde L, Sulu C, Katsiki N, Hassapidou M, Frias-Toral E, et al. Mediterranean Diet and Obesity-related Disorders: What is the Evidence? *Curr Obes Rep [Internet]*. 2022 Dec 1 [cited 2023 Sep 17];11(4):287–304. Available from: <https://pubmed.ncbi.nlm.nih.gov/36178601/>
 23. Barrea L, Arnone A, Annunziata G, Muscogiuri G, Laudisio D, Salzano C, et al. Adherence to the Mediterranean Diet, Dietary Patterns and Body Composition in Women with Polycystic Ovary Syndrome (PCOS). *Nutrients [Internet]*. 2019 Oct 1 [cited 2023 Sep 17];11(10). Available from: <https://pubmed.ncbi.nlm.nih.gov/31547562/>
 24. Szczuko M, Zapalowska-Chwyć M, Drozd R. A Low Glycemic Index Decreases Inflammation by Increasing the Concentration of Uric Acid and the Activity of Glutathione Peroxidase (GPx3) in Patients with Polycystic Ovary Syndrome (PCOS). *Molecules [Internet]*. 2019 Apr 17 [cited 2023 Sep 17];24(8). Available from: <https://pubmed.ncbi.nlm.nih.gov/30999628/>
 25. Marsh KA, Steinbeck KS, Atkinson FS, Petocz P, Brand-Miller JC. Effect of a low glycemic index compared with a conventional healthy diet on polycystic ovary syndrome. *Am J Clin Nutr*. 2010 Jul 1;92(1):83–92.
 26. Gao R, Duff W, Chizen D, Zello GA, Chilibeck PD. The Effect of a Low Glycemic Index Pulse-Based Diet on Insulin Sensitivity, Insulin Resistance, Bone Resorption and Cardiovascular Risk Factors during Bed Rest. *Nutrients [Internet]*. 2019 Sep 1 [cited 2023 Sep 18];11(9). Available from: <https://pubmed.ncbi.nlm.nih.gov/31461862/>
 27. Kazemi M, McBreairty LE, Chizen DR, Pierson RA, Chilibeck PD, Zello GA. A Comparison of a Pulse-Based Diet and the Therapeutic Lifestyle Changes Diet in Combination with Exercise and Health Counselling on the Cardio-Metabolic Risk Profile in Women with Polycystic Ovary Syndrome: A Randomized Controlled Trial. *Nutrients [Internet]*. 2018 Oct 1 [cited 2023 Sep 18];10(10). Available from: <https://pubmed.ncbi.nlm.nih.gov/30274344/>
 28. McBreairty LE, Kazemi M, Chilibeck PD, Gordon JJ, Chizen DR, Zello GA. Effect of a pulse-based diet and aerobic exercise on bone measures and body composition in women with polycystic ovary syndrome: A randomized controlled trial. *Bone Rep [Internet]*. 2020 Jun 1 [cited 2023 Sep 18];12. Available from: <https://pubmed.ncbi.nlm.nih.gov/32071953/>
 29. Li C, Xing C, Zhang J, Zhao H, Shi W, He B. Eight-hour time-restricted feeding improves endocrine and metabolic profiles in women with anovulatory polycystic ovary syndrome. *J Transl Med [Internet]*. 2021 Dec 1 [cited 2023 Sep 18];19(1):1–9. Available from: <https://translational-medicine.biomedcentral.com/articles/10.1186/s12967-021-02817-2>
 30. Asemi Z, Samimi M, Tabassi Z, Shakeri H, Sabihi SS, Esmailzadeh A. Effects of DASH diet on lipid profiles and biomarkers of oxidative stress in overweight and obese women with polycystic ovary syndrome: a randomized clinical trial. *Nutrition [Internet]*. 2014 Nov 1 [cited 2023 Sep 18];30(11–12):1287–93. Available from: <https://pubmed.ncbi.nlm.nih.gov/25194966/>
 31. Asemi Z, Esmailzadeh A. DASH diet, insulin resistance, and serum hs-CRP in polycystic ovary syndrome: a randomized controlled clinical trial. *Horm Metab Res [Internet]*. 2015 [cited 2023 Sep 18];47(3):232–8. Available from: <https://pubmed.ncbi.nlm.nih.gov/24956415/>
 32. Trummer C, Schwetz V, Kollmann M, Wölfler M, Münzker J, Pieber TR, et al. Effects of vitamin D supplementation on metabolic and endocrine parameters in PCOS: a randomized-controlled trial. *Eur J Nutr [Internet]*. 2019 Aug 1 [cited 2023 Sep 18];58(5):2019–28. Available from: <https://pubmed.ncbi.nlm.nih.gov/29946756/>
 33. Hernandez Marin I, Picconi O, Laganà AS, Costabile L, Unfer V. A multicenter clinical study with myo-inositol and alpha-lactalbumin in Mexican and Italian PCOS patients.



- Eur Rev Med Pharmacol Sci [Internet]. 2021 [cited 2023 Sep 18];25(8):3316–24. Available from: <https://pubmed.ncbi.nlm.nih.gov/33928619/>*
34. Kachhawa G, Senthil Kumar K V., Kulshrestha V, Khadgawat R, Mahey R, Bhatla N. Efficacy of myo-inositol and d-chiro-inositol combination on menstrual cycle regulation and improving insulin resistance in young women with polycystic ovary syndrome: A randomized open-label study. *Int J Gynaecol Obstet [Internet]. 2022 Aug 1 [cited 2023 Sep 18];158(2):278–84. Available from: <https://pubmed.ncbi.nlm.nih.gov/34624138/>*
 35. Shokrpour M, Foroozanfard F, Afshar Ebrahimi F, Vahedpoor Z, Aghadavod E, Ghaderi A, et al. Comparison of myo-inositol and metformin on glycemic control, lipid profiles, and gene expression related to insulin and lipid metabolism in women with polycystic ovary syndrome: a randomized controlled clinical trial. *Gynecological Endocrinology [Internet]. 2019 May 4 [cited 2023 Sep 18];35(5):406–11. Available from: <https://www.tandfonline.com/doi/abs/10.1080/09513590.2018.1540570>*
 36. Fruzzetti F, Perini D, Russo M, Bucci F, Gadducci A. Comparison of two insulin sensitizers, metformin and myo-inositol, in women with polycystic ovary syndrome (PCOS). *Gynecol Endocrinol [Internet]. 2017 Jan 2 [cited 2023 Sep 18];33(1):39–42. Available from: <https://pubmed.ncbi.nlm.nih.gov/27808588/>*
 37. Shojaei-Zarghani S, Molani-Gol R, Rafraf M. Curcumin and Polycystic Ovary Syndrome: a Systematic Review. *Reprod Sci [Internet]. 2022 Aug 1 [cited 2023 Sep 18];29(8):2105–18. Available from: <https://pubmed.ncbi.nlm.nih.gov/35157259/>*
 38. Heshmati J, Moini A, Sepidarkish M, Morvaridzadeh M, Salehi M, Palmowski A, et al. Effects of curcumin supplementation on blood glucose, insulin resistance and androgens in patients with polycystic ovary syndrome: A randomized double-blind placebo-controlled clinical trial. *Phytomedicine [Internet]. 2021 Jan 1 [cited 2023 Sep 18];80. Available from: <https://pubmed.ncbi.nlm.nih.gov/33137599/>*
 39. Afshar Ebrahimi F, Foroozanfard F, Aghadavod E, Bahmani F, Asemi Z. The Effects of Magnesium and Zinc Co-Supplementation on Biomarkers of Inflammation and Oxidative Stress, and Gene Expression Related to Inflammation in Polycystic Ovary Syndrome: a Randomized Controlled Clinical Trial. *Biol Trace Elem Res [Internet]. 2018 Aug 1 [cited 2023 Sep 18];184(2):300–7. Available from: <https://pubmed.ncbi.nlm.nih.gov/29127547/>*



ASSESSMENT OF THE IMPLEMENTATION OF #BECYBERSAFE PROJECT OF THE DEPARTMENT OF EDUCATION IN SECOND CONGRESSIONAL DISTRICT IN THE PROVINCE OF TARLAC

Jan Vincent S. Carmen, RCrim., PhD Crim

Philippine College of Criminology, 641 Sales St., Sta. Cruz, Manila, MM, Philippines

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ABSTRACT

The study assessed the implementation of #BeCyberSafe Project in the Second Congressional District in the Province of Tarlac. It included 219 teachers, 86 non-teaching staff, 240 parents, and 370 students as the study's respondents. The study used a quantitative research approach. It was revealed that the four groups of respondents perceived the overall implementation of #BeCyberSafe Project as highly implemented, but, there are no statistically significant differences on the perceived level of implementation of the respondents when they are grouped accordingly. Moreover, it was also revealed that the #BeCyberSafe project for the respondents is highly impactful for their cognitive, psychomotor, and affective development. Consequently, the results showed that there are no statistically significant differences on the perceived level of the impact of the implementation of the respondents when they are grouped accordingly. As a result, it is recommended that more respondents (e.g., body of Local Government Unit personnel, etc.) should be included in the study so their perceptions on the implementation of the #BeCyberSafe Project can be added to the bases of the overall assessment of the success of the said project.

KEYWORDS: Assessment, #BeCyberSafe Project, Implementation, Project Management, Attainment of Objectives, Delivery of Content, Provision of Support Materials, and Project Management Team

INTRODUCTION

Currently, the internet and related technology rule many areas of our everyday life, including banking, education, and business. However, it is not surprising that a shadowy criminal underworld known as cybercrime evolved because of this ongoing use of technology and innovation. This is because the internet is becoming an important part of our life (Prajapati, 2020). Everyone is very much dependent on the cyber world which also increases the space for cybercrime. Cybercrime is evolving as a very serious issue in today's scenario. The internet becomes an integrated part of our lives because it brings joy or happiness but sometimes it becomes a nightmare. (Sterling, 2022)

To define deliberately, cybercrime is construed as using a computer as a weapon, or instrument, to advance or secure something deemed illegal. (BlueVoyant, 2022). Cybercrime affects us all: as individuals and society as a whole. On the one hand, new technologies have made many aspects of our lives easier, from social interactions to banking, shopping and more. On the other hand, our increasing reliance on the Internet has created more risks and opened new paths for criminal activity. Cyberattacks can happen to anyone at any time. (Interpol, 2022).

Now, according to Cybersecurity Ventures (2020), the cost of global cybercrime will increase by 15% yearly during the next five years, reaching \$10.5 trillion USD annually by 2025 from \$3 trillion USD in 2015. In addition to being exponentially larger than the damage caused by natural disasters in a year, this represents the largest transfer of economic wealth in history and poses a threat to the incentives for innovation and investment. It will also be more lucrative than the global trade in all major illegal drugs put together. The estimated cost of damage is based on historical data on cybercrime, which includes recent year-over-year increases, a sharp rise in organized criminal gang hacking activities backed by hostile nation-states, and a cyberattack surface that will be orders of magnitude larger in 2025 than it is now.

On a national level, Digital Infrastructure Users in Southeast Asia, particularly in the Philippines, are very engaged with mobile internet, spending much more time than their global peers. According to 'Digital 2021' research by We Are Social and Hootsuite, the Philippines topped the chart by spending 5.5 hours per day on mobile internet, followed by Thailand in third place and Indonesia in fourth place, compared to the global average of 3.4 hours. As such, participation in the Platform Economy is likely to be via mobiles, requiring mobile internet. Therefore, one of the Digital Infrastructure metrics is the mobile internet penetration rate among the 18+ population of each country. The higher the penetration rate, the better the accessibility to participate in the Platform Economy, but the more they can be exposed to violating cybercrime law (Kemp, 2022).

Still in the Philippines, there was a case study of cybercrime in the country which revealed all documented cybercrime cases administered by Li (2021). The most prevailing was the Assault by Threat, which is the threatening of a person with fear for their lives or the lives of their families. The main medium or tools used by the cybercriminals are computer networks such as email, videos, or phones. In addition, child pornography also tops as one of the most pressing issue related to cybercrime affecting Filipino children. Based on the documents, cybercriminals exploit children, either male or female, through the use of computer networks to create, distribute or access material related to the sexual exploitation of children.

Just recently, Arceo (2023), an authority in PNP Gerona, Tarlac, oriented the parents of the students who are learning in schools in Gerona that there are cases of rape or attempted rape because of reckless communications of students to strangers via Facebook or Instagram. That is why, PNP Gerona are going to all schools in the municipality of Tarlac, especially among senior high school students, parents, teachers, and non-teaching personnel to warn them about these cases of cybercrime.



Speaking, here in Tarlac Province, from where the current researcher lives, there are three (3) congressional districts. In second congressional district, where the current researcher is currently a resident, has eighteen (18) public secondary schools, five of them have conducted 2 conferences/trainings regarding cybercrime awareness as part of the schools' initiation for #BeCyberSafe Project for their students, and the thirteen remaining schools only conducted 1 relevant conference/training during the past four school years. This information is validated through the School-Based Management (SBM) of the 18 principals of the schools.

Although many studies have examined the effects of cybercrime, there is a lack of research regarding the assessment of the implementation of the #BeCyberSafe Project. In fact, there was no research made regarding the in the entire DepEd Tarlac Province since the time of its implementation. This research gap limits our understanding of this project and can optimize students, parents, and teachers, online experiences, and cope with potential risks. Therefore, this study aimed to assess the implementation of the #BeCyberSafe project in the second congressional district of Tarlac aims to promote awareness among students, teachers, and parents about the importance of cybersecurity and the potential risks of online activities.

OBJECTIVES OF THE STUDY

1. To determine the perceived level of implementation of the four (4) group of respondents on the #BeCyberSafe Project of DepEd in second congressional district in the Province of Tarlac in terms of project management; attainment of objectives; delivery of content; provision of support materials; and project management team.
2. To determine the impact of the implementation of #BeCyberSafe project as perceived by the respondents in terms of cognitive development; psychomotor development; and affective development.
3. To determine what degree are the challenges encountered in the implementation of the #BeCyberSafe of DepEd in in second congressional district in the Province of Tarlac in terms of project management; attainment of objectives; delivery of content; provision of support materials; and project management team.

4. To propose measures based on the findings of the study.

THEORETICAL FRAMEWORK

There are two theories which the current study is anchored with. First is the social control theory of Hirschi (1969). The social control theory implies a set of social measures, processes that encourage people to behave according to the law. The theory seeks to understand the ways moral codes, values, norms, commitments and beliefs reduce deviant behavior. On the other hand, the second theory is the well-known Reinforcement Sensitive Theory or RST which is a theory of motivation that posits that individuals have differing responses to their environment derived from different sensitivities of basic brain systems that respond to either rewarding or punishing stimuli (Gray, 1973).

METHODOLOGY

This study used a quantitative research approach. In terms of its research design, a descriptive-comparative design was used. It utilized surveys or questionnaires to gather the quantitative data, which included the perceived level of implementation of the #BeCyberSafe Project, perceived level of impact of this project, and the encountered challenges in regard to the implementation of the mentioned project, from the four groups of respondents. Likert scale has been utilized as the primary guide of measuring and interpreting the gathered numerical data.

Moreover, this study was conducted in the 18 public secondary schools of the Second Congressional District of the Division of Tarlac Province. The entire population of teaching staff, non-teaching staff, parents, and students in the 18 schools were considered to be part of the current study. However, since there are big populations for each group of respondents, the researcher utilized a purposive sampling technique, which is a kind of non-probability sampling method.

RESULTS AND DISCUSSIONS

Perceived level of implementation of the four (4) group of respondents on the #BeCyberSafe Project of DepEd in second congressional district in the Province of Tarlac

Table 1. Project Management

Assessment of the implementation of #BeCyberSafe Project by the respondents in terms of Project Management

Indicator	Students		Parents		Teachers		NTP		Total	
	M	D	M	D	M	D	M	D	M	D
1. The project is delivered as planned.	2.79	HI	2.88	HI	2.88	HI	2.74	HI	2.83	HI
2. The project is well-managed.	2.71	HI	2.75	HI	2.83	HI	2.76	HI	2.75	HI
3. The project is well-structured.	2.81	HI	2.91	HI	2.93	HI	3.02	HI	2.89	HI
4. The project is well-funded.	2.69	HI	2.75	HI	2.77	HI	2.90	HI	2.74	HI
5. Appropriate orientation is given to faculty members.	2.72	HI	2.74	HI	2.73	HI	2.64	HI	2.72	HI
Total	2.75	HI	2.81	HI	2.83	HI	2.81	HI	2.79	HI

Notes: NTP=Non-Teaching Personnel, M=Mean, D=Description, VHI=Very High Implementation, HI=High Implementation, LI=Low Implementation, VLI=Very Low Implementation

The table shows the data on the assessment of the implementation of #BeCyberSafe project by the respondents in terms of project management. From the perspectives of the 4 groups of respondents, to wit, students, parents, teachers and non-teaching personnel, unified responses were identified. Their overall assessment on the implementation of the #BeCyberSafe project in terms of project management is interpreted as High Implementation (HI) with a mean score of 2.79.

In 2019, a forum on Cyber Safety among high school students in Quezon City was administered as one of the activities of #BeCyberSafe Project of DepEd. This is actually a kickoff series of knowledge learning activities spearheaded by SEAMEO

INNOTECH (2019), an allied partner of DepEd in implementing varieties of programs, projects, and activities for the benefit of teachers, parents, students, and schools as a whole. The evaluation was summarized and it was revealed that the niche of the forum was its observable well-structured implementation among students.

In Tarlac, however, there are no published reports regarding the overall evaluation of the activities implemented under #BeCyberSafe Project. Nevertheless, the verbatims of the random students, parents, non-teaching staff, and faculty members of the 18 schools of the participating schools in this study are, “Maayos po ang mismong implementation ng activities,” “Okay naman po



ang flow mula umpisa hanggang dulo,” and “Hindi po gaanong magulo at nakakalito,” as recorded by the researcher during his informal interview with some of the respondents. Though not

everyone was interviewed, the quantitative data would suffice, telling that the #BeCyberSafe Project of DepEd implemented in all 18 schools are well-structured.

Table 2. Attainment of Objectives

Assessment of the implementation of #BeCyberSafe Project by the respondents in terms of Attainment of Objectives

Indicator	Students		Parents		Teachers		NTP		Total	
	M	D	M	D	M	D	M	D	M	D
1. Project objectives are clearly presented.	3.45	VHI	3.40	VHI	3.40	VHI	3.45	VHI	3.43	VHI
2. Project objectives are relevant to the project.	3.49	VHI	3.46	VHI	3.44	VHI	3.42	VHI	3.46	VHI
3. Project objectives are attained.	3.37	VHI	3.37	VHI	3.34	VHI	3.33	VHI	3.36	VHI
Total	3.44	VHI	3.41	VHI	3.39	VHI	3.40	VHI	3.42	VHI

Notes: NTP=Non-Teaching Personnel, M=Mean, D=Description, VHI=Very High Implementation, HI=High Implementation, LI=Low Implementation, VLI=Very Low Implementation

Table 2 demonstrates the assessment of the respondents on the implementation of #BeCyberSafe project in terms of attainment of objectives. The table above shows that the overall assessment of the respondents is Very High Implementation, with a mean score of 3.42.

The launching of this project is certainly very welcome because we are now recognizing that harm can be inflicted not only in physical ways, not only by the destruction of our infrastructure and our facilities, the books that we read, what we teach our children, but also through cyberspace, as said by the former DepEd Secretary, Briones (2018).

Table 3. Delivery of Content

Assessment of the implementation of #BeCyberSafe Project by the respondents in terms of Delivery of Content

Indicator	Students		Parents		Teachers		NTP		Total	
	M	D	M	D	M	D	M	D	M	D
1. Project content is appropriate to the students’ learning comprehension.	3.68	VHI	3.65	VHI	3.66	VHI	3.71	VHI	3.67	VHI
2. Content delivered is based on reliable sources.	3.46	VHI	3.43	VHI	3.44	VHI	3.47	VHI	3.45	VHI
3. Session activities are effective in generating learning.	3.46	VHI	3.41	VHI	3.41	VHI	3.55	VHI	3.44	VHI
4. Different teaching methods/techniques are used.	3.38	VHI	3.35	VHI	3.29	VHI	3.40	VHI	3.35	VHI
5. Project follows a logical sequence/order.	3.52	VHI	3.51	VHI	3.49	VHI	3.53	VHI	3.51	VHI
6. Cooperation of all student-participants are encouraged.	3.42	VHI	3.40	VHI	3.41	VHI	3.51	VHI	3.42	VHI
Total	3.49	VHI	3.46	VHI	3.45	VHI	3.53	VHI	3.47	VHI

Notes: NTP=Non-Teaching Personnel, M=Mean, D=Description, VHI=Very High Implementation, HI=High Implementation, LI=Low Implementation, VLI=Very Low Implementation

Across the four sets of respondents’ responses on the table above, it can be noticed that they all agreed that the project content delivered during the implementation of the project among their schools is appropriate to the students’ learning comprehension. This means that the information being shared to the audience can be easily understood no matter how complicated the concepts of

the cybersafe could be. According to the respondents, particularly the students and teachers, during the informal interview of the researcher, some activities given were supported by videos, games, and collaborative learning which contents are all simplified. Some terms are joined with photos and animated graphics to be easily understood.

Table 4. Provision of Support Materials

Assessment of the implementation of #BeCyberSafe Project by the respondents in terms of Provision of Support Materials

Indicator	Students		Parents		Teachers		NTP		Total	
	M	D	M	D	M	D	M	D	M	D
1. Materials are prepared beforehand.	3.89	VHI	3.90	VHI	3.88	VHI	3.79	VHI	3.88	VHI
2. Materials are adequate.	3.84	VHI	3.81	VHI	3.79	VHI	3.73	VHI	3.81	VHI
3. Materials are given on time.	8.83	VHI	3.83	VHI	3.81	VHI	3.78	VHI	3.82	VHI
Total	3.85	VHI	3.85	VHI	3.82	VHI	3.77	VHI	3.84	VHI

Notes: NTP=Non-Teaching Personnel, M=Mean, D=Description, VHI=Very High Implementation, HI=High Implementation, LI=Low Implementation, VLI=Very Low Implementation

All of the responses revealed that the materials are prepared beforehand, or the materials are already produced before conducting the activities for the #BeCyberSafe Project in the

schools, but they are not adequate. This means that though there are videos presented to teach the students, not everything about cybercrime are touched by these videos, thus there are still some



concepts which are not relayed to the students, leaving them to have multiple queries and misconceptions about cybercrime.

In Pasig City, as seen by the researcher in their official website, only 4 video materials are prepared by the division office. In Dasmarias, only 4 video materials, too. In Tarlac Province, as

what is stated by the faculty members, there are only 2-3 video materials showed to the students during the activity. That number of video materials cannot suffice to explain all needed concepts about cybercrime to the students, though it is still commendable that the materials are simplified, student-friendly, and prepared prior to the activity itself.

Table 5. Project Management Team

Assessment of the implementation of #BeCyberSafe Project by the respondents in terms of Project Management Team

Indicator	Students		Parents		Teachers		NTP		Total	
	M	D	M	D	M	D	M	D	M	D
1. School heads, guidance designates, advisers and other concerned teachers are skillful in sharing information to students about the #BeCyberSafe project	3.86	VHI	3.85	VHI	3.84	VHI	3.79	VHI	3.85	VHI
2. School heads, guidance designates, advisers and other concerned teachers are courteous and intellectual in dealing with questions.	3.84	VHI	3.84	VHI	3.85	VHI	3.84	VHI	3.84	VHI
3. School heads, guidance designates, advisers and other concerned teachers are well-organized and productive in giving activities to students in regard to the said project.	3.89	VHI	3.88	VHI	3.88	VHI	3.84	VHI	3.88	VHI
4. School heads, guidance designates, advisers and other concerned teachers are responsive to the needs of the student-participants during the implementation of the project.	3.90	VHI	3.90	VHI	3.92	VHI	3.85	VHI	3.90	VHI
Total	3.87	VHI	3.87	VHI	3.87	VHI	3.83	VHI	3.87	VHI

Notes: NTP=Non-Teaching Personnel, M=Mean, D=Description, VHI=Very High Implementation, HI=High Implementation, LI=Low Implementation, VLI=Very Low Implementation

The table above shows that the overall assessment of the respondents is Very High Implementation, with a mean score of 3.87. Prior to the data analysis, the researcher is already surprised when he learned that the teachers in the schools admitted that they are not given proper training regarding cybercrime, though they are the major implementors of the #BeCyberSafe project in their respective schools. Most of them rely on self-reading, on top of their other tons of responsibilities in school. This is why they admitted that when students ask them about certain queries, there are time when they know the answers, but often times they are clueless about more complex concepts. This is not surprising as

the researcher found out that teachers are not being oriented first or trained first before being required to implement activities to comply with the said cybercrime project. This is evident as the quantitative results in the table above showed that the respondents gave lowest scores in terms of the skills of the project management team in answering the queries of students or courteous enough in dealing with students who ask questions about cybercrime, though it is still commendable to find out that the project management teams are responsive to the needs of the students regardless.

Table 6. Impact of the Implementation of #BeCyberSafe Project as Perceived by the Respondents (Cognitive Development)

Indicator	Students		Parents		Teachers		NTP		Total	
	M	D	M	D	M	D	M	D	M	D
1. I learned the definitions/nature of different punishable acts through #BeCyberSafe Project.	3.34	VHI	3.35	HI	3.37	VHI	3.36	VHI	3.35	VHI
2. I am not confused with the definitions of technical terms under cybercrime law.	3.26	VHI	3.25	HI	3.28	VHI	3.24	HI	3.26	VHI
3. I learned what actions I must not do to avoid violations.	3.17	HI	3.19	HI	3.22	HI	3.31	VHI	3.20	HI
4. I can recognize potential violative action regarding cybercrime.	3.25	HI	3.24	HI	3.29	VHI	3.24	HI	3.25	HI
5. I can explain the punishable acts of cybercrime law properly when someone asks me.	3.15	HI	3.16	HI	3.16	HI	3.17	HI	3.16	HI
6. I can decide properly how I should act online and how must I deal with people who are violating the acts.	3.18	HI	3.18	HI	3.19	HI	3.16	HI	3.18	HI
7. I no longer feel recklessness and am more careful with my thinking and actions on the internet.	3.21	HI	3.15	HI	3.15	HI	3.17	HI	3.17	HI
Total	3.22	HI	3.22	HI	3.24	HI	3.24	HI	3.23	HI

Notes: NTP=Non-Teaching Personnel, M=Mean, D=Description, VHI=Very High Impact, HI=High Impact, LI=Low Impact, VLI=Very Low Impact



The table above shows that the overall assessment of the respondents is High Impact, with a mean score of 3.23. As can be conspicuously seen in the responses of the respondents, the highest score was given to the statement which is about the project being able to inform the students the definitions or nature of the different punishable acts that they may commit in the cyberworld. Based from the interview responses of the teachers in 18 schools, the focuses of the activities, particularly with the use of video

lessons for the students, are the nature and definitions of crimes or cybercrime punishable acts and some example situations how these punishable acts can be observable. Though it is seen from the previous tables that these materials are inadequate for the learners to fully understand the entirety of cybercrime, still, the project helped the students to comprehend the definitions and natures of these acts, significantly affecting their cognitive development.

Table 7. Impact of the Implementation of #BeCyberSafe Project as Perceived by the Respondents (Psychomotor Development)

Indicator	Students		Parents		Teachers		NTP		Total	
	M	D	M	D	M	D	M	D	M	D
1. I became an advocate of cybercrime prevention.	3.53	VHI	3.57	VHI	3.54	VHI	3.44	VHI	3.41	VHI
2. I do not feel demotivated to be a good citizen.	3.55	VHI	3.60	VHI	3.52	VHI	3.45	VHI	3.26	VHI
3. I do not feel hesitant to tell my friends/ colleagues/ family about what they might be doing wrong online.	3.65	VHI	3.67	VHI	3.64	VHI	3.58	VHI	3.40	VHI
4. I am more respectful toward people around me.	3.68	VHI	3.70	VHI	3.70	VHI	3.62	VHI	3.53	VHI
5. The project taught me safe habits while online.	3.66	VHI	3.67	VHI	3.62	VHI	3.58	VHI	3.46	VHI
6. I became more concerned about people violating the law.	3.65	VHI	3.65	VHI	3.61	VHI	3.53	VHI	3.40	VHI
7. I am willing to teach my friends/family about cybercrime.	3.49	VHI	3.45	VHI	3.43	VHI	3.55	VHI	3.52	VHI
Total	3.60	VHI	3.62	VHI	3.58	VHI	3.54	VHI	3.43	VHI

Notes: NTP=Non-Teaching Personnel, M=Mean, D=Description, VHI=Very High Impact, HI=High Impact, LI=Low Impact, VLI=Very Low Impact

The table above shows that the overall assessment of the respondents is Very High Impact, with a mean score of 3.43. The #BeCyberSafe Project has a positive effect among the respondents, that is to have the sense of more respect to the people around them. Being able to understand the concepts of cybercrime

and the consequences of the punishable acts that were focused during the implementation of the said project make the respondents feel the necessity and responsibility to deal other people nicely, both in person and online. That can be supported by the quantitative data presented in the table above as that notion was given the highest score among the rest.

Table 8. Impact of the Implementation of #BeCyberSafe Project as Perceived by the Respondents (Affective Development)

Indicator	Students		Parents		Teachers		NTP		Total	
	M	D	M	D	M	D	M	D	M	D
1. I know where to report if someone is a victim of cybercrime.	3.40	VHI	3.43	VHI	3.40	VHI	3.45	VHI	3.54	VHI
2. I am more careful when dealing with other people online.	3.29	VHI	3.24	HI	3.21	HI	3.30	VHI	3.55	VHI
3. I monitor my behavior when I engage myself in cyber world.	3.42	VHI	3.39	VHI	3.38	VHI	3.43	VHI	3.65	VHI
4. I do not waste time in addressing issues immediately when I commit violation.	3.52	VHI	3.52	VHI	3.54	VHI	3.52	VHI	3.68	VHI
5. I am more civil in dealing with people online and in person.	3.46	VHI	3.47	VHI	3.45	VHI	3.49	VHI	3.65	VHI
6. I understand the steps to be taken when victimized in cyberspace.	3.40	VHI	3.40	VHI	3.38	VHI	3.47	VHI	3.63	VHI
7. I can adapt to certain changes or updates in cyber world.	3.51	VHI	3.53	VHI	3.51	VHI	3.53	VHI	3.47	VHI
Total	3.43	VHI	3.43	VHI	3.41	VHI	3.46	VHI	3.59	VHI

Notes: NTP=Non-Teaching Personnel, M=Mean, D=Description, VHI=Very High Impact, HI=High Impact, LI=Low Impact, VLI=Very Low Impact



The table above shows that the overall assessment of the respondents is Very High Impact, with a mean score of 3.59.

Table 9. Challenges encountered in the Implementation of the #BeCyberSafe of DepEd in in Second Congressional District in the Province of Tarlac (Project Management)

Indicator	Students		Parents		Teachers		NTP		Total	
	M	D	M	D	M	D	M	D	M	D
1. There is no full awareness of cybercrime since the project was not properly implemented in our school.	3.93	ES	3.93	ES	3.97	ES	3.94	ES	3.94	ES
2. Some participants were not included in the activity conducted in the school about the #BeCyberSafe Project.	3.91	ES	3.91	ES	3.92	ES	3.83	ES	3.91	ES
3. Some activities of the project were delayed or cancelled due to hectic or overlapping school activities.	3.93	ES	3.93	ES	3.96	ES	3.94	ES	3.94	ES
4. Some of the activities of the project lacked real-world experiences or scenarios.	3.94	ES	3.94	ES	3.93	ES	3.92	ES	3.94	ES
5. The activities are conducted but in unorganized flow, manner or process.	3.93	ES	3.93	ES	3.96	ES	3.94	ES	3.94	ES
Total	3.93	ES	3.93	ES	3.95	ES	3.91	ES	3.93	ES

Notes: NTP=Non-Teaching Personnel, M=Mean, D=Description, ES=Extremely Serious, MS=Moderately Serious, SS=Somewhat Serious, NS=Not at all Serious

The table above shows that the overall assessment of the respondents is Extremely Serious, with a mean score of 3.93.

However, Bele, Dimc, Rozman and Jemec (2014) revealed that there is still a need for additional education regarding the dangers of cybercrime and the importance of information safety for all students, teachers, parents, and administrators. In order to successfully address the issue of cybercrime, specifically the punishable acts, it is important to implement successful

preventive techniques in all target groups. Therefore, it was concluded that continuous education plays an important role in raising the awareness of all users and in encouraging them to implement preventive techniques in everyday life. In order to evaluate the effectiveness of the cybercrime project implementation, an evaluation should be conducted and monitored. Through implementation of projects, such as the #BeCyberSafe Project, all internal stakeholders will not be putting their safety at stake.

Table 10. Challenges encountered in the Implementation of the #BeCyberSafe of DepEd in in Second Congressional District in the Province of Tarlac (Attainment of Objectives)

Indicator	Students		Parents		Teachers		NTP		Total	
	M	D	M	D	M	D	M	D	M	D
1. There is a poor focus on participating in the project since participants have many other responsibilities.	3.95	ES	3.95	ES	3.95	ES	3.91	ES	3.95	ES
2. Only a few activities are conducted in the school which are not enough to explain the entirety of the project.	3.90	ES	3.90	ES	3.91	ES	3.92	ES	3.91	ES
3. The activities regarding the project are not properly planned and executed.	3.95	ES	3.95	ES	3.97	ES	3.97	ES	3.96	ES
Total	3.94	ES	3.94	ES	3.94	ES	3.93	ES	3.94	ES

Notes: NTP=Non-Teaching Personnel, M=Mean, D=Description, ES=Extremely Serious, MS=Moderately Serious, SS=Somewhat Serious, NS=Not at all Serious

The Table above shows that the overall assessment of the respondents is Extremely Serious, with a mean score of 3.94. All of the groups

of respondents said that the activities regarding the #BeCyberSafe Project are not properly planned and executed.



Table 11. Challenges encountered in the Implementation of the #BeCyberSafe of DepEd in in Second Congressional District in the Province of Tarlac (Delivery of Content)

Indicator	Students		Parents		Teachers		NTP		Total	
	M	D	M	D	M	D	M	D	M	D
1. The activities do not cover all important information and contents about the project.	3.91	ES	3.91	ES	3.91	ES	3.91	ES	3.91	ES
2. The activities are conducted in a short period of time and participants do not remember anything because of that	3.97	ES	3.97	ES	3.97	ES	3.98	ES	3.97	ES
3. The activities are not engaging enough to catch the participants' attention and interest.	3.91	ES	3.91	ES	3.90	ES	3.92	ES	3.91	ES
4. There are misconceptions or mistakes in terms of the content of the activities conducted about the project.	3.97	ES	3.96	ES	3.97	ES	3.96	ES	3.97	ES
5. The activities conducted about the project are very tiring and time-consuming and it made the participants lose interest.	3.92	ES	3.92	ES	3.94	ES	3.96	ES	3.93	ES
Total	3.93	ES	3.93	ES	3.94	ES	3.95	ES	3.94	ES

Notes: NTP=Non-Teaching Personnel, M=Mean, D=Description, ES=Extremely Serious, MS=Moderately Serious, SS=Somewhat Serious, NS=Not at all Serious

The table above shows that the overall assessment of the respondents is Extremely Serious, with a mean score of 3.94. In the second congressional district of Tarlac Province, only 6 video materials are used by the teachers during their viewing activity

among students. According to the teachers themselves, they are not trained to create any other activities to widen more the opportunities of the students to learn cybercrime.

Table 12. Challenges encountered in the Implementation of the #BeCyberSafe of DepEd in in Second Congressional District in the Province of Tarlac (Provision of Support Materials)

Indicator	Students		Parents		Teachers		NTP		Total	
	M	D	M	D	M	D	M	D	M	D
1. The materials of the project, such as the videos, brochure, etc., are hard to understand.	3.97	ES	3.97	ES	3.97	ES	3.98	ES	3.97	ES
2. The number of materials disseminated by the speakers are not enough for the number of participants	3.88	ES	3.88	ES	3.88	ES	3.95	ES	3.89	ES
Total	3.92	ES	3.92	ES	3.92	ES	3.97	ES	3.93	ES

Notes: NTP=Non-Teaching Personnel, M=Mean, D=Description, ES=Extremely Serious, MS=Moderately Serious, SS=Somewhat Serious, NS=Not at all Serious

The table above shows that the overall assessment of the respondents is Extremely Serious, with a mean score of 3.93. It can be inferred that not only the video materials, which are the main materials used by schools to help students understand cybercrime, are short and not sufficient, but also hard to

comprehend, as what was said by the respondents of the student. Although the video materials are present both in English and Filipino language, still, some concepts left the audience in many queries.

Table 13. Challenges encountered in the Implementation of the #BeCyberSafe of DepEd in in Second Congressional District in the Province of Tarlac (Project Management Team)

Indicator	Students		Parents		Teachers		NTP		Total	
	M	D	M	D	M	D	M	D	M	D
1. The activities and other initiatives regarding the project in my school are understaffed.	3.97	ES	3.97	ES	3.97	ES	3.98	ES	3.97	ES
2. The activities did not prioritize networking with LGU and other external stakeholders.	3.91	ES	3.91	ES	3.89	ES	3.95	ES	3.91	ES
3. Some of the speakers or proponents of the activities of the project are not experienced about cybercrime.	3.96	ES	3.96	ES	3.96	ES	3.97	ES	3.96	ES
4. The place, either face-to-face or virtual, is not suitable for the administration of the activities of the project.	3.87	ES	3.87	ES	3.86	ES	3.92	ES	3.87	ES
5. The event's place, either face-to-face or virtual, is not conducive for learning among participants of the project.	3.90	ES	3.90	ES	3.89	ES	3.87	ES	3.89	ES
Total	3.92	ES	3.92	ES	3.92	ES	3.94	ES	3.92	ES

Notes: NTP=Non-Teaching Personnel, M=Mean, D=Description, ES=Extremely Serious, MS=Moderately Serious, SS=Somewhat Serious, NS=Not at all Serious

The table above shows that the overall assessment of the respondents is Extremely Serious, with a mean score of 3.92. The

researcher learned that the reasons why the activities and other initiatives regarding the project in the school are understaffed is



because of the following reasons. According to most of the teachers that the researcher has talked to, only the guidance designates, principal, SSG adviser, and head teacher are present during the conduct of film viewing. The advisers are also there to maintain orderliness of the event, but they are not the main team who are responsible for the activities itself. When there are queries and concerns, only these 4 people are in front to recognize and address the queries and concerns. That is why, if there are multiple needs coming from the students, these 4 people cannot simultaneously entertain the students in the scenario. This resulted to disorderliness, confusion, and disruption of the flow of the event.

CONCLUSIONS AND RECOMMENDATIONS

It is concluded that the four groups of respondents perceived the overall implementation of #BeCyberSafe project as highly implemented in terms of project management, attainment of objectives, delivery of content, provision of support materials, and project management team. But, there are no statistically significant differences on the perceived level of implementation of the respondents when they are grouped accordingly in terms of the five mentioned categories.

Moreover, it can also be concluded that the four groups of respondents perceived that the #BeCyberSafe project for them is highly impactful for their cognitive, psychomotor, and affective development. Consequently, the results showed that there are no statistically significant differences on the perceived level of the impact of the implementation of the respondents when they are grouped accordingly.

Furthermore, the four groups of respondents encountered extremely serious challenges in terms of project management, attainment of objectives, delivery of content, provision of support materials, and project management team. However, the results showed that there are no statistically significant differences on the challenges encountered by the respondents when they are grouped accordingly in terms of the five mentioned categories. Finally, a proposed intervention program was formulated based on the findings of the study.

Based from the findings and conclusions of the study, the following are hereby recommended.

1. It is highly recommended that more respondents (e.g., body of Local Government Unit personnel, PNP, etc.) should be included in the study so their perceptions on the implementation of the #BeCyberSafe Project can be added to the bases of the overall assessment of the success of the said project.
2. It is also recommended that aside from cognitive, psychomotor, and affective aspects of the group of respondents, other aspects should be included such as self-aspect, social aspect, and spiritual aspects, in the future similar study, to ensure effective and successful holistic development.
3. It is also highly recommended that the conducted activities for the #BeCyberSafe Project should be real-life-based, more meaningful and reliable, localized and student-friendly, properly planned and executed, and collaborative.
4. Aside from proposed measures, it is also recommended that future researchers consider creating policy brief, instructional materials, development plan, and other outputs to ensure that the implementation of #BeCyberSafe Project is successful.
5. Other researchers to conduct similar study, and include other parameters which are not included in the present study.

REFERENCES

Books

1. Bacon, A., Corr, P., & Satchell, L. (2018). *A reinforcement sensitivity theory explanation of antisocial behaviour. Personality and Individual Differences*, 87-93.
2. Barrego-Balsalobre, F., Martinez-Moreno, A., Morales-Banos, V., & Diaz-Suarez, A. (2021). *Influence of the Psychomotor Profile in the Improvement of Learning in Early Childhood Education. PMC*, 1-5.
3. Catota, F., Morgan, M., & Sicker, D. (2018). *Cybersecurity incident response capabilities in the Ecuadorian financial sector. Journal in Cybersecurity*, 1-25.
4. Chang, J., Venkatasubramanian, K., West, A., & Lee, I. (2013). *Analyzing and defending against web-based malware. ACM Digital Library*, 1-35.
5. Chism, K., & Steinmetz, K. (2018). *Strain theory and technocrime. In K. F. Steinmetz Technocrime and criminological theory*, 66-84.
6. Gray, J. (1973). *Causal theories of personality and how to test them. Multivariate analysis*, 302-354.
7. Griffith, J., Young, J., & Hankin, B. (2021). *2021Longitudinal associations between positive affect and relationship quality among children and adolescents: Examining patterns of co-occurring change. Emotion*, 21.
8. Naragon-Gainey, K. (2019). *Distinguishing affective constructs: Structure, trait-vs. state-ness, and responses to affect. In The Nature of Emotion: Fundamental Questions*, 45-48.
9. Omega, J., & Alieto, E. (2019). *Teaching Literacy Through Play: Perspective from Filipino Early Childhood Teachers. Sci.Int.(Lahore)*,31(3),477-481, 2019, 3.
10. Satchell, L., Firth, J., Bacon, & Corr, P. (2018). *Risk as reward: Reinforcement sensitivity theory and psychopathic personality perspectives on everyday risk-taking. Personality and Individual Differences*, 162-169.
11. Solano, P., & Peinado, A. (2021). *Socio-economic factors in cybercrime: statistical study of the relation between socio-economic factors and cybercrime. In: CyberSA. IEEE*, 1-4.
12. Toch, E., Bettini, C., Shmueli, E., Radaelli, L., Lanzi, A., & Riboni, D. (2018). *The Privacy Implications of Cyber Security Systems: A Technological Survey. ACM Digital Library*, 1-27.
13. Tounsi, W., & Rais, H. (2018). *A survey on technical threat intelligence in the age of sophisticated cyber attacks. Science Direct*, 212-233.
14. UNICEF. (2018). *Inclusive Education Strategies: A Textbook. USA: University of Minnesota*.
15. Zimmermann, P., & UNICEF. (2018). *Inclusive Education Strategies: A Textbook. USA: University of Minnesota*. Iwanski, A. (2018). *Development and timing of developmental changes in emotional reactivity and emotion regulation during adolescence. Emotion regulation. A matter of time*, 117-139.

Published Researches (Print and Online)

1. Barrego-Balsalobre, F., Martinez-Moreno, A., Morales-Banos, V., & Diaz-Suarez, A. (2021). *Influence of the Psychomotor Profile in the Improvement of Learning in Early Childhood Education. PMC*, 1-5.
2. Coe-Odess, S., Narr, R., & Allen, J. (2019). *Emergent Emotions in Adolescence. In Handbook of Emotional Development*.
3. Cendana, D. (2019). *The empirical study on the impact of studentcentered learning application to cognition and social learning. IOP Conference Series: Materials Science and Engineering*, 65.
4. Chambers, D., & Berlach, R. (2015). *Assistive technology and teacher assistant. Emerald Group Publishing Limited*.
5. Drew, J. (2020). *A study of cybercrime victimisation and prevention: exploring the use of online crime prevention behaviours and strategies. Australia: Emerald Insights*.
6. Dumpang, C., Sedanza, M., & Caluza, L. (2021). *Needs Assessment of Grade 8 Instructional Materials in Teaching Filipino: A Phenomenology. Research Gate*, 12.
7. Griffith, J., Young, J., & Hankin, B. (2021). *2021Longitudinal associations between positive affect and relationship quality among children and adolescents: Examining patterns of co-occurring change. Emotion*, 21.



8. Jamian, L. S., Ibadallah, B. X., & Fook, C. Y. (2013). A Conceptual Framework: The Influence of School Culture Types and Personality Traits on Psychological Empowerment amongst Secondary School Teachers in Malaysia. *Asian Journal of University Education*, 20.
9. Magno, C. (2017). Facilitating student learning in schools through a learning management system: an action research. *The Int. J. of Res. and Review*.
10. Nyavor, M. (2020). Provision of Teaching and Learning Materials that Enhance Participation of Students with Special Educational Needs in Inclusive Schools at Pokuase in the Greater Accra Region. *Journal of Education and Practice*, 1.
11. Sania, A., Sudfeld, C., Danaei, G., Fink, G., McCoy, D., & Zhu, Z. (2019). Early life risk factors of motor, cognitive and language development: a pooled analysis of studies from low/middle-income countries. *BMJ Open* 9.
12. Satchell, L., Firth, J., Bacon, & Corr, P. (2018). Risk as reward: Reinforcement sensitivity theory and psychopathic personality perspectives on everyday risk-taking. *Personality and Individual Differences*, 162-169.
13. Solano, P., & Peinado, A. (2021). Socio-economic factors in cybercrime: statistical study of the relation between socio-economic factors and cybercrime. In: *CyberSA. IEEE*, 1-4.
14. Toch, E., Bettini, C., Shmueli, E., Radaelli, L., Lanzi, A., & Riboni, D. (2018). The Privacy Implications of Cyber Security Systems: A Technological Survey. *ACM Digital Library*, 1-27.
15. Zenebe, Y., Kunno, K., Mekonnen, M., Bewuket, M., Birkie, M., Necho, M., . . . Akele, B. (2021). Prevalence and associated factors of internet addiction among undergraduate university students in Ethiopia: a community university-based cross-sectional study. *BMC Psychology*, 1.
2. Agora Patufet Infant School. (n.d., n.d. n.d.). Retrieved from Agora Patufet Infant School: <https://agorapatufet.com/happy-learning/childrens-psychomotor-development/>
3. ALL DIGITAL. (2021). Raising awareness online campaign on cybercrime within Rayuela project. Retrieved from ALL DIGITAL: <https://all-digital.org/awareness-campaign-rayuela/>
4. Anderson, J., & Rainie, L. (2018). Pew Research Center. Retrieved from Concerns about human agency, evolution and survival: <https://www.pewresearch.org/internet/2018/12/10/concerns-about-human-agency-evolution-and-survival/>
5. Arbiol, J., Cabajes, A., Chaonui, M., & Mancao, P. (2020). The Psychomotor and Cognitive Competencies of Filipino Children Ages 1-4: A Multiple Case Study. Research Gate, https://www.researchgate.net/publication/346991002_The_Psychomotor_and_Cognitive_Competencies_of_Filipino_Children_Ages_1-4_A_Multiple_Case_Study.
6. Bandakkanavar, R. (2022). General Technical Papers. Retrieved from Krazytech: <https://krazytech.com/technical-papers/cyber-crime>
7. Barton, K., & Tucker, B. (2021). LibreTexts Social Sciences. Retrieved from Powered by NICE CXone Expert: [https://socialsci.libretexts.org/Bookshelves/Communication/Public_Speaking/Exploring_Public_Speaking_3e_\(Barton_and_Tucker\)/07%3A_Incorporating_Evidence_into_Your_Speech/7.02%3A_Types_of_Supporting_Materials](https://socialsci.libretexts.org/Bookshelves/Communication/Public_Speaking/Exploring_Public_Speaking_3e_(Barton_and_Tucker)/07%3A_Incorporating_Evidence_into_Your_Speech/7.02%3A_Types_of_Supporting_Materials)
8. Bele, J., Dimc, M., Rozman, D. and Jemec, A. (2014). Raising Awareness of Cybercrime - The Use of Education as a Means of Prevention and Protection. <https://files.eric.ed.gov/fulltext/ED557216.pdf>
9. Bele, J., Dimc, M., Jemec, A., & Rozman, D. (2014). Raising awareness of cybercrime - The use of education as a means of prevention and protection. Retrieved from Research Gate: https://www.researchgate.net/publication/291317388_Raising_awareness_of_cybercrime_-_The_use_of_education_as_a_means_of_prevention_and_protection
10. BlueVoyant. (2022). What is Cybercrime? Types and Prevention. Retrieved from BlueVoyant: <https://www.bluevoyant.com/blog/cybercrime-types-and-prevention>
11. Briones (2018). DepEd, partners launch #BeCyberSafe project. <https://www.deped.gov.ph/2018/11/10/deped-partners-launch-becybersafe-project/>
12. Britannica. (2022). Britannica. Retrieved from Britannica: <https://www.britannica.com/topic/cybercrime>
13. Brush, K., Resencrance, L., & Cobb, M. (n.d.). TechTarget Security. Retrieved from TechTarget Network: <https://www.techtarget.com/searchsecurity/definition/cybercrime>
14. Brush, K., Rosencrance, L., & Cobb, M. (n.d.). Cybercrime. Retrieved from TechTarget Security: <https://www.techtarget.com/searchsecurity/definition/cybercrime>
15. Celes. (2023). Personal Excellence. Retrieved from Personal Excellence: <https://personalexcellence.co/blog/why-set-goals/>
16. Cherry, K. (2022). Piaget's 4 Stages of Cognitive Development Explained. Retrieved from Very Well Mind: <https://www.verywellmind.com/piagets-stages-of-cognitive-development-2795457>
17. Cioni, G., & Sgandurra, G. (2013). Normal psychomotor development. Retrieved from PubMed.gov: <https://pubmed.ncbi.nlm.nih.gov/23622146/>
18. City Division of Dasmariñas (2023). #BeCyberSafe. <https://depeddasma.edu.ph/becybersafe-project/>
19. Collins. (n.d.). Collins. Retrieved from Cobuild Collocation: <https://www.collinsdictionary.com/dictionary/english/attain-an-objective>
20. Cybersecurity Ventures (2020). Cybercrime To Cost The World \$10.5 Trillion Annually By 2025: Retrieved from <https://cybersecurityventures.com/cybercrime-damages-6-trillion-by-2021/>
21. De La Salle University. (2020.). Retrieved from De La Salle University: <https://www.dlsu.edu.ph/asallians-reach/>

Magazines, Manuals, Newspapers, Journals

1. Go, M., Goblin, J. R., Velos, S., & Bate, G. (2020). Filipino Teachers' Compartmentalization Ability, Emotional Intelligence, and Teaching Performance.
2. Hay, C., Meldrum, R., & Mann, K. (2010). Traditional bullying, cyberbullying, and deviance: A general strain theory approach. *Journal of Contemporary Criminal Justice*, 130-147.
3. Hinduja, S. (2012). General strain, self-control and music piracy. *International Journal of Cybercriminology*, 951-967.
4. Huey, L., & Ferguson, L. (2022). Cyberpolicing in Canada: A Scoping Review. *Sociology Publications*, 12-13.
5. Jamian, L. S., Ibadallah, B. X., & Fook, C. Y. (2013). A Conceptual Framework: The Influence of School Culture Types and Personality Traits on Psychological Empowerment amongst Secondary School Teachers in Malaysia. *Asian Journal of University Education*, 20.
6. Larsson, S., Svensson, M., & Kaminski, M. (2012). Online piracy, anonymity, and social. *Convergence: An International Journal of Research into New Media Technologies*, 95-114.
7. Li, J. (2021). Cybercrime In The Philippines: A Case Study Of National Security. *Turkish Journal of Computer and Mathematics Education*, 4228.
8. Larsson, S., Svensson, M., & Kaminski, M. (2012). Online piracy, anonymity, and social. *Convergence: An International Journal of Research into New Media Technologies*, 95-114.
9. Latif, S. (2021). PositivePsychology.com. Retrieved from PositivePsychology.com: <https://positivepsychology.com/cognitive-development/>
10. Li, J. (2021). Cybercrime In The Philippines: A Case Study Of National Security. *Turkish Journal of Computer and Mathematics Education*, 4228.
11. Merton, R. (1968). *Social Theory and Social Structure*. Free Press.
12. Nayak, S., & Jaswinder. (2022). Privacy invasion – a thriving issue in cyber crimes. *International journal for innovative research in multidisciplinary field*, 1.

ONLINE SOURCES

1. Active Learning, Inc. (2023). Project management training Philippines. Retrieved from Active Learning, Inc.: <https://activelearning.ph/learning-path/project-management-training-philippines/>



22. Department of Education. (2012.). *Guidelines on the allocation, delivery, and distribution of instructional materials (ims) to support the k to 12 curriculum*. Retrieved from Department of Education:
<https://www.deped.gov.ph/2012/02/03/do-13-s-2012-guidelines-on-the-allocation-delivery-and-distribution-of-instructional-materials-ims-to-support-the-k-to-12-curriculum/>
23. DepEd. (2018). Department of Education. Retrieved from Department of Education:
<https://www.deped.gov.ph/alternative-learning-system/resources/downloads/becybersafe/>
24. DepEd. (n.d.). Department of Education. Retrieved from Department of Education: <https://www.deped.gov.ph/about-deped/vision-mission-core-values-and-mandate/>
25. DepEd (2018). DepEd, partners launch #BeCyberSafe project. <https://www.deped.gov.ph/2018/11/10/deped-partners-launch-becybersafe-project/>
26. Philippine National Police (2022). *Online seller using stolen identity arrested for cybercrime case*. Mandaluyong City, Philippines: Philippine AntiCyber Group.



PLAY WAY BASED ACADEMIC INTERVENTION ON PRE-ARITHMETIC SKILLS OF STUDENTS WITH INTELLECTUAL DISABILITY

Aiswarya, M.¹, Dr. A. Hameed²

¹Senior Research Fellow, Department of Education, University of Calicut

²Professor, Department of Education, University of Calicut

ABSTRACT

The study under investigation is an experimental one, which aims to find out the effectiveness of Play Way Based Academic Intervention on Pre-Arithmetic skills of students with Moderate level of Intellectual Disability. Pretest – Posttest Control Groups Design was used for the study. For this purpose, a sample of 32 students were drawn from a special school. Children having moderate intellectual disability were the sample of the study where 16 students were in the experimental group and 16 students in the Control group. The experimental group students were taught through the Play Way Based Academic Intervention and the control group students were taught through the Conventional Method used for Pre-Arithmetic Skills. Pre-arithmetic Skills selected were Big and Small Identification, Long and Short Identification, More and Less Identification and Shape Identification. Standardized tools were administered for collecting data from the participants. For the analysis of the collected data, the investigator used descriptive statistics like Mean, median, mode, standard deviation and Mean Difference Analysis. The study reveals that there exists significant difference between post test scores of Experimental and Control groups with respect to Pre-Arithmetic skills. Students in the experimental group show significantly better performance in terms of Pre-Arithmetic Skills than that of students in the Control group as higher mean scores are attached with them.

KEY WORDS: Intellectual Disability, Academic Intervention, Pre-Arithmetic skills, Play way method, Experimental approach.

Play is a natural activity which arouses enthusiasm among participants and motivate them to engage whole heartedly in the activity without any external compulsion. Play can be considered as an optimistic activity which provides a positive space to employ vitality level of kids in a creative manner which boosts up their psychosomatic instincts. Attraction towards joyful activities and curiosity towards acquisition of new ideas can be considered as two inborn predispositions of human beings. Play can be considered as a methodology which works on the stimulation of these pleasurable innate natures of humans (Khanna & Anuradha, 1999).

Play Way Method is a systematic method which works under the principle of emancipation of ideas through pleasurable and passionate illustrations. Play offers a favorable environment to children to exhibit their interests, skills and potentials without any embarrassment. Play can be considered as a primary designation which carves the performance of child in future (Nestor & Moser, 2018). Play yard is a platform for every child to enjoy at optimum level and express his/her ideas freely without the control of any extraneous factors. Play offers so many prospects to attain different physical and mental abilities which are necessary to deal effectively with future life requirements. Play can be considered

as a platform of enjoyments which equip children to handle success and failure in a sportive spirit (Nicolopoulou, 1993). The Play Way Methodology is based on the insight that ‘play’ is the natural instinct of children; that every child possesses the same potential at birth, and it is the appropriate educational environment that shapes the growth of the child. Play stimulates the energy and potentials in man and arouses interest and ability to cooperate with others (Özokcu et al. (2017).

Pre-arithmetic skills are the skills like discrimination of objects based upon size, shape, quantity, length etc. (Pendergast, et.al, 2017). In the present study, Play Way Based Academic Interventions was used to enhance the level of pre-arithmetic skills among students with intellectual disability.

Education of children with Intellectual disability is a perplexed matter of debate. But it is a fact that if an academic intervention is designed exclusively on the basis of their individual needs, then such an activity will remove the academic barriers in front of them (Beirne-Smith, Parton & Kim, 2006). The academic system should be free from the biased and disabling view of intellectually disabled students as ‘a burden or liability’. Instead, it must recognize them as ‘productive members’ of the society. The



educational and social institutions must enlarge themselves responsively and must undertake that it is their responsibility to include all children into its texture and support all in their pursuit of self-development and growth (Kick et al, 2000).

An Activity Oriented Approach of learning will definitely be an effective method of teaching in case of children with Intellectual Disability since it is a known and proven fact that practice oriented academic transaction will arouse interest and better performance among the children. Teachers must be skilled and trained enough to deal with all levels of Intellectual disability and a level based practical oriented approach will definitely add brightness to academic skills of the mentally retarded.

NEED AND SIGNIFICANCE OF THE STUDY

Different types of disabilities or inabilities act as a stumbling block on the way of these underachievers and deny access for them to have better accomplishments. Children with Intellectual Disability constitute a section that faces this plight to an extent, perhaps, larger than most other disadvantaged groups. It naturally follows that they need strong scaffolding in order to come up and acquire optimal competency. The study is socially relevant since it ensures the active participation of children with Intellectual disability in the social life of the community. The dynamic process of this interaction with a previously marginal group of children, in turn, educates the society and brings forth more sensitized sophistications in the academic planning and social decision making.

OBJECTIVES OF THE STUDY

Objectives of the present study are:

- To study whether there exists any significant difference between the mean posttest scores of pre-arithmetic skills of experimental and control groups with regard to the skill of big and small identification.
- To study whether there exists any significant difference between the mean posttest scores of pre-arithmetic skills of experimental and control groups with regard to the skill of long and short identification.
- To study whether there exists any significant difference between the mean posttest scores of pre-arithmetic skills of experimental and control groups with regard to the skill of more and less identification.
- To study whether there exists any significant difference between the mean posttest scores of pre-arithmetic skills of experimental and control groups with regard to skill of shape identification.
- To study whether there exists any significant difference between the mean posttest scores

of experimental and control groups with regard to overall pre-arithmetic skills.

HYPOTHESES OF THE STUDY

Following were the hypotheses set for the study.

- There will be no significant difference between the mean Posttest scores of pre-arithmetic skills of Experimental and Control groups with regard to skill of big and small Identification.
- There will be no significant difference between the mean Posttest scores of pre-arithmetic skills of Experimental and Control groups with regard to skill of Long and short Identification.
- There will be no significant difference between the mean Posttest scores of pre-arithmetic skills of Experimental and Control groups with regard to skill of more and less Identification.
- There will be no significant difference between the mean Posttest scores of pre-arithmetic skills of Experimental and Control groups with regard to skill of shape Identification.
- There will be no significant difference between the mean Posttest scores of Experimental and Control groups with regard to overall pre-arithmetic skills.

METHOD

The present study comes under the purview of experimental study and it has been conducted by employing the Quasi Experimental Design. The design used in the present study was the Non-Equivalent Groups Pre-test-Post-test Control Groups Design.

Participants of the Study

For the present study, a sample of 32 students were drawn from a special school. Students with moderate level of intellectual disability were the sample of the study where 16 students were in the experimental group and 16 students, in the Control group. Age group of the students were in between 13-15. The experimental group students were taught through the Play Way Based Academic Intervention and the control group students were taught through conventional method of teaching used for students with Intellectual Disability.

Tools and Learning Materials Used

Pre-Arithmetic Skill Assessment Test developed by Hameed and Aiswarya (2018) was used as the tool for data collection. Play Way Based Academic Intervention modules for each skill were prepared and used.

Statistical Techniques Used for Analysis

For the analysis of the collected data, the investigator used descriptive statistics like Mean, Median, Mode, Standard Deviation etc. Mean Difference analysis was done using paired sample student's t test to study whether there exists any



significant difference between the mean posttest scores of experimental and control groups with regard to pre-arithmetic skills.

RESULTS AND DISCUSSION

Summary of Mean Difference Analysis in case of pre-arithmetic skills are summarized and discussed in this section

Data and results of the comparison of post test scores of experimental and control groups with respect to the skill of Big and small identification are presented in Table 1.

Table 1

Data and Results of the Comparison of Post Test Scores of Experimental and Control Groups with Respect to the Skill of Big and Small Identification

Sl. No.	Groups	N	Mean	SD	t- value
1.	Experimental Group	16	2.56	0.51	
2.	Control group	16	2.06	0.44	3.16

From Table 1, the obtained t value (3.16) was found to be significant at 0.01 level. The results depicted that there exists significant difference between the mean post test scores of experimental and control groups with respect to the skill of big and small identification.

Data and results of the comparison of post test scores of Experimental and control groups with respect to skill of long and short identification are presented in Table 2.

Table 2

Data and Results of the Comparison of Post Test Scores of Experimental and Control Groups with Respect to the Skill of Long and Short Identification

Sl. No.	Groups	N	Mean	SD	t- value
1.	Experimental Group	16	2.25	0.44	
2.	Control group	16	1.81	0.40	3.41

Table 2 shows that the obtained t value (3.41) was found to be significant at 0.01 level. The results further underlined that there exists significant difference between the mean post test scores of experimental and control groups with respect to the skill of long and short identification.

Data and results of the comparison of post test scores of Experimental and control groups with respect to skill of More and Less Identification are presented in Table 3.

Table 3

Data and Results of the Comparison of Post Test Scores of Experimental and Control Groups with Respect to the Skill of More and Less Identification

Sl. No.	Groups	N	Mean	SD	t- value
1.	Experimental Group	16	2.68	0.47	
2.	Control group	16	2.25	0.57	2.40

From Table 3, the obtained t value (2.40) was found to be significant at 0.05 level. The result shows that there exists significant difference between the mean post test scores of experimental and control groups with skill of More and Less Identification.

Data and results of the comparison of post test scores of Experimental and control groups with respect to skill of shape identification are presented in Table 4.

Table 4

Data and Results of the Comparison of Post Test Scores of Experimental and Control Groups with Respect to the Skill of Shape Identification

Sl. No.	Groups	N	Mean	SD	t- value
1.	Experimental Group	16	2.87	0.34	
2.	Control group	16	2.37	0.61	2.44

Table 4 presents the comparison of post test scores of Experimental and control groups with respect to skill of shape identification. From the Table, the obtained t value (2.44) was found to be significant at 0.05 level. The results clarified that there exists significant difference between the mean post test scores of

experimental and control groups with respect to the skill of Shape Identification.



Educational Implications of the Study

Educational implications derived from the study are as follows.

- Pre reading performances of students with Intellectual disability can be improved using different level based academic interventions.
- All academic interventions provided to children with Intellectual Disability have to be level based and need based.
- Play way method provide students an opportunity to enjoy learning through creative activities and find the learning process as an enjoyable activity
- Learning process must provide chances for repeated practice which in turn helps students with Intellectual Disability to register and retain the information for a long time.
- Considering different factors in a classroom; teachers should experiment innovative instructional procedures which presents learning as a process which is as natural and realistic as possible.

CONCLUSIONS

Major aim of any educational intervention must be equipping each learner to be independent and self-sufficient. Children with Intellectual Disability are also a group who deserve to come up to the mainstream of the society through educational empowerment. Students with Intellectual disability differ among themselves, with each one having his/her own characteristics in various aspects. Individual differences and uniqueness in efficiency level are clear and obvious among children with disabilities, particularly in children with intellectual disabilities. So many studies (Chung & Tam, 2005; Podell et al, 1992; Milo et al ,2004) indicate that interventions for children with Intellectual disability are effective enough to enhance their mathematical potential.

REFERENCES

1. Beirne-Smith, M., Parton, J. R., & Kim, S. H. (2006). *Mental retardation: An introduction to intellectual disability (7th Ed.)*. Merrill, Upper Saddle River, NJ.
2. Chung, K. K., & Tam, Y. H. (2005). *Effects of cognitive-based instruction on mathematical problem solving by learners with mild intellectual disabilities*. *Journal of Intellectual and Developmental Disability*, 30 (4), 207-216.3.
3. Kick, S. A.; Gallagher, J. J. & Anastasiow, N. J., (2000). *Educating Exceptional Children*. Boston: Houghton Mifflin Company
4. Khanna, A. (Ph.D., 1999). *Effect of multisensory instrumental and play way approaches towards the remediation of spelling in sciences of the elementary LD children in relation to their anxiety, self-concept and locus of control*. Panjab University, Chandigarh.
5. Nestor, O., & Moser, C. S. (2018). *The importance of play*. *Journal of Occupational Therapy, Schools, and Early Intervention*. <https://doi.org/10.1080/19411243.2018.1472861>
6. Nicolopoulou, A. (1993). *Play, cognitive development, and the social world: Piaget, vygotsky, and beyond*. *Human Development*. <https://doi.org/10.1159/000277285>
7. Özokcu, O., Akçamete, G., & Özyürek, M. (2017). *Examining the Effectiveness of Direct Instruction on the Acquisition of Social Skills of Mentally Retarded Students in Regular Classroom Settings*. *Journal of Education and Training Studies*. <https://doi.org/10.11114/jets.v5i4.2294>
8. Prendergast, M., Spassiani, N. A., & Roche, J. (2017). *Developing a Mathematics Module for Students with Intellectual Disability in Higher Education*. *International Journal of Higher Education*. 18 (2) , 28-34
9. Podell, D. M., Tournaki-Rein, N., & Lin, A. (1992). *Automatization of mathematics skills via computer-assisted instruction among students with mild mental handicaps*. *Education and Training in Mental Retardation*, 17 (2) 200-206.
10. Milo, B. F., Seegers, G., Ruijsenaars, W. A., & Vermeer, H. J. (2004). *Affective consequences of mathematics instruction for students with special needs*. *European Journal of Special Needs Education*, 19 (1), 49-68.
11. Hayter, S., Scott, E., McLaughlin, T. F., & Weber, K. P. (2007). *The use of a modified direct instruction flashcard system with two high school students with developmental disabilities*. *Journal of Developmental and Physical Disabilities*, 19 (4), 409-415
12. Kroesbergen, E. H., Van de Rijt, B. A., & Van Luit, J. E. (2007). *Working memory and early mathematics: Possibilities for early identification of mathematics learning disabilities*. *In International Perspectives*. Emerald Group Publishing Limited.



PATTERN OF PUBLIC EXPENDITURE ON SOCIAL SECTOR IN MIZORAM

C.Sangthuamluaia¹, Prof. Lalhriatpuii²

¹Assistant professor, Department of Economics, Govt.Aizawl North College, Mizoram

²Professor, Department of Economics, Mizoram University

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ABSTRACT

In general, it is believed that for realizing the objectives of the state which tend to determine the magnitude and pattern of public expenditure, public expenditure itself is an important instrument. In federal form of government like India, the magnitude and pattern of public expenditure of the constituent states is determined jointly by the policy of the central government as well as the state governments. The magnitude and pattern of public expenditure are determined by the existing requirements of the community and the political ideology of the party in powers. Thus, in the light of the broad decision of legislature, a group of officials who carry out the administration determined a series of value judgment for its operation. Hence, the objective of public expenditure differ time to time. However, a general pattern of the objectives of public expenditure has been formulated in the state. These general objectives take the form of provision of a minimum of certain services for the social, economic and physical security of the people, promotion of full utilization of human and other resources and the stabilization of the economy. An attempt to implement these objectives in the state of Mizoram has led to the growth in public expenditure. Public wants have been expanding, social welfare emphasis has been rising, population has been rising, price is rising and the direction of public expenditure towards economic development have all contributed to the stupendous growth of public expenditure in the state of Mizoram

KEYWORDS : Social Sector Expenditure, Government, Mizoram, Net State domestic production, Economic Development

INTRODUCTION

The government plays an integral role in economic growth and development process, especially in least developed and developing economies, riddled with low per capita income and weak private investment (Folster & Henrekson, 1999). The government may provide goods and services directly or play a supportive role such as maintaining law and order, regulating economic activities, and developing physical infrastructure to stimulate economic growth. The mainstream view is that public expenditure, especially on physical infrastructure and human capital can support economic growth by bolstering productivity in the private sector (Keynes, 1936). The social sector, broadly consisting of education, health, and social protection or security, is one of the major beneficiaries of public expenditure in developing economy like Mizoram. This attributed to the fact that investment in health and education facilitates development of the human capital that every economy needs to achieve its economic growth and development aspirations (Romer, 1986). Expenditure on social services like education and health has been justified by reference to the market's failures both to guarantee outcomes that meet society's equity objectives and to alleviate the possible causes of market inefficiency. Imperfect competition, absence of future markets, structural

unemployment, externalities, etc. In the case of health and education, possible failure of the market are mostly found which have affected public expenditure growth. The society's objectives in health care are to guarantee equality of access, cost and outcome for those who equally needed, while ensuring that the delivery system uses resources efficiently. In education, it is correspondingly argued that society's objective is to achieve equality of educational opportunities for those of equal ability, and an efficient allocation of resources.

In developing countries like India, public expenditure plays an important role in the development process. India has a federal structure of government. Indian constitution has divided the powers into three list viz., (1) Central List (2) State List and (3) Concurrent List. In social services, education, welfare and employment come under concurrent list; health and housing come under the state list; food security, broadcasting, information and publicity come under central list; State play a significant role in many aspects of social development. The state of Mizoram has made a considerable progress in social sector development.



OBJECTIVES OF THE STUDY

1. To study the trend in social sector expenditure of Mizoram 2005-06 to 2020-21.
2. To calculate the determinants of social sector expenditure in Mizoram during 2005-06 to 2020-21.

STATEMENT OF THE PROBLEM

In Mizoram state, economic growth under interrupted periods of time has been seen along with political and social upheavals. With regard to State political scenario, there has been drastic change in the state political scene since the inception of the state. After 1987, there was a competition between non-congress and congress parties to capture the vote bank, which led to a drastic change in their expenditure policy i.e., from economic principle to populist measures. The expenditure on social sector needs exceptional consideration. The current study means to dissect the pattern of expenditure of the legislature of Mizoram towards social sector improvements and its suggestion. On the off chance that the expenditure is redirected towards improvement exercises, it will advance the cycle advancement of the state. It is important to analyze the patterns

of social sector expenditure with net state domestic growth result of the state.

STUDY PERIOD

The analysis of public expenditure in Mizoram has been carried through sixteen years, from 12005-06 to 2020-21.

DATA ANALYSIS

The state have major responsibility of social services development. The share of central government on social services is less than 20 per cent. Hence, analysis of state government expenditure on social services is more significant. In this section, an attempt is made to assess the extend and direction of expenditure on the social sector in Mizoram from 2005-06 to 2020-21. The expenditure on social sector includes both revenue and capital expenditure, where capital expenditure makes promotional activity, and revenue expenditure is meant for protective and social expenditure comprises expenditure on social security measures. Social services include expenditure on sports and youth affairs. social services, education expenditure include expenditure on sports and youth affairs.

Table 1 : Social sector expenditure In Mizoram by Revenue and capital Account (in crore)

Year	Expenditure on Social Services	Revenue	Capital
2005-06	637.54	547.59 (85.89)	89.95 (14.11)
2006-07	714.93	592.9 (82.93)	122.03 (17.07)
2007-08	802.71	696.78 (86.80)	105.94 (13.20)
2008-09	991.12	898.18 (90.62)	92.93 (9.38)
2009-10	1255.9	1105.68 (88.04)	150.21 (11.96)
2010-11	1363.33	1237.35 (90.76)	125.94 (9.24)
2011-12	1545.03	1345.91 (87.11)	114.02 (12.89)
2012-13	1874.64	1652.22 (88.14)	222.41 (11.86)
2013-14	2031.4	1823.64 (89.77)	207.76 (10.23)
2014-15	2474.93	2160.93 (87.31)	314 (12.69)
2015-16	2431.91	2219.96 (91.28)	211.94 (8.71)
2016-17	2614.14	2300.85 (88.02)	313.29 (11.98)
2017-18	3220.24	2606.52 (80.94)	613.7 (19.06)
2018-19	3696.65	2934.45 (79.38)	762.19 (20.62)
2019-20	3994.1	3392.73 (84.94)	601.37 (15.06)
2020-21	3737.76	3177.84 (85.02)	559.92 (14.98)

Note: Figures in parenthesis are percentage shares

Source : Computed from Annual financial statement of Mizoram, 2005-06 to 2020-21.



Table 1 shows the public expenditure of state on the social sector by income and capital record. Around 79.38 to 91.28 per cent of the complete social sector expenditure has been caused on income account while the capital expenditure on social sector goes from 8.71 to 20.26 per cent. The social sector expenditure on income account has demonstrated a fluctuating decay while an expansion has been found in the social sector expenditure on capital record during 2005-06 to 2020-21. It is seen that social sector expenditure in Mizoram is overwhelmingly on revenue account as wages and compensations and so forth, and a limited quantity is spent on the advancement of a physical framework for the social sector as capital expenditure establishes a minuscule extent of all-out social sector expenditure showing generally low significance given to interest in the social sector.

Table 2 portray public expenditure on social sector of Mizoram as an extent of net state domestic product just as an extend of total public expenditure. As an extend of NSDP, Mizoram is spending under 30% of its NSDP on the social sector during 2005-06 to 2020-21. The portion of NSDP brought about on social sector has ascended from 23.93 per cent in 2005-06 to its most significant level of 29.41 per cent in 2009-10 then it has declined imperceptibly to 17.75 per cent in 2020-21. Thus, the state is contributing around 17 to 30 per cent of NSDP towards social sector. It is seen that the middle's offer has demonstrated an expanding pattern with certain vacillations. In contrast, no significant changes have been found in the pattern of state

Table 2 : Social sector Expenditure (SSE) as percentage of Aggregate Expenditure and NSDP

Year	SSE as per cent of Total Public Expenditure			SSE as per cent of NSDP		
	SSE	Revenue	Capital	SSE	Revenue	Capital
1	2	3	4	2	3	4
2005-06	31.26	26.85	4.41	23.93	20.56	3.37
2006-07	32.74	27.15	5.59	24.28	20.14	4.14
2007-08	32.73	28.41	4.32	24.71	21.45	3.26
2008-09	34.27	31.06	3.21	25.69	23.28	2.41
2009-10	38.34	33.76	4.58	29.41	25.89	3.52
2010-11	34.01	30.86	3.15	26.76	24.28	2.48
2011-12	35.44	30.87	4.57	26.8	23.35	3.45
2012-13	35.59	31.37	4.22	28.84	25.41	3.43
2013-14	39	35.01	3.99	26.18	23.51	2.67
2014-15	37.61	32.84	4.77	24.02	20.97	3.05
2015-16	38.71	35.34	3.37	21.32	19.46	1.86
2016-17	36.6	32.22	4.38	20.57	18.1	2.47
2017-18	36.28	29.36	6.92	20.75	16.79	3.96
2018-19	39.43	31.3	8.13	22.44	17.82	4.62
2019-20	36.89	31.34	5.55	21.24	18.05	3.19
2020-21	38.77	32.96	5.81	17.75	15.09	2.66

Source: Computed from data in Accounts at a Glance, Government of Mizoram, 2006-07; 2009-10; 2013-14; 2019-20; 2020-21 Annual Financial Statement (Budget), Government of Mizoram, 2007-08 to 2022-23,

As a per cent of total public expenditure, Mizoram is spending around 31.25 to 39.50 per cent on the social sector, out of which revenue account contribute around 27 to 35.50 per cent. In comparison, the commitment of capital account goes from 3.15 to 8.13 per cent. The social sector expenditure as the level of total public expenditure shows an expansion of more than 24 per cent (from 31.26 per cent in 2005-06 to 38.77 per cent in 2020-21). This examination uncovers that social sector expenditure as far as the level of NSDP just as the level of total public expenditure has demonstrated an expanding pattern since 2002-06 till 2020-21.

In order to ascertain the direction in which public expenditure policies changes in the State Government, an attempt is also made to study the pattern of public expenditure for the last 16 years.

The trend in public expenditure of the state according to sectors viz., general services, social services and economic services has been examined for the last 16 years. During 2005-06 to 2020-21, the state government makes some changes in the public expenditure policy.

**Table 3: Sector-wise Public Expenditure**

Year	General Services	Social Services	Economic Services
2005-06	27.22	31.26	41.52
2006-07	29.37	32.74	37.89
2007-08	26.88	32.73	40.39
2008-09	28.48	34.27	37.25
2009-10	29.73	38.34	31.93
2010-11	25.79	34.01	40.2
2011-12	28.37	35.44	36.19
2012-13	27.97	35.59	36.44
2013-14	27.59	39	33.41
2014-15	27.72	37.61	34.67
2015-16	31.06	38.71	30.23
2016-17	30.05	36.6	33.35
2017-18	26.58	36.28	37.14
2018-19	29.81	39.43	30.76
2019-20	30.08	36.89	33.03
2020-21	33.96	38.77	27.27

Source: Computed from data in Accounts at a Glance, Government of Mizoram, 2006-07-2020-21 Annual Financial Statement (Budget), Government of Mizoram, 2007-08 to 2022-23,

The analysis indicates that the percentage increase in social sector is highest indicating that the government has been making an effort to extend and consolidate the social infrastructure by providing and improving education sector and public health sector so as to improve the productivity of the

people of the state. Range of fluctuations in social sector expenditure on revenue account and capital accounts of the state Government budgets has been analyzed and carried out the results. The ratio of the range of annual fluctuations or the coefficient of the scatter is shown in Table 4.

Table 4: Ratio of the Range and Percentage Relative Fluctuation

Sl.No.	Fluctuations in	Ratio of the Range	Percentage Relative Fluctuations	Rank
1	2	3	4	5
1	Revenue Expenditure	0.7124	71.24	1
2	Capital Expenditure	0.6312	63.12	2

From Table 4 it is clear that fluctuations on revenue expenditure are greater than those on capital expenditure. The ratio and percentage relative annual fluctuation calculated on revenue expenditure is higher than capital expenditure.

CONCLUSION

The stupendous increase in public expenditure in Mizoram is the result of the efforts undertaken for stabilization of the economy, effective utilization of the available resources with respect to human and natural resources. The rapid growth of population and its consequences of urbanization, the increase in public wants, expenditure towards economic development, rising prices, the rise of a modern state with the objectives of the attainment of social welfare are all the factors which have contributed towards the significant growth of public

expenditure in the state of Mizoram. It is believed that the trend in revenue expenditure will continue to increase in the near future and so, certain remedial measures to curtail expenditure or certain measures for the augmentation of tax revenue must be adopted because the State government will continue to play an important role in the process of economic development through certain various developmental and non-developmental plan expenditures.

REFERENCES

1. *Bhattacharya, Govind. "Intra State Economic Disparities in Government Expenditure." Economic and Political Weekly, vol. 44, no. 26 & 27, 2009.*
2. *Chattopadhyay, A.K. The State of Public Finance in North-Eastern Region. In Amalsh Banerjee and Bimankar (Ed.),*



- Economic Planning and Development of North-East States, 2007*
3. Devarajan, S., Swaroop, V. and Heng-fu, Z. "The Composition of Public Expenditure and Economic Growth." *Journal of monetary Economics*, Vol. 37, pp. 313-344, 1996.
 4. Gangal, L.N.V and Gupta, H. "Public Expenditure and Economic Growth : A case study of India." *Global Journal of Management and Business studies*, Vol.3(2), pp. 335-347, 2013.
 5. Gopalakrishna, B. and Rao, J. "Economic Growth and Human Development: The Experience of Indian States." *Indian Journal of Industrial Relations*, 47, (4),pp 634-644, 2012.
 6. Haque, E.m. "The Composition of Public Expenditure and Economic Growth in Developing Countries." *Journal of Economics and Sustainable Development*, Vol. 3(3),pp.430-437, 2003.
 7. Roy, K.C and Vadlamudi, Y.R. "Government Expenditure and economic Growth under Economic Change: Selected Developing Countries." *Indian Journal of Quantitative Economics (An International Journal of development Economics)*, Vol.13(1) pp. 90-109.1998.
 8. Shivarajani, V. "Size and Composition of Government expenditure in India: Impact on Economic Growth." *Madras School of economics Anna University Chennai-600025(May)*,2010.
 9. Tanzi, V. "Fiscal Federalism and decentralisation: A review of some Efficiency and Macroeconomics Aspect" *Annual World bank conference on development Economics*, pp 295-330, 1995.
 10. Van de Walle, D. "Assesing the welfare Impacts of Public Spending, *A World Development* 26 (3), pp 365-379, 1998.
 11. Wahab, M. "Economic Growth and government expenditure: Evidence From a New Test Specification." *Applied Economics*, 36(19), 2125-2135, 2004.



ETHICAL REQUIREMENTS FOR EMPLOYEES OF INTERNAL AFFAIRS AGENCIES AND ITS PEDAGOGICAL ASPECTS

Gulyamova Gulnoz Bakhodirovna

Researcher, Urgench State University, Urgench, Khorezm, Uzbekistan

ABSTRACT

this article provides information about the ethical requirements for employees of internal affairs agencies and its pedagogical aspects. Furthermore, it is stated that the professional ethics of the employees of internal affairs agencies is based, first of all, on courage, justice and loyalty, impartial and impartial approach to every work. Fighting crime, unlike other professions, requires an employee to have a number of high moral qualities, such as bravery, courage, and resourcefulness, which are not considered necessary for other professions.

KEY WORDS: *internal affairs, employees, courteous, education*

The land of Uzbekistan is a holy place. The history written by the heroes who shed their blood on this land, the bravery they showed, glorified the sacred land of Uzbekistan even more. Stories written for martyrs are also lessons for future generations. Let them distinguish good from bad, white from black. Martyrdom for the cause of the country is the highest peak of true citizenship; the divine peak above all peaks, and it is the peak visible only to the spiritual eye and not to the ordinary eye. The global changes happening all over the world show that it is not possible to be limited only by traditional ideas in understanding the problem of spiritual maturity. The principle of equalization in the hierarchy of moral values is explained by the fact that the violation of existing moral rules in the activity of individuals and society, ideological threats in the information field, in particular, the elements of "mass culture" that attract dubious moral products, are now clearly visible. In order to prevent and eliminate such problems, the issue of raising spiritual and moral awareness is of incomparable importance. In this sense, this situation puts before the science of pedagogy the need to provide more in-depth knowledge about the spiritual and moral consciousness to the practice, along with identifying effective ways and means of further raising the spiritual and moral consciousness of the internal affairs officers-youth. "As with any professional ethics, the internal affairs officers' professional ethics have their own characteristics. These features include the following.

1. Ethical requirements imposed on employees of internal affairs agencies have a legal basis, that is, they are punished in the form of laws, regulations and instructions, and those who commit illegal acts are also subject to criminal liability.

2. The professional ethics of the employees of internal affairs agencies is based, first of all, on courage, justice and loyalty, impartial and impartial approach to every work. Fighting crime, unlike other professions, requires an employee to have a number of high moral qualities, such as bravery, courage, and resourcefulness, which are not considered

necessary for other professions.

3. The norms of professional ethics of the employees of internal affairs agencies are based on respect for human dignity and humane treatment of those who break the law, that is, they reflect the norms of universal morality.

It is true that, based on the necessity of the service, and in order to maintain state and service secrets, the employees of internal affairs agencies may use false statements and some combinations of them during criminal investigations according to the requirements specified in the instructions. But they do not act contrary to the truth, but they serve to achieve the decision of justice.

4. As employees of internal affairs agencies work as representatives of power and law, their ethics have the characteristics of authority and education. The higher the moral authority of the employees of the internal affairs agencies, the stronger the trust of the people in the state and the power of the law, and vice versa [3]."

At the current stage of society's development, problems related to the human factor have become an important research object of the field of social philosophy. As the head of our state, Shavkat Mirziyoyev, said, "Education of young people with high morale, modern knowledge and skills, independent opinion in the spirit of national and universal values is one of the most important issues for us [1]". Concluding from this, we should never forget that each of us is responsible for their education and to protect our youth from various threats, such as drug addiction, religious extremism, and missionaries, which come in the form of "mass culture" [1]". For this reason, the issue of further raising the spiritual and moral consciousness of young people is becoming more and more urgent, and that is why the President put forward five important initiatives to start work in the social, spiritual and educational spheres on the basis of a new system, and to raise the spirituality of young people and meaningfully organize their free time (the first initiative is to increase the interest of young people in music, painting,



literature, theater and other types of art, to reveal their talent; the second initiative is physical training of young people, creation of necessary conditions for them to show their abilities in the field of sports; the third initiative is to organize the effective use of computer technologies and the Internet among the population and young people; the fourth initiative is to organize systematic work on raising the morale of young people, widely promoting reading among them; the fifth initiative is to provide employment to women).

The technology of studying the spiritual and cultural situation includes effective methods (study of documents, study of statistical data, population survey, comparison, observation, analysis and synthesis method, etc.), principles (objectivity, systematicity, historicity and dialectical conflict, going from abstraction to concreteness, unity of logic and historicity principle, etc.), will lead to the necessary results only when conducted on the basis of modern tools and materials.

The technology of studying the spiritual and cultural situation is carried out in five stages: a) studying the level of implementation of relevant regulatory documents; b) studying the activity of management bodies and institutions in the field of spirituality and culture, statistical data on them; c) conducting surveys among the population; g) study of the factors influencing the spiritual and cultural situation, not directly, but indirectly; d) analysis of the collected materials, preparation of analytical materials, development of practical recommendations and preparation of predictions on the development of the situation.

The main purpose of the technology is to study the real spiritual and cultural situation and to mobilize its possibilities to ensure the spiritual security of the person. All activities should be focused on the following tasks:

- a) determining the real spiritual and cultural situation in the city or district;
- b) identification of opportunities that can have a positive effect on the spiritual image of a person, but have not yet been realized;
- c) determining the factors and means that threaten the moral security of a person in a city or district;
- d) development and presentation of a mechanism, a complex of activities that serve to raise the spiritual image of a person in a specific city or district;
- e) drawing up a spiritual-ideological map of regions as a result of studying the spiritual and cultural situation in cities and districts;
- f) creating a comprehensive bank of data collected during the study, recording their dynamics;
- g) summarizing the experiences and presenting drafts of action programs to the authorities of the government.

The study of the spiritual and cultural situation requires effective monitoring. It is appropriate to use different types of monitoring (general monitoring, preliminary monitoring, partial monitoring, thematic monitoring, analytical monitoring). At the moment, no matter what form it takes, it is necessary to focus on the need for any monitoring to end with the preparation of analytical materials and predictions.

Strengthening the moral foundations of the management of the team of internal affairs officers serves as an important factor in controlling public order and maintaining the stability of the social environment in the team. In this case, the positive or negative opinion of the team regarding the leader's management activity, the leader's management skills, abilities and responsibility towards his profession, professional ethics will not fail to have an impact on the public opinion and the relationship between the team and the leader. After all, in a legal-democratic society, where the foundations of civil society are being strengthened, it is important to rely on the opinion of the community in evaluating social and political processes. It is self-evident that the radical changes achieved through ever-deepening reforms will never happen overnight, at the behest or whim of anyone. It certainly takes time for this, and the most important thing is that our society and people deeply understand and support the content and goals of these reforms.

Tell yourselves, dear friends, if our people do not understand the purpose and content of the reforms we are implementing with so much time and effort, if our public does not support them, then such reforms will not become empty talk? Can any practical results be achieved with such reforms? It takes repeated work - only the support of our people will give strength to any reforms [2].

If relying on ethical principles, taking into account the opinion of the team, or showing special respect for the opinion of the team becomes a specific value in any field of management, then, in our opinion, the ethical foundations of military team management will be properly oriented. A true leader does not fly to light fame and vain luxury. As soon as he knows his worth, he will also appreciate others. A leader must trust people. It is necessary to trust his deputies and assistants and allow each of them to work independently in their field. Otherwise, taking on all tasks and duties alone, he will be distracted from the main direction, his attention will be divided, he will be buried in small concerns, and he will lose the reins of general leadership. There is a saying that "A lonely horse does not get dusty, even if it gets dusty, it doesn't get famous".

The ethical basis of managing a team of internal affairs employees is a complex system, and this process is determined by the level of ethics demonstrated by both sides, that is, the leader and the team around him during their activities. In management, the leader's morals are defined by moral feelings such as his duty, responsibility, selflessness, fairness, and the ability to treat everyone equally, while the moral perfection of the team under the leader is, first of all, the presence of neutral, disinterested respect for his leader, the timely execution of the given instructions, at the same time, full performance includes actions such as mobilizing all of one's available capabilities and working to further the team's vision.

Therefore, the ethical basis of managing a team of internal affairs employees depends on the relationship between the team's opinion and the leader's activity, and in this, it is necessary to recognize that the leader's ability is of primary importance.

REFERENCES

1. *Mirziyoev Sh. We will resolutely continue our path of national development and raise it to a new level. Volume 2. - Tashkent: Uzbekistan, 2019. - B. 88*



2. I. Karimov. *Further deepening of our ongoing reforms and building civil society is the main factor of our bright future. Speech at the ceremony dedicated to the 21st anniversary of the Constitution of the Republic of Uzbekistan. December 7, 2013*
3. Muhammadiyev. N.E. *Professional ethics and aesthetic culture of employees of internal affairs agencies. T.: Ministry of Internal Affairs Academy of the Republic of Uzbekistan, 2005.- 18.B.*
4. Olloyorov, Q., & Davlatnazarov, D. (2023). *XORAZM DOSTONLARI TILIDA UCHRAYDIGAN REAL VA NOREAL SHAXS NOMLARI. SCHOLAR, 1(2), 104-110.*
5. Davlatnazar Ro'zmatboy o'g, D., & Olloyorov, Q. M. (2023). *XORAZM DOSTONLARI TILIDA UCHRAYDIGAN REAL VA NOREAL SHAXS NOMLARI. TA'LIM VA RIVOJLANISH TAHLILI ONLAYN ILMIY JURNALI, 3(2), 208-213.*
6. Olloyorov, Q. M. (2018). *Onomastics of Khorezm epics (based on the series of epics "Gorogly" and "Oshiqnoma"). Author's abstract of the dissertation of Doctor of Philosophy (PhD) in philological sciences. Samarkand, 46.*
7. qizi Madiyorova, Valida Quvondiq. "REPRESENTATION OF ARCHAISMS IN ARTISTIC TRANSLATION." *Builders Of The Future 1.01 (2023): 66-69.*
8. Madiyorova V. Q. *Analysis of archaic words in the structure of english and uzbek proverbs //EPRA International Journal of Research and Development (IJRD). – 2021. – №. 6. – C. 360-362.*
9. Madiyorova V. Q., Djumabaeva J. *SPECIFIC FEATURES OF UZBEK AND ENGLISH FOLKLORE GENRES //Велес. – 2020. – №. 1-1. – C. 160-164. Khadzhieva M., Saurov R., Madiyorova V. Role and dastan value in education of youth of Uzbekistan //SCOPE ACADEMIC HOUSE B&M PUBLISHING. – 2017. – C. 42.*
10. Madiyorova V. Q. *Analysis of archaic words in the structure of english and uzbek proverbs //EPRA International Journal of Research and Development (IJRD). – 2021. – №. 6. – C. 360-362.*
11. Khajieva M. S. et al. *The Role of the Tolerance in Society and its Philosophical Interpretation //Young Scientist USA. – 2015. – C. 163-165.*
12. Khajiyeva M. S. et al. *OPINIONS REGARDING THE FORMATION OF FAMILY INSTITUTION AND CHILD UPBRINGING IN" AVESTO" //INTERNATIONAL SCIENTIFIC REVIEW OF THE PROBLEMS OF PHILISOPHY, PSYCHOLOGY AND PEDAGOGY. – 2019. – C. 5-9.*
13. Khajieva M. S., Urazmetov M. T., Akmanova S. A. *The Specific Features of Uzbek People's Ethnoculture //Young Scientist USA. – 2014. – C. 159-161.*
14. Sultanovna K. M. *THE CONCEPT OF GLOBALIZATION AND ITS PHILOSOPHICAL INTERPRETATION //EPRA International Journal of Multidisciplinary Research (IJMR). – 2022. – T. 8. – №. 3. – C. 134-138.*
15. Sultonov F., Saurov R. *CORRUPTION IS A DANGEROUS ENEMY OF THE STATE DEVELOPMENT //Интернаука. – 2021. – №. 16-4. – C. 8-9.*
16. Sanjar S., Matluba K., Ravshonbek S. *Importance of social capital and horizontal relations in the development of society //The Newman in Foreign policy. – 2017. – №. 35 (79). – C. 33-35.*
17. Ugli S. R. R. *Corruption, its causes and factors //Достижения науки и образования. – 2020. – №. 5 (59). – C. 35-36.*
18. Saurov R. R. *THE CONCEPT OF CORRUPTION, ITS CONTENTS AND METHODS.*



RELATIONSHIP BETWEEN REPRESENTATIVE DEMOCRACY AND CIVIL SOCIETY

Nasimov Ozod Botir ugli

Employee of the Ministry of Internal Affairs, Tashkent, Uzbekistan

ABSTRACT

This paper clarifies the relationship between representative democracy and civil society. The goal of the development of civil society is to improve the quality and standard of living of citizens, strengthening the position of the state in the international arena. The practical implementation of the democratic functions of civil society is expressed in increasing the level of civic activity of the population, developing the legal culture of citizens, improving democracy, the active inclusion of public opinion leaders in government, the development of vertical and horizontal public relations and interaction between the population and the authorities.

KEY WORDS: *representative democracy, civil society, state, law, enforcing*

A change in the political vector in establishing a new world order entails an increase in the level of risks of maintaining the sovereignty of national states, which causes social and ethno-national tension.

The proclamation in Uzbekistan of a course towards the development of a free society, on the one hand, serves as confirmation of the implementation of state policy based on the values of civil society, and on the other, is the starting point for the development of innovations in the spheres of political processes and law. In the context of modernization of the Uzbekistan, special attention should be paid to strengthening the substantive aspects of the functioning of such political and legal phenomena as the representation of the legal rights and interests of citizens, increasing the level of legal consciousness and legal understanding, social and electoral activity of the population, developing a mechanism for legal regulation of public relations, formation of the foundations of representative democracy.

Due to the lack of theoretical studies of the phenomenon under consideration, the possibilities for its implementation are not used.

The goals and objectives facing society at the present time indicate not only the expediency of proclaiming the rights and freedoms of man and citizen, but also the structuring of state activities aimed at protecting the rights and legitimate interests of citizens, which constitutes the substantive basis of representative democracy. At the present stage of development of Uzbekistan, the effective functioning of civil society largely depends on the quality of the legal and ideological content of the organization of the activities of society and the state. One of the possible ways to modernize Uzbekistan statehood is seen in strengthening the position of representative democracy, the functioning of which is directly related to the development of a

democratic state. An in-depth study of this problem can serve as the basis for the formation of a concept for the development of Uzbekistan. Today there is an urgent need to develop a basis for the theoretical and ideological renewal of the country. It is representative democracy, in our opinion, that can become the embodiment of the values of a true civil society, ensuring the legitimate rights and interests of citizens. The development of the foundations of legislative and ideological interaction between civil society and institutions of representative democracy serves as the basis for the implementation of theoretical models of development. The above indicates the relevance of studying and developing the problem of representative democracy as a factor in the development of a legal society.

Civil society is a dynamic multi-level system that combines the democratic interests of the majority of citizens, is capable of developing consensus decisions on socially significant issues, reflecting effective self-government in interaction with public associations in order to represent and meet the needs of the individual and society. The work highlights the following elements of civil society:

- 1) citizens who have freedom, rights and responsibilities;
- 2) public associations;
- 3) non-profit organizations;
- 4) political parties;
- 5) social environments grouped by territorial principle;
- 6) local communities;
- 7) informal communities in the housing sector, ecology, etc.;
- 8) expert communities;
- 9) leaders of public opinion, accumulating the interests of the public;
- 10) youth organizations, movements, associations;
- 11) independent media.



The goal of the development of civil society is to improve the quality and standard of living of citizens, strengthening the position of the state in the international arena. The practical implementation of the democratic functions of civil society is expressed in increasing the level of civic activity of the population, developing the legal culture of citizens, improving democracy, the active inclusion of public opinion leaders in government, the development of vertical and horizontal public relations and interaction between the population and the authorities.

A rule-of-law state must pursue effective social policy through the vertical power structure, and, in turn, responsible, highly moral members of civil society must pursue it through a system of horizontal connections. Only as a result of such a partnership is it possible to resolve social contradictions. An important point here is the improvement of the regulatory framework that determines the activities of non-profit organizations, including socially oriented ones.

In the conditions of modern Uzbekistan, the interaction of government authorities with institutions of public control and non-profit organizations is of particular importance. When considering this issue, it is necessary to take into account that civil society is capable of increasing collective trust and tolerance among citizens, thereby promoting the development of democracy and interaction between the population and the authorities. However, it is necessary to distinguish between the categories of "participation" and "influence". *Participation* in the work of civil society structures does not guarantee real *influence* on the political process and the adoption of nationally significant political decisions. The quantitative indicator in this case also does not indicate that all participants in the process have the opportunity to influence the authorities. An important factor affecting the indicator of the influence of civil society on decisions made by state authorities and local self-government is the level of independence and significance of institutions or bodies influencing decision-making. The more citizens support and become members of a civil society institution or body, the more effective and productive its activities will be. In this case, it is necessary to talk about the cohesion of society: the higher the level of joint actions, the greater the influence active citizens can have on the authorities.

In the development of society and the state, it is necessary to pay more attention to public consensus. Strengthening the social orientation of state policy, the openness of decisions made, and reducing the level of corruption are the main aspects of ensuring the development of both internal and external collective trust of citizens. Civil society, as a multi-level organization of citizens, operates within the framework of the state, which creates conditions for the observance of human rights and freedoms and the development of all members of society.

At the same time, it is the state that creates the legal framework. In world practice, there is a search for improved models of interaction between the structures of civil society and government bodies. In this regard, we can talk about the

processes of international integration in various spheres of society (cultural, economic, social), including in relation to civil society. International non-governmental organizations take an active part in solving security problems, environmental issues, and protecting human rights. Despite the positive experience of their functioning, it is necessary to emphasize the danger of pseudo-democratic structures and the need to take measures aimed at stopping their activities. An effective civil society developing in a democratic state provides for the presence of various decision-making centers in the field of international development of civil society, a variety of international channels for representing the rights and legitimate interests of citizens, and public control over power.

REFERENCES

1. Кабышев В.Т. С Конституцией по жизни. Избранные научные труды. М., 2013. С. 79
2. Еллинек Г. Общее учение о государстве. СПб., 1908. С. 418.
3. Бузескул В. История афинской демократии. СПб., 1909. С. 131.
4. Джагарян Наталья Владимировна Представительная демократия - универсальная характеристика современной концепции народовластия // Вестник СГЮА. 2014. №4 (99).
5. Olloyorov, Q., & Davlatnazarov, D. (2023). XORAZM DOSTONLARI TILIDA UCHRAYDIGAN REAL VA NOREAL SHAXS NOMLARI. SCHOLAR, 1(2), 104-110.
6. Davlatnazarov, R. Zmatboy o'g, D., & Olloyorov, Q. M. (2023). XORAZM DOSTONLARI TILIDA UCHRAYDIGAN REAL VA NOREAL SHAXS NOMLARI. TA'LIM VA RIVOJLANISH TAHLILI ONLAYN ILMIY JURNALI, 3(2), 208-213
7. Olloyorov, Q. M. (2018). Onomastics of Khorezm epics (based on the series of epics "Gorogly" and "Oshiqnoma"). Author's abstract of the dissertation of Doctor of Philosophy (PhD) in philological sciences. Samarkand, 46.
8. qizi Madiyoro'va, Valida Quvondiq. "REPRESENTATION OF ARCHAISMS IN ARTISTIC TRANSLATION." Builders Of The Future 1.01 (2023): 66-69.
9. Madiyoro'va V. Q. Analysis of archaic words in the structure of english and uzbek proverbs //EPRA International Journal of Research and Development (IJRD). – 2021. – №. 6. – С. 360-362.
10. Madiyoro'va V. Q., Djumabaeva J. SPECIFIC FEATURES OF UZBEK AND ENGLISH FOLKLORE GENRES //Белес. – 2020. – №. 1-1. – С. 160-164. Khadzhiyeva M., Saurov R., Madiyoro'va V. Role and dastan value in education of youth of Uzbekistan //SCOPE ACADEMIC HOUSE B&M PUBLISHING. – 2017. – С. 42.
11. Madiyoro'va V. Q. Analysis of archaic words in the structure of english and uzbek proverbs //EPRA International Journal of Research and Development (IJRD). – 2021. – №. 6. – С. 360-362.
12. Khajiyeva M. S. et al. The Role of the Tolerance in Society and its Philosophical Interpretation //Young Scientist USA. – 2015. – С. 163-165.
13. Khajiyeva M. S. et al. OPINIONS REGARDING THE FORMATION OF FAMILY INSTITUTION AND CHILD UPBRINGING IN "AVESTO" //INTERNATIONAL SCIENTIFIC REVIEW OF THE PROBLEMS OF PHILISOPHY, PSYCHOLOGY AND PEDAGOGY. – 2019. – С. 5-9.



14. Khajieva M. S., Urazmetov M. T., Akmanova S. A. *The Specific Features of Uzbek People's Ethnoculture //Young Scientist USA. – 2014. – C. 159-161.*
15. Sultanovna K. M. *THE CONCEPT OF GLOBALIZATION AND ITS PHILOSOPHICAL INTERPRETATION //EPRA International Journal of Multidisciplinary Research (IJMR). – 2022. – T. 8. – №. 3. – C. 134-138.*
16. Sulstonov F., Saurov R. *CORRUPTION IS A DANGEROUS ENEMY OF THE STATE DEVELOPMENT //Интернаука. – 2021. – №. 16-4. – C. 8-9.*
17. Sanjar S., Matluba K., Ravshonbek S. *Importance of social capital and horizontal relations in the development of society //The Newman in Foreign policy. – 2017. – №. 35 (79). – C. 33-35.*
18. Ugli S. R. R. *Corruption, its causes and factors //Достижения науки и образования. – 2020. – №. 5 (59). – C. 35-36.*
19. Saurov R. R. *THE CONCEPT OF CORRUPTION, ITS CONTENTS AND METHODS.*



SPECIFIC FEATURES OF POLYPHONIC SPEECH STYLE

Dilorom Sabirova

*Independent Researcher at the Faculty of Foreign Philology, Urgench State University,
Teacher at the Department of Socio-Humanitarian Sciences, Urgench Innovative University
Khorezm, Uzbekistan,*

ABSTRACT

This article provides reflections on the issue of polyphonic speech in Uzbek and world literature, and the specific principles of polyphonic narration. It also discusses the differences and commonalities of other narrative methods with the polyphonic narrative style.

KEY WORDS: *polyphony, polyphonic speech style, character's speech, parallel view, conflicting opposition, polyphonic narration types.*

While thinking about prose narration, it should be noted that it has very ancient aspects. In a certain period of history, the appropriate form of narration has become a tradition. At the same time, in line with the development of human society, modern styles of narration and storytelling adapted to the era began to be invented. One of such methods of speech is the polyphonic speech method. The most prominent research in the world about the method of polyphonic narration belongs to M. Bakhtin, and it is his research on the works of Fyodor Dostoyevsky [2].

The basis of Bakhtin's scientific theory of polyphony was the prose of Fyodor Dostoyevsky. According to Bakhtin, the main feature of Dostoyevsky's novels is "a multiplicity of independent and unconnected voices and consciousnesses, a real polyphony of fully real voices, but the subjects of their directly meaningful speech" [2].

The term polyphony is actually a term adopted from musicology to literature, and it was formed based on the Greek words polys - many, phone - sound components [5]. That is, in a specific work, parallel views along with the views of the writer are expressed in harmony with the views of the characters.

Polyphony as a musical term describes the combination of several independent tones and the creation of a single harmonious composition. Polyphony helps eliminate monotony in music by finding counterpoints that provide perfect harmony.

Polyphonic imagery in novels involves the use of multiple points of view to create a dramatic and contrasting atmosphere. Polyphony in literature is a dialogic view of reality, combined with a special authorial position that allows for the realization of meaning. The dialogic sense of truth, as manifested in Dostoyevsky, is fundamentally different from the monological understanding of the world. Dostoyevsky's novels, according to Bakhtin, remain a monologic tradition of Western thought that

has dominated religion, science, philosophy and literature for many centuries.

In literature, the concept of polyphony is a set of characteristics of a story that includes a variety of views and voices at the same time. American literary critic Caryl Emerson describes it as "a decentralized authorial position that provides authenticity for all voices" [3].

Polyphony is a writing technique that allows multiple, often conflicting, points of view to be told. As a result, the resulting novel is "multivocal", allowing for layers of contrast, similarity, and identity.

What are the characteristics of polyphonic writing? In earlier periods of the development of prose works, only some writers dared to move away from the monophonic (monophonic) image style. In recent times, writers are more interested in expressing other points of view in their works, because this way of storytelling makes the work more attractive.

We can observe that there are certain researches about the polyphonic speech method in current Uzbek literary studies. In particular, articles such as Z. Rahimov's "Author's speech and its function in the historical novel" [4], as well as G. Avezova's "Polyphonic type of thinking as a factor that ensures artistic integrity" [1] are known about polyphony and polyphonic speech style.

Polyphonic writing is distinguished by the following reasons:

Alternative perspectives

Writing using polyphony involves the ambiguous expression of characters on both sides of an ideology. No idea is independent of the person who carries and expresses it. So the only way to get to the truth is to let everyone discuss their point of view. The resolution of the conflict can only be realized as a result of the conflict between independent ideologies.



Authors' point of view

Unlike other writing styles, polyphony involves sublimating the writer's point of view. While writers can express their thoughts through a character in a monologue, polyphonic imagery requires opposition to the character's point of view for it to function.

Dostoevsky was a supporter of polyphonic image. His novels often feature a dialogue between opposite characters or a change of point of view when switching from one character to another. Also, James Joyce skillfully used the polyphonic image style in the novel "Ulysses" [6].

Polyphony has taken linguistics by storm, and in the last two decades it has become a central concept in several linguistic studies. Inspired by Mikhail Bakhtin's analysis of what he called Dostoyevsky's novels and his carnivalesque literature, here the narrator's voice is often masked by his characters and seems more abstract than a certain ideological point of view.

The concept of polyphony arises from the expression of ideas through what is imagined as a dialogic variant of ordinary language, which is based on interdiscursive and interlocutive narration according to the functions of those ideas. Accordingly, the form and content of ideas is the result of this two-way dialogical search. They often appear intersected or completely merged.

In particular, polyphony is considered in the literature as a term that covers various aspects of dialogism as a concept. Therefore, it is not surprising that the concepts of dialogism and polyphony sometimes coincide in the literature of the later period.

In conclusion, the polyphonic narrative style is a style that involves the combination of opposing ideologies to form a larger picture. This image style is very important in writing articles and books in modern times.

REFERENCES

1. Avezova G. *Polifonik tafakkur tipi badiiy yaxlitlikni ta'minlaydigan omil sifatida*. Hosted from Toronto, Canada. <https://conferencezone.org>. 27th Oct. 2022.
2. Бахтин М. *Проблемы поэтики Достоевского*, –Москва, Сов. писатель, 1967. -364 с.
3. Caryl Emerson. *Theory and history of literature* (Том 8), University of Minnesota Press, 1984.
4. Rahimov Z.A. *So'z san'ati xalqaro jurnali*. 2021. 6-son.
5. Қуроноов Д., Мамажонов З., Шералиева М. *Адабиётшунослик лугати*. –Т.: Академнашр, 2013. – Б.225.
6. Jeyms Joys. *Ulyss*. –Parij: published by Paris-Shakespeare, 1922.
7. Olloyorov, Q., & Davlatnazarov, D. (2023). XORAZM DOSTONLARI TILIDA UCHRAYDIGAN REAL VA NOREAL SHAXS NOMLARI. *SCHOLAR*, 1(2), 104-110.
8. Davlatnazar Ro'zmatboy o'g, D., & Olloyorov, Q. M. (2023). XORAZM DOSTONLARI TILIDA UCHRAYDIGAN REAL VA NOREAL SHAXS NOMLARI. *TA'LIM VA RIVOJLANISH TAHLILI ONLAYN ILMIY JURNALI*, 3(2), 208-213

9. Olloyorov, Q. M. (2018). *Onomastics of Khorezm epics (based on the series of epics "Gorogly" and "Oshiqnoma")*. Author's abstract of the dissertation of Doctor of Philosophy (PhD) in philological sciences. Samarkand, 46.
10. qizi Madiyoro'va, Valida Quvondiq. "REPRESENTATION OF ARCHAISMS IN ARTISTIC TRANSLATION." *Builders Of The Future* 1.01 (2023): 66-69.
11. Madiyoro'va V. Q. *Analysis of archaic words in the structure of english and uzbek proverbs //EPRA International Journal of Research and Development (IJRD)*. – 2021. – №. 6. – C. 360-362.
12. Madiyoro'va V. Q., Djumabaeva J. *SPECIFIC FEATURES OF UZBEK AND ENGLISH FOLKLORE GENRES //Benec*. – 2020. – №. 1-1. – C. 160-164. Khadzhiyeva M., Saurov R., Madiyoro'va V. *Role and dastan value in education of youth of Uzbekistan //SCOPE ACADEMIC HOUSE B&M PUBLISHING*. – 2017. – C. 42.
13. Madiyoro'va V. Q. *Analysis of archaic words in the structure of english and uzbek proverbs //EPRA International Journal of Research and Development (IJRD)*. – 2021. – №. 6. – C. 360-362.
14. Khajiyeva M. S. et al. *The Role of the Tolerance in Society and its Philosophical Interpretation //Young Scientist USA*. – 2015. – C. 163-165.
15. Khajiyeva M. S. et al. *OPINIONS REGARDING THE FORMATION OF FAMILY INSTITUTION AND CHILD UPBRINGING IN "AVESTO" //INTERNATIONAL SCIENTIFIC REVIEW OF THE PROBLEMS OF PHILISOPHY, PSYCHOLOGY AND PEDAGOGY*. – 2019. – C. 5-9.
16. Khajiyeva M. S., Urazmetov M. T., Akmanova S. A. *The Specific Features of Uzbek People's Ethnoculture //Young Scientist USA*. – 2014. – C. 159-161.
17. Sultanovna K. M. *THE CONCEPT OF GLOBALIZATION AND ITS PHILOSOPHICAL INTERPRETATION //EPRA International Journal of Multidisciplinary Research (IJMR)*. – 2022. – T. 8. – №. 3. – C. 134-138.
18. Sultonov F., Saurov R. *CORRUPTION IS A DANGEROUS ENEMY OF THE STATE DEVELOPMENT //Интернаука*. – 2021. – №. 16-4. – C. 8-9.
19. Sanjar S., Matluba K., Ravshonbek S. *Importance of social capital and horizontal relations in the development of society //The Newman in Foreign policy*. – 2017. – №. 35 (79). – C. 33-35.
20. Ugli S. R. R. *Corruption, its causes and factors //Достижения науки и образования*. – 2020. – №. 5 (59). – C. 35-36.
21. Saurov R. R. *THE CONCEPT OF CORRUPTION, ITS CONTENTS AND METHODS*.



METHODOLOGICAL FOUNDATIONS OF RAISING A HEALTHY GENERATION AND ORGANIZING PHYSICAL EDUCATION

Khatamov Farkhod Fakhriddinovich

Doctor of Political Sciences (DSc), Ministry of Internal Affairs of Uzbekistan

Social conditions only allow people to engage in physical culture or sports, the rest depends on the wishes and interests of the individual. Therefore, before offering any form of exercise or health care to people, it is necessary to study and develop their interests and preferences. Today's person is not the person who lived in the last century, in those times there were few sports and recreation complexes, facilities, and clubs, and nowadays a person has the opportunity to choose the one he likes. Of course, socio-economic factors affect people's minds and interests, but strengthening health, engaging in physical education, and acquiring the necessary skills in this regard always depend on the interests and aspirations of a person.

"I know for sure that - writes G.N. Sitin, a well-known psychotherapist and the author and founder of self-healing methodology, - a person inspired by the idea of improving health surpasses all elements of nature, all opposing forces and maintains a healthy lifestyle despite all the adverse effects. A person inspired by the desire and idea to be healthy overcomes all diseases with his own strength and becomes a truly invincible, strong, healthy person" [1]. Health, organization of a healthy lifestyle can be linked to socio-cultural conditions. Physical education, sports science, and the methodology of forming a healthy lifestyle are closely related to legal mechanisms and legal documents. First of all, this is expressed in the international normative documents on human rights and the Constitutions of the states.

The Universal Declaration of Human Rights states that "everyone has the right to a standard of living, including food, clothing, housing, medical care and necessary social services necessary for the health and well-being of himself and his family. Education should be directed to the full development of the human personality and increasing respect for human rights and fundamental freedoms" [2]. All constitutions support this and guarantee the creation of necessary conditions for ensuring the necessary standard of living, social security and health of citizens. Such legal norms are very necessary for the transition to a new, modernized stage of society's development.

For example, at the first stage of the transition to market relations, cultural and sports institutions, stadiums and swimming pools were sold to entrepreneurs. Sportsmen get involved in criminal gangs or become personal bodyguards of lawbreakers. There have also been cases where criminal groups

relied on the support of famous athletes and threatened the authorities with their help. This sad experience shows that the

state, while helping to develop physical education and culture, cannot forget to direct this factor to the development of the society and to ensure the health of the population. For this, a certain legal-normative base should be created.

The methodological foundations of physical culture were created and revealed, based on the characteristics and laws of science, effective means, methods and mechanisms for strengthening the health of the population and promoting a healthy lifestyle were developed. Analyzing the scientific and methodological foundations of physical culture, observing the scientific researches and experiments on the formation of skills for organizing a healthy lifestyle show that today scientific thought is facing a new, unusual reality. This is primarily due to the conditions of the pandemic that began in 2020. In addition, scientists say that today there are no clear organizational and technological mechanisms and methods of strengthening the health of the population and individuals in the use of socio-pedagogical tools, and there are no professional standards for pedagogues in the field of health protection. The motivation of teachers to protect and strengthen health is very low [3]. Therefore, scientists come to the fundamental conclusion that the formation of health should be considered as a purposeful and systematic pedagogical effect, an interaction between the subject and the object, a process of creative cooperation. The essence of this process is organization according to the didactic and axiological foundations of health and healthy lifestyle. This approach encourages to consider the phenomenon of health, the formation of a healthy lifestyle as an integral part of the spiritual development of a person, the processes of ontogenesis and phylogenesis [4].

Knowledge of personal psychology, motivations, interests and desires plays an important role in strengthening and ensuring health. Medical psychology studies them based on the morphofunctional characteristics of the human organism [5]. In this approach, attention is paid to socio-philosophical problems that often require experiments, such as the morphofunctional characteristics of the organism, the response of each organ to one or another load, suitability or not for physical activity. The fact is that these socio-medical and medical-psychological observations consider the phenomenon of health as a necessary attribute of the formation of a person, the result of the performance of one or another action function of each organ, an



expression. Such scientific experimental research in the theory of physical culture helps to understand how important and necessary health is for every organ, every muscle, bone, and vein. It is a pity that there are no studies on such urgent socio-philosophical problems in Uzbekistan.

Social-pedagogical and philosophical-medical sciences dealing with issues of health promotion often focus on methodological aspects. In this regard, they cooperate with the methodology of physical culture. However, they are distinguished by their rise from the level of methodology to general theoretical generalization. Although this is not yet a socio-philosophical research, it is a focused attempt to determine the socio-philosophical issues of health.

Socio-pedagogy includes the study of healthy lifestyle skills, methods of physical culture. At the same time, he focuses on strengthening the role of the educator by activating the individual. The participation of the individual in physical training is a criterion of the effectiveness of the methodological foundations of the organization of physical education. These indicators are the product of the influence of biomedical, biosocial, social axiological, psychological, therapeutic and cultural factors. Social pedagogy cannot ignore these factors. Each of these factors helps to understand that health is a necessary and structural part of human existence. But social pedagogy and theoretical concepts related to it focus on turning the individual himself into a subject of physical education, that is, on activating the psychophysiological capabilities of the individual. For him, it is important that a person organizes himself and strives to reveal his psychophysiological reserves, that is, self-activation. Solving this problem through new pedtechnology and innovative approaches is considered as a modern approach. Therefore, in social pedagogical practice, health is often interpreted as the formation of positive attitudes (motives) to a healthy lifestyle, health culture, and health as a value. Interpretations such as "Culture of health", "Formation of a healthy lifestyle" are often used in social pedagogy, and they are mentioned as scientific problems [6]. This is not for nothing, because no matter how much the phenomenon of health is related to the methodology, it needs theoretical generalizations and certain ideological concepts from the point of view of science.

In recent years, the problems of raising a healthy generation have been extensively researched in the scientific and pedagogical literature, because the changes in the educational process, the introduction of distance learning technology, and the widening scope of using the Internet and interactive mechanisms encourage new solutions to the problems. Distance education and interactive mechanisms raise social pedagogy methodology to a new level. Audiovisual devices make the educational process more interesting, reliable and effective, help to determine the general direction of health promotion. At the same time, they require clarification of internal components of health promotion, development of concepts corresponding to each component. It is observed that the study of socio-educational, psychological and cognitive aspects of the problem is becoming an interesting direction in modern research.

REFERENCES

1. Ситин Г.Н. Животворящая сила. Помоги себе сам. - Новосибирск: Предприятие "Вен Мер", 1994. С. 91-93
2. Права человека. Международный билль о правах человека. - Тошкент: Адолат, 1992. С.15.
3. Формирование здоровья детей и подростков в системе непрерывного образования: коллективная научная монография. Под ред. Т.Н.Ле-ван. - Новосибирск: Изд. Сиб АК, 2013. С.9-10
4. Шедрина А.Г. Онтогенез и теория здоровья: Методические аспекты. - Новосибирск: НГУ, 1999. С.12-13.
5. Пономарева В.В. Спортивная медицина. Учебное пособие. - Москва: ГЭОСТАР Медия, 2006; Медицина физического воспитания и спорта в формировании гармонично развитого поколения. - Тошкент: Фан, 2011
6. Гессен С.И. Основы педагогики: введение в прикладную философию. Учебное пособие. - Москва: Школа Пресс, 1995; Григоренко В.Г. Теоретические и методические аспекты оптимизации профессиональной подготовки учителя физической культуры. - Москва: Изд. ФСИ России, 1993
7. Olloyorov, Q., & Davlatnazarov, D. (2023). XORAZM DOSTONLARI TILIDA UCHRAYDIGAN REAL VA NOREAL SHAXS NOMLARI. SCHOLAR, 1(2), 104-110.
8. Davlatnazar Ro'zmatboy o'g' D., & Olloyorov, Q. M. (2023). XORAZM DOSTONLARI TILIDA UCHRAYDIGAN REAL VA NOREAL SHAXS NOMLARI. TA'LIM VA RIVOJLANISH TAHLILI ONLAYN ILMYI JURNALI, 3(2), 208-213
9. Olloyorov, Q. M. (2018). Onomastics of Khorezm epics (based on the series of epics "Gorogly" and "Oshiqnoma"). Author's abstract of the dissertation of Doctor of Philosophy (PhD) in philological sciences. Samarkand, 46.
10. qizi Madiyoro'va, Valida Quvondiq. "REPRESENTATION OF ARCHAISMS IN ARTISTIC TRANSLATION." Builders Of The Future 1.01 (2023): 66-69.
11. Madiyoro'va V. Q. Analysis of archaic words in the structure of english and uzbek proverbs //EPRA International Journal of Research and Development (IJRD). – 2021. – №. 6. – С. 360-362.
12. Madiyoro'va V. Q., Djumabaeva J. SPECIFIC FEATURES OF UZBEK AND ENGLISH FOLKLORE GENRES //Велес. – 2020. – №. 1-1. – С. 160-164. Khadzhiyeva M., Saurov R., Madiyoro'va V. Role and dastan value in education of youth of Uzbekistan //SCOPE ACADEMIC HOUSE B&M PUBLISHING. – 2017. – С. 42.
13. Madiyoro'va V. Q. Analysis of archaic words in the structure of english and uzbek proverbs //EPRA International Journal of Research and Development (IJRD). – 2021. – №. 6. – С. 360-362.
14. Khajiyeva M. S. et al. The Role of the Tolerance in Society and its Philosophical Interpretation //Young Scientist USA. – 2015. – С. 163-165.
15. Khajiyeva M. S. et al. OPINIONS REGARDING THE FORMATION OF FAMILY INSTITUTION AND CHILD UPBRINGING IN "AVESTO" //INTERNATIONAL SCIENTIFIC REVIEW OF THE PROBLEMS OF PHILISOPHY, PSYCHOLOGY AND PEDAGOGY. – 2019. – С. 5-9.
16. Khajiyeva M. S., Urazmetov M. T., Akmanova S. A. The Specific Features of Uzbek People's Ethnoculture //Young Scientist USA. – 2014. – С. 159-161.
17. Sultanovna K. M. THE CONCEPT OF GLOBALIZATION AND ITS PHILOSOPHICAL INTERPRETATION //EPRA



International Journal of Multidisciplinary Research (IJMR).
– 2022. – Т. 8. – №. 3. – С. 134-138.

18. Sultonov F., Saurov R. *CORRUPTION IS A DANGEROUS ENEMY OF THE STATE DEVELOPMENT* // *Интернаука*. – 2021. – №. 16-4. – С. 8-9.
19. Sanjar S., Matluba K., Ravshonbek S. *Importance of social capital and horizontal relations in the development of society* // *The Newman in Foreign policy*. – 2017. – №. 35 (79). – С. 33-35.
20. Ugli S. R. R. *Corruption, its causes and factors* // *Достижения науки и образования*. – 2020. – №. 5 (59). – С. 35-36.
21. Saurov R. R. *THE CONCEPT OF CORRUPTION, ITS CONTENTS AND METHODS*.



BODY MAPPING IN REPRODUCTIVE HEALTH RESEARCH

Pebam Krishnakumari

Department of Anthropology, Shree Shree Gourgobind Girls' College, Imphal East, 795010, India

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ABSTRACT

Medical Anthropologist are always concerned with the different ways in which people within any culture gain, hold and use knowledge about bodily processes to make health policy and programmes more responsive to the felt needs of the people and to gain access to such knowledge a researcher need a competent technique. The most efficient is the body mapping where one can use it as a technique to gather information and concomitantly it can serve as an entry point towards the explanatory models which people had. This paper will discuss on the use of body mapping technique in reproductive health research.

KEYWORDS: Menstruation, Childbirth, Ethno anatomy,

BODY MAPPING AS RESEARCH TOOL

Body maps or body-mapping is both a therapeutic technique and research tool that prioritizes the body as a way of exploring knowledge and understanding experience. It falls under the umbrella of participatory qualitative research. It is often used to complement traditional qualitative data collection techniques such as interviews and focus groups. The approach is rooted in a therapeutic process known as narrative therapy (Santen 2014). Narrative therapy seeks to conceptualize psychological problems as distinct from the individual person and assumes that patients have many skills, areas of competency, assumptions, values, beliefs, and abilities that may be harnessed to help them ameliorate the impact their problems have on their lives (Morgan 2000). The combination of body maps and narrative therapy gives rise to a creative therapeutic technique that allows for the expression of individual experience through visual art. Life-size body drawings are either drawn or painted to visually depict aspects of people's lives, their bodies, and the world they inhabit (Gastaldo et al. 2012). Body mapping is a visceral approach to data collection and elicits data pertaining to the emotions of the body (Sweet and Escalante 2015).

In the early 2000s in South Africa, body mapping was used among women living with HIV (Braque 2008; Mac Gregor 2009). A clinical psychologist, Jonathan Morgan, in collaboration with the AIDS and Society Research Unit at the University of Cape Town, used the technique as part of the Memory Box Project, which was a community outreach program organized through the AIDS and Society Research Unit (Morgan 2003).

Increasingly, body mapping has been used as a research method and has been applied creatively and constructively across various academic disciplines (Brett-MacLean 2009; MacGregor 2009; Gastaldo et al. 2012; Griffin 2014). For example, in Canada, Crawford (2010) used body mapping as a therapeutic tool for people with alexithymia or somatic issues following a trauma. Also in Canada, Denise Gastaldo et al.

(2012) used body mapping as a research tool to document health problems and migration experiences of undocumented laborers in Toronto. In both studies, body mapping was used as an appropriate method as it provided a platform for participants to engage with researchers. Body mapping is a relatively recent methodological innovation that remains underutilized in both therapeutic and research settings. Visual-based methods provide attractive ways to communicate human experiences to the public. (Bronwyne Coetzee, Rizwana Roomaney, Nicola Willis, and Ashraf Kagee, 2019).

IN REPRODUCTIVE HEALTH RESEARCH

Body maps can be used for gaining access to people's perceptions of their bodies and can be the point of entry towards the explanatory models which people had regarding their reproductive health. It provides a guide to women's perceptions of their bodies and a way of locating explanations. Mac Cormack and Draper used this technique in Jamaica to explore women's perception of sexuality, human reproduction and contraception (1987: 143). Body mapping was used in studies in Zimbabwe, Sierra Leone and India to explore women's perception of the reproductive process (Cornwall 1992: 69, Jordan 1989: 925, Tolly & Bentley 1992). Cornwall (1992: 69), who did research among women in Zimbabwe stated:

Body mapping can be used to explore people's own representation of their bodies as a starting point from which to explore particular medical issues. Body mapping can facilitate a less directive interview style than would otherwise be possible.

A culture's perception of body and bodily processes is constructed in terms of folk model. All system of knowledge are socially constructed. Folk biology as an exceptional resilience and power over people's behavior and understandings since it does not seem to be socially constructed to local participants (Jeffery et al, 1988). It is of interest to a Medical Anthropologist of how people in different cultures



perceive the body and bodily processes. They are always concerned with the different ways in which people within any culture or community gain, hold and use knowledge about bodily processes and to make health policy and programmes more responsive to the expectation and felt needs of the people, it is necessary to understand how people perceive their body and how they interpret the process. Obtaining people's own version of anatomy and physiology is another important issue as it is often difficult to access such information from verbal description. It is the locally perceived processes and those beliefs and practices that affect women's reproductive health status and thus, exploring how women perceive different organs of their body, their location, interrelationships of different parts of the body and their functioning remains important. To gain knowledge of their beliefs about their body (ethno-anatomy) and body functions (ethno-physiology), the most appropriate tool is body mapping. Body mapping provides a strategy in facilitating communication and is a device which can be used as part of an approach which aims to find ways of improving access to appropriate information. This paper describes the experience of body mapping exercise of two categories of women in Andro, namely, trained traditional birth attendants (*maibi*) and lay women's who never attended any delivery. It will highlight how body mapping technique can be used as a new approach to gather information and to explore and compare the perception of these two categories of women regarding how menstruation occur on monthly basis, how a baby is conceived, the developmental stages of the baby when it is inside the womb.

Ethno anatomy and ethno physiology of women was explored with the help of body maps – diagrams which represent part of the body, drawn by the women. Body – mapping was used to sketch out the graphic representation of the ethno-anatomical and ethno-physiological models. This technique provides a visual interpretation of how women perceive their body and how it functions. Presentation of information visually can help in clarifying ambiguities and provide a rapid shared point of reference. People's own perception and visual presentation of their body and bodily processes can be used as a point of initiation to explore women's perception on menstruation, conception and pregnancy. Women describe their body parts as they feel and experience them. Moreover they also visualize some of the body parts while dissecting household animals for food, while talking with peers and older female relatives. Figure 1 shows the body map drawn by women in Andro, Figure 2 is the body map drawn by the traditional birth attendant Figure 3 points out the close up of reproductive parts drawn by the traditional birth attendant. As verbal description of the body by the women is difficult to access so, body mapping was used since it can help in gaining access to people's perception of their bodies and to the explanatory models. Ideas and issues which are hard to identify can be easily accessed and explored using this method. On probing and questioning, women were able to give better insights of their bodies and describe them in detail. The figures drawn by typical village women and traditional birth attendants serve as a guide to the discussion of findings of ethno-anatomy and ethno-physiology in their socio-cultural

context. It was found that traditional birth attendants were more aware of the physiological processes than an ordinary woman.

BODY MAPPING SESSION

The body mapping session was conducted with two categories of women in Andro – traditional birth attendant who conduct delivery and lay women who had never conducted a delivery. The session consisted of two traditional birth attendants who had undergone a training course conducted by the modern health services and eight women who had never assisted or attended a delivery. All the women who participated in the exercise were married and aged between 35 and 50 years. The outline of a women's body was drawn and each women was asked about the different parts of the body that they have identified and their functions. They mocked at the outline which was drawn stating that it looked like a male contour.

The women were reluctant when they were asked to draw the body parts and female reproductive system, worried that their drawing would be bad or incorrect. However, after much cajoling and after explaining to them the essence of the whole exercise they gradually give in and manage to locate some of the body parts within the outline given thus providing a vivid map of the complex human body. This whole process serves as the catalyst for conversation on reproductive organ. The women were asked to name the parts of body that they have drawn and explain it. Thus, the pictographically representation of the body parts facilitates further discussion with the women. Using the diagram as the point of reference, beliefs about the different aspects of the reproductive process could be discussed in detail. The complex nature of women's perception of reproduction would have been very difficult to obtain by any other means.

TECHNIQUE IN USE

The body maps revealed the differences in perception between women who had never attended delivery and those who received training as well as attended delivery. It was found that traditional birth attendants were more aware of the physiological processes than an ordinary woman. They gave an elaborate presentation of the body with the nerves, lungs, ribs, stomach etc. of the general body parts and even the reproductive section are also drawn in detail with a pipe entering the womb depicting that it is through this tube that mother supplies food to the baby. Lay women drew without much elaboration and with less body parts compared to the traditional birth attendant.

During the discussion, Traditional birth attendant describes how the menstrual blood comes out of the womb every month. Coming of monthly period (*thagi khongkap lakpa*) or polluted (*mangba*) were the local terms used for menstruation and were justified by its occurrence once a month and segregation of women during this period. Flowery terms like coming of flower (*lei lakpa*) are also used as metaphor for menstruation. Menstruation is used allegorical to the blooming of flower. In the diagram, the menstrual sac is in the shape of a blooming flower which lies inside the womb.



In the verbose of a traditional birth attendant (*maibi*)

“Menstrual blood comes out from a lotus shaped sac which is located inside the womb where the baby stays. It blooms once in a month. Every month when it blooms blood comes out”.

Menarche symbolized the attainment of physical maturity and ability to bear children. A young girl evolves into a stage of an unmarried maiden locally termed as *leisabi* (who moves like a flower) with the onset of menstruation. Once a girl attains a

leishabi status certain restrictions are imposed on her so as to keep reminding of her reproductive power which should be contained till marriage. So, during the liminal period between menarche and marriage she is carefully guarded by her natal or patrilineal male kins. As the cliché goes “whether a petal falls on a thorn or a thorn falls on a petal, it is the petal which is hurt”, here, petal is coterminous with unmarried women and thorn with male. This drives home the delicacy and onus of boundary maintenance by a women after she attain the status of *leishabi*.

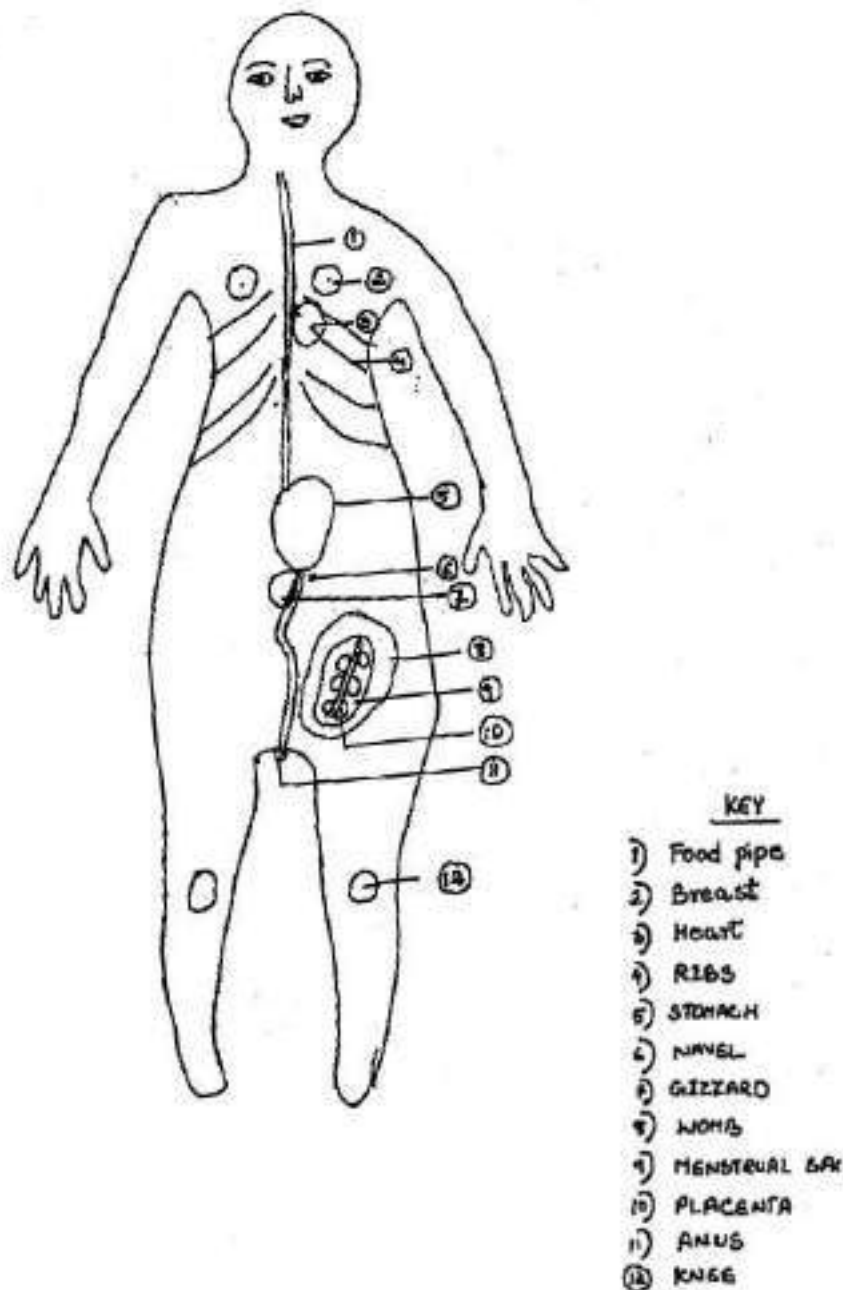


Figure 1: Body Map (Village Women)

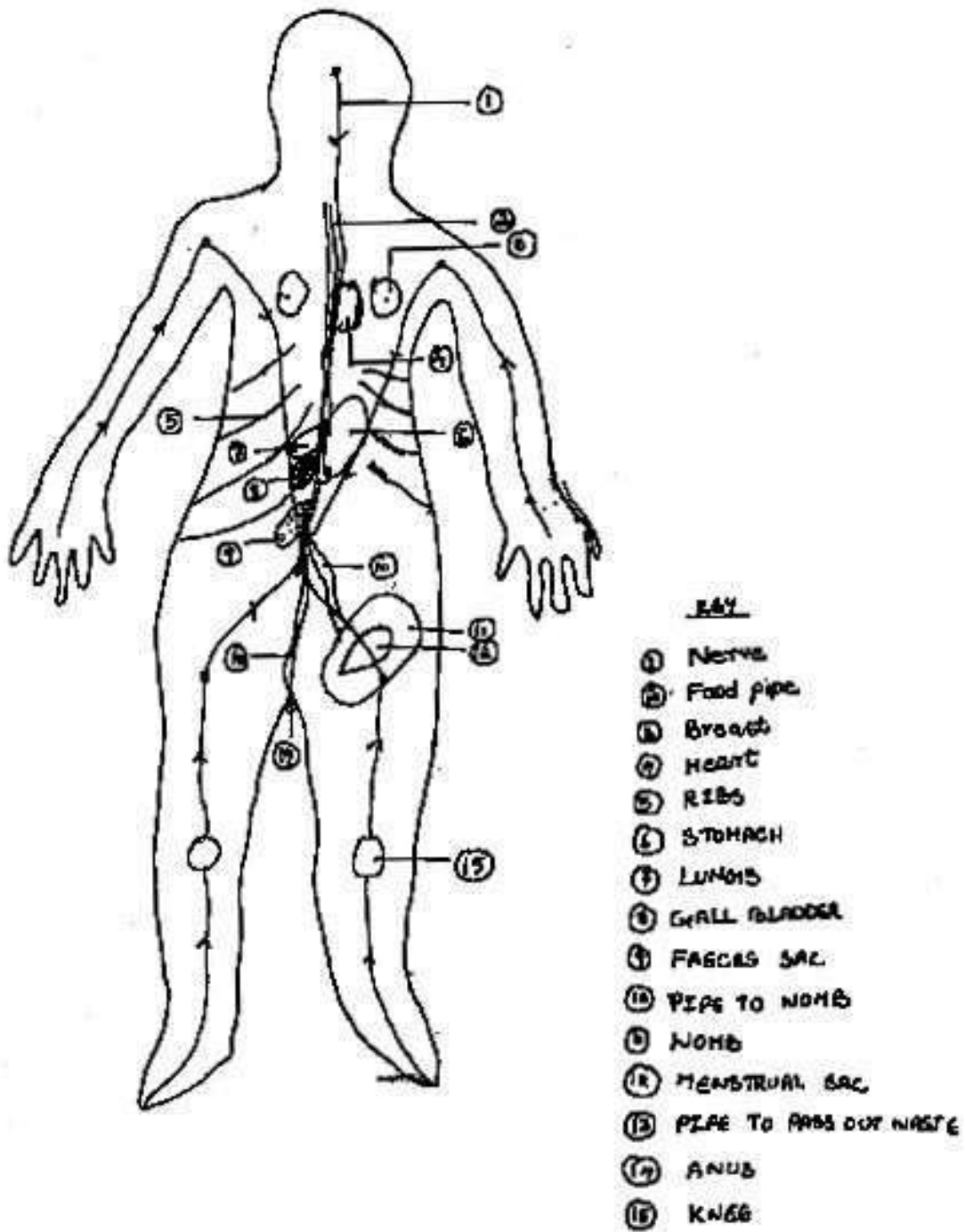


Figure 2: Body Map (Traditional Birth Attendant)

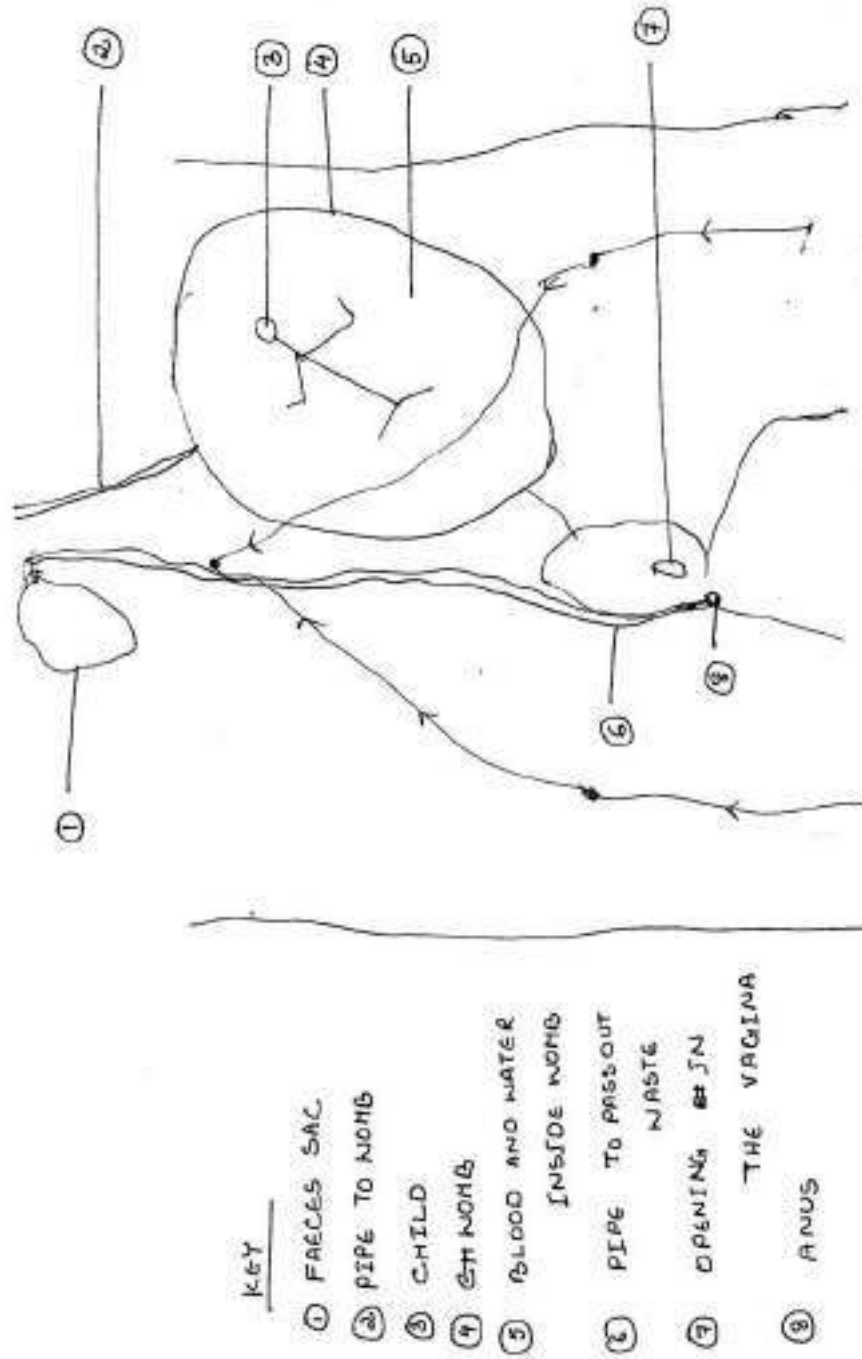


Figure 3: Close up of Women's Reproductive Parts on Body Map. (Traditional Birth Attendant)

There is difference in terms of perception between the traditional birth attendant and lay women towards conception. Cessation of menstruation to a woman marks her pregnancy. According to traditional birth attendant (*maibi*) in Andro the women's blood which comes out during menstruation and

male's germ (*mahik*) come together to form a child. However, according to village women there are many placentas inside the womb of a woman. The male germ (*mahik*) will enter inside one of the many placentas lying inside the womb of the woman and form a child. If the germ (*mahik*) enters on the right side then



one will give birth to a male child and if it enters on the left side it will give birth to a female child. Though the perception of formation of fetus is different between the traditional birth attendant and lay women, the common thing that they held is that both male and female are involved in the formation of the fetus and it is the germ (*mahik*) of the male that helps in the formation.

In the verbose of one traditional birth attendant (*maibi*) in Andro:

“Man’s germ (*mahik*) enters the woman’s body and goes to the womb where it meets the woman’s blood and baby is formed.”

The traditional birth attendant (*maibi*) accounts during discussion:

In the first month of pregnancy, it is just a clot of blood without any eyes or nose or any defined body parts. Life enters the baby only on the third month. Then, its body parts begin to develop. Female fetus moves earlier than the male, a male baby are lodged on the woman’s right side while a female baby resides on the left side. By about seven months, the baby is fully formed but spends the rest of the pregnancy growing and gaining strength drinking blood and water inside the womb. The developing fetus takes its strength from the mother’s retained menstrual blood. During the body mapping session, the traditional birth attendant drew the baby with hands and feet lying inside the womb.

Thus, the Andro women’s perception on menstruation, conception and growth of the baby inside the womb was gathered with the help of body mapping technique. The technique itself was useful in gathering information, concomitantly; it serves as a stimulant for further probing and discussion, thus, providing a gateway to a reproductive health researcher to gather maximum information with minimal time.

CONCLUSION

Body mapping provide a guide to women’s perception of their body and body processes and a way of locating explanations. It is an efficient and enjoyable way to stimulate discussion on ethno anatomy and ethno physiology. With the aid of such technique it was possible to collect detailed information in short duration. It helps to unveil women’s perception on menstruation, conception and growth of the baby inside the womb of the mother. To surmise, this paper describes the ways in which body mapping helps women in Andro in presenting how they perceive their bodies and body function and further stimulating them for discussions related to menstruation, conception and the growth of fetus inside the womb. Women describe their body parts as they feel and experience them. The body parts which women described were those which could be physically felt from outside and through their own experience, be it menstruation, pregnancy, growth of the fetus inside the womb. Moreover they also visualize some of the body parts while dissecting household animals for food while talking with peers and older female relatives. By gaining knowledge about women’s perception about a variety of physiological processes with the aid of body mapping technique it can be an asset in

improving health care and responsive to the felt needs of the service user. Moreover, it can be used as a training tool for community health worker and as building block for health education. This technique is an efficient method to gather information about women’s perception on reproductive health and simultaneously serves as a catalyst for probing and discussion, thus providing valuable information to a researcher in short span of time.

REFERENCE

1. Braque G. 2008. *The moon, the stars and a scar: body mapping stories of women living with HIV/AIDS*. *Border Cross Mag Arts*. 27(1):58–65.
2. Brett-Maclean P. 2009. *Body mapping: embodying the self living with HIV/AIDS*. *CMAJ*. 180(7):740–1.
3. Cornwall, A. 1992. *Body mapping in Health*. *RRA Notes* 16:69–76
4. Gastaldo D, Magalhaes L, Carrasco C, Davy C. 2012. *Body-map story telling as research: Methodological considerations for telling the stories of undocumented workers through body mapping*. Toronto. Available at: http://www.migrationhealth.ca/sites/default/files/Body-map_storytelling_as_research_HQ.pdf. Accessed 12 July 2015.
5. Griffin SM. 2014. *Meeting musical experience in the eye: resonant work by teacher candidates through body mapping*. *Visions of Research in Music Education*. Retrieved from <http://www.rider.edu/~vrme>
6. Jeffery, P., Jeffery, R., Lyon, A. (1989). *Labour Pains and Labour Power. Women and Childbearing in India*. Zed Publishers. London.
7. Jordan, B. 1989. *Cosmopolitan obstetrics: Some insights from the training of traditional midwives*. *Social Science & Medicine* 28(9): 925-44
8. Mac Cormack, C.P and A. Draper. 1987. *Social and cognitive aspects of female sexuality in Jamaica*. In P. Caplan (ed.) *The cultural construction of sexuality*. London and New York: Tavistock, pp. 143-65.
9. Mac Gregor HN. 2009. *Mapping the body: tracing the personal and the political dimensions of HIV/AIDS in khayelitsha, South Africa*. *Anthropol Med*. 16(1):85–95.
10. Morgan A. 2000. *What is narrative therapy. An easy-to-read introduction*. Adelaide: Dulwich Centre Publications: 11–32.
11. Morgan J. 2003. *The Bambanani women’s group. Long life: positive HIV stories*. Cape Twon: Double Storey Books.
12. Santen B. 2014. *Into the fear-factory: connecting with the traumatic core*. *Person-Centered Exp Psychother*. 13(2):75–93.
13. Sweet EL, Ortiz Escalante S. 2015. *Bringing bodies into planning: visceral methods, fear and gender violence*. *Urban Stud*. 52(10):1826–45.
14. Tolly, E & M Bently. 1992. *Participatory method for research on women’s reproductive health*. Workshop report, Karnataka, India.



EFFICACY OF CO-TEACHING ON LEARNERS' PERFORMANCE IN ENGLISH LANGUAGE IN INCLUSIVE EDUCATION IN KADUNA STATE OF NIGERIA

Dr. Bila G. Jamila, Assoc. Prof. Sa'ad, M. Tajuddeen, Tauna Juliet

*Department of Special Needs Education & Rehabilitation Sciences, College of Technical and Vocational Education
Kaduna Polytechnic, Nigeria*

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ABSTRACT

This study is premised on investigating the efficacy of co-teaching on learners' performance in English language in inclusive education in Kaduna state of Nigeria. Co-teaching is a delivery instruction method where "two or more professionals blend group of students in a single physical space". Co-teaching appeared in the literature in the early 1990s as a way to better address the needs of special education students. There are several different models of co-teaching which include one teaches, one observes, one teaches, one assist, station teaching, parallel teaching, supplementary teaching, alternative or differentiated teaching, and team teaching. Co-teaching also has a lot of benefits for the students or learners as well as the teachers. Inclusive education is a philosophy that advocates equal opportunities for all children regardless of whether they have a disability or not. It is primarily about restructuring school culture, policy and practice so that it responds to the diversity of students in the locality. It has its advantages and disadvantages. This study focused on the efficacy of co-teaching on learners' performance in English language in inclusive education at Nabeela Academy in Kaduna, Nigeria. Experimental design was used to generate data for analysis. The study constituted of two groups, an experimental group (x) and a control group (-x) of JSS III students. They were exposed to a pretest and a posttest in English which was the instrument used for data collection. Simple percentage, mean and standard deviation was used to analyze the research questions and independent sample test was used to test the hypothesis. From the analysis of data, the findings revealed that, there was no significant difference in the pretest scores of learners and the posttest scores after being exposed to co-teaching. The findings also showed that the correlation and t cannot be computed because the sum of case weights is less than or equal to 1. This imply that because there was only student in the control group, a male, the statistical tool used in analysis could not analyze the data because the value was just 1. However, the result showed a mean difference of 7.500. This means that the female learners who constituted the experimental group (x) performed far better than the male in the control group both in the pretest and posttest. There was no statistical data to measure the collaborative performance of teachers through co-teaching on English language. However, the difference in the mean score of the student in control and that of the experimental groups reveals that interaction of teachers' collaboration in the experimental group affected the students positively.

Based on the finding of this study, it concluded and recommended that co-teaching has a more positive impact on learners' than solo teaching (one teacher in the class). The study also revealed that the interaction between gender and co-teaching is positive. It was recommended that teachers, when properly equipped are able to implement the co-teaching model thereby increasing the academic performance of the learners.

INTRODUCTION

English has become a global lingua franca and is widely perceived as a prerequisite for success in many areas of life. However, language learners with special educational needs may find that they are disadvantaged by the way their learning environment interacts with their individual differences. Such language learners include both 'neurodiverse' learners (those with specific learning difficulties) and those who experience Social, Emotional, and Behavioural Difficulties (SEBD). An attainment gap can develop between these learners and their peers which only increases during the school years. Bridging this attainment gap is at the core of the inclusion agenda developed by international organizations such as UNESCO and the OECD to promote the implementation of inclusive

educational systems in which all learners are actively engaged in learning and can reach their potential.

Learning an additional language can present significant challenges to learners with special educational needs. Consequently, the English language teacher may even be the first to notice indicators of neurodiversity or SEBD. At the same time, the English language classroom can provide the ideal environment for addressing these challenges. Through its long association with learner-centred communicative methodologies, the English language classroom offers many opportunities to implement inclusive practices which allow all learners to participate fully and achieve success. This unique combination of challenges and opportunities compels the



English language teaching community to lead in developing and implementing inclusive practices.

The implementation of inclusive practices requires support and leadership at an institutional level. All school staff need support for the collaboration and cooperation involved in developing an inclusive learning environment. School management also has a vital role to play in providing continuous professional development for teachers in inclusive practices. Equipped to establish an inclusive ethos in their classes, teachers can make small adjustments to classroom practice and learning materials which meet the needs of all their learners.

The drive towards inclusive education practice predisposes Special and General Education teachers to experience increased demands on how instruction is taught, increased content to be taught, and increased classroom populations containing more diverse learners with learning difficulties. An inclusive classroom setting consists of diverse range of learners; from gifted learners to learners with disabilities, varied background and different socio-economic status with a common goal to learn. Inclusion is mandated along the premise that all learners can learn and are expected to meet the same academic standards (Johnson, 2012).

From the foregoing, the need for this study becomes apt, considering the fact that with inclusive education, classrooms are made accessible to all learners. As such, the utilization of instructional approaches effective in meeting the needs of learners with diversity is critical. Co-teaching is most recommended. This explains the rationale for this study to determine the efficacy of Co-teaching method on learners' performance in core subject (English Language) by learners with special needs in Nabeelah Academy in Kaduna (North West).

OBJECTIVES OF THE STUDY

The objectives of this study are to determine the effectiveness of co-teaching as a method of instructional delivery on learners' performance in English Language in an inclusive education setting in Kaduna. Specifically, the study intends to determine the:

- significant differences in academic scores in English Language among group of learners who were exposed to co-teaching and those in control group without co-teaching.
- interaction effect of gender and co-teaching on the performance of English language to learners with special needs in Kaduna in an inclusive school.
- interaction effect of team teachers' qualification to co-teaching on the teaching of English language to students with special needs in Kaduna.

RESEARCH QUESTIONS

This study is premised on the following research questions:

- Are there significant differences in the academic scores in English Language among group of learners who were exposed to co-teaching and control group?

- What is the interaction effect of gender and co-teaching on the performance in core subjects – English Language to learners with special needs in Kaduna?
- What is the interaction effect of teacher qualification and co-teaching on the teaching of core subjects to students with special needs in Kaduna?

HYPOTHESES

The following null hypotheses are formulated to guide the study:

- H₀₁:** There is no significant difference in the academic scores of students who were exposed to co-teaching in English Language and those not exposed.
- H₀₂:** There is no significant gender interaction influence on the co-teaching of core subjects-English language to students with special needs in Kaduna town.

LITERATURE REVIEW

The concept of Inclusive Education

Inclusive education setting is regarded as where students with special needs are educated along with their non-disable peers have the highest constructive impact on their academic as well as social skills. In inclusive education environments, to the aim is to increase the efficiency of the students with special needs and their peers in the courses by making adaptations to the teaching materials and instruction Inclusive education environments aim to increase the efficiency of both the students with special needs and their peers who don't have special needs by adapting teaching materials and teaching methods (York *et al.*, 1992; Tichenor *et al.*, 2000; Magiera *et al.*, 2005; Akçamete and Gökbulut, 2018). The impact of delivering special education based on a multi-disciplinary approach is important. This effect can be manifested by class teachers acting in cooperation with field experts, school management, other teachers and / or families to meet the possible needs and to solve the problems that may arise during inclusive applications. The quality of communication and interaction with such fundamental stakeholders of inclusive education plays an effective role in the academic success of inclusion and the satisfaction of both teachers and students The quality of communication and interaction with the primary stakeholders of inclusive education plays an active role both in achieving success and in making teachers and students happy (Mulholland and O'Connor, 2016; Pancsofar and Petroff, 2016; Shin *et al.*, 2016; Jurkowski and Müller, 2018).

Without inclusive and equitable education for all, countries will not succeed in achieving gender equality and breaking the cycle of poverty that is leaving millions of children, youth and adults behind. – UNESCO

Primary goals of Inclusive Education

- To bring out the best in the child, without alienating him/her.
- To provide the child with a warm and enriched environment.
- To assist the child in developing basic skills to cope with day-to-day challenges.
- To develop skills that will enable the child to become self-reliant.

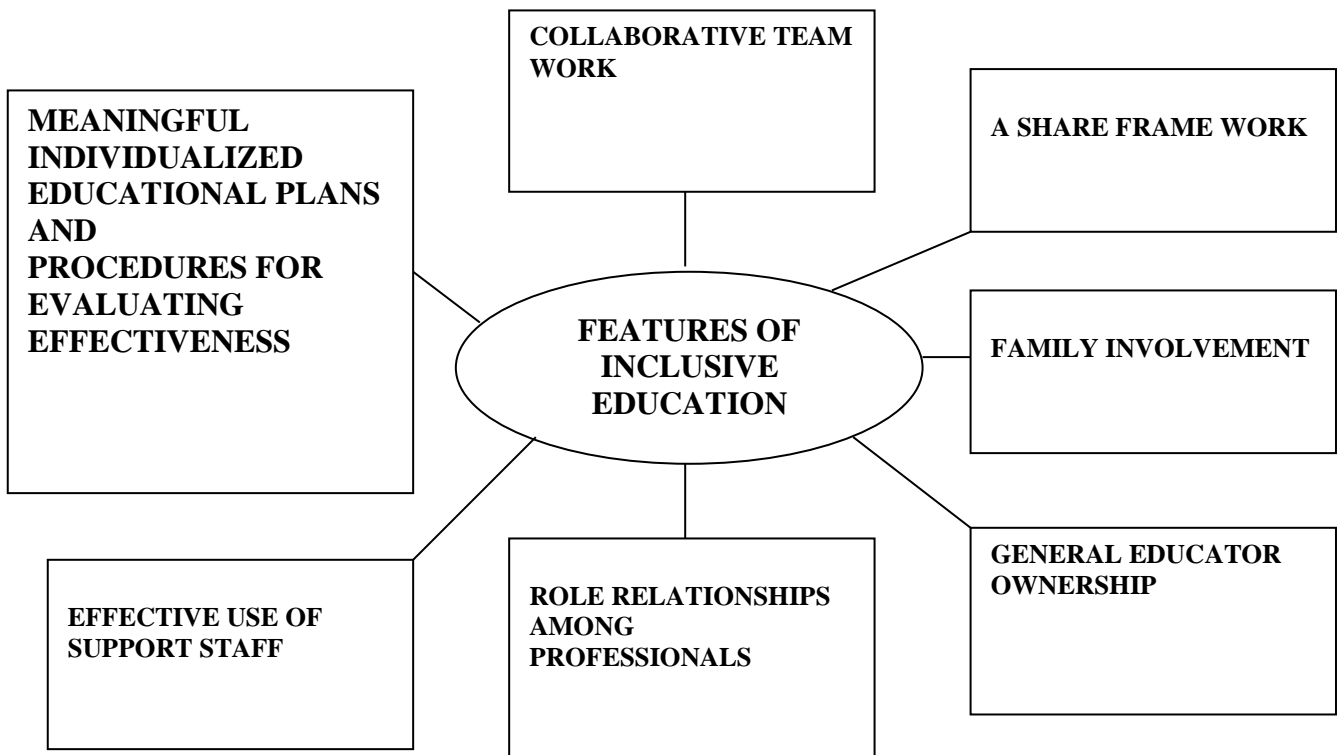
- To help the child develop a desirable attitude towards society.

Essential Components of Inclusive Education

Teacher training and school leadership are essential components for successful implementation of inclusive education in the classroom. There is a need to include a programme on disability in training programmes for regular teachers. This is necessary to help teachers to be sensitive to the specific needs of children with disabilities and empower them to identify and deal with their peculiar disabilities.

This will include provision of effective educational services, assistive devices, support services, age-appropriate classes, barrier free environment, availability of neighbourhood school and involvement, vocational training, sports and cultural activities should be made a part of school curriculum. For meaningful inclusion of children with disabilities, all teachers shall be oriented to deal with such children with disability, in a classroom situation (Sa'ad, & Doki, 2017).

Figure 1: Features of Inclusive Educational Practice



Source: Sa'ad & Bila (2014) Inclusive Education Facilitators' Manual

Co-Teaching (Defined)

Co-teaching is defined as “two or more professionals delivering substantive instruction to a diverse blended group of students in a single physical space” (Cook & Friend, 1995, p. 14). Co-teaching appeared in the literature in the early 1990s as a way to better address the needs of special education students. There are several different models of co-teaching that were developed by St. Cloud University researchers focusing on the student teaching experience (St. Cloud State University, 2014).

The seven strategies or models described below can be used in a variety of classroom situations to assist students of diverse learning backgrounds better.

1. **One teaches, one observes:** one teacher has primary responsibility While the other gathers specific observational information on Students or the (instructing) teacher.
2. **One Teach, One Assist:** One teacher has primary instructional responsibility while the other assists

students with their work, monitors behaviors, or corrects assignments.

3. **Station Teaching:** The co-teaching pair divides the instructional content into parts; each teacher instructs one of the groups, and groups then rotate or spend a designated amount of time at each station.
4. **Parallel Teaching:** Each teacher instructs half the students. The two teachers are addressing the same instructional material and presenting the material using the same teaching strategies.
5. **Supplemental Teaching:** Allows one teacher to work with students at their expected grade level, while the other teacher works with those students who need the information and/or materials re-taught, extended, or remediated.
6. **Alternative or Differentiated Teaching:** Each teacher provides two different approaches to teaching the same information. The learning



outcome is the same for all students; however, the avenue for getting there is different.

- Team Teaching:** Incorporates a well-planned, team-taught lessons, exhibiting an invisible flow of instruction with no prescribed division of authority. Both teachers are actively involved in the lesson.

Co-teaching is an ongoing process that forces teachers to communicate more intimately with each other and with their students. Different co-teaching methods can require different levels of planning (Cook, 2004).

Benefits of Co-Teaching

Several researchers have demonstrated the benefits of co-teaching for students. In a study conducted by Almon and Feng (2012) in an urban elementary school, co-teaching in the fourth-grade classroom had a more positive effect than solo teaching, as measured by student math achievement. The study analyzed the performance of two fourth grade classrooms, one with co-teaching instruction and the other with solo teaching instruction. Students increased their time on task engagement during co-taught lessons versus solo-taught lessons. In addition, St. Cloud University (2014) highlights several examples of the positive effects co-teaching has on students. For instance, these include: a reduction in the student/teacher ratio, an increase in instructional options for all students, an increase in diversity of instructional styles, and greater student engagement and student participation levels. Further, co-teaching models also appear to exhibit success when conducted with student teachers (Merk, Waggoner, & Carroll, 2013).

Much research has demonstrated that co-teaching benefits students. For instance, research done by Walsh (2012) shows that co-teaching can be considered a high-leverage strategy capable of accelerating achievement to close the achievement

gaps in reading and mathematics. The study emphasizes that students demonstrate more growth and increased academic performance when teachers are well trained in implementing co-teaching methods and well supported by the school administration.

As schools prepare to implement a co-teaching model and make selections for successful strategies, it would be helpful to know which co-teaching strategies work better than others in an inclusive classroom. However, sufficient research has not been conducted on the specific use and most effective co-teaching methods. It appears that the lack of data is due to the fact that co-teaching is not conducive to large-scale, standardized research (Hanover Research Report, 2012). Also, there is too much variance in the definitions of co-teaching and typically classes are not similar enough to provide meaningful comparative data. However, one study highlighted in the Hanover Research Report (2012) stated that a team of teachers faced with specific behavioral challenges alternately used parallel teaching, alternative teaching, station teaching, and team teaching. The co-teaching team has to decide when to utilize each strategy. Methods may be implemented independently or in combination, however the most prevalent form of co-teaching in schools is One Teach, One Assist.

METHODOLOGY

Research Design

The study employed quasi-experimental design. Specifically, pre-test-post-test-non-equivalent control group design was employed for the study. Quasi-experimental design according to Nworgu (2006) is an experiment where random assignment of study to both experimental and control group is not possible. The design is considered appropriate because the researchers in this study used intact classes as experimental and control groups respectively without randomization. The design is illustrated below:

Groups	Pretest	Treatment	Post-test
Experimental Group	O_1	X	O_2
Control Group	O_1	-X	O_2

Where:

O_1 = Pre-test administered to both experimental and control groups

O_2 = Post-test administered to both experimental and control groups

X = Treatment administered to experimental group

-X = No Treatment

Sample Size and Sampling Techniques

The population of the study comprised of all JSS 3 students of Nabeelah Academy, Kaduna, Nigeria. The sample size for this study was made up of all JSS 3 learners, purposively sampled where students in JSS 3A served as experimental group while those in JSS 3B constituted the control group. This is because the population was manageable.

Instruments for Data Collection

The instrument for data collection was JSS 3 English questions developed by an English teacher. A treatment package known as Co-Teaching of Core Subjects (CTCS) was developed by the researchers and used for treatment. The JSS 3 question papers was administered to all participants of the study both at pre-test and post-test stages.

Method of Data Analysis

Research questions were tested using mean and standard deviation, while Independent Sample Test was used in testing the hypotheses at 0.05 level of significance.

The pre-test scores were used as a covariate to the post-test scores. The Independent Sample Test served as a control for the initial differences across groups as well as increasing the



precision due to the extraneous variable thus reducing the error variance.

RESULTS

Question One: What is the significant difference in academic scores in English Language among group of learners who were exposed to co-teaching method?

Table 1: Mean and standard deviation on significant difference of Co-teaching in English Language between pretest and posttest scores of students with special needs in inclusive education.

Variable	Group	N	Mean	Std	Std. Err	Mean Difference
Co-teaching Scores	Pre-test	2	8.00	1.414	1.000	-1.500
	Post-test	2	9.500	2.121	1.500	

Std= Standard deviation

Source: SPSS output computation (2023)

Table 1 shows the pre-test mean of experimental group of co-teaching is 8.00 while that of the post-test is 9.50 which show that there is a mean increase of 1.500 at the post-test level after

the introduction of co-teaching method of English Language among students with special needs in inclusive education.

Table 2: Mean and standard deviation on significant difference between control group and those exposed to co-teaching among students with special needs in an inclusive education.

Variable	Group	N	Mean	Std	Std.Err	Mean Difference
Control	Post-test	1	2.00			-7.500
Co-teaching Scores						
Experiment	Post-test	2	9.50	2.121	1.500	

Std= Standard deviation

Source: SPSS output computation (2023)

Table 2 shows the post-test mean of the control group of co-teaching is 2.00 while that of the post-test experimental group is 9.50 which shows that there is a mean difference of 7.500 at the post-test level after the introduction of co-teaching method

of English Language among students with special needs in inclusive education. The standard deviation and the standard deviation did not reflect in the analysis because the value is just 1 (one student).

Question 2: How does interaction affect gender and co-teaching on performance in English language for learners with special needs in the inclusive classroom?

Table 3: Mean and standard deviation on significant difference between control (Male) group and those exposed to co-teaching (female) among students with special needs in an inclusive education.

Variable	Group	N	Mean	Std	Std.Err	Mean Difference
Control	Post-test	1	2.00			-7.500
Co-teaching Scores						
Experiment	Post-test	2	9.50	2.121	1.500	

Source: SPSS output computation (2023)

Table 3 shows the post-test mean of the control group (male) of co-teaching is 2.00 while that of the post-test experimental group (females) is 9.50 which show that there is a mean increase of 7.500 at the post-test level after the introduction of co-teaching method of English Language among students with special needs in inclusive education. There is However no value for standard deviation and standard deviation error because the value is less than 1 (only one male student in the control group)

There is no statistical data to measure the collaborative performance of teachers through co-teaching on English language. The demographic data however shows the teachers' level of qualification. The difference in the mean score of students in both control and experimental groups implies that interaction of teachers' collaboration in the experimental group affected the students positively.

Hypotheses

This segment compared the significant difference of mean score of learners' performance in English language, the role of gender and the collaboration of teachers.

Question 3: How does interaction affect teachers' collaborative performance through co-teaching English language to learners with special needs in the inclusive classroom?



Hypothesis One: There is no significant difference of Co-teaching in English Language between pretest and posttest scores of students with special needs in inclusive education.

Table 4: Paired sample t-test on difference of Co-teaching in English Language between pretest and posttest scores of students with special needs in inclusive education.

Variable	Groups	N	Mean	Std	Std.Err	Df	T value	P
Co-teaching Scores	Pre-test	2	8.00	1.414	1.000	1	-.600	*.656
	Post-test	2	9.500	2.121	1.500			

*P>.05

Source: SPSS output computation (2023)

Result of the paired sample t-test revealed that there was no statistically significant difference between pre-test English language scores (M=8.00, SD=1.414) compare to the post-test co-teaching English language (M=9.500, SD=2.121), t (1), -.600 while p= .656 which is higher than 0.05 alpha level of significant. Therefore, the null hypothesis which states that there is no significant difference of Co-teaching in English Language between pre-test and post-test scores of students with

special needs in inclusive education is hereby supported and upheld.

Hypothesis Two: There is no significant difference between gender interaction and co-teaching on performance in English language for learners with special needs in the inclusive classroom.

Table 5: Independent sample t-test on difference between gender interaction and co-teaching among students with special needs in an inclusive education
Independent Samples Test

t-test for Equality of Means

		t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
							Lower	Upper
POSTTEST	Equal variances assumed	-2.887	1	.212	-7.500	2.598	-40.512	25.512
	Equal variances not assumed	.	.	.	-7.500	.	.	.

Source: SPSS output computation (2023)

Result of the independent sample t-test revealed that the correlation and t cannot be computed because the sum of case weights is less than or equal to 1. However, there was a statistically significant mean difference (MD=-7.500) between posttest scores for the male in the control group and the females in the experimental group in English language. Therefore, the null hypothesis which states that there is no significant difference between gender interaction and co-teaching among students with special needs in an inclusive classroom with the p-value (0.212) greater than level of significant (0.05) at 95% confident limit is upheld.

CONCLUSION

This study was premised to find out the effectiveness of co-teaching on learners' performance in English language in inclusive education at Nabeela Academy in Kaduna. The study revealed valuable information about the use of co-teaching as a method of instruction not only for Nabeelah Academy, but for any school that would adopt its models. Based on the finding of

this study, the researchers have concluded that co-teaching has a more positive impact on learners' than solo teaching (one teacher in the class). The study also revealed that the interaction between gender and co-teaching is positive. It was revealed that teachers, when properly equipped are able to implement the co-teaching model thereby increasing the academic performance of the learners

RECOMMENDATIONS

Based on the findings of the study, it is recommended that:

- a. There should be training and retraining of teachers on the use of the co-teaching models in inclusive settings.
- b. Educational planners should emphasize the implementation of inclusive education in schools for an improved academic achievement among learners.



REFERENCES

1. Akçamete, G. & Ö.D. Gökbulut, 2018. Opinions of classroom teachers on reading comprehension difficulties, inclusion education and co-teaching. *Quality & Quantity*, 52(1): 791-806. Available at: <https://doi.org/10.1007/s11135-017-0664-7>.
2. Cook, L. (2004). Co-teaching principles, practices and pragmatics. Lecture presented at New Mexico Public Education Department Quarterly Special Education Meeting, Albuquerque, NM.
3. Cook, L. & Friend, M. (1995). Co-teaching: Guidelines for creating effective practices. *Focus on Exceptional Children*, 28(3), 1-16.
4. Friend, M. & L. Cook, (2016). *Interactions: Collaboration skills for school professionals*. 7th Edn., New Jersey: Pearson.
5. Gokbulut, O.D. Akcamete, G. & Guneyli (2020). Impact of Co-teaching Approach in inclusive education setting on the development of reading skills. *International Journal of Eduication and Practice*. Vol 8, no. 1, pp. 1-17.
6. Hanover Research Report. (2012). *Effectiveness of the co-teaching model*. (Data file). Retrieved from <http://www.hanoverresearch.com/wp-content/uploads/2012/05/Effectiveness-of-Co-Teaching-Membership.pdf>
7. Johnson, C.M (2012). *How does the co-teaching model influence teaching and learning in the secondary Classroom*. An M.Ed thesis Submitted to the Faculty of Education, Northern Michigan University.
8. Jurkowski, S. & B. Müller, 2018. Co-teaching in inclusive classes: The development of multi-professional cooperation in teaching dyads. *Teaching and Teacher Education*, 75:224-231. Available at: <https://doi.org/10.1016/j.tate.2018.06.017>.
9. Magiera, K., C. Smith, N. Zigmund & K. Gebauer, 2005. Benefits of co-teaching in secondary mathematics classes. *Teaching Exceptional Children*, 37(3): 20-24. Available at: <https://doi.org/10.1177/004005990503700303>.
10. Merk, H., Waggoner, J., & Carroll, J. (2013). Co-learning: Maximizing learning in clinical experiences. *AILACTE Journal*, 10(1), 79-95.
11. Mulholland, M. & U. O'Connor, 2016. Collaborative classroom practice for inclusion: Perspectives of classroom teachers and learning support/resource teachers. *International Journal of Inclusive Education*, 20(10): 1070-1083. Available at: <https://doi.org/10.1080/13603116.2016.1145266>.
12. Murawski, W.W. & L. Dieker, 2008. 50 ways to keep your co-teacher: Strategies for before, during, and after co-teaching. *Teaching Exceptional Children*, 40(4): 40-48. Available at: <https://doi.org/10.1177/004005990804000405>.
13. Murawski, W. W., & Dieker, L. (2008). 50 ways to keep your co-teacher: Strategies for before, during, and after co-teaching. *TEACHING Exceptional Children*, 40(4), 40-48. National Clearinghouse for English Language Acquisition (NCELA). (2011). *The growing numbers of English learner students*. Retrieved April 29, 2011 from www.ncela.gwu.edu/files/uploads/9/growingLEP_0809.pdf
14. Nworgu, B.G. (2006). *Educational research, basic issues & methodology* (2nd ed). Nsukka: University Trust Publishers.
15. Pancsofar, N. & J.G. Petroff, 2016. Teachers' experiences with co-teaching as a model for inclusive education. *International Journal of Inclusive Education*, 20(10):1043-1053. Available at: <https://doi.org/10.1080/13603116.2016.1145264>.
16. Sa'ad, M.T. & Bila, J.G. (2014). *Inclusive Education Facilitators' Manual*. Developed for Teachers. Unpublished document.
17. Sa'ad, M. Tajuddeen & Abdullahi Doki (2017). *Inclusive Education: A Paradigm Shift and Global Agenda*. In Abdullahi, A.T., Ajobiwe, T.A., Bila, G.J. & Yakwal, S.M. National Association for Exceptional Children. *Issues in Special Needs Education: A Festschrift of Prof. (SR) Theresa Abang*. Jos: Aydee Creation publication.
18. Shin, M., H. Lee & J.W. McKenna, 2016. Special education and general education preservice teachers' co-teaching experiences: A comparative synthesis of qualitative research. *International Journal of Inclusive Education*, 20(1): 91-107. Available at: <https://doi.org/10.1080/13603116.2015.1074732>.
19. St. Cloud State University. (2014). *Co-teaching strategies (Data file)*. Retrieved from <http://www.stcloudstate.edu/soe/tqe/co-teaching/>
20. Tichenor, M.S., B. Heins & K. Piechura-Couture, 2000. Parent perceptions of a co-taught inclusive classroom. *Educational*, 120(3): 569-575.
21. UNESCO (2004) *An Inclusive Approach to EFA: UNESCO's Role*. In *Enabling Education*. Issue 8, June 2004. Manchester: EENET.
22. Walsh, J. M. (2012). Co-teaching as a school system strategy for continuous improvement. *Preventing School Failure*, 56(1), 29-36.
23. York-Barr, J., Ghere, G., Sommersness, J. (2007). Elementary case study collaborative teaching to increase ELL student learning: A three-year urban elementary case study. *Journal Of Education For Students Placed At Risk*, 12(3), 301-335.
24. York, J., M.F. Giangreco, T. Vandercook & C. Macdonald, 1992. Integrating support personnel in the inclusive classroom. In Susan Stainback & William Stainback (Eds.), *Curriculum considerations in inclusive classrooms: Facilitating learning for all students*. Baltimore: Paul H. Brookes Publishing. pp: 101-116.



DEVELOPMENT AND QUALITY EVALUATION OF PROTEIN RICH BURFI WITH SOYA CHUNKS AND WHEAT FLOUR

Sallange Devi¹, Anil Bukya², Neeti Harshitha M³,

¹MSc Student, Department of Nutrition, Capital Degree and PG College, Shapur Nagar, Hyderabad, Telangana, India.

²Head and Professor, Department of Nutrition, Capital Degree and PG College, Shapur Nagar, Hyderabad, Telangana, India

³Lecturer, Department of Nutrition, Capital Degree and PG College, Shapur Nagar, Hyderabad, Telangana, India.

Corresponding Author: Dr. Anil Bukya, Head and Professor, Department of Nutrition.

ABSTRACT

Present study was framed to formulate development of vegan meat by soya bean protein and wheat flour. Soya bean protein is an important nutrient in the human diet. Soya chunks are the best protein sources and also contain good sources of minerals, fibers, and vitamins. Due to good fiber content, it helps to fight diabetes and control obesity. Soya powder and wheat flour are taken in the respective quantities Product A, B and C were (25:75) (50:50) (75:25) for each blend. Sensory analysis showed Product A with highest score and overall acceptance. The analysis report of soya chunks burfi product A showed carbohydrates (63.58%), the protein content (10.40%), the moisture content (15.51%), the Ash content (1.73%), the fat content (8.78%) and Dietary fiber (0.68%).

KEY WORDS: soya chunks, protein rich product, sensory evaluation, Nutritional evaluation, microbial evaluation.

INTRODUCTION

In the last few years, the vegetarian diet has been gaining popularity as many people are looking for alternatives to non-vegetarian foods Soybean has received the status as one of the most important edible plants known for its seed as a source of protein, oil and nutraceuticals. Soya beans are rich sources of high-quality protein, unsaturated fatty acid, fibre and bioactive compounds that are beneficial for different nutritional needs.

The efforts made by National Research Centre for Soybean, Indore while working with the rural/tribal and urban women brings out that though the people hesitant initially to give entry to soybean in their kitchen, are convinced on its value as food/functional food and are revealing their acceptance for soy-processed products.

Soy protein is generally regarded as stored protein held in discrete particles called "protein bodies" estimated to contain at least 60% to 70% of the total protein within the soybean germinates, the protein will be digested and the released amino acids will be transported to locations of seedling growth. Soya bean also contain biologically active or metabolic proteins, such as enzymes, trypsin inhibitors, hemagglutinins and cysteine proteases. Carbohydrate Soybeans are relatively low in carbohydrate (35%) and nearly all the carbohydrates in soy are fibres and oligosaccharides. The principal soluble carbohydrates

of raw soybeans are the disaccharide sucrose, the trisaccharide raffinose, and the tetra saccharide stachyose (Anders 2013).

Soy beans are nutrient- dense, fibre rich and are high- quality sources of protein. Protective and therapeutic effects of both dry bean an soybean intake have been documented. Soybeans are unique source of the Isoflavones, genistein and daidzein, which have numerous biological functions. Soybeans and soy foods potentially have multifaceted health- promoting effects, including cholesterol reduction, improved vascular health, preserved bone mineral density and reduction of menopausal symptoms. The availability of legume products and resources is increasing, incorporating dry beans and soy foods into the diet can be practical and enjoyable (Anderson et al., 1999).

Wheat is the most important staple crop in temperate zones and is in increasing demand in countries undergoing urbanization and industrialization. In addition to being a major source of starch and energy, wheat also provides substantial amounts of a number of components which are essential or beneficial for health, notably protein, vitamins (notably B vitamins), dietary fiber, and phytochemicals. Of these, wheat is a particularly important source of dietary fiber, with bread alone providing 20% of the daily intake in the UK, and well-established relationships between the consumption of cereal dietary fiber and reduced risk of cardiovascular disease, type 2 diabetes, and forms of cancer like colorectal cancer (Shewry and Hey, 2015). Hence the present study



was framed to Development of Protein Rich Burfi with Soya Chunks and Wheat Flour.

MATERIAL AND METHODS

Raw Materials: The raw materials include Soya chunks, wheat flour, jaggery, peanuts, sesame Seeds, ghee and milk were procured from the local market.

Table 1: Composition of Soya-Chunks with different treatments

Product	Soya powder	Wheat flour
Product -A	25gm	75gm
Product -B	50gm	50gm
Product -C	75gm	25gm

Procedure

Soya powder and wheat flour are taken in the respective quantities (25:75) (50:50) (75:25) for each blend type that is for product-A, B and C. Soya flour and wheat flour are roasted in ghee, then add 100gm of jaggery, 50 gm of roasted peanuts and 15gm of Sesame seeds to the above prepared mixture. To the roasted soya powder and wheat flour add jaggery, peanuts add sesame seeds and mix all the in together using milk (15 ml) to form desired consistency. Spread the mixture flat using a rolling pin and diamond shaped mould. Prepared products made into burfi and sensory evaluation is performed using hedonic scale.

Sensory Evaluation

Sensory evaluation is an essential component of product development. Sensory evaluation is used to measure, analyses and interpret human reactions to meet sensory characteristics through sight, smell and touch.

The organoleptic characteristics of the soya chunk burfi's were determined using sensory study adopting 5- point Hedonic scale method. Sample size of 10 members was taken and were served with the product. They were asked to rate the quality attributes namely aroma, appearance, texture, taste, mouth feel and overall acceptability through sense organs. The overall acceptability of cookies was Evaluated using 5- point Hedonic scale ranging from (1 dislike very much to 5 like very much).

Nutritional Analysis

In the developed nutritional analysis was analyzed for protein, fat, fiber, carbohydrates, ash and moisture using standard estimation techniques in the food analysis lab.

Parameters	Method
Carbohydrates	IFSH/SOP/C/TE/142
Protein	IS:7219-1973
Fat	AOAC:922.06
Dietary fiber	IS10226 PART 1:1982
Ash	FSSAC manual of cereal & cereal product
Moisture	AOCA:925.10 21st edition

Shelf life

Shelf life of soya chunks burfi kept for 30 days and perform total bacterial count by method IS5402:2012.

Statistical Analysis

The data was obtained from the sensory analysis were subjected to mean and standard deviation and it was statistically analysed by one -way ANOVA by using a significance is 1.9.

RESULT AND DISCUSSION

Sensory Evaluation of Soya Chunks Burfi

In the present study three types of products were developed were named product-A, B and C. These products were sensory evaluated by a group of people. The scores obtained on various attributes like aroma, appearance, texture, taste, mouth feel and overall acceptability were recorded using 5 point Hedonic scale.

Table 3: Sensory Evaluation of Soya Chunks wheat incorporated Burfi

Attributes	Product - A	Product - B	Product - C
Aroma	4.7±0.41	2.8±0.49	1.6±0.58
Appearance	5±0.18	2.8±0.29	2.02±0.58
Texture	4.6±0.43	2.5±0.42	1.4±0.33
Taste	4.2±0.33	2.7±0.41	1.2±0.49
Mouth feel	4.2±0.34	3±0.29	1.2±0.46
Overall acceptability	4.7±0.29	2.6±0.24	1.5±0.37

Sensory-evaluation for the attribute aroma ranges between 1.6 to 4.7. The above table shows that the product- A has highest mean value 4.7. whereas it is observed that product -C has the lowest mean value 1.6. The colour of the product became darker with increasing ratio of soya. Appearance was observed in the product-A followed by product -B and C with mean values 5, 2.8 & 2.02. The texture rating of product -A burfi was 4.6 followed by 2.5 and 1.4 for products B and C respectively. Taste for product- A, product-B and product-C were 4.2, 3.0 and 1.2respectively. In case of mouth feel the mean value of product -A product-B and product -C was 4.2;3 and 1.05 respectively. The mean score of overall acceptability was found to be highest for product-A ,4.7. Indicating that it was most liked ratio of other two blends. Product -B and product-C had relatively lower mean score of 2.6 and 1.5 respectively. Statistical analysis shows a different blends of soya powder and wheat flour have significantly affected the overall likeness of the soya burfi. On the basis of overall acceptability, it can be concluded that the highest acceptable and liked product is product-A with a combination of Soya powder weighing 25gm and wheat flour weighing 75gm.

Nutritional Analysis of Soya Burfi

Nutritional analysis is a process which determines the nutrient content of food. The product with highest acceptability (product-A) was selected for Nutritional Analysis. The proximate component namely, carbohydrates, protein, fat, dietary Fiber



analyzed for development product (Soya and wheat incorporated burfi).

Table 4: Nutritional analysis of soya burfi.

Parameters	Result	Units
Carbohydrates	63.58	g/100g
Protein	10.40	g/100g
Fat	8.78	g/100g
Dietary fiber	0.68	g/100g
Ash	1.73	g/100g
Moisture	15.51	g/100g

The carbohydrate content of soya burfi was found to be 63.58% in 100 g of the product. Total protein content of the product was determined to be 10.40% in 100 g of product. The fat content of the product was 8.78%. The dietary fiber of soya burfi was 0.68% per 100 g. Moisture content of soya burfi was found to be 15.51% in 100 g.

Shelf life studies

Shelf life of soya chunks burfi kept for 30 days and perform total bacterial count, after 30 days soya chunks burfi didn't form any bacteria growth. The results show for Total plate count of soya chunks burfi was 1700 Cfu/g, which is acceptable level.

CONCLUSION

The soya chunks burfi is made from soya chunks flour and wheat flour, jaggery, peanuts, ghee and milk with better protein quality and low availability of carbohydrates and physiological energy almost same as control would be better alternative to diabetic, malnutrition patients whereas it also effectively used as supplementary foods. The overall acceptability of the product was very good.

REFERENCES

1. Aditi Sharma, Kritika Rawat, Priyanka Jattan 2021; *Formula refining through composite blend of soya, alfalfa, and wheat flour; A vegan meat approach* , <https://www.sciencedirect.com/science/article/pii/S0271531705002794>.
2. Aisha Parveen, Mohd Asim, Ritu Prakash Dubey 2018. *Preparation and standardization of food product by soya chunks and oats as a substitute of meat products and nutraceuticals potential of* <https://www.phytojournal.com/archives?year=2018&vol=7&issue=4&ArticleId=5051>.
3. Ananthan Padmashree, Gopal Kumar Sharma, ...Amarinder Singh Bawa 2012, *Development of shelf stable protein rich composite cereal bar*, <https://link.springer.com/article/10.1007/s13197-011-0283-6>.
4. Anders Kjer. *aspects of human consumption of soy; PhD, Department of Food Science, University of Aarhus, Denmark, 2013.*
5. Anderson JW. *Whole grains and Coronary Heart Disease: the whole kernel of truth, America Journal of Clinical Nutrition. 2004; 80(6):1459-60.*

6. Aniket Pailwar, Ghadevaru Sarathchandra 2020 ; *Surveillance of Nutritional composition, Urease activity, and Aflatoxin contamination in processed Soya Chunks or Textured Vegetable Protein (TVP)* <https://ijbtjournal.org/assets/year/2020/volume-10-issue-2/IJBTT-V10I2P604.pdf>.
7. Ashwani Kumar, Vidisha Tomer, ...Kritika Gupta 2018, *Millet: a solution to agrarian and nutritional challenges*
8. BU Dupare, SS Vinayagam, SD Billore, OP JOSHI 2005. *Knowledge of women respondents about the health benefits and utility of soybean for food uses.* https://www.researchgate.net/profile/AmitMishra11/publication/354819055_SOYBEAN_RESEARCH_Society_for_Soybean_Research_and_Development/links/614e0304d2ebba7be7472280/SOYBEAN-RESEARCH-Society-for-Soybean-Research-and-Development.pdf#page=62.
9. Parul Dube 2023, *Soya Chunks – Nutritional Facts, Benefits and Recipe* ,<https://www.healthifyme.com/blog/soya-chunks-nutritional-facts-benefits-and-recipe/?noamp=available>.
10. Sherwy P. R., and Hey, S. (2015), *The contribution of wheat to human diet and health, Food and Energy Security* 4(3).
11. Smita Barode 2023 ,*Soya Chunks: Uses, Benefits, Side Effects* By Dr. Smita Barode <https://pharomeasy.in/blog/ayurveda-uses-benefits-side-effects-of-soya-chunks/>
12. Wilna Oldewage-Theron, Upasana Mukherjee, Temitope Ibiyemi 2021, *The health benefits and uses of soya* .



SYNTHESIS APPROACHES AND APPLICATIONS OF SILICON NANOPARTICLES FROM AGRICULTURAL WASTES: A REVIEW

Aleena Elizabeth Mathew

Student, MSc Chemistry, Christ University, Bangalore

ABSTRACT

This concise review provides an overview of silicon nanoparticle (Si NP) synthesis techniques using agricultural waste sources like rice husks, sugarcane bagasse, and wheat straw. It covers various methods, including thermal reduction, sol-gel, microemulsion, and laser ablation. The paper highlights Si NPs' versatile applications in biomedicine, energy storage, agriculture, environmental remediation, electronics, and optoelectronics, with a focus on sustainability. Additionally, it identifies research gaps in the field, emphasizing the need for improved synthesis efficiency and expanded application domains. This review offers valuable insights into the potential of agricultural waste for Si NP production and its profound impact across diverse industries.

1. INTRODUCTION

This brief overview emphasizes the increasing importance of Si NPs as a result of their distinct characteristics and extensive array of uses. It focuses on the synthesis techniques of Si NPs using agricultural waste materials like rice husks, sugarcane bagasse, and wheat straw, offering an eco-friendly and resource-efficient approach. The review comprehensively covers various synthesis methods, including thermal reduction, sol-gel, microemulsion, and laser ablation, showcasing the versatility of Si NP production. This diversity enables tailoring Si NPs for specific uses, making them promising materials across multiple industries. The central theme revolves around the manifold applications of Si NPs in biomedicine, energy storage, agriculture, environmental remediation, electronics, and optoelectronics. This demonstrates their potential to address diverse challenges while promoting sustainability. Additionally, the review identifies research gaps, emphasizing the need for improved synthesis efficiency and exploration of new application areas, paving the way for further innovation. In summary, this review underscores the significance of Si NP synthesis from agricultural waste, emphasizing their transformative impact on various industries. Si NPs offer a sustainable route to nanomaterial production, making this review a valuable resource for researchers and stakeholders interested in harnessing their potential.

2. DIFFERENT GREEN SOURCES OF SILICON NANOPARTICLES

Si NPs possess unique properties that make them promising materials for a wide range of applications, spanning from biomedical sciences to electronics. These properties include high surface area, biocompatibility, stability, surface reactivity, and tunable pore size [1]. Synthesizing Si NPs from agricultural waste materials represents an innovative and sustainable approach, aligning with principles of green chemistry and sustainability. Agricultural waste, such as rice hulls [2], bamboo leaves, sugarcane bagasse [3], and rice straw [4], can serve as

cost-effective precursors for Si NP production, taking advantage of their abundant availability at the end of each harvest season. Notably, a study by Sivakumar and colleagues introduced a unique approach, synthesizing pure silica from waste materials like cow dung ash using the sol-gel process, resulting in Si NPs with 100% purity and a spherical shape, demonstrating the potential of agricultural waste materials in creating high-quality Si NPs [5].

Gonzalez and colleagues developed a unique method for creating crystalline Si NPs by bioprocessing agricultural waste using annelids (*Eisenia foetida*) and subsequent calcination and acid treatment [6]. Sorghum bicolor residues, rich in silica, were used by Athinarayan et al. to synthesize Si NPs for potential food industry applications [7]. Balamurugan and team synthesized nanosilica from Sorghum vulgare seed heads [8]. Gurbani et al. introduced an innovative method using sedge (*Carex riparia* weed) waste to produce Si NPs sustainably [9]. Wassie and collaborators synthesized nanosilica from Tef straw through heat and acid treatment in Ethiopia [10]. These agricultural waste materials offer a valuable resource for Si NP synthesis, with various methods such as sol-gel, microemulsion, thermal reduction, laser ablation, and chemical reduction being employed. Si NPs derived from agricultural waste find versatile applications in biomedicine [11], energy storage [12], agriculture [13], environmental remediation [14], electronics, and optoelectronics [15]. This review provides an overview of these synthesis methods and highlights the wide-ranging applications of Si NPs from agricultural waste sources.



Sl.no	Agricultural Waste Material	Reference
1	Rice Hull	[2]
2	Bamboo leaves	[3]
3	Sugarcane bagasse	[3]
4	Rice Straw	[4]
5	Cow dung ash	[5]
6	Agricultural waste using species Eisenia foetida	[6]
7	Sorghum bicolor	[7]
8	Sorghum vulgare seed heads	[8]
9	Sedge-specifically the Carex riparia weed	[9]
10	Tef straw	[10]

Table 1- This table summarizes different source of Si NPs

3. VARIOUS SYNTHESIS APPROACHES OF SILICON NANOPARTICLES

The synthesis of Si NPs from agricultural waste involves collecting and preparing the waste materials, extracting silicon, and converting it into nanoparticles. Several methods, including thermal reduction [16], sol-gel [17], microemulsion [18], and laser ablation [19], are employed, chosen based on the specific agricultural byproduct and desired nanoparticle properties. These methods offer versatile approaches to utilize agricultural waste for Si NP production.

3.1. Thermal Reduction

Thermal reduction is a cost-effective method for producing Si NPs from agricultural waste like rice husks. This process involves pyrolyzing the waste at high temperatures to yield amorphous silica, which is then reduced to Si NPs through carbothermal or magnesiothermic reduction. Researchers, including Weixing Wang and colleagues, have successfully produced biogenic Si NPs from rice husks using controlled pyrolysis. Optimal conditions were found at 700°C for two hours, resulting in Si NPs measuring approximately 20-30 nanometers (nm) in diameter. Potassium ions present in rice husks acted as catalysts for silica transformation, resulting in high-purity amorphous Si NPs with a narrow size distribution suitable for various applications [16].

3.2. Sol-Gel Method

The sol-gel method involves dissolving agricultural waste-derived silica in a solvent, followed by controlled hydrolysis and condensation to produce Si NPs with precise control over

size and surface properties. Farook Adam and colleagues used rice husk as a template-free source to synthesize mesoporous Si NPs under ambient conditions. Transmission electron microscopy confirmed the formation of spherical Si NPs with an average size of 50.9 nm and a specific surface area. These Si NPs exhibit a narrow range of pore sizes, making them promising for various applications [17].

3.3. Microemulsion Technique

The microemulsion method utilizes agricultural byproducts to create micelles, acting as nanoreactors for the formation of uniform Si NPs. This approach involves the formation of either oil-in-water (O/W) or water-in-oil (W/O) micelles stabilized by surfactants. The resulting SiNP size is mainly determined by the nanoreactor volume, where silica precursors undergo hydrolysis and condensation reactions, yielding monodisperse Si NPs [18].

3.4. Laser Ablation

Laser ablation is employed to produce Si NPs directly from agricultural waste-derived silica, offering precise control over particle size and shape. In a study utilizing raw sugarbeet bagasse as the target, a commercial nanosecond pulsed Nd:YLF laser was used to generate SiNPs in a water medium. The laser ablation caused changes in color and fiber damage in the bagasse, which were then removed from the NP solution through filtration. The process involved placing bagasse in water, focusing the laser beam on the target, and scanning it for about 5 minutes. This resulted in the formation of Si NPs, which were separated from fibers using a 0.22 µm filter [19].

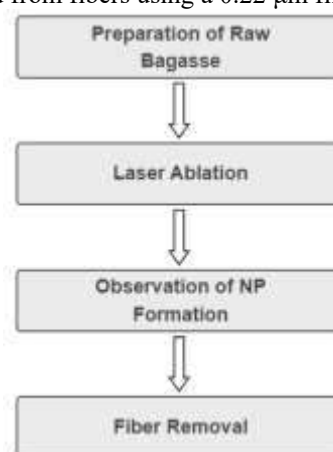


Fig 1. Depicts the process of Laser Ablation Technique.

Sl.no	Source of Si NPs	Property of silica synthesized	Method of synthesis	Conditions	References
1	Rice Husk	Amorphous silica	Pyrolysis	700°C for two hours	[16]
2	Rice Husk	Mesoporous Si NPs	Sol-Gel	Ambient conditions	[17]
3	Sugarbeet bagasse	Ultra-small Si NPs	Laser Ablation	Utilized a commercial nanosecond pulsed Nd:YLF laser	[19]

Table 2- This Table Summarizes Method of Synthesis



4. APPLICATIONS OF SILICON NANOPARTICLES IN DIFFERENT FIELDS SILICON NANOPARTICLES

Si NPs derived from agricultural waste materials find versatile applications in various fields, including biomedicine, energy storage, agriculture, environmental remediation, electronics, and optoelectronics. These applications not only address environmental concerns but also offer innovative solutions across diverse industries.

4.1. Biomedicine

Si NPs exhibit immense potential in the field of biomedicine. They can be employed in drug delivery systems, enabling targeted and controlled drug release, and as imaging agents, enhancing diagnostic capabilities in healthcare. In a study conducted by Ali A. Alshatwi et al., highly pure biogenic silica nanoparticles (bSNPs) were produced from rice husks, a cost-effective agricultural resource. The bSNPs, obtained through an acid digestion process and calcination, exhibited amorphous, spherical morphology with diameters ranging from 10 to 30 nm. They were found to be biocompatible with human lung fibroblast cells (hLFCs) in *in vitro* tests. These findings suggest that bSNPs hold promise as an alternative to synthetic silica for various applications, including biomedicine and food additives [11].

4.2. Energy Storage

Si NPs have the potential to significantly enhance the performance of lithium-ion batteries, increasing their capacity and cycle life. This holds promise for addressing energy storage challenges. A. Vadivel Murugan and co-workers developed an environmentally friendly method to extract silica from bamboo culm, rice husk, and sugarcane bagasse using microwave-assisted solid-state ashing (MW-SS) and then converted it into crystalline silicon (Si) through microwave-assisted magnesiothermic reduction (MW-MR). This resulted in the creation of porous Si networks. They also combined the Si with various carbon-based materials, leading to improved delithiation capacities in comparison to pristine Si from rice husk. This research showcases the potential of agricultural residues as sustainable sources for nanoporous crystalline Si production, offering a cost-effective and energy-efficient approach for lithium-ion battery anodes [12]. Nian Liu et al. demonstrated the synthesis of pure silicon nanoparticles (Si NPs) from rice husks. These Si NPs possess a small size and porous structure, making them highly effective as anodes in lithium-ion batteries. They exhibit outstanding performance with a remarkable reversible capacity, seven times greater than that of graphite anodes, and maintain 86% capacity retention over 300 charge-discharge cycles. By utilizing rice husks as the raw material source, this research highlights the potential for energy-efficient, environmentally friendly, and large-scale synthesis of cost-effective and functional Si nanomaterials [20].

4.3. Agriculture

Si NPs have shown the ability to enhance crop growth, improve nutrient uptake, and mitigate the effects of abiotic stressors, making them invaluable for sustainable agriculture practices. Nalan Oya San and colleagues developed a single-step laser

ablation technique to produce silica nanoparticles from sugarbeet bagasse. This method yielded smaller silica nanoparticles compared to traditional NaOH treatment. The resulting silica nanoparticles showed a positive impact on microalgae growth, demonstrating their potential for various applications [19]. Rajiv Periakaruppan and co-workers achieved green synthesis of silica nanoparticles using *Euphorbia thymifolia* L. extract. Characterization confirmed the production of spherical, amorphous silica nanoparticles composed of Si and O elements. These nanoparticles were found to enhance *Sorghum bicolor* seed germination, indicating their potential for use in agriculture [13].

4.4. Environmental Remediation

The adsorption properties of Si NPs can be harnessed for removing contaminants from water and soil, offering solutions for environmental cleanup efforts. Vinoda BM and colleagues developed silicon dioxide nanoparticles (SiO₂ NPs) using rice husk ash (RHA) and employed them for the photocatalytic degradation of methyl red dye in aqueous solutions. The SiO₂ NPs, obtained through an alkaline precipitation method, were amorphous in nature and exhibited efficient photocatalytic activity for dye removal, particularly methyl red [14]. In addressing the challenge of arsenic-contaminated water irrigation in agriculture, Thanaseelan Balasubramaniam et al. explored the application of silica nanoparticles (NPs) for arsenic removal. They found that silica NPs efficiently adsorb arsenic, as demonstrated by spectrophotometric analysis. The synthesis of these nanomaterials is cost-effective and straightforward, offering a competitive solution for arsenic removal in comparison to other commercially available adsorbents [21].

4.5. Electronics and Optoelectronics

Si NPs are instrumental in the development of advanced electronic devices, such as transistors and sensors, and in the creation of novel photonic materials, further advancing technology. Sandeep Bose and his team developed an affordable method to produce luminescent silicon nanoparticles (Si NPs) using rice husk as a silicon source and rapid microwave heating. These Si NPs, with an average diameter of approximately 4.9 nm, exhibit stable green luminescence with a high quantum yield of about 60%. They maintain their luminescence over extended periods under UV irradiation, making them superior to other luminescent materials. When combined with red and blue luminescent Si NPs, they create energy-efficient white light, matching pure white light's color coordinates. This white light-emitting material performs comparably to commercial LED bulbs and even outperforms CFLs [22]. A. A. Ebnalwaled and colleagues synthesized mesoporous silica nanoparticles from rice husk ash and used them as nanofillers in polyimide/silica hybrid nanocomposite films. These films exhibited various optoelectronic properties based on silica NP concentration, affecting transparency, UV absorption, dielectric constant, charge carrier concentration, and wettability. This eco-friendly and cost-effective approach offers versatility in tailoring film properties for different applications [15].



Sl.no	Source of Si NPs	Method of synthesis	Application	References
1	Rice husks	Acid digestion followed by calcination	Biomedical	[11]
2	Bamboo culm (BC), rice husk (RH), and sugarcane bagasse (SB)	Microwave-assisted solid-state ashing technique	Energy Storage	[12]
3	Rice husks	Pyrolysis	Energy Storage	[20]
4	Sugarbeet bagasse	Laser ablation	Agriculture	[19]
5	Euphorbia thymifolia L. extract	Sol-gel	Agriculture	[13]
6	Rice husk ash	Alkaline precipitation method	Environmental Remediation	[14]
7	Corn Cob	Sol-gel	Environmental Remediation	[21]
8	Rice husks	Rapid microwave heating	Electronics	[22]
9	Rice husks	pyrolysis	Optoelectronics	[15]

Table 2-This table summarizes the applications of silicon nanoparticles derived from agricultural waste materials in various fields.

5. CONCLUSION

The synthesis of Si NPs from agricultural byproducts offers a sustainable and versatile approach with wide-ranging applications in agriculture, healthcare, environmental remediation, and energy storage. This eco-friendly method aligns with principles of sustainability, reducing waste while providing a cost-effective alternative to traditional Si NP production. Si NPs have shown exceptional promise, particularly in energy storage, where they enhance lithium-ion battery performance, addressing renewable energy storage challenges. In agriculture, they can improve plant health and contribute to sustainable farming practices, addressing food security concerns. Additionally, Si NPs derived from agricultural byproducts hold potential in biomedicine for drug delivery, imaging, and diagnostics, with ongoing research aiming for breakthroughs in targeted therapy and non-invasive medical procedures. To fully unlock the potential of Si NPs from agricultural waste, further research and development are essential. This field contributes to a greener and more sustainable future, providing innovative solutions to pressing challenges across various industries.

In summary, while significant progress has been made in synthesizing Si NPs from agricultural waste, challenges like achieving uniformity, scalability, and safety assessments remain. Nevertheless, this field holds immense promise in terms of sustainability and cost-effectiveness, offering diverse applications. Continued research is likely to address pressing challenges in energy, agriculture, and healthcare, ultimately contributing to a more sustainable and prosperous future by harnessing agricultural waste materials.

6. RESEARCH GAP

The synthesis of Si NPs from agricultural byproducts offers sustainability in nanomaterial production. However, critical research gaps must be addressed to drive progress. Tackling these gaps is vital for advancing synthesis and promoting eco-friendly nanomaterials. Thorough exploration and discussion of these gaps are necessary to unlock the field's full potential.

- **Lack of Comprehensive Synthesis Methods-** A critical research gap is the absence of a standardized method for synthesizing Si NPs from agricultural waste.

Current research lacks systematic comparisons of materials like rice husks, wheat straw, and sugarcane bagasse in terms of efficiency, purity, and scalability. Establishing a standardized protocol considering different agricultural byproducts is needed.

- **Limited Understanding of Reaction Mechanisms-** A significant research gap exists in the limited understanding of the chemical and physical mechanisms behind Si NP synthesis from agricultural byproducts. Deeper investigations into kinetics, thermodynamics, and intermediate species are needed to enhance the efficiency and control of the synthesis processes.
- **Diverse Applications and Performance Evaluation-** There's a need for further studies assessing the real-world performance of Si NPs in specific applications like drug delivery, sensors, batteries, and photovoltaics. Existing research often focuses on synthesis but lacks comprehensive evaluations of Si NPs' suitability and effectiveness in practical use cases.
- **Environmental and Economic Assessment-** Further studies are needed to assess Si NPs performance in real-world applications like drug delivery, sensors, batteries, and photovoltaics, as current research primarily focuses on synthesis without comprehensive practical evaluations.

7. REFERENCES

1. S. A. Jadhav, "Incredible pace of research on mesoporous silica nanoparticles," *Inorg Chem Front*, vol. 1, no. 10, pp. 735–739, Dec. 2014, doi: 10.1039/c4qi00118d.
2. W. Jansomboon, K. Boonmaloe, S. Sukaros, and P. Prapainainar, "Rice hull micro and nanosilica: Synthesis and characterization," in *Key Engineering Materials, Trans Tech Publications Ltd*, 2017, pp. 77–80. doi: 10.4028/www.scientific.net/KEM.718.77.
3. V. Vaibhav, U. Vijayalakshmi, and S. M. Roopan, "Agricultural waste as a source for the production of silica nanoparticles," *Spectrochim Acta A Mol Biomol Spectrosc*, vol. 139, pp. 515–520, Mar. 2015, doi: 10.1016/j.saa.2014.12.083.



4. P. Lu and Y. Lo Hsieh, "Highly pure amorphous silica nanodisks from rice straw," *Powder Technol.*, vol. 225, pp. 149–155, Jul. 2012, doi: 10.1016/j.powtec.2012.04.002.
5. G. Sivakumar and K. Amutha, "Studies on silica obtained from cow dung ash," in *Advanced Materials Research*, Trans Tech Publications Ltd, 2012, pp. 470–473. doi: 10.4028/www.scientific.net/AMR.584.470.
6. A. Espindola-Gonzalez, A. L. Martínez-Hernández, C. Angeles-Chávez, V. M. Castaño, and C. Velasco-Santos, "Novel crystalline SiO₂ nanoparticles via annelids bioprocessing of agro-industrial wastes," *Nanoscale Res Lett*, vol. 5, no. 9, pp. 1408–1417, 2010, doi: 10.1007/s11671-010-9654-6.
7. J. Athinarayanan, S. A. A. H. Jaafari, V. S. Periasamy, T. N. A. Almana, and A. A. Alshatwi, "Fabrication of Biogenic Silica Nanostructures from Sorghum bicolor Leaves for Food Industry Applications," *Silicon*, vol. 12, no. 12, pp. 2829–2836, Dec. 2020, doi: 10.1007/s12633-020-00379-4.
8. M. Balamurugan and S. Saravanan, "Producing nanosilica from Sorghum vulgare seed heads," *Powder Technol.*, vol. 224, pp. 345–350, Jul. 2012, doi: 10.1016/j.powtec.2012.03.017.
9. F. Ghorbani, H. Younesi, Z. Mehraban, M. S. Çelik, A. A. Ghoreyshi, and M. Anbia, "Preparation and characterization of highly pure silica from sedge as agricultural waste and its utilization in the synthesis of mesoporous silica MCM-41," *J Taiwan Inst Chem Eng*, vol. 44, no. 5, pp. 821–828, Sep. 2013, doi: 10.1016/j.jtice.2013.01.019.
10. A. B. Wassie and V. C. Srivastava, "Synthesis and characterization of nano-silica from teff straw," *Journal of Nano Research*, vol. 46, pp. 64–72, 2017, doi: 10.4028/www.scientific.net/JNanoR.46.64.
11. A. A. Alshatwi, J. Athinarayanan, and V. S. Periasamy, "Biocompatibility assessment of rice husk-derived biogenic silica nanoparticles for biomedical applications," *Materials Science and Engineering C*, vol. 47, pp. 8–16, Feb. 2015, doi: 10.1016/j.msec.2014.11.005.
12. S. Praneetha and A. V. Murugan, "Development of sustainable rapid microwave assisted process for extracting nanoporous Si from earth abundant agricultural residues and their carbon-based nanohybrids for lithium energy storage," *ACS Sustain Chem Eng*, vol. 3, no. 2, pp. 224–236, Feb. 2015, doi: 10.1021/sc500735a.
13. R. Periakaruppan, N. Renuga Devi, S. A. Abed, P. Vanathi, and J. S. Kumar, "Production of Biogenic Silica Nanoparticles by Green Chemistry Approach and Assessment of their Physicochemical Properties and Effects on the Germination of Sorghum bicolor," *Silicon*, Jul. 2023, doi: 10.1007/s12633-023-02348-z.
14. V. BM and V. M., "Photocatalytic Degradation of Toxic Methyl Red Dye Using Silica Nanoparticles Synthesized from Rice Husk Ash," *J Environ Anal Toxicol*, vol. 05, no. 06, 2015, doi: 10.4172/2161-0525.1000336.
15. A. A. Ebnalwaled, A. H. Sadek, S. H. Ismail, and G. G. Mohamed, "Structural, optical, dielectric, and surface properties of polyimide hybrid nanocomposites films embedded mesoporous silica nanoparticles synthesized from rice husk ash for optoelectronic applications," *Opt Quantum Electron*, vol. 54, no. 11, Nov. 2022, doi: 10.1007/s11082-022-03976-2.
16. W. Wang, J. C. Martin, N. Zhang, C. Ma, A. Han, and L. Sun, "Harvesting silica nanoparticles from rice husks," *Journal of Nanoparticle Research*, vol. 13, no. 12, pp. 6981–6990, Dec. 2011, doi: 10.1007/s11051-011-0609-3.
17. F. Adam, T. S. Chew, and J. Andas, "A simple template-free sol-gel synthesis of spherical nanosilica from agricultural biomass," *J Solgel Sci Technol*, vol. 59, no. 3, pp. 580–583, Sep. 2011, doi: 10.1007/s10971-011-2531-7.
18. E. Akhayere, D. Kavaz, and A. Vaseashta, "Efficacy Studies of Silica Nanoparticles Synthesized Using Agricultural Waste for Mitigating Waterborne Contaminants," *Applied Sciences (Switzerland)*, vol. 12, no. 18, MDPI, Sep. 01, 2022, doi: 10.3390/app12189279.
19. N. O. San, C. Kurşungöz, Y. Tümtaş, Ö. Yaşa, B. Ortaç, and T. Tekinay, "Novel one-step synthesis of silica nanoparticles from sugarbeet bagasse by laser ablation and their effects on the growth of freshwater algae culture," *Particuology*, vol. 17, pp. 29–35, Dec. 2014, doi: 10.1016/j.partic.2013.11.003.
20. N. Liu, K. Huo, M. T. McDowell, J. Zhao, and Y. Cui, "Rice husks as a sustainable source of nanostructured silicon for high performance Li-ion battery anodes," *Sci Rep*, vol. 3, 2013, doi: 10.1038/srep01919.
21. T. Balasubramaniam et al., "Potential of Synthesized Silica Nanoparticles (Si-NPs) using Corn Cob for Arsenic Heavy Metal Removal," in *IOP Conference Series: Materials Science and Engineering*, IOP Publishing Ltd, Jul. 2020, doi: 10.1088/1757-899X/864/1/012187.
22. S. Bose et al., "Synthesis of Silicon Nanoparticles from Rice Husk and their Use as Sustainable Fluorophores for White Light Emission," *ACS Sustain Chem Eng*, vol. 6, no. 5, pp. 6203–6210, May 2018, doi: 10.1021/acssuschemeng.7b04911.



POSITION CONTROL OF ELECTRO-HYDRAULIC SERVO SYSTEM WITH FRICTION COMPENSATION

Michael Enyan^{1*}, Luis Miguel Ruiz Páez¹

¹School of Mechanical Engineering, Jiangsu University, Zhenjiang 212013, P. R China.

*Corresponding Author

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ABSTRACT

This work presents a model-based friction compensation technique and an integral adaptive backstepping controller to improve the position control of the electrohydraulic servo system. The controller design uses a continuous approximation of the LuGre friction model and the Lyapunov theory of nonlinear systems. The friction compensation enhances system performance, and comparison tests are conducted on a hydraulic servo test bench to validate the control strategy's tracking performance under various conditions.

KEYWORDS: *Electrohydraulic servo systems; Position control; Integral adaptive backstepping controller; LuGre dynamic friction model; Lyapunov theory; Friction compensation.*

1. INTRODUCTION

Electrohydraulic servo systems (EHSS) are widely utilized in a variety of industrial applications and cutting-edge automation systems due to their outstanding characteristics, such as excellent positioning capabilities, a high-power ratio, rapid and effortless reaction, rigidity, and the capacity to create enormous amounts of force [1]. It has been used in a variety of mechanizations and has had a substantial impact on modern position control devices such as hydraulic robot manipulators [2,3], hydraulic presses [4], load simulators [2,5–7], vehicle active suspension systems [8–11], and aircraft actuators [6]. However, for precise positioning in these applications, a reliable electro-hydraulic actuator is required and also high-precision servo system must have low-speed stability as well as great tracking accuracy. As a result, the design of an appropriate extremely robust controller capable of reflecting these properties is critical. The EHSS's extremely nonlinear dynamic features [12,13], parameter fluctuations, modeling errors, and external disturbances are also significant barriers to obtaining high-accuracy position tracking performance. As a result, the EHSS's position-tracking problem has gained significant focus in the past few years and several efforts have been made to explore and resolve these issues [14–23].

Nevertheless, friction is the most intricate and difficult to address of the nonlinear elements that affect the performance of hydraulic systems. Because it is incredibly difficult to comprehend the mechanical contact phenomenon, obtaining precise friction

information to increase tracking performance is impossible [24–28].

Scholars have developed several compensating approaches to increase the effectiveness of the nonlinear servo control system to counteract the impact of friction disturbance on the control system's performance. According to [29], there are primarily two friction compensation strategies. The first approach is to develop a friction-based compensating controller. An alternate approach is the intelligent control technique that may be used to dampen the friction interruption by treating it as an external interference. According to [30], the most common types of friction models are dynamic friction models and static friction models. Armstrong's model, Coulomb's model, Stribeck's model, and Karnopp's model are the most common static friction models [31–34]. As a result of its simplistic structure and easily recognizable characteristics, the static friction model is often used for friction compensation, however, this approach only yields marginal gains in system performance since it fails to adequately capture the friction phenomena. Dynamic friction models have therefore also been studied by several researchers and these models mostly include the Dahl model, Elastoplastic model, LuGre model, and Leuven model [35–38].

Among the compensation approaches, the LuGre model [39] proposed by de Wit et al. is one of the most often used and effective approaches. Because the LuGre model represents the standard characteristics of the surfaces in direct contact in a



microscopic perspective and implements a nonlinear first-order differential equation to describe it, it can describe the principal frictional characteristics using a much simpler equation. However, any model can only be an approximation to real friction, and it is almost impossible to build a completely accurate model for friction. Several scholars have developed various control schemes using the LuGre friction model and achieved good engineering results [40–43].

In this paper, a nonlinear robust integral adaptive backstepping controller with friction compensation (wFC) is designed for the position control of the electrohydraulic servo system. Two observers are built based on the LuGre model to describe the various nonlinear characteristics of the unmeasurable state and an integral adaptive backstepping controller is designed to achieve the friction compensation. As a result, the system's nonlinear friction and external disturbance are reduced, and position tracking is improved.

2. THE LUGRE FRICTION MODEL

According to [39], the LuGre dynamic friction model, the average deformation behavior based on the bristle is:

$$\frac{dz}{dt} = \dot{x} - \frac{|\dot{x}|}{g(\dot{x})}z \quad (1)$$

where z , $g(\bullet)$ respectively represent the average deformation of the bristle and the friction model describing the static behavior of friction. The bristle's mean deformation z , is expressed as

$$z_{ss} = g(\dot{x})\text{sign}(\dot{x}) \quad (2)$$

The friction force described by the LuGre model is

$$f_m = \sigma_0 z + \sigma_1 \frac{dz}{dt} + \sigma_2 \dot{x} \quad (3)$$

where σ_0 , σ_1 and σ_2 respectively represent the system bristle stiffness, damping, and viscous damping coefficient. And $g(\bullet)$ is the function that characterizes the static friction behavior, The exponential model is often used, i.e

$$g(\dot{x}) = \alpha_0 + \alpha_1 e^{-(\dot{x}/\dot{x}_s)^\lambda} \quad (4)$$

In the formula, $\sigma_0 \alpha_0$, $\sigma_0 (\alpha_0 + \alpha_1)$ respectively characterizes the macroscopic Coulomb friction f_c and static friction f_s , i.e

$$\sigma_0 g(\dot{x}) = f_c + (f_s - f_c) e^{-(\dot{x}/\dot{x}_s)^\lambda} \quad (5)$$

3. CONTROL STRATEGY FOR FRICTION COMPENSATION BASED ON THE LUGRE MODEL

3.1 Design Model and Issues to be Addressed

Based on the EHSS model utilizing force balance equation, The hydraulic actuator's pressures, and the servo valve's flow equation as presented in [44] combined with the LuGre friction model from equation (3), define the state variables $x = [x_1, x_2, x_3]^T =$

$[y, \dot{y}, A_1 P_1 - A_2 P_2]^T$. Then, the nonlinear model of the EHSS can be written as:

$$\begin{aligned} \dot{z} &= x_2 - \frac{|x_2|}{g(x_2)}z \\ \dot{x}_1 &= x_2 \\ m\dot{x}_2 &= x_3 - \sigma_0 z + \sigma_1 \frac{|x_2|}{g(x_2)}z + (\sigma_1 + \sigma_2) \\ &\quad + x_2 - d_n - \tilde{d}(x_1, x_2, t) \\ \dot{x}_3 &= \left(\frac{A_1}{V_1}R_1 + \frac{A_2}{V_2}R_2\right)g\beta_e u \\ &\quad - \left(\frac{A_1^2}{V_1^2} + \frac{A_2^2}{V_2^2}\right)\beta_e x_2 \\ &\quad - \left(\frac{A_1}{V_1} + \frac{A_2}{V_2}\right)\beta_e C_t P_L \end{aligned} \quad (6)$$

where, m , y , P_L , β_e , C_t are respectively system load mass, output displacement, the hydraulic cylinder's pressure difference, hydraulic oil elastic modulus, and actuator leakage coefficient, A_1 , A_2 are the hydraulic cylinder's effective piston areas; V_1 and V_2 are the volumes of the cavities of the hydraulic cylinder; R_1 , R_2 are defined as described above; g is the servo valve gain; d_n , is the concentration of unmodeled dynamics and external interference. Nominal value; $\tilde{d}(x_1, x_2, t) = f(x_1, x_2, t) - d_n$.

The following nonlinear function is defined

$$\begin{aligned} g_3(x) &= \left(\frac{A_1}{V_1}R_1 + \frac{A_2}{V_2}R_2\right)g\beta_e > 0, \forall x \\ f_3(x) &= \left(\frac{A_1^2}{V_1^2} + \frac{A_2^2}{V_2^2}\right)\beta_e x_2 \\ &\quad + \left(\frac{A_1}{V_1} + \frac{A_2}{V_2}\right)\beta_e C_t P_L \end{aligned} \quad (7)$$

The system unknown parameters are defined as $[\theta_1, \theta_1, \theta_1, \theta_1]^T = [\sigma_0, \sigma_1, \sigma_1 + \sigma_2, d_n]^T$ then equation (6) can be transformed into:

$$\begin{cases} \dot{z} = x_2 - \frac{|x_2|}{g(x_2)}z \\ \dot{x}_1 = x_2 \\ m\dot{x}_2 = x_3 - \theta_1 z + \theta_2 \frac{|x_2|}{g(x_2)}z - \theta_3 x_2 - \theta_4 - \tilde{d}(\cdot) \\ \dot{x}_3 = g_3(x)u - f_3(x) \end{cases} \quad (8)$$

Control goal: the design objective of the system controller is to design a control input u ensuring its boundedness for the given system reference signal $y_d(t) = x_{1d}(t)$, so that the system output $y = x_1$ can track the system reference signal as much as possible. The reference signal has the following assumptions: system reference command signal x_{1d} is third-order continuous, and the



expected system position command, velocity command, and acceleration command are bounded.

3.2 Design of integral adaptive backstepping controller

Because the system equations have mismatched parameter uncertainties and existing nonlinear friction, the backstepping design method is used. We design an integral adaptive backstepping controller based on Lyapunov stability theory to accomplish system stability and adaptive ability by making the system output approach the target trajectory with high approximation.

Step 1: From the system equation (8), define the error variables for the first two equations of (8) as

$$\begin{aligned} e_1 &= x_1 - x_{1d} \\ e_2 &= \dot{e}_1 + k_1 e_1 = x_2 - x_{2eq}, x_{2eq} \\ &\stackrel{\text{def}}{=} \dot{x}_{1d} - k_1 e_1 \end{aligned} \quad (9)$$

where $e_1 = x_1 - x_{1d}$ is the system tracking error, and $k_1 > 0$ is positive feedback gain.

In the following controller design, the main design goal is to make e_2 approach 0. It can be seen from Equation (9).

$$\begin{aligned} m\dot{e}_2 &= m\dot{x}_2 - m\dot{x}_{2eq} \\ &= \theta_1 z + \theta_2 \frac{|x_2|}{g(x_2)} z \\ &\quad - \theta_3 x_2 - \theta_4 - \ddot{d} - m\dot{x}_{2eq} \end{aligned} \quad (10)$$

In the controller design of this step, the observer structure is used to estimate the different properties of the state z , and the mapping function is used to ensure that the observer estimation is controlled to ensure that the observer is stable.

$$\begin{aligned} \hat{z}_1 &= \text{Pr o } j_{\hat{z}_1}(l_1), \quad z_{\min} \leq z_1(0) \leq z_{\max} \\ \hat{z}_2 &= \text{Pr o } j_{\hat{z}_2}(l_2), \quad z_{\min} \leq z_2(0) \leq z_{\max} \end{aligned} \quad (11)$$

where l_1 and l_2 are the regulating functions of z_1 and z_2 observer respectively. For the different estimates of state z_1 and z_2 , their upper and lower bounds are given respectively as $z_{1\max} = z_{2\max} = z_{\max} = \alpha_0 + \alpha_1$, $z_{1\min} = z_{2\min} = z_{\min} = -(\alpha_0 + \alpha_1)$ respectively. In Equation (11), the mapping function is defined as

$$\text{Pr o } j_{\hat{\gamma}}(\bullet) = \begin{cases} 0, & \hat{\zeta} = \gamma_{\max} \\ 0, & \hat{\zeta} = \gamma_{\min} \\ \bullet, & \text{otherwise} \end{cases} \quad (12)$$

where γ can be an unknown parameter θ or system state z . For the unknown parameter θ , the following parameter adaptive law is defined;

$$\dot{\hat{\theta}} = \text{Pr o } j_{\hat{\theta}}(\Gamma \tau), \quad \theta_{\min} \leq \hat{\theta}(0) \leq \theta_{\max} \quad (13)$$

where $\hat{\theta}$ represents the estimation of the unknown parameter θ of the system, and $\tilde{\theta} = \hat{\theta} - \theta$ is the error of parameter estimation; $\Gamma > 0$ is the positive definite diagonal matrix, and represents the adaptive gain; τ is the parametric adaptive function.

Based on the above-controlled parameter and state estimation, there is the following lemma:

Lemma 1; For any adaptive function τ , the observer adjustment functions l_1 and l_2 discontinuous mapping expression equation (12) has the following properties;

$$\theta_{\min} \leq \hat{\theta} \leq \theta_{\max} \quad (14)$$

$$z_{\min} \leq \hat{z}_1 \leq z_{\max} \quad (15)$$

$$z_{\min} \leq \hat{z}_2 \leq z_{\max} \quad (16)$$

$$\tilde{\theta}^T [\Gamma^{-1} \hat{\theta} - \tau] \leq 0, \forall \tau \quad (17)$$

$$\tilde{z}_1 \{\dot{\hat{z}}_1 - l_1\} \leq 0 \quad (18)$$

$$\tilde{z}_2 \{\dot{\hat{z}}_2 - l_2\} \leq 0 \quad (19)$$

In the formula, $\tilde{z}_1 \stackrel{\text{def}}{=} \hat{z}_1 - z$, $\tilde{z}_2 \stackrel{\text{def}}{=} \hat{z}_2 - z$ respectively represent the deviation of different state estimates, and have the following dynamic;

$$\begin{aligned} \frac{d\tilde{z}_1}{dt} &= \dot{\hat{z}}_1 - \dot{z} = \text{Pr o } j_{\hat{z}_1}(l_1) \\ &\quad - \left(x_2 - \frac{|x_2|}{g(x_2)} z \right) \end{aligned} \quad (20)$$

$$\begin{aligned} \frac{d\tilde{z}_2}{dt} &= \dot{\hat{z}}_2 - \dot{z} = \text{Pr o } j_{\hat{z}_2}(l_2) \\ &\quad - \left(x_2 - \frac{|x_2|}{g(x_2)} z \right) \end{aligned} \quad (21)$$

In other to make e_2 converge to zero or small and have a guaranteed transient response, we treat x_3 as virtual control input and construct a control function for it. The control function $\alpha_2(x_1, x_2, \hat{\theta}, \hat{z}_1, \hat{z}_2, t)$ for the dynamic equation (10) has the following structural form:

$$\begin{aligned} \alpha_2(x_1, x_2, \hat{\theta}, t) &= \alpha_{2a} + \\ &\alpha_{2s} \\ \alpha_{2a} &= \hat{\theta}_1 \hat{z}_1 - \hat{\theta}_2 \frac{|x_2|}{g(x_2)} \hat{z}_2 + \hat{\theta}_3 x_2 + \hat{\theta}_4 \\ &\quad + m\dot{x}_{2eq} \end{aligned} \quad (22)$$

$$\alpha_{2s} = \alpha_{2s1} + \alpha_{2s2}$$

$$\alpha_{2s1} = -k_{2s1} e_2$$



where, $k_{2s1} > 0$ is a controller design parameter. The feedback gain k_1 , and k_{2s1} is large enough to make the matrix Λ_2 below a positive definite matrix:

$$\Lambda_2 = \begin{pmatrix} k_1^3 & -\frac{1}{2}k_1^3 \\ -\frac{1}{2}k_1^3 & k_{2s1} \end{pmatrix} \quad (23)$$

The error between the control function α_2 and the virtual control input x_3 is defined as: $e_3 = x_3 - \alpha_2$ and substitute equation (22) into Equation (10) then we obtain

$$m\dot{e}_2 = e_3 - k_{2s1}e_2 + \alpha_{2s2} - \varphi_2^T \tilde{\theta} + \theta_1 \tilde{z}_1 - \theta_2 \frac{|x_2|}{g(x_2)} \tilde{z}_2 - \tilde{d} \quad (24)$$

Where:

$$\varphi_2^T \underline{def} [-\hat{z}_1, \frac{|x_2|}{g(x_2)} \hat{z}_2, -x_2, -1] \quad (25)$$

According to Equation (24) α_{2s2} is designed to satisfy the following stabilization conditions;

$$e_2 \left\{ \alpha_{2s2} - \varphi_2^T \tilde{\theta} - \theta_1 \tilde{z}_1 - \theta_2 \frac{|x_2|}{g(x_2)} \tilde{z}_2 - \tilde{d} \right\} \leq \varepsilon_2 \quad (26)$$

$$e_2 \alpha_{2s2} \leq 0 \quad (27)$$

Where, ε_2 is the controller design parameter that can be arbitrarily small and positive. As can be seen from equation (26) the designed α_{2s2} is a robust controller.

Define the following Lyapunov function:

$$V_2 = \frac{1}{2} m e_2^2 + \frac{1}{2} k_1^2 e_1^2 \quad (28)$$

And its time differential is

$$\begin{aligned} \dot{V}_2 &= m\dot{e}_2 e_2 + k_1^2 e_1 \dot{e}_1 \\ &= e_2 e_3 - k_1^3 e_1^2 + k_1^2 e_1 e_2 - k_{2s1} e_2^2 \\ &\quad + e_2 \{ \alpha_{2s2} - \varphi_2^T \tilde{\theta} - \theta_1 \tilde{z}_1 \\ &\quad - \theta_2 \frac{|x_2|}{g(x_2)} \tilde{z}_2 - \tilde{d} \} \end{aligned} \quad (29)$$

Step 2: In the first step, from equation (29), it can be seen that if $e_3 = 0$, the condition equation (26) and equation (27) will achieve position tracking. The purpose of this step 2 is to design the actual control law u in such a way that x_3 tracks the virtual control

function α_2 as well as guaranteeing transient performance. According to the third equation of the system from equation (8), and the definition of e_3 we get:

$$\dot{e}_3 = g_3 u - f_3 - \dot{\alpha}_2 \quad (30)$$

where:

$$\begin{aligned} \dot{\alpha}_2 &= \dot{\alpha}_{2c} - \dot{\alpha}_{2u} \\ \dot{\alpha}_{2c} &= \frac{\partial \alpha_2}{\partial t} + \frac{\partial \alpha_2}{\partial x_1} x_2 + \frac{\partial \alpha_2}{\partial x_2} \hat{x}_2 + \frac{\partial \alpha_2}{\partial \hat{\theta}} \hat{\theta} \\ &\quad + \frac{\partial \alpha_2}{\partial \hat{z}_1} \dot{\hat{z}}_1 + \frac{\partial \alpha_2}{\partial \hat{z}_2} \dot{\hat{z}}_2 \\ \dot{\alpha}_{2u} &= \frac{\partial \alpha_2}{\partial x_2} \tilde{x}_2 \end{aligned} \quad (31)$$

of which:

$$\begin{aligned} \hat{x}_2 \underline{def} & \frac{x_3 - \hat{\theta}_1 \hat{z}_1 \frac{|x_2|}{g(x_2)} \hat{z}_2 - \hat{\theta}_3 x_2 - \hat{\theta}_4}{m} \\ \tilde{x}_2 \underline{def} & \frac{\varphi_2^T \tilde{\theta} - \theta_1 \tilde{z}_1 \frac{|x_2|}{g(x_2)} \tilde{z}_2 + \tilde{d}}{m} \end{aligned} \quad (32)$$

Equation (31), $\dot{\alpha}_{2c}$ is the computable partial differential part $\dot{\alpha}_2$, so it can be used in the design of actual controller u ; $\dot{\alpha}_{2u}$ is the non-computable part $\dot{\alpha}_2$, a robust controller will be designed to stabilize this uncertainty. Although α_2 has a discontinuous function x_2 of x_2 when calculating the partial derivative of $|x_2|$, its limit of the partial derivative of $x_2 = 0$ is bounded.

According to Formula (30) and Formula (31) and the inequality in Formula (7), the control input signal u can be designed with the structure:

$$\begin{aligned} u &= u_a + u_s \\ u_a &= \frac{1}{g_3} (f_3 + \alpha_{2c}) \\ u_s &= \frac{1}{g_3} (u_{s1} + u_{s2}) \\ u_{s1} &= -k_{3s1} z_3 \end{aligned} \quad (33)$$

where, $k_{3s1} > 0$ is the controller design parameter. The design feedback gain k_1, k_{2s1}, k_{3s1} is large enough to make the matrix Λ as below a positive definite matrix:

$$\Lambda = \begin{pmatrix} k_1^3 & -\frac{1}{2}k_1^3 & 0 \\ -\frac{1}{2}k_1^3 & k_{2s1} & -\frac{1}{2} \\ 0 & -\frac{1}{2} & k_{3s1} \end{pmatrix} \quad (34)$$

By substituting the control law equation (33) into equation (30) we obtain



$$\begin{aligned} \dot{e}_3 = & -k_{3s1}e_1 + u_{s2} - \varphi_2^T \tilde{\theta} - \frac{1}{m} \frac{\partial \alpha_2}{\partial x_2} \theta_1 \tilde{z}_1 \\ & + \frac{1}{m} \frac{\partial \alpha_2}{\partial x_2} \theta_2 \frac{|x_2|}{g(x_2)} \tilde{z}_2 \\ & + \frac{1}{m} \frac{\partial \alpha_2}{\partial x_2} \tilde{d} \end{aligned} \quad (35)$$

where:

$$\varphi_3^T \underline{def} - \frac{1}{m} \frac{\partial \alpha_2}{\partial x_2} \varphi_2^T \quad (36)$$

According to equation (35) u_{s2} can be designed to meet the following stabilization condition:

$$\begin{aligned} e_3 \left\{ u_{s2} - \varphi_3^T \tilde{\theta} - \frac{1}{m} \frac{\partial \alpha_2}{\partial x_2} \theta_1 \tilde{z}_1 \right. \\ \left. + \frac{1}{m} \frac{\partial \alpha_2}{\partial x_2} \theta_2 \frac{|x_2|}{g(x_2)} \tilde{z}_2 \right. \\ \left. + \frac{1}{m} \frac{\partial \alpha_2}{\partial x_2} \tilde{d} \right\} \leq \varepsilon_3 \end{aligned} \quad (37)$$

$$e_3 u_{s2} \leq 0 \quad (38)$$

where, ε_3 is the controller design parameter that can be arbitrarily small and positive. According to formula (37), u_{s2} designed is a robust controller.

The controller (33) designed has the following properties:

All signals in the closed-loop controller are bounded, and the Lyapunov function is defined as follows:

$$V_3 = V_2 + \frac{1}{2} e_3^2 \quad (39)$$

And the inequality below is satisfied

$$V_3 \leq \exp(-\mu t) V_3(0) + \frac{\varepsilon}{\mu} [1 - \exp(-\mu t)] \quad (40)$$

where $\mu = 2 \lambda_{\min}(\Lambda_3) \min \left\{ \frac{1}{k_1^2}, \frac{1}{m}, 1 \right\}$, $\lambda_{\min}(\Lambda_3)$ is the minimum eigenvalue of the positive definite matrix Λ_3 ; $\varepsilon = \varepsilon_2 + \varepsilon_3$.

If after a certain time t_0 , there is only parametric uncertainty in the

system, i.e. $\tilde{d} = 0$, then the controller (33) can also obtain asymptotic tracking performance i.e. when $t \rightarrow \infty, e \rightarrow 0$, where e is defined as $e = [e_1, e_2, e_3]^T$. The properties demonstrate that the developed controller can ensure the specified transient performance and final asymptotic tracking accuracy of the output. When the specified time has elapsed, the tracking error can be reduced to a satisfactory level as proved by [45]

Table 1. EHSS system parameters

Parameter	Value	Parameter	Value
$A_1 = A_2$ (m2)	6.409×10-4	m (kg)	40
P_s (Pa)	7×106	C_t (m5·N·s-1)	7×10-12
(Pa)	7×108	B (N/(m/s))	7500
$V_1 = V_2$ (m3)	3×10-2	K_q (m2/s)	0.874
σ_0 (N/m)	1×104	f_c (N)	41
σ_1 (N.s/m)	1×102	Strikback velocity x_{2s}	0.01
		(m/s)	
\tilde{d}	0	d_n (N)	0
ρ (kg/m-3)	870	σ_2 (N.s/m)	70

4. EXPERIMENTAL SETUP AND RESULTS

The experimental findings of the EHSS position control are reported here. The experimental test bent is depicted in Figure 1(a). The control system is based on a real-time operating system using xPC target real-time online rapid prototyping control technology shown in Figure 1(b). The written program is compiled and downloaded to an industrial real-time control computer, which incorporates an in-line PCI slot for faster installation. The system uses a displacement sensor to input real-time dynamic signals

from the actuator, and a closed-loop control is formed to move according to the set motion trajectory and condition. The sensor signals are stored on the host computer for further processing and analysis. The experiment consists of three scenarios of sinusoidal signal at various amplitudes and frequencies with 30mm amplitude and system subjected to double load as external disturbance. The tracking performance and bounded steady-state error of controllers are compared. The system's position tracking

performance and bounded trajectory tracking error are also examined under different conditions.

To verify the proposed controller's performance, the PID controller tuned to its best performance, and the traditional backstepping controller was compared. Results are presented in Figure 2 to Figure 4. The control gains which provided the best performance in the PID controller was $K_p = 3.1$, $K_i = 0.1$, and

$K_p = 0.001$. and the BSC design parameters were $K_1 = 27500$, $K_2 = 185$, and $K_3 = 60$. Proposed controller's parameters: $\gamma_1 = 1 \times 10^{-5}$, $\gamma_2 = 1 \times 10^{-5}$ $k_1 = 39500$, $k_2 = k_{2s1} + k_{2s2} = 200$, $k_2 = k_{3s1} + k_{3s2} = 55$, $\theta_{min} = [0.6 \times 10^5, 0.6 \times 10^5 \times (1 \times 10^5)^{0.5}, 55, -50]^T$, $\theta_{max} = [1 \times 10^5, 1 \times 10^5 \times (1 \times 10^5)^{0.5}, 70, 50]^T$, $\Gamma = \text{diag}\{2 \times 10^8, 1 \times 10^4, 195, 50\}$, $\theta(0) = [0.6 \times 10^5, 0.6 \times 10^5 \times (1 \times 10^5)^{0.5}, 55, 0]^T$

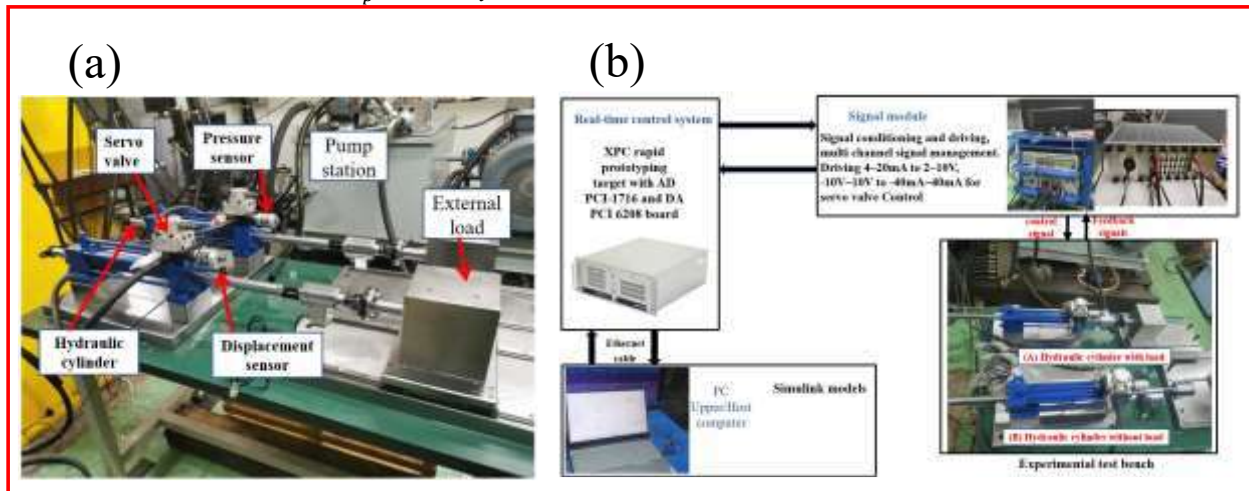


Figure 1. Experimental setup (a) Schematic of the experimental test bench. (b) Experimental control system.

The study also employed the mean square error (*MSE*), root mean square error (*RMSE*), maximum absolute tracking error (*RMSE*),

and standard deviation (σ) of the tracking error values to evaluate controllers' performance. Results are presented in

Table 2.

Table 2. Performance index					
Controller	Error	MSE	RMSE	M_e	σ
30 mm and 0.25 Hz					
PID	0.55	0.0667	0.2583	0.3543	0.2581
BSC	0.385	0.0164	0.1281	0.2382	0.1261
wFC	0.29	0.0032	0.0567	0.1303	0.0522
30 mm and 0.5 Hz					
PID	0.7	0.1877	0.4332	0.6158	0.4326
BSC	0.45	0.0482	0.2195	0.3296	0.2180
wFC	0.3	0.0094	0.0968	0.2246	0.0832
50 mm and 0.25 Hz					
PID	0.459	0.1152	0.3393	0.4812	0.3393
BSC	0.199	0.0199	0.1410	0.1931	0.1405
wFC	0.182	0.0116	0.1075	0.1864	0.0613
50 mm and 0.5 Hz					
PID	0.98	0.3768	0.6138	0.9111	0.6146
BSC	0.50	0.0824	0.2870	0.4042	0.2862
wFC	0.37	0.032	0.1779	0.2626	0.1314
30 mm and 0.5 Hz with external disturbance					
PID	0.85	0.3043	0.5517	0.8854	0.5543
BSC	0.45	0.060	0.2468	0.4634	0.2526



BSCF 0.35 0.011 0.1054 0.3408 0.1186

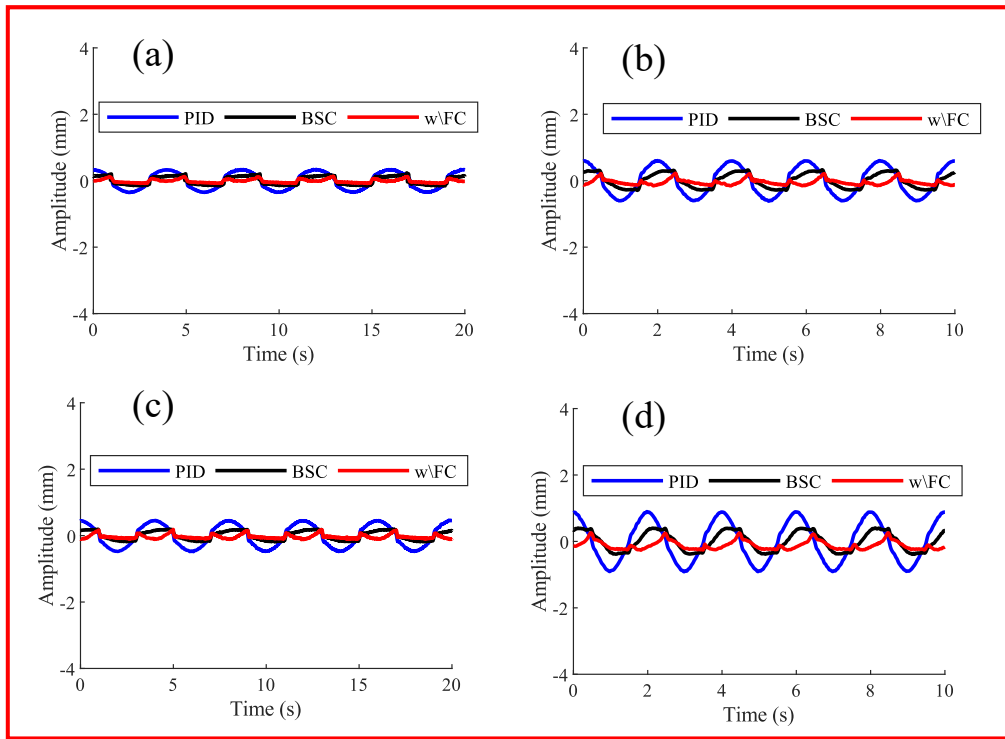


Figure 2. Tracking errors (a) 30 mm and 0.25 Hz (b) 30 mm and 0.5 Hz (c) 50 mm and 0.25 Hz (d) 50 mm and 0.5 Hz.

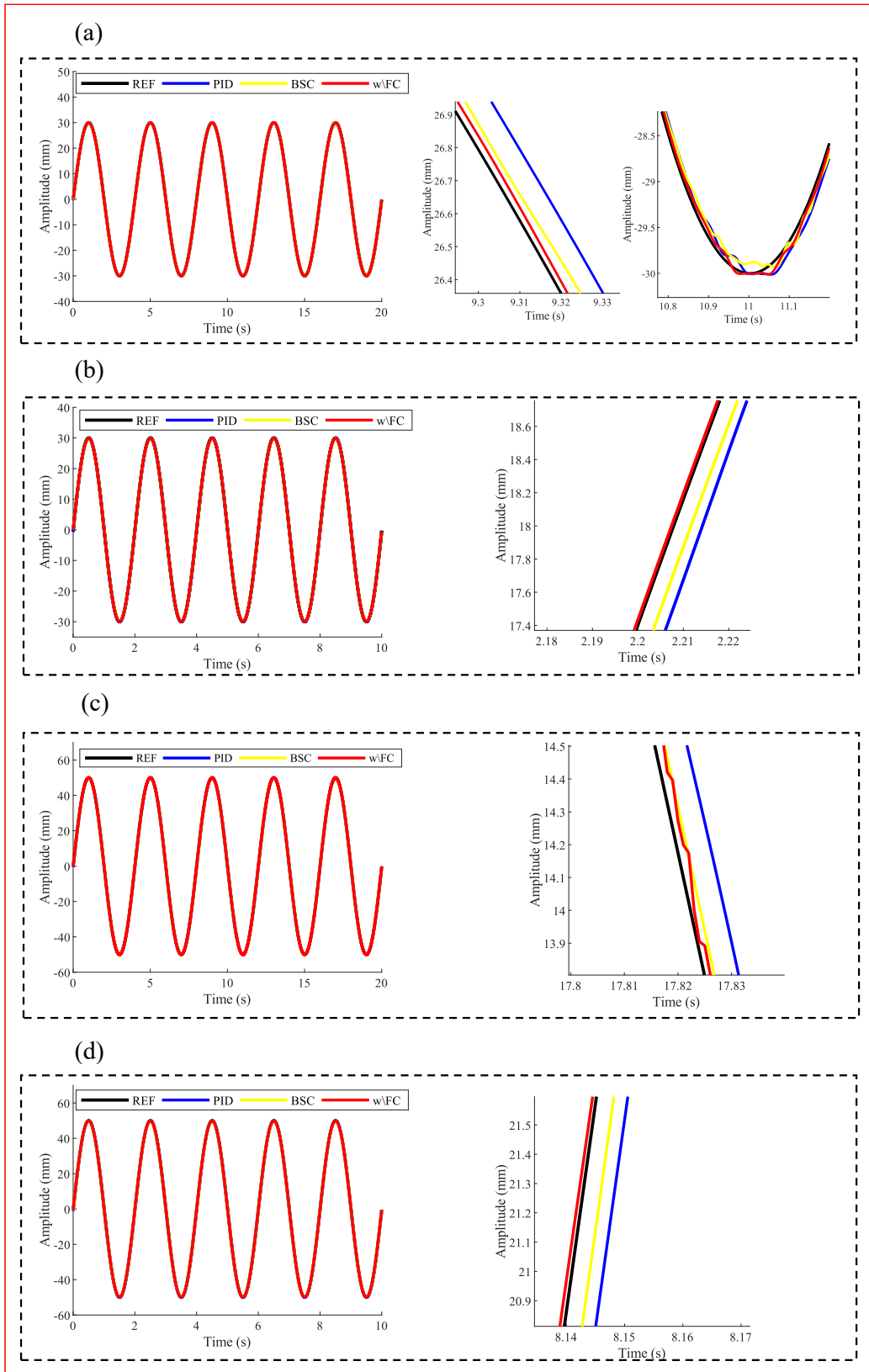


Figure 3. Position tracking (a) 30 mm and 0.25 Hz (b) 30 mm and 0.5 Hz (c) 50 mm and 0.25 Hz (d) 50 mm and 0.5 Hz.

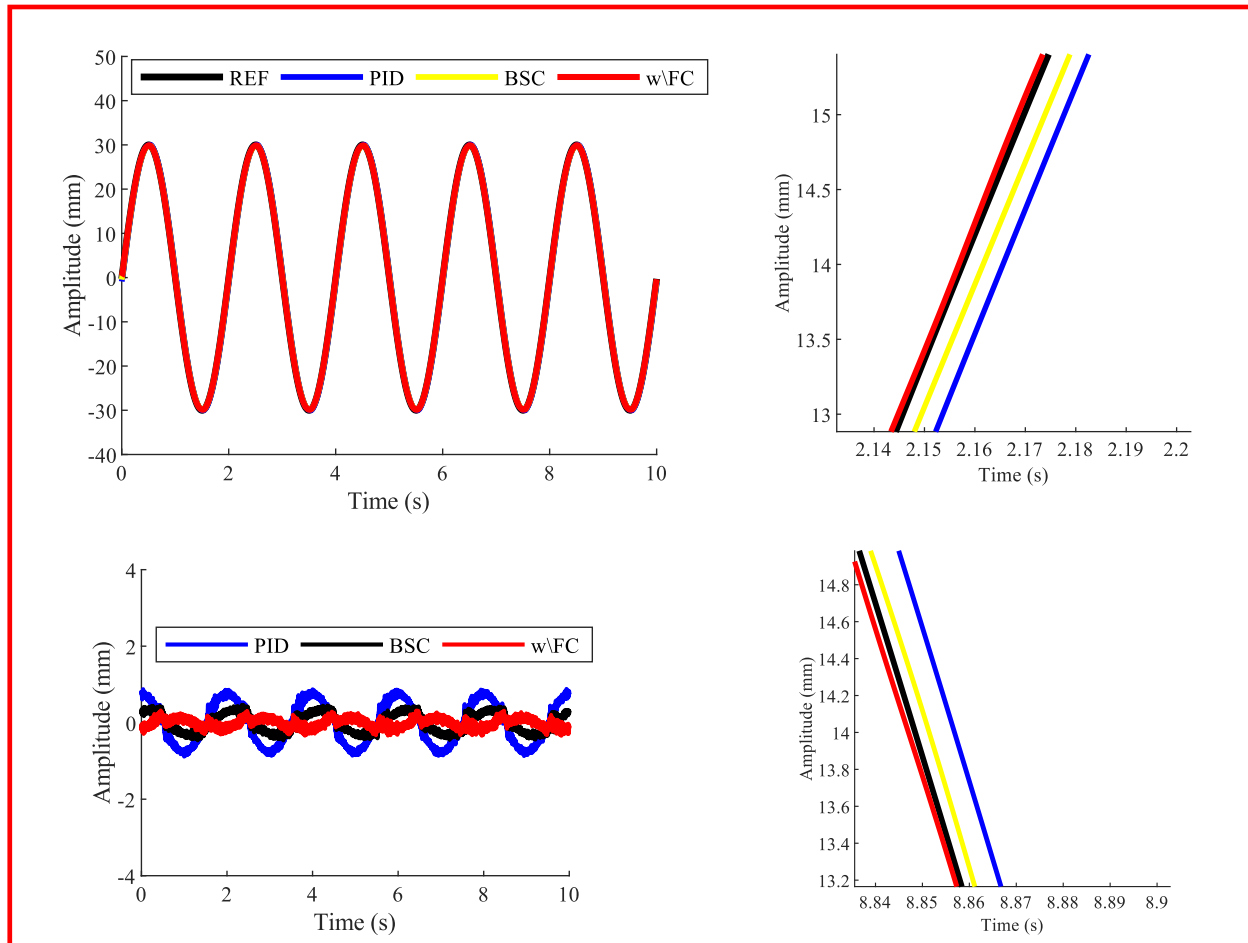


Figure 4. Position tracking and tracking error of 30 mm and 0.25 Hz with double load external disturbance.

5. DISCUSSION

This study improves electro-hydraulic position servo system precision control with an integral adaptive backstepping controller with friction compensation (w\FC). The PID controller offers the worst response due to its inability to handle system nonlinearities and friction. The w\FC controller outperforms both PID and traditional backstepping controllers due to its robustness, ability to handle nonlinearities, and friction compensation. It also has faster response time and the lowest performance measure index. Thus, for the tracking performance of the three controllers: the proposed integral adaptive backstepping controller with friction compensation > the traditional backstepping controller > the PID controller.

6. CONCLUSION

This paper presents a nonlinear integral adaptive backstepping controller designed to improve the position-tracking performance of EHSS. The controller uses a continuous approximation of the LuGre friction model, enhancing system performance. The design technique uses Lyapunov functions for stability and asymptotic tracking. Experimental results show

the controller outperforms traditional backstepping controllers and conventional PID controllers under different working conditions.

Author Contributions

Michael Enyan: Methodology, Validation, Writing – original draft. **Luis Miguel Ruiz Páez:** Writing – review & editing, Formal analysis.

Declaration of Competing Interest

The authors declare that there are no competing financial interests.

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Compliance with ethical standards

Research involving human participants and/or animals No human participants or animals were involved in this research.



REFERENCE

1. Yao Z, Yao J, Yao F, Xu Q, Xu M, transactions W D-I and 2020 Model reference adaptive tracking control for hydraulic servo systems with nonlinear neural-networks ISA Transactions
2. Yao J, Jiao Z, Aeronautics S H-C J of and 2013 Friction compensation for low velocity control of hydraulic flight motion simulator: a simple adaptive robust approach Chinese Journal of Aeronautics
3. Truong H, Trinh H, Sciences K A-A and 2020 Safety operation of n-DOF serial hydraulic manipulator in constrained motion with consideration of contact-loss fault Applied Sciences
4. Sun C, Fang J, Wei J, Access B H-I and 2018 Nonlinear motion control of a hydraulic press based on an extended disturbance observer IEEE Access
5. Luo C, Yao J, Chen F, Li L, Access Q X-I and 2017 Adaptive repetitive control of hydraulic load simulator with RISE feedback IEEE Access
6. Chengwen W, Zongxia J, Long Q and Hongjun M 2018 Application of adaptive robust control for electro-hydraulic motion loading system Transactions of the Institute of Measurement and Control 40 873–84
7. Kang S, Yan H, Dong L, Processing C L-M S and S and 2018 Finite-time adaptive sliding mode force control for electro-hydraulic load simulator based on improved GMS friction model Mechanical Systems and Signal Processing
8. Sun W, Gao H, on O K-I transactions and 2014 Vibration isolation for active suspensions with performance constraints and actuator saturation IEEE/ASME Transactions on Mechatronics
9. Choi K, Oh J, Kim H-S, Han H-W, Park J-H, Lee G-H, Seo J and Park Y-J Experimental study on the dynamic characteristics of hydro-pneumatic semi-active suspensions for agricultural tractor cabins Applied Sciences
10. Ma X, Wong P, Processing J Z-M S and S and 2019 Practical multi-objective control for automotive semi-active suspension system with nonlinear hydraulic adjustable damper Mechanical Systems and Signal Processing Huang Y, Na J, Wu X, Industrial G G-I T on and 2018 Approximation-free control for vehicle active suspensions with hydraulic actuator IEEE Transactions on Industrial Electronics
11. Lovrec D, Modelling M K-I J of S and 2011 Modelling and simulating a controlled press-brake supply system International Journal of Simulation Modelling 10 133–44
12. Anon Merritt, H.E. (1967). Hydraulic Control Systems. Wiley, NewYork.
13. Feng H, Ma W, Yin C, Construction D C-A in and 2021 undefined Trajectory control of electro-hydraulic position servo system using improved PSO-PID controller Elsevier
14. Zahir A M, Alhady S, ... W O-I M & and 2018 Genetic algorithm optimization of PID controller for brushed DC motor Springer 0 427–37
15. Sungthong A, Science W A-P C and 2016 Particle swarm optimization based optimal PID parameters for air heater temperature control system Procedia Computer Science
16. Truong D, Applications K A-E S with and 2011 Force control for press machines using an online smart tuning fuzzy PID based on a robust extended Kalman filter Expert Systems with Applications
17. Zhao J, Wang J, Mechatronics S W- and 2013 Fractional order control to the electro-hydraulic system in insulator fatigue test device Mechatronics
18. Das J, Santosh ., Mishra K, Saha . R, Mookherjee . S and Sanyal . D 2017 Nonlinear modeling and PID control through experimental characterization for an electrohydraulic actuation system: System characterization with validation Journal of the Brazilian Society of Mechanical Sciences and Engineering 39 1177–87
19. Kaddissi C, Kenne J, on M S-I transactions and 2010 Indirect adaptive control of an electrohydraulic servo system based on nonlinear backstepping IEEE/ASME Transactions on Mechatronics
20. Wang N, Lin W, Institute J Y-J of the F and 2018 Sliding-mode-based robust controller design for one channel in thrust vector system with electromechanical actuators Journal of the Franklin Institute
21. Mohanty A, Mechanical B Y-A I and 2006 Integrated direct/indirect adaptive robust control (diarc) of hydraulic robotics arm with accurate parameter estimates Dynamic Systems and Control, Parts A and B
22. Yao J, Jiao Z, Ma D, on L Y-I T and 2013 High-accuracy tracking control of hydraulic rotary actuators with modeling uncertainties IEEE/ASME Transactions on Mechatronics
23. Lampaert V, ... J S-P of the 2004 and 2004 undefined Comparison of model and non-model based friction compensation techniques in the neighbourhood of pre-sliding friction ieeexplore.ieee.org
24. Wang J, Wang J, ... N D-I transactions on and 2004 Identification of pneumatic cylinder friction parameters using genetic algorithms IEEE/ASME Transactions on Mechatronics
25. Armstrong-Hélouvy B, Dupont P, Automatica C D W- and 1994 undefined A survey of models, analysis tools and compensation methods for the control of machines with friction Elsevier
26. Khayati K, Bigras P, on L D-I T and 2006 A multistage position/force control for constrained robotic systems with friction: Joint-space decomposition, linearization, and multiobjective observer/controller IEEE Transactions on Industrial Electronics
27. Dupont P and Dunlap E 1995 Friction modeling and PD compensation at very low velocities Journal of Dynamic Systems, Measurement, and Control
28. Zhang M, Zhou M, Liu H, Zhang B, Zhang Y and Chu H 2018 Friction compensation and observer-based adaptive sliding mode control of electromechanical actuator Advances in Mechanical Engineering 10 2018
29. Fei J, Ding H, Hou S, ... S W-I J of and 2012 Robust adaptive neural sliding mode approach for tracking control of a MEMS triaxial gyroscope International Journal of Advanced Robotic Systems
30. Karnopp D 1985 Computer simulation of stick-slip friction in mechanical dynamic systems
31. Bo L, Wear D P- and 1982 The friction-speed relation and its influence on the critical velocity of stick-slip motion Wear
32. Mostaghel N, structural T D-E engineering & and 1997 undefined Representations of Coulomb friction for dynamic analysis Wiley Online Library



33. Armstrong-Hélouvry B, Dupont P, Automatica C D W- and 1994 A survey of models, analysis tools and compensation methods for the control of machines with friction Automatica
34. Ferretti G, Magnani G, P R-I T 2004 Single and multistate integral friction models IEEE Transactions on Automatic Control
35. Li X, Yao J, Institute C Z-J of the F and 2017 undefined Output feedback adaptive robust control of hydraulic actuator with friction and model uncertainty compensation Elsevier
36. Dupont P, Hayward V, ... B A-I T 2002 Single state elastoplastic friction models IEEE Transactions on Automatic Control
37. Dahl P 1968 A solid friction model 158 3107–25
38. Wit C de, Olsson H, ... K A-I T 1995 A new model for control of systems with friction IEEE Transactions on Automatic Control
39. Wang X and Wang S 2012 High performance adaptive control of mechanical servo system with lugre friction model: Identification and compensation Journal of Dynamic Systems, Measurement and Control, Transactions of the ASME 134
40. Yao J, Jiao Z and Han S 2013 Friction compensation for low velocity control of hydraulic flight motion simulator: A simple adaptive robust approach Chinese Journal of Aeronautics 26 814–22
41. Khayati K, Bigras P and Dessaint L A 2009 LuGre model-based friction compensation and positioning control for a pneumatic actuator using multi-objective output-feedback control via LMI optimization Mechatronics 19 535–47
42. Schindele D and Aschemann H 2009 Adaptive friction compensation based on the LuGre model for a pneumatic rodless cylinder IECON Proceedings (Industrial Electronics Conference) 1432–7
43. Yang G 2020 Dual extended state observer-based backstepping control of electro-hydraulic servo systems with time-varying output constraints Transactions of the Institute of Measurement and Control 42 1070–80
44. Merritt H E 1967 “Hydraulic Control Systems,”. John Wiley & Sons
45. Yao B, Bu F, Reedy J Adaptive robust motion control of single-rod hydraulic actuators: theory and experiments IEEE/ASME Transactions on Mechatronics 5 79
46. Yang G 2020 Dual extended state observer-based backstepping control of electro-hydraulic servo systems with time-varying output constraints Transactions of the Institute of Measurement and Control 42 1070–80
47. Yao J, Jiao Z and Han S 2013 Friction compensation for low velocity control of hydraulic flight motion simulator: A simple adaptive robust approach Chinese Journal of Aeronautics 26 814–22



PATHOLOGICAL ASPECTS OF SILENT HEART ATTACKS AND THEIR TREATMENT

Wali Rehman¹, Dr. Ajit Pal Singh²

¹Student, BMLT- 3 Year, SSAHS, Sharda University, Gr. Noida, U.P, India

²Assistant Professor, Department of Medical Lab Technology, SSAHS, Sharda University, Gr. Noida, U.P, India

Corresponding Author: Dr. Ajit Pal Singh, Assistant Professor, Department of Medical Lab Technology, Sharda School of Allied Health and Sciences, Sharda University, Greater Noida, U.P.

ABSTRACT

Silent heart ischemia is a condition characterized by decreased oxygen-rich blood flow in the absence of chest discomfort or other angina symptoms. Silent myocardial infarction (MI) is asymptomatic; it does not cause symptoms like normal myocardial infarction. According to new research, coronary artery disease is common in people with aortic stenosis (AS). Cardiac arrest is a new condition in which a person does not obtain enough oxygen because of an unhealthy lifestyle, dietary habits, cigarette and smoking usage, lack of exercise, sleeping patterns, and other factors that contribute to coronary artery disease. In our research, we acknowledge the pathogenic aspects as well as the diagnostic procedures used to detect myocardial infarction symptoms in our bodies, such as blood tests, CT scans, X-rays, and so on. The death rate in India and other countries is at an all-time high. The therapy is determined by the stage of cardiac arrest, although it is also accomplished with certain preventive medicines and surgical interventions.

KEYWORDS: *Silent heart attack, silent heart ischemia, oxygen-rich blood flow, aortic stenosis, pre-diagnosis procedure, treatment, histopathology, cross-section, awareness, risk factors of MI.*

INTRODUCTION

A silent heart attack is a condition in which the body does not get enough oxygen into the heart without causing any discomfort, such as in angina or other cardiovascular illnesses. It occurs without any warning signs or symptoms and causes major complications in the patient's life. The University of Nis studied 240 high-risk asymptomatic people and discovered that 15% of asymptomatic subjects had high coronary risk during stress echocardiography, and silent myocardial ischemia was more common than symptomatic myocardial ischemia. Heart failure is classified into four stages of diagnosis: Stage A indicates a high risk of heart failure, while Stage B indicates a cardiac failure that can be detected with an echocardiography. The heart will begin to appear weird at this point. Stage C: This is a normal stage of heart failure in which the patient experiences breathing difficulties, nausea, and edema, but it is treatable. Stage C is also diagnosable and treatable. Stage D: This is the final stage of the subject, which is associated with normal heart failure and necessitates rapid surgery. Our lifestyle, dietary habits, lack of responsibility for frequent check-ups, use of tobacco and alcohol, and other factors are major causes of heart failure. The majority of people disregard the symptoms of a heart attack and delay seeking medical assistance for an extended period of time. On January 23, 2023, the WHO (World Health Organization) published an article in which they indicated that over five billion individuals are unprotected from trans-fat, which leads to heart disease.

Detailed overview of pathological aspects through Blood Test

Most physicians recommend a lipid profile test in the early stages for an individual who is asymptomatic due to heart problems such as pain, nausea, edema, poor digestion, and so on. A lipid profile test can assist in determining the levels of LDL (low-density lipoprotein), often known as bad cholesterol, and HDL (high-density lipoprotein), also known as good cholesterol. Triglycerides are a form of fat found in the bloodstream. According to current research, people with atherosclerotic cardiovascular disease have reduced LDL levels over time. Aspartate aminotransferase, troponin, creatine kinase MB, myoglobin, lactate dehydrogenase, B-type natriuretic peptide, C-reactive protein, myeloperoxidase, and ischemia-modified albumin are the key tests mentioned in cardiac markers that aid in the diagnosis of heart failure. These are intracellular macromolecules that are released from the heart muscle when the heart is injured, resulting in myocardial infarction. heart indicators are solely used to detect heart injury. A cardiac marker is a low-cost, quick, and quantitative diagnostic that can detect problems. In the current scenario, markers and test panels are creatine kinase (CK) and muscle-brain creatine kinase (CK-MB), troponin T (TnT) and troponin I (TnI), and myoglobin (Mb), and the markers under assessment with potential clinical use are CK-MB isoforms, high-sensitivity C-reactive protein (hs-CRP), and B-type (formerly brain) natriuretic peptide (BNP).



Risk Factors

- 1. Smoking:** Smoking can be the main cause of cardiac arrest because the chemicals in cigarette smoke cause swelling and inflammation in the blood vessels that can lead to atherosclerosis, coronary heart disease, stroke, peripheral arterial disease, and abdominal aortic aneurysm. Smokers have higher risks of myocardial infarction as compared to non-smokers, as the odd ratio comes out to be 3.71, which is significant.
- 2. Eating habits:** Diet is crucial in living a healthy life, which is why a damaging diet raises the risk of myocardial infarction. Obesity, high blood pressure, uncontrolled diabetes, and a high-saturated-fat diet are all risk factors for myocardial infarction.
- 3. Consumption of alcohol:** Habituation to heavy alcohol consumption is associated with higher cardiovascular risk. Previous studies have reported that alcohol leads to acute triggers of sudden cardiac death and ischemic and haemorrhagic stroke. However, a higher risk of acute MI-triggered alcohol consumption among people.
- 4. Sleeping pattern:** Inadequate sleep has been identified as a public health epidemic, and poor sleeping habits add to the burden of heart disease, which is linked to an increased risk of MI, inflammation, and endothelial dysfunction. According to prior research, they are vulnerable to reverse causality and residual confounding, which limit causal inference. In Mendelian randomization, these disadvantages are mitigated by the use of genetic polymorphisms as proxies for lifelong exposure to longer or shorter sleep.
- 5. Stress/anxiety:** Chronic stress can induce artery inflammation, plaque formation, and other risk factors for heart disease and heart attack. A person suffering from nomophobia has difficulty breathing, which can lead to abrupt cardiac arrhythmias and MI.
- 6. Treatment:** According to recent studies treatment based on:
 - **Medical therapy:** by using beta blockers and calcium channel blockers, which reduce the number and duration of ischemia episodes the most. Calcium channel blockers are used mostly in monotherapy if the patient is intolerant of beta-blockers. They are also used in individuals who

have specifically identified a pathogenic mechanism that is likely to respond better to calcium channel blockers (e.g., vasospastic angina). Antiplatelet and lipid-lowering medications (such as aspirin and statins) are also utilized.

- **Psychotherapy:** Psychotherapists assist patients in reducing stress because mental stress can cause silent myocardial infarction, which is specific to coronary artery disease. In psychotherapy, the psychotherapist attempts to reduce mental, social, and emotional alterations that may lead to cardiac arrhythmia in the patient.
- **Revascularization:** This method is rarely employed. It refers to a class of medical procedures that aim to restore a portion of the heart's blood flow that has been restricted or inhibited. This could be accomplished through surgery or minimally invasive techniques such as angioplasty.

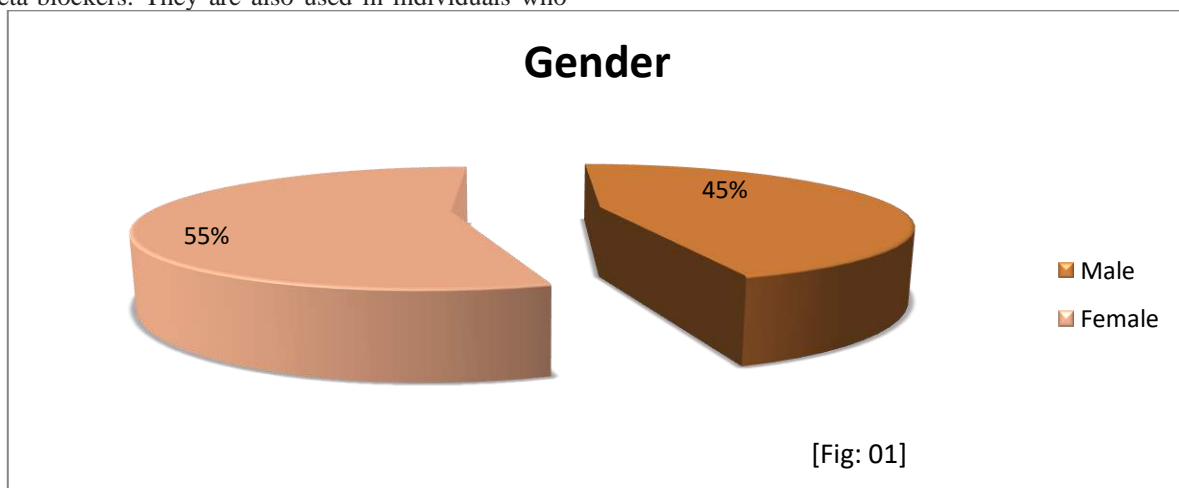
Histopathology

Histopathological findings in myocardial infarction are as follows;

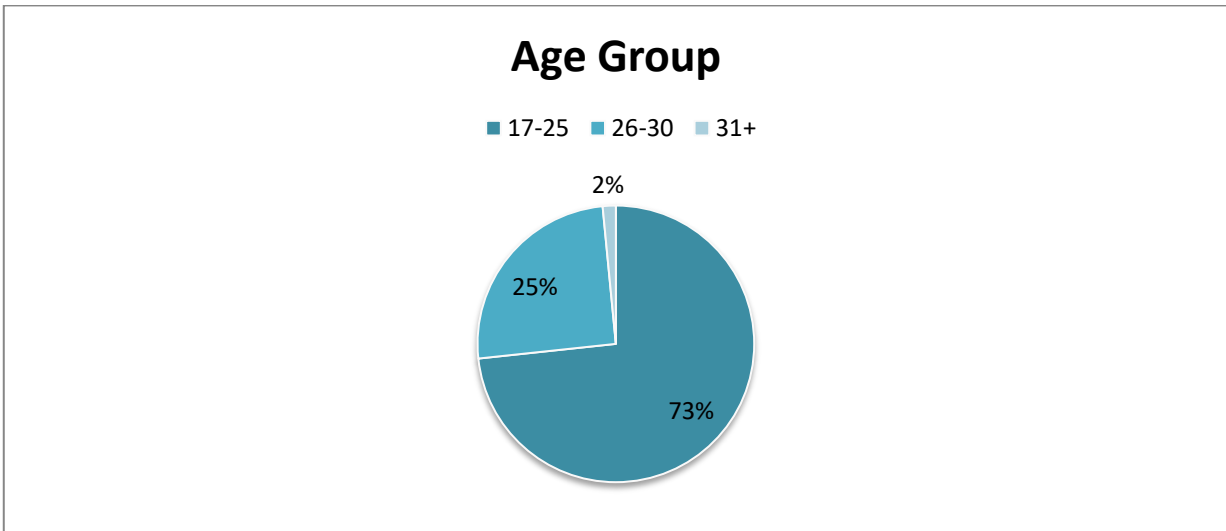
- Characteristic features within 24 hours include coagulation necrosis of cardiomyocytes, neutrophilic infiltration, accumulation of RBCs in the interstitial spaces, and interstitial edema. In eosinophilic-appearing ischemic cardiomyocytes with loss of cross-striations and loss of the nuclei. After more than 2 days, there are some changes: loss of myocyte nuclei, macrophages, and fibroblasts appears, neutrophils start to decline, and granulation tissue establishes with lymphocytic and plasma cell infiltration.
- After 4 to 8 weeks and more completely depending on the extent of necrosis and larger infarct healing leaving the central area unhealed with mummified myocyte for extended periods.

Survey based on the awareness about silent myocardial infarction

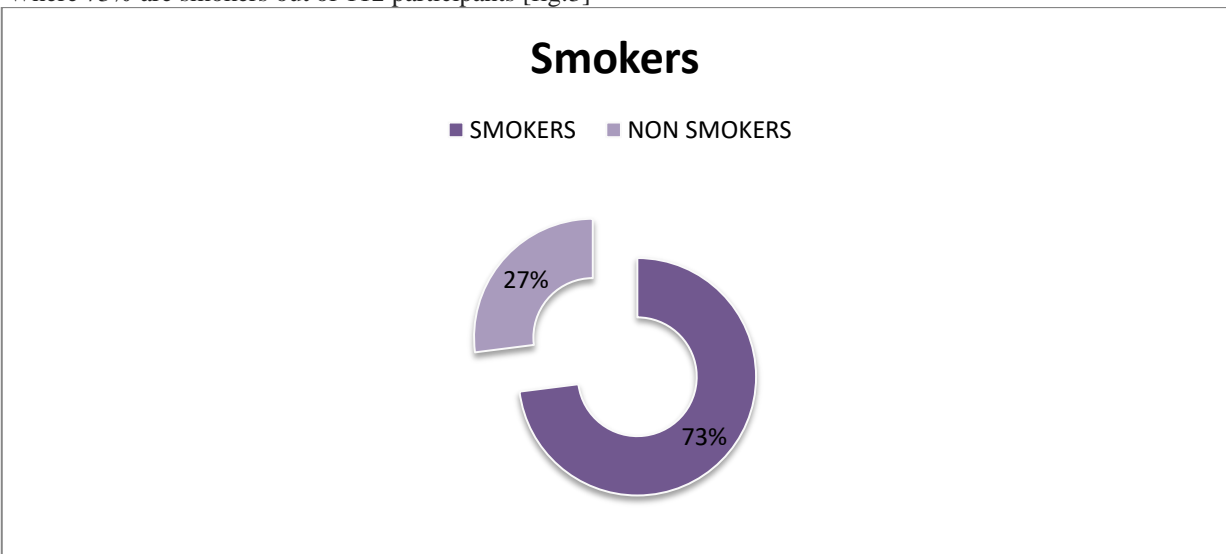
It is an observational study in which we conducted an awareness-based survey about MI with 112 participants, 50.4% of whom are males and 61.6% are females [fig:1]



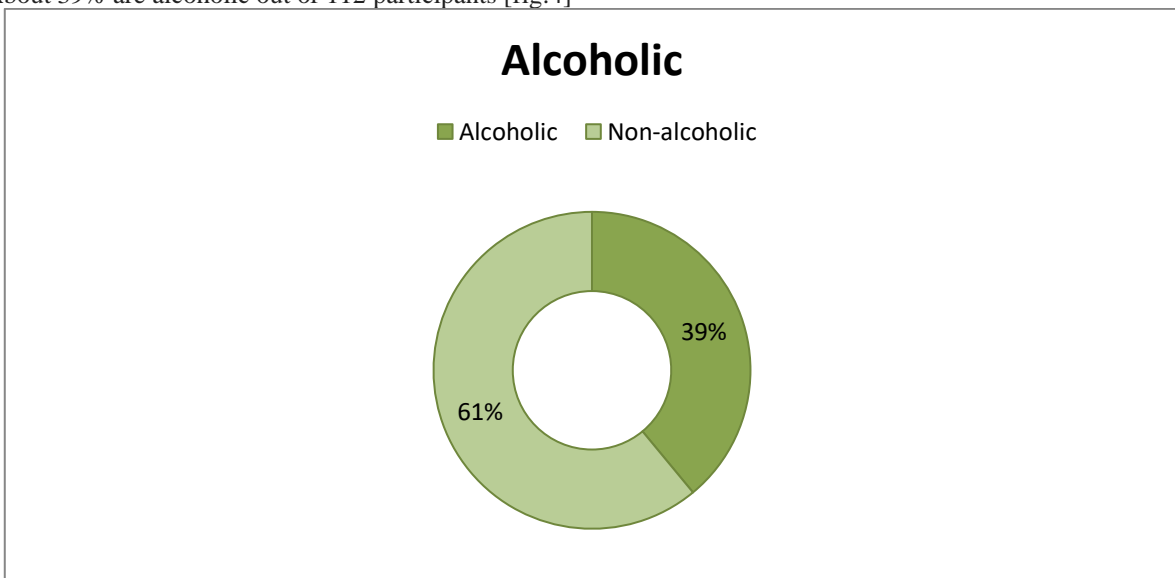
Participants comes from different age groups [fig:2]



Where 73% are smokers out of 112 participants [fig:3]



About 39% are alcoholic out of 112 participants [fig:4]



As per our study we found 36% of participants have higher risk of MI as per our study and according to the risk factors of MI.



CONCLUSION

According to recent studies and events of silent myocardial infarction, we found that patients don't go through routine checkups with their doctors and live an unconditional lifestyle, which may increase the risk of silent myocardial infarction. We also found that most of the patients go through an unhealthy diet as a mainstay for MI. Cigarette smoking also causes inflammation and swelling in the blood vessels, which provokes MI. If the patients stop smoking and perpetuate their lifestyle with a healthy diet and manner of life, then they can reduce the chances of silent myocardial infarction. We also conducted a survey on MI knowledge, in which we identified an age range (17-65 years) of different genders and informed them about MI signs and symptoms, risk factors, and first aid. We discovered that 94% of individuals are aware of the MI, with 73% being smokers and 39% drinking alcohol. Overall, 36% of 112 participants have a higher risk of MI than others due to their lifestyle and dietary habits, according to the MI risk factor.

Consent and Ethical Approval

It is not applicable

Competing Interest

There is no competing interest

REFERENCES

- Nadir MA, Rekhraj S, Wei L, Lim TK, Davidson J, MacDonald TM, Lang CC, Dow E, Struthers AD. Improving the primary prevention of cardiovascular events by using biomarkers to identify individuals with silent heart disease. *Journal of the American College of Cardiology*. 2012 Sep 11;60(11):960-8.
- Siachos T, Vanbakel A, Feldman DS, Uber W, Simpson KN, Pereira NL. Silent strokes in patients with heart failure. *Journal of cardiac failure*. 2005 Sep 1;11(7):485-9.
- REHMAN W, SINGH AP. HOW EFFECTIVELY DOES NOMOPHOBIA WORK ON STUDENTS?. *Journal of Medicine and Health Research*. 2022 Sep 23:33-7.
- Sabbah HN. Silent disease progression in clinically stable heart failure. *European journal of heart failure*. 2017 Apr;19(4):469-78.
- Singh AP, Batra J, Saxena S, Saxena R. A curse of Lassa fever: An update. *Journal of Survey in Fisheries Sciences*. 2023 Apr 27:1143-50.
- Corrao S, Salli' L, Arnone S, Scaglione R, Amato V, Cecala M, Licata A, Licata G. Cardiac involvement in rheumatoid arthritis: evidence of silent heart disease. *European heart journal*. 1995 Feb 1;16(2):253-6.
- Singh AP, Mouton RJ, Sharma MK, Ihotu-Owoicho AI. When will this pandemic end? A review. *Journal of Basic and Applied Research International*. 2021 Dec 29;29(27):10.
- Valensi P, Meune C. Congestive heart failure caused by silent ischemia and silent myocardial infarction: diagnostic challenge in type 2 diabetes. *Herz*. 2019 May;44(3):210-7.
- Singh AP, Batra J, Khan SS, Saxena R, Saxena S. Diagnosis and treatment of Wilson disease: An update. *Cardiometry*. 2022 Dec 1(25):1397-400.
- Singh AP, Batra J, Saxena R, Saxena S. Susceptibility to Cervical Cancer: An Overview Ajit Pal Singh.
- Singh AP, Chhimpa VK, Saxena R, Saxena S, Batra J. Susceptibility to Cervical Cancer: An Overview.
- Castaigne A. "Silent" heart failure as observed by a French cardiologist. *The American journal of cardiology*. 1990 Jun 19;65(23):K54-7.
- Singh AP, Batra J, Saxena R, Saxena S, Kumar C. Alarming rise in professional Blood donors and its repercussions. *Cardiometry*. 2022 Dec 1(25):1394-6.
- Singh AP, Saxena R, Saxena S. Plasma apheresis procedure. *EPRA International Journal of Multidisciplinary Research (IJMR)*. 2022 Jul 20;8(7):205-18.
- Batra J, Singh AP, Saxena R, Saxena S, Goyal K. BLOOD COMPONENTS AND ITS USAGE: A CLINICAL INSIGHT FROM DIAGNOSTIC LENS. *Journal of Pharmaceutical Negative Results*. 2022 Oct 12:1747-50.



THE PROBLEM OF HUMAN VALUES IN THE DIGITAL SOCIETY

Soliev Ikromjon Komiljonovich

Researcher, Namangan State Pedagogical Institute

ABSTRACT

The phenomenon of human value is also changing on a global scale, as digitalization is rapidly spreading around the world and changing the nature of intersubjective interactions. In any historical period, values play the main educational role for every society. The article intensively discusses the vectors associated with changing the process of human cognition in the realities of digitalization. The study is devoted to the study of cardinal changes in the value foundations of human life in the political, social, economic and spiritual spheres. The article presents theoretical approaches to the problem of human value in the context of digitalization. The important features of values before and during the formation of a digital society have been comprehensively studied. Examples of specific value changes in the era of digitalization are given, which allows us to assess their uncertainty for social development. It also reveals the axiological problems of the existence of specific standards for measuring the value of people in the digital world.

KEY WORDS: *number, digital society, human value, human value, digital literacy, quality of education, artificial intelligence.*

ENTER

Globally, humanity is entering the magical world of digitization not in years, but in months, even weeks and days. Digitization technologies are new tools of a wonderful world that humanity has never experienced before. These technologies are currently being developed. They are already leaving behind information technology that we admire. In the tenth years of our century, the transition of humanity from the information age to the digital age began. Because from this period, big data technologies entered its maturity stage. As a result of this, in terms of quantity, large capacities were formed that allow not only to process large amounts of information, but also to store them. In the 21st century, the pace of development of civilization will be 5 times faster than in the 20th century. Thus, we can go through the entire technological development of the 20th century in the first 20 years. Compared to the current pace of life, the pace of technical progress must be even faster. There is no country in today's world that does not strive to master new technologies. The main danger is here. Because the whole world has joined the marathon of adopting new technologies. That is why President Shavkat Mirziyoev states that "In our country, we should widely attract investments not only in economic sectors, but also scientific developments in the field of know-how" [1].

It would be appropriate to define the digital culture of the future specialist as digitization values that do not conflict with general humanistic values, the presence of digital competence, mastering technologies for optimal orientation to digital reality, and effective communication in the information space.

Uzbekistan is already in the leading position in the CIS space in terms of introduction of information technologies, computer support, Internet connection, organization of "Electronic Government". At the same time, Uzbekistan adopted the digitization program among the developed countries of the world. Therefore, it is important to bring digitalization in Uzbekistan to the average level in the world in terms of its impact on industrial production, national economy, transport and retail trade.

LITERATURE REVIEW

The main theory of Pythagoras is "everything is a number"[2]. Russell believed that Pythagoras' theory was wrong, but we believe that Pythagoras' theory was correct, but Russell did not fully understand the specific meaning of Pythagoras' statement that "everything consists of numbers".[3]

The world (universe) known to mankind is nothing but time and space. How do we express and understand time? We express and understand time in numbers. We use coordinates to represent space. But how are the coordinates determined? It is determined by length, width, depth, etc. Length, width, and depth are all numbers.

The same goes for describing things. When describing an event, elements include time, place, person, and event, while time is represented by numbers. The location is indicated by numbers. This can be a bit difficult to understand. Of course, the most vivid example of "everything is a number" is digital movies. In a sense, digital movies have everything, including



time, place, characters and events, but they can all be represented by numbers. We think that people of our time should easily understand the fact that everything is a number, but Pythagoras proposed the theory that "everything is a number" 2600 years ago. It was a very powerful and advanced theory[4].

If there is a universal standard for measuring the worth of people in the digital world - the world will never be fair and beautiful. Since people are different, although human rights are the same, we must recognize that people are born smart and stupid, strong and weak, passionate and patient, attentive or indifferent. Under the same coordinates, the various natural qualities of these people are determined one by one by this person. We do not know what the ultimate meaning of life is, but we are sure that no one can form a standard of value by which to measure other people's spiritual and moral qualities. In this regard, President Shavkat Mirziyoyev says: "By human value, we understand the creation of decent living conditions and modern infrastructure for every citizen, providing qualified medical services, quality education, social protection system, and creating a healthy ecological environment" [5].

The relationship between value and evaluation is essentially the relationship between subjectivity and objectivity: on the one hand, objective evaluation defines and limits subjective value, while subjective evaluation is a reflection of objective value based on objective value. On the other hand, the subjective evaluation has a certain degree of relative independence and a certain degree of reaction to the objective value. This reaction is evident in the induction, enhancement or limitation of objective value. In this regard, President Shavkat Mirziyoyev states: "For many years, the principle of "state-society-man" has been followed in our country. State building and management, all political structures, their work methods and activities were formed on the basis of this principle. In fact, first of all, a person, his rights and happiness should be the most important goal of the state policy and the activity of all state bodies. Society building and state policy should be based on this idea and be organized on the basis of the principle "The state is for the people" [6]. Some believe that human dignity refers to a person's position and role in nature. This view encourages the assessment of nature as a subject of value and confuses the subject and object of value, which does not correspond to the meaning of value in the general sense. Others believe that all values satisfy the needs of people and that the world is worth to people. This view, which summarizes human dignity only in terms of all values being possessed and enjoyed by humans, is an empty abstraction that makes little sense.

Human value is not a relationship between people and things, but a relationship between people. Psychologist N.S. Safoev, "As long as a person is able to know the laws of life and apply them in his activities, from this point of view, his behavior can be controlled by social norms. Moreover, a person should feel responsible for his actions" [7] - he says.

Human value is a relationship of mutual needs and mutual satisfaction between people and people. In human value, man is not only the subject of value, but also the object of value. S. Otamuratov says in the book "Globalization and National-Spiritual Security": "After the globalization of the economy, which is the basis of society and human development, reaches its final destination and the single economic space is completely settled on the earth, spirituality, morality and nations will no longer have the opportunity to disobey the judgment of the economy, and the only the process of formation of spirituality, unified morality and unified nation cannot be prevented" [8].

First of all, between people, when a person or some people are the subject of value, he receives the satisfaction of his needs from others, he has the positive influence of others. Although these people serve as objects of value, they satisfy the needs of others and positively influence them to change their worldview. That is why the individual's responsibility and contribution to society is his unique value. The social value of a person is the positive impact of a human object on society. In the speech of the President of the Republic of Uzbekistan Sh.M. Mirziyoyev at the joint meeting of the chambers of the Oliy Majlis, such an opinion was expressed, "Justice and the rule of law are the most basic and necessary conditions for building a democratic state and ensuring the value of human dignity"[9].

Between man and himself, man is not only the subject of self-esteem, but also the object of self-esteem. The value that a person has for himself is called his self-esteem. A person's self-esteem is a spiritual-spiritual state that satisfies one's needs and has a positive effect on oneself. Self-esteem is an important part of human worth. The meaning of promoting human self-worth is to promote self-reliance, self-reliance, self-development and self-improvement.

Human value has both an objective form of being and a form of subjective reflection. Subjective value can be divided into two specific forms: value judgment and emotion. Among them, values mean people's understanding of absolute worth or the absoluteness of moral qualities in people's lives.

Human value is not something that exists independently, it is limited by social relations and it is evident only through the relations between people.

RESEARCH METHODOLOGY

A holistic approach to the study of the phenomenon of human value in the digital society as a system that includes biological, psychological and social levels in the structure of a person; also used the methodology of the theory of knowledge, which allows to consider it as a phenomenon that occurs in the process of human interaction with the material world. The research topic is based on a philosophical and anthropological approach, in which a person is considered as a vital and spiritual unit. The analytical method was used to analyze and distinguish concepts such as natural and artificial,



human and technical, consciousness, personality, human value. The phenomenological method was used to describe the problem of human constitution and personal self-determination, to explain such concepts as "danger", "number", "consciousness", "person", "human value". The hermeneutic method of knowledge was used in the analysis of texts in the fields of philosophical thought such as cosmism, transhumanism, and posthumanism. An interdisciplinary approach was used to reveal the problem of natural and artificial intelligence.

Globalization, informatization, and virtualization processes in the digital society lead to fundamental changes in the unique value system in people's lives. These events radically change the surrounding reality, determine the basis of the phenomenon of human value in the present era, and it can be said that, based on a constructive approach, they form a new world and a new personal outlook. Constructivism is the ideological basis of technologies for the transformation of man, nature and society. Constructivism is characterized by the cultivation of the artificial, the assertion of the superiority of the created over the natural. The basis of modern constructivism lies in the dramatic and global growth of human power over nature and society. The processes of informationization, globalization and virtualization are interrelated and form the basis of the noosphere. The digital society is a noosphere society. Globalization is the process of formation of a global human community, a mega-society, due to the special integration, integrity and interdependence of the world. Here we are talking about a new universal quality of human existence, which is formed through new information technologies of communication and interaction.

ANALYSIS AND RESULTS

Today we will try to understand numbers starting from natural numbers. When we say "understanding numbers", you might think that numbers exist and we want to understand these "objects". Therefore, we need to focus on what does "number sense" mean? What can we understand about numbers? How many numbers can we really understand? How do we know we really understand something like numbers? How do we understand things like numbers?

The numbers start with one, one represents creation and origin, but it indicates existence without other meanings. The number two initiates separation and opposition, while two indicates duality. From the beginning of Ikki, it has a special meaning. The number three balances the binary opposites, reveals a trinity that can work together, and it represents the beginning of the creative process, the result of the process. The number four represents shape and solidity. The number five, consisting of three and two, represents change and revenge. Two and three are actually two opposing entities, one of separation and opposition, and the other of balance and cooperation. Thus, the five combines the characteristics of these two, either change or revenge. If five is said to represent the fifth element in addition to the four, it can also indicate transcendence. In addition, it is often used as a human or

material symbol. Therefore, according to B. Yaqubov: "The development of new information technologies, global communication, and global networks requires the search for new high-tech possibilities of protection against ideological threats"[10].

Digital society is a period of modern development of civilization characterized by the primacy of the role of knowledge and information in all aspects of social life, in which ICT has a decisive impact on people's lives, their education and work, as well as on human interaction. According to the research of Professor D. Adjemoglu of the Massachusetts Institute of Technology, despite the rapid development of information and communication technologies and their use in all areas of the economy, they have not had a sufficient impact on the increase in labor productivity, production volume or employment level [11].

Now it can be observed that the government of Uzbekistan is trying to accelerate the development of information technologies as much as possible. Unfortunately, broadband Internet networks that distribute modern information technologies have not reached all our villages. This gap will be closed in the near future. Why do we need it? It is necessary to move the entire country to the era of digitization. Modern information technology is the main condition for access to digital consciousness and technologies. According to futurologist Raymond Kurzweil, We, the 70s and 80s of the last century, the youth from the depths of the Soviet Union, imagined the events of the beginning of that century, the life of the people as a symbol of the past. How do the youth of the 70s and 80s of the 21st century imagine our present time and how do they evaluate them? This is an interesting and mysterious problem[12]. Life is so fast that the future itself is unpredictable. "We will resolutely continue the state policy on youth without deviation. Not only will we continue, but we will raise this policy to the highest level that the times demand today as our highest priority. We mobilize all the strength and capabilities of our state and society so that our young people can be independent thinkers, have high intellectual and spiritual potential, become people who are not inferior to their peers in any field, and be happy" [13].

We need to develop new networks created with the help of digital technologies. This is an important complex task. The country needs to develop 3D printing, online shopping, mobile banking, digital services, healthcare, education and other promising areas. These industries have already changed the composition of the economy of developed countries and given a new quality to traditional industries. "Digitalization is a paradigm shift in the way we think, act, interact with our environment and each other. That is, digitization is a change in the paradigm of communication and interaction"[14].

In general, it should be noted that the work of integration and identification of information technologies of the Republic of Uzbekistan into the state system began effectively a little earlier. During this time, it can be observed that the



digitization system in Uzbekistan has grown significantly.

The online trade market is developing in Uzbekistan. Most of the population of Uzbekistan has digital literacy. It can perform various operations without leaving home or office. If earlier it was necessary to stand in line, waste time and go to a special institution, now Uzbeks can pay taxes, fines, utility bills and other complex transactions. It should be said that the experience of many civilized and developed countries was used in the creation of the "Digital Uzbekistan" state program. They can be cited as an example of countries such as Austria, Denmark, Australia, Canada and Singapore, which have made significant progress in introducing digital technologies. Yes, digital technologies play an important role in the economic development of many countries.

CONCLUSION/RECOMMENDATIONS

In general, the main goal of the program is to improve the quality of life of Uzbeks, digitize the national economy, increase the competitiveness of the country's economy, and increase the welfare of the people.

Digital development includes the transition to a digital society, where digital knowledge, skills and habits increase, including the automation of business processes and the existence of a predictable digital economy, where a digital government will be formed to ensure the delivery and improvement of services. Therefore, according to the results of the evaluation of the implementation of the projects provided for in the "Digital Uzbekistan - 2030" strategy on time and on a large scale, as well as the results of the rating assessment of the introduction of information technologies and electronic services, the heads of ministries and departments, local executive authorities and their digitization deputies are paid a monthly bonus of 30 percent of their monthly salary; Ministries and departments, local executive authorities (hereinafter - state bodies and organizations) annually formulate performance indicators for digitization in agreement with the Ministry of Information Technologies and Communications Development; The conclusion given by the Ministry of Information Technologies and Communications Development regarding the achievement of the efficiency indicators of the activities of state bodies and organizations on digitization, as well as the results of the rating assessment of the introduction of information technologies and electronic services, is provided to the leaders and their deputies on digitization every month, their monthly salary is provided for in this paragraph will be the basis for paying the premium"[16].

Therefore, in order to achieve these goals, it is necessary to ensure efficiency and a unified approach in public administration through the use of digital technologies, to end individualism in the digitalization of public administration and business processes, to promote economic growth, and to develop important directions. Reaching areas such as entrepreneurship, human capital and science, the level of digitization should be the same as the region of the country and should be highlighted as a factor that increases its

reputation in the international world.

LIST OF USED LITERATURE

1. Мирзиёев, Шавкат Миромонович. Ўзбекистон Республикаси Президенти Шавкат Мирзиёевнинг Олий Мажлисга Мурожаатномаси. - Тошкент: Ўзбекистон, НМИУ, 2019. - 88 б.
2. Суриков И.Е. Пифагор. М Академический проект 2022. - 271с.
3. Рассел Б. История западной философии и ее связи с политическими и социальными условиями от античности до наших дней. Книга третья. Философия Нового времени. М. Канон+, РООИ «Реабилитация» 2022. - 384 с.
4. Пиковер К. Великая математика. От Пифагора до 57-мерных объектов. 250 основных век в истории математики. Перевод с английского Иванова С.А., 2-е издание. Москва Лаборатория знаний 2021. - 539с.
5. Мирзиёев Ш.М. Янги Ўзбекистон стратегияси. Т.: "Ўзбекистон", 2021. 67-бет.
6. Мирзиёев Ш.М. Янги Ўзбекистон стратегияси. Т.: "Ўзбекистон", 2021. 67-бет.
7. Сафоев Н.С. Психологические особенности национального самосознания студенческой молодежи. Автореф. Дисс. ... док. псих. Наук. –Тошкент: 2005, -С. 14.
8. Отамуратов С. Глобаллашув ва миллий-маънавий ҳавфсизлик /Иккинчи наир. – Тошкент: "Ўзбекистон", 2015. 25-бет.
9. <https://yuz.uz/news/adolat-va-qonun-ustuvorligi--inson-qadr-qimmatini-taminlashning-eng-asosiy-sharti>
10. https://constitution.uz/uz/pages/mustahkam_huquqiy_poydevor
11. Ёқубов Б. Ахборот технологиялари ва оммавий онг//.- Ижтимоий фикр. Инсон ҳуқуқлари 2012. 1-сон Б. 142.
12. Acemoglu Daron. 2019. "It's Good Jobs, Stupid". *Economics for Inclusive Prosperity Policy Brief 13*.
13. Турчин А.В. Футурология. XXI век: бессмертие или глобальная катастрофа? [Электронный ресурс] : электронное издание / Алексей Турчин и Михаил Батин. - Москва : Бином. Лаб. знаний, 2012. - 263 с.
14. Мирзиёев Ш.М. Эркин ва фаровон, демократик Ўзбекистон давлатини биргалликда барпо этамиз -Т.: Ўзбекистон, 2016. 14-б.
15. Marey A. Tsifrovizatsiya kak izmenenie paradigmy [Elektronnyy resurs]. Rezhim dostupa: [\https://www.bcg.com/ru-ru/about/bcg-review/digitalization.aspx](https://www.bcg.com/ru-ru/about/bcg-review/digitalization.aspx).
16. Қонун ҳужжатлари маълумотлари миллий базаси, 06.10.2020 й., 06/20/6079/1349-сон



VIEWS OF THE MODERNS IN THE PRESERVATION OF CULTURAL HERITAGE

Mahmudov Mansurjan

Senior Lecturer (PhD), Namangan State University, Uzbekistan, Namangan

ABSTRACT

In this article, speeches and lectures are held among educated people of the local population aimed at researching and carefully preserving cultural heritage sites, spiritual heritage, which are priceless masterpieces of centuries-old values, forgotten due to the ideological pressure of the Soviet regime. government, scientific articles were analyzed. During this period, no matter how difficult it was, educators even sacrificed their lives to convey our cultural heritage to the people.

KEY WORDS: *Abdurauf Fitrat, Abdulhamid Cholpon, Sadridin Ainy, Gulam Zafari, Hamza, Muhyiddin Qori Yakubov, press, spiritual heritage, culture, science, literature, Gaeta, magazine, article, Bayot, Dugokh, Segokh, Chorgoh, Nasrullah Shahnoz.*

Prominent representatives of Uzbek progressive intellectuals such as Abdurauf Fitrat, Abdulhamid Cholpon, Sadridin Ainy, Ghulam Zafari, Hamza, Muhyiddin Qori Yakubov, famous poets, writers and pedagogues-enlighteners, are included in a number of articles and pamphlets. A lot of research has been conducted on the culture of the Zbek classical music, especially the national music heritage.

Rajabzoda, a fan of the national music heritage, said, "The history of our music has not been examined along with our beautiful arts. We don't think about such features of our music, just as the structure of our soulless status always pulls us in with its influence. However, the historical pages of our music are fading away in dark corners. Today's 15-20 different musical instruments have a special historical background. If we investigate a little, we will uncover very important pieces for our fine arts" [1].

At the same time, Rajabzoda notes the antiquity of the tanbur instrument, that "one hundred and eighty percent of our national musical heritage is played through this tanbur" and evaluates it at the level of "Piano of the East". Along with thinking about the instrument, the author tries to explain about the "spirit of the nation": "According to the words of the hukamos who have examined the music of different nations, the wishes of each nation are not the same when listening to music. In the EAST countries, they called it soul food because pleasant sounds, melodies, and airs were accepted on the basis of musical knowledge. Since most of the tunes composed in Eastern music are composed from poetic points pleasing to the soul and mind, from poems composed of Sufi and ascetic words of wisdom, it is beyond the limits of music to play all kinds of personal feelings through music" [2]. Rajabzoda emphasizes the uniqueness of Eastern, especially Uzbek melodies, and says, "If you compare some Eastern styles with European melodies, you will know how many rich and varied sounds Eastern melodies have."

At this point, the article of Muhyiddin Qori Yakubov, published in 1926 in "Er Yuzi" magazine, is important.[3] For example, he said, "As time goes by, life changes and people's thoughts and feelings change accordingly, so some innovations are created in the works of national poets. In the olden days, the old tunes remain in distant corners, only in old folk poets" [4], he writes. He expresses his views on preserving the classical musical heritage of our nation and passing it on to future generations.

In this regard, the issue of notating the music was quite a problem. "If we look at European music and tunes, we will see that every tune is preserved by notation. We don't have notes. Even if there were no notes, we would keep our tunes. Our new generations will be familiar with the path, status, structure and impression of those tunes on the people, and we would have the opportunity not to lose the development of Uzbek history in Uzbek music." Muhyiddin Qori Yakubov said that the quarter and semi-quarter sounds in the notes could not accurately convey the national melody. In this article, the artist mentions that there is an instrument in Germany called "Funugrof", which "when it is set in motion and sings, it collects the whole sound like a gramophone" and says that the tunes written on this instrument have been written for 30-40 years. indicates that it can be saved. In this regard, it is known that the chairman of the Council of People's Commissars, Faizulla Khojaev, ordered Germany to purchase this device.

Ghulam Zafari conducted a serious research on this issue and expressed his conclusions as follows: "I understood the history of our music as a result of my interview with the music masters of Tashkent, Ko'kan, Margilon, Andijan and Namangan. I think that all our music masters can be traced back to the famous Khudoyberdi teacher in one or two ways. In Fergana and Tashkent, the songs of Bayot, Dugoh, Segoh, Chorgoh, and Nasrullo Shahnoz are mostly called Shashmaqom songs. In Kokan, Andijan, Buzruk, Ushshaq, and Iraq are also added to these. In addition to these, connoisseurs of classical music such



as Navo, Ajam, Munojot, Rakb-mushkilot, and Tajnis can be found in every city. Bukhara Shashmaqom and these are: Buzruk, Rost, Navo, Dugoh, Segoh, Iraq. [5]

In his articles, Sadridin Aini described the immense contributions of Ota Jalal, Ota Ghiyos, Qori Kamal, Qori Najm, Miratojon tanburnavoz - "Tillanokhun" to the development of Uzbek and Tajik music culture.[6]

Abdurauf Fitrat's services to music culture and promotion are great. In 1921, this scholar founded the Eastern School of Music in Bukhara (Abdurauf Fitrat dedicated his house to this institution - dissertation student), and as a continuous continuation of these activities, it was Abdurauf Fitrat's initiative and the result of the hard work of the Russian ethnographer and musicologist V. A. Uspensky, in 1924 The first "Shashmaqom" sheet music was published in "Shest muzikalnix poem" ("Six musical epics").[7]

When he founded the Oriental Music School, he invited classical music scholars (composers and singers) and musicologists like V. A. Uspensky. Since then, he has been in charge of collecting and recording "Shashmaqom" tunes. On the initiative of Abdurauf Fitrat, V. A. Uspensky wrote Ota Jalal, and Bukhara Shashmaqom from Ota Ghiyos was recorded and published for the first time.

The brochure "Uzbek classical music and its history" was certainly created based on the times and history. Abdurauf Fitrat's scientific views are based on the issues he wants to cover. Alloma uses the term "classic" for the first time in relation to Uzbek classical music in this pamphlet.[8]

As the concept of "classical" is applied to the recognized most perfect and worldly examples of the artistic heritage of mankind, Abdurauf Fitrat says that "our classical music consists of six lines of tunes called "Shashmaqom". Abdurauf Fitrat often studies music and its historical development directly in comparison with literature and Islamic ideologies. "Just as our literature is related to Eastern Islamic literature, our music is also related to Eastern Islamic music," he thinks deeply. After studying the topics of this treatise, it can be said that Abdurauf Fitrat had a theoretical approach to the science of music and drew conclusions by deeply studying the musical treatises of past music scholars.

In the "Music of the East" section of the treatise, it is recognized that the music of the peoples of the East is theoretically united on the basis of 12 statuses, although they differ in style. It is emphasized that this integrated theory was created due to the "madrasa unity", i.e. the general education system, which prevailed in the Muslim East after the Arab conquest.

Abdurauf Fitrat gives the following definition of Shashmaqom: "Shashmaqom consists of six main maqams - Buzruk, Rost, Navo, Dugoh, Segoh, Iraq maqam, each maqam is mushkilot (simple instrument), prose (instrument with song 'u), ufor (instruments with tone) divided into three. Each section is

divided into several tunes. When writing each melody, the head of the note also indicated the method of that melody".[9]

Abdurauf Fitrat Shashmaqom folk tunes that did not fall under the "flag" - samples of folk oral creativity, while the path and measure are known, there is no information about how they are composed. repeated many times.

When Abdurauf Fitrat thinks about musical instruments, he points out that the tanbur is written in the style of "tanbura" in music pamphlets, and has no doubt that it came in the form of donbira-tanbura-tanbur.

It is noted that dutor instrument is more widespread than tanbur among the people due to the fact that its performance is easier than that of tanbur. There are 13-14 frets, and due to their scarcity, maqam tunes are not played in dutor. It is emphasized that only Shashmaqom sho'bacha and ufars and folk tunes can be played.

Abdurauf Fitrat in his article "About Uzbek music" writes: "One of the major shortcomings of our music is its fragmentation. There is no unity in our music. One tune is played differently in Khiva, differently in Bukhara, differently in Fergana, differently in Tashkent. Our current technical schools are unable to leave this line. In order to eliminate this, we need to start working from our music technical schools. The Commissariat of Education should issue a general program to music technical schools, distribute the tunes included in it with notation (at least Khorezm's notation!) and demand that lessons continue according to this notation.[10]

In Mutavakkil Burhanov's memoirs about Abdurauf Fitrat, we read the following lines: "...at that time, there were music nights once a week at Fitrat's house. Along with poets and scientists, master artists such as Domla Halim Ibodov, Ota Ghiyos, Ota Jalal, Abduqadir Ismailov and Abdurahman Umarov took part in these evenings. These nights lasted until dawn, in which the tunes of Shashmaqom sounded, and the sounds of various musical instruments were heard. There were frequent discussions about the features, methods, subtleties of Eastern music. Fitrat had a very sensitive sense of music and song, and was able to notice the appropriateness or inappropriateness of each beat in the melody.

Remembering the participants of that musical evening, I can't stop admiring how rich their spiritual world was. They could not live without music, the music of the East was absorbed into every cell of them".[11]

Mutavakkil Burhanov narrates another incident that shows Abdurauf Fitrat's devotion to music: "In the early 20s, he gathered the performers of Bukhara Shashmaqom and recorded the practice track from Father Ghiyos and the prose track from Father Jalal. Then he called the famous musicologist Ouspensky from Tashkent, paid him, and transcribed Shashmaqom. Later these notes were printed in Moscow. It has the inscription "Edited by Fitrat and Mironov". A copy of the notes is now kept at the Hamza Institute of Art Studies".[12]



At the end of each scientific research, the scientist made the following appeals and proposals to the government regarding the preservation of the nation's musical heritage: "With these long speeches, it was as if we showed the historical wealth of our music little by little." In a small application addressed to the Commissioner of Education, it is stated that the number of national music schools should be increased, material and moral support should be provided to them, that the graduates of this school should continue their studies at music technical schools in Russia, that Russian language and notation lessons should be held in national music schools, it is emphasized not to follow the European tone (intonation) when notating national music.

It should be noted that at that time, in a situation where loss as a backwardness of the past was rampant, rather than honoring the classical heritage, the actions of Fitrat and his comrades were considered true courage. Thanks to this bravery, an important part of our classical music has been preserved for future generations.

National intellectuals have carried out effective work on the preservation of the nation's musical heritage, collecting, recording and promoting the heritage of Uzbek folk folklore.

In conclusion, it can be noted that national intellectuals have done great work in studying the heritage of Uzbek folk art, national music and passing it on to generations. Thanks to their selfless services, research and promotion of Uzbek musical heritage was launched for the first time. At the beginning of the last century, the songs performed by Mulla Toychi Tashmuhammedov, Sodirkhan Hafiz Bobosharifov, Haji Abdulaziz Abdurasulov, the leaders of Uzbek music culture, reached the European Eastern music shinavandas. In a historically short period of time, Uzbek art has achieved great achievements, being influenced by the ancient musical heritage of our nation. Melodies embodying the nation's past and present, centuries-old dreams and beautiful feelings are colorfully polished in classical melodies, eternal songs, so that a person who listens to them realizes his identity and feels spiritually uplifted.

REFERENCES

1. *Ражабзода. Танбур // Маориф ва ўқитғувчи. –1925. – № 2. – Б. 55.*
2. *Юқоридаги мақола... – Б. 67.*
3. *Қори Ёқубий. Ўзбек куйларини қандай сақлаш мумкин? // Ер юзи. – 1926. – №11. – Б. 14.*
4. *Қори Ёқубий. Ўзбек куйларини қандай сақлаш мумкин?... – Б. 15.*
5. *Зафарий Ф. Ўзбек муסיқаси тўғрисида // Аланга. – 1930. – № 1. – Б. 10.*
6. *Айний С. Куллиёт. Ч. 7. – Душанбе: Ирфон, 1962. – С. 331; Ўша муаллиф: Куллиёт. Ч. 11. Китоби дуюм. – Душанбе: Ирфон, 1964. – С. 436.*
7. *Абдурауф Фитрат. Шаишақом // Маориф ва ўқитғувчи. – 1925. – №2. – Б. 16.*
8. *Зафарий Ф. Ўзбек муסיқаси тўғрисида // Аланга. – 1930. – № 1. – Б. 10.*
9. *Айний С. Куллиёт. Ч. 7. – Душанбе: Ирфон, 1962. – С. 331; Ўша муаллиф: Куллиёт. Ч. 11. Китоби дуюм. – Душанбе: Ирфон, 1964. – С. 436.*
10. *Абдурауф Фитрат. Шаишақом // Маориф ва ўқитғувчи. – 1925. – №2. – Б. 16.*
11. *Абдурауф Фитрат. Ўзбек классик муסיқаси ва унинг тарихи. – Самарқанд-Тошкент, 1927. – Б. 27*
12. *Абдурауф Фитрат. Ўзбек классик муסיқаси ва унинг тарихи. – Самарқанд-Тошкент, 1927. – Б. 27*



THE MAIN FACTORS OF THE TERMINATION OF THE LEASE CONTRACT IN ISLAMIC LAW

Erkaev Mamurjon Rahmonberdievich

Doctoral Student, International Islamic Academy of Uzbekistan. Tashkent, Uzbekistan.

ABSTRACT

The article entitled "The main factors of the termination of the lease agreement in Islamic law" was covered based on the following topics. In particular, the expiration of the lease agreement. Although the term has not expired, the leased property has been used, as well as it has been damaged beyond use or completely destroyed, and both or one of the parties to the contract has died.

At the same time, when there are reasons that prevent the termination of the lease agreement, its term will be extended, and in this case, payment or payment will be given.

KEYWORDS: *rent, tenant, tenant, rent, price, contract, exchange.*

In Islamic law, in contracts related to social and legal relations, its start time and validity period are determined in advance. Compliance with these clauses of the agreement is required by both parties.

In Islamic law, rent is a contract (agreement) concluded for a profit equal to the compensation [2, p. 221; 4, 5-b]. After the conclusion of this contract, it imposes obligations on both parties, like any other legal relationship. For example, the lessor (tenant) must hand over the leased item, the lessee (tenant) must pay the rent (rent) on time, as well as return the rented item to the owner at the end of the contract, and so on.

Termination of the lease agreement at the end of the specified period: in this case, it does not matter whether the leased property was used or not, as well as whether the intended purpose was achieved or not. What is important is that the term specified in the contract has come to an end. This is explained in the sources of the Hanafi and Shafi'i sects as follows: "The rental contract is terminated at the end of the term" [5, p. 507; 1, 447]. Therefore, at the end of the term, the contract is void, and the lessee must stop using the leased item and take measures to return it to the owner.

In Islamic law, some cases are excluded from this rule. The book "Badoius sanoe" says about it: "If the contract is made daily, monthly, yearly, it will not be terminated at the end of the first period. If the lessee continues to use the contract, it will be considered extended until one of the parties requests termination" [3, p. 82]. For example, in the case of daily, monthly or annual rent contracts, after the first period ends, if the tenant continues to use the property on the second day, as well as on the first day of the next month and the first day of the next year, the contract will be automatically renewed. This contract is terminated only at the request of one of the parties.

Also, although the term has expired, the contract is not terminated for some reasons. This is explained in the work "Muhitul-Burhani" as follows: "After the expiration of the rental contract, if there is any reason that prevents the return of the property to the owner, the contract price will be extended in exchange for an example" [5, p. 508]. For example, if the land is leased for planting crops, the contract will not be terminated if the harvest is delayed for various reasons. Maybe it will be extended until it is created. In this case, a certain amount of financial damage to the tenant was prevented. But for the additional period, not the rent specified in the contract, but the fee is charged.

In Islamic law, it is assumed to pay attention to several things in determining the amount of the reward. It is said about this in the work "Roddul-mukhtar": the amount of remuneration is comparable to others. In this, the time and place of the lease agreement, as well as the gender of the money are taken into account [8, p. 62]. One of the main conditions for determining the fee is not to exceed the amount of the fee mentioned in the contract. It is also compared to the amount of remuneration specified in the contract for the same or similar work. So, in the above matter, the price should be determined according to the rule. However, according to Burhoniddin Mahmud Bukhari (d. 616/1219), the author of "Muhitul-Burhani", "We say that in this case, the amount of remuneration specified in the contract is not obligatory. In fact, the reward should have been wajib. If the amount of the reward is greater than the amount of the reward, no additional amount is required. If it is less, it should be reduced. Based on this, if we say that the fee mentioned in the contract is obligatory, then it is not necessary to reduce anything. Therefore, we have made the reward obligatory" [6, p. 453]. Because this situation causes various conflict situations between the parties. First of all, the amount of remuneration is determined by comparison with the work in the place where the contract is valid. It may be less or more than the contract amount. As mentioned above, if the specified amount of ujra



exceeds the amount, the ujra itself will be due. Secondly, the decision of the experts or the court is necessary to clarify the amount of the fee. Therefore, it is appropriate to support the ijthad opinion of mujtahid Burhaniddin Mahmud Bukhari (d. 616/1219).

At the same time, the lease agreement can be terminated with the agreement of the parties before the end of the term.

In Islamic law, there are other factors that lead to early termination or absolute cancellation of a lease.

It is understood that the rental agreement is binding on both parties after the conclusion, that is, it cannot be terminated or canceled for trivial reasons after the conclusion of the agreement. It is explained in the book "Badoius sanoe": "Rent is due". It cannot be canceled without valid reasons" [3, p. 36]. It is also stated in the book "Asl": "The lessor and the lessee have no right to cancel the rental agreement before the term" [10, p. 550]. Premature termination of a contract without any valid reason is against the rules of Islam. Because Allah says in the Holy Qur'an: "O you who believe! Keep the agreements (covenants)" [11, p. 106], he said. (Maidah, verse 1)

But as mentioned above, the contract can be terminated early if there are valid reasons. This is explained in the book "al-Asl": "In our (ie, Hanafis) lease is canceled for good reasons. According to the Shafi'is, the contract of lease is canceled only when there is a defect" [10, p. 551]. Therefore, according to the Hanafis, a valid reason alone leads to the termination of the contract. According to the Shafi'is, the contract is terminated only if there is a problem with the use of the leased item due to some fault.

Good cause means any circumstance that occurs in the lessee, lessee, or leased property. These include the death of the lessee or lessee, serious damage to the leased item, or total loss.

Accordingly, the rental agreement may be terminated prematurely for the following reasons:

1. Use of the leased item (although the term of the contract has not expired);
2. Damage to the rented object to the extent that it cannot be used or its complete destruction;
3. Death of one of the parties;

The contract is terminated when the leased item is used. "Fatavoi Qazikhan" says about this: "If the lease is concluded for a specific purpose, the contract is terminated when the intended purpose is achieved" [9, p. 270]. All sectarian scholars have agreed on this issue. Because once a goal is formed, there is no point in holding it until the end of the set period. Therefore, it will be necessary to return it to the owner.

In Islamic law, the role of words and phrases used in making agreements is important. Therefore, both parties were required to clarify the most delicate aspects of the lease agreement. An example of this is the following issue from "Muhitul-Burhani". "If a person rents a boat to reach the city of Kufa, it is ironic

that he can reach his home there" [6, p. 564]. In this matter, the parties used the phrase "to reach the city of Kufa" when concluding the agreement. Therefore, according to the requirements of the contract, as soon as the tenant enters the territory of this city, he must stop using the land and return it to the owner. But according to the "Istehsan" rule, it is permissible for him to continue using the rented land and reach his home in Kufa. Islamic law does not consider that the contractual requirements have been violated in this case.

Defects to the extent that the leased item cannot be used or its complete destruction will result in the termination of the lease agreement. This is described in the work "Muhitul-Burhani" as follows: "If the leased item is defective to the extent that it cannot be used, the tenant terminates the contract. Because he cannot use the property as specified in the contract" [6, p. 498]. In this case, there may be defects that prevent the use of the leased property, there may be defects that were not identified during the conclusion of the contract. Because it is assumed that the damage will increase with use even to the point where the property cannot be used. In this case, it can be concluded that the contract was prematurely terminated due to the protection of the property of the owner. The general rule is that the detected defect should not have been caused by the customer.

Death of one of the parties. It is stated in the work "Fiquhul-Islam wa adillatuhu": "When the tenant or one of the tenants dies, the rental contract is terminated" [7, p. 758]. Based on this, according to the Hanafis, the lease contract is terminated regardless of the death of both parties or any of them. In this case, it does not matter whether the specified period has expired or not, as well as whether it has been used or not. The Hanafis considered this situation as a valid reason.

If it is judged that the contract will not be terminated, but will be transferred to their heirs, an action will be taken contrary to the general rules related to the lease agreement and the rules of inheritance. In particular, the tenant's heirs must continue to use the property and pay the rent on time. The heirs of Mujir will have the right to own Ujra. This situation is not permissible in Islamic law. First of all, persons who were not involved in the conclusion of the lease agreement are given the right to use the leased property, especially the right to possess it and dispose of it. Second, it is inconceivable that a deceased person would leave to his heirs the use of something or the temporary ownership of a certain share. Therefore, the Hanafis came to the conclusion that the right of ownership or temporary occupation does not pass to the heirs of both parties.

According to the Shafi'is, the contract does not lose its validity in this case. It is said in the work "Mughnil-muhtaj": "If one rents a certain thing, the contract is not terminated by the death of both parties or one of them. Perhaps the contract will not expire until the end of the specified period. Because the contract expresses necessity" [12, p. 457]. It seems that the Shafi'is did not consider the death of one of the parties as a valid reason. Therefore, legal relations such as the use of the leased property, as well as the ownership of the second party rent, will be transferred to the heirs due to the fact that the contract has not



expired. Therefore, in this case, since the lease agreement is still in progress, the issues related to the disposal or ownership of rent without dividing the shares in the inheritance between them will go directly to the conciliators.

In conclusion, the lease agreement is important because it regulates social and legal relations, is made equal to a certain amount of compensation, and is valid only for a specified period. Therefore, it is necessary to stop using it at the end of the specified period. If it continues to be used, it is considered extended in the contract. Its validity period will be the amount of the term specified in the previous contract.

The agreement of both parties is required for early termination of the contract. In this case, both parties should not object to the termination of the contract. Otherwise, the contract cannot be terminated at the request of one of the parties.

Defects discovered during the use of the leased property, as well as defects caused by natural disasters without the influence of the tenant, lead to the termination of the contract. However, it is up to the tenant to use as much as possible.

Fatwas of the Hanafis are appropriate in the matter of terminating the contract due to the death of one or both of the parties. Because the heirs are not the same person, there is no possibility of mutual problems arising between them when the right of use and ownership is given. Therefore, they are free to terminate the contract and conclude or not conclude a lease agreement after the equal distribution of their shares in the inheritance among the heirs.

REFERENCES

1. Abu Muhammad al-Husayn al-Baghavi. *At-Tazhib fi fiqhi-l-imami-sh-shofei*. - Beirut. Dar al-kutub al-ilmiyyah. 1997. Vol. 4. - 592 p.
2. Abulhusayn Quduri. *Mukhtasarul Quduri*. - Beirut. The institution is planning. 2005. - 671 p.
3. Alauddin Kosani. *Badoius sanoe' fi arrangement sharoe'*. - Beirut. "Darul Kubul Ilmiya". 2003. Vol. 6. - 638 p.
4. Burhoniddin Marginani. *Commentary on Hidayah is bidayatul mubtadi*. - Medina. Dor as-siraj. 2019. Vol. 6. - 558 p.
5. Burhoniddin Mahmud Bukhari. *Muhitu-l-Burhani*. - Beirut. Dar al-kutub al-ilmiyyah. 2004. Vol. 9. - 545 p.
6. Burhoniddin Mahmud Bukhari. *Muhitu-l-Burhani*. - Beirut. Dar al-kutub al-ilmiyyah. 2004. Vol. 7. - 664 p.
7. Wahba al-Zuhayli. *Fiqhu-l-Islam and adillatuhu*. - Damascus: Doru-l-fikr 1985. J-4. - 910 b.
8. Ibn Abidin. *Roddil is autonomous*. - Beirut. Daru-l-ma'rifa. 2018. Vol. 13/9. - 712 p.
9. Qazikhan Uzjandi. *Fatavoi Qazikhan*. - Beirut. "Doru-l-kutubu-l-ilmiyya" 2009. Vol. 2. - 639 p.
10. Muhammad ibn Hasan Shaibani. *Al-Asl*. - Beirut: Dor Ibn Hazm. 2012. Vol. 3. - 591 p.
11. Sheikh Abdulaziz Mansur. *Translation and interpretation of the meanings of the Holy Qur'an*. - Tashket. Sano atandart, 2021. - 624 p.
12. Shamsiddin Shirbini. *Mughni-l-Muhtaj*. - Beirut. Daru-l-ma'rifa. 1997. Vol. 2. - 564 p.
13. Islamov Z. *Codicological Analysis of Manuscripts of "Mukaddamatu-l-Adab" of Mahmud Zamakhshari in the Funds of the World //The Light of Islam*. - 2020. - T. 2020. - №. 2. - C. 30-36.
14. Islomov Z. *International Islamic Academy of Uzbekistan—a result of the reforms worth to the centuries //The Light of Islam*. - 2018. - T. 1. - №. 1.
15. Islomov Z. *The role of the international Islamic academy of Uzbekistan in the development of Islamic studies //The Light of Islam*. - 2019. - T. 2019. - №. 1. - C. 1.
16. Islomov Z. *Source studies analysis of manuscripts of "muqaddimatu-ladab" in foreign archival funds //The Light of Islam*. - 2019. - T. 2019. - №. 4. - C. 41.
17. Islamov Z. et al. *WRITING DOWN OF HADITHS IN THE VII-VIII CENTURIES: APPROACHES AND METHODS //PSYCHOLOGY AND EDUCATION*. - 2021. - T. 58. - №. 1. - C. 5536-5545.
18. Maxsudov D. *Развитие исламоведения (корановедения) в Узбекистане: история и современность //Вестник КазНУ, Серия Религиоведение*. - 2020. - T. 21. - №. 1. - C. 60-67.
19. Maxsudov D. *Razvitie islamovedeniya (koranovedeniya) v Uzbekistane: istoriya i sovremennost' //Chabarşy. Dintanu serijasy*. - 2020. - T. 21. - №. 1. - C. 60-67.
20. Maxsudov D. *The development of transmitted and rational tafsirs //The Light of Islam*. - 2019. - T. 2019. - №. 1. - C. 9.
21. Makhsudov D. *Muslim world scientists of the temurids period //The Light of Islam*. - 2019. - T. 2019. - №. 3. - C. 4.
22. Makhsudov D. *Manuscripts of abul barakat al-nasafi's works on furu'Al-Fiqh //Asian Journal of Multidimensional Research*. - 2023. - T. 12. - №. 1. - C. 31-34.
23. Mahsudov D. *IX-XV asrlarda Movarounnaxrda ёзилган тафсирларнинг хусусиятлари //Молодой ученый*. - 2020. - №. 14. - C. 311-314.
24. Makhsudov D. R. *Mufassirs of Mawarannahr //ISJ Theoretical & Applied Science*, 12 (80). - 2019. - C. 539-543.
25. Makhsudov D. R. *МУФАССИРЫ МАВЕРАННАХРА В СРЕДНИХ ВЕКАХ //Theoretical & Applied Science*. - 2019. - №. 12. - C. 539-543.
26. Makhsudov D. *A GENIUS OF THE WORLD //Theoretical & Applied Science*. - 2019. - №. 5. - C. 544-548.
27. Ugli A. Z. Z. *THE PLACE OF ALIKHANTORA SOGUNIY IN THE HISTORY OF EAST TURKESTAN //Colloquium-journal*. - Голопристанський міськрайонний центр зайнятості, 2020. - №. 24 (76). - C. 32-33.
28. Arslonov Z., Ergashev H. *ALIKHANTORA SOGUNIY'S VIEWS ON POLITICAL GOVERNANCE IN EAST TURKESTAN //Студенческий вестник*. - 2020. - №. 32-2. - C. 84-85.
29. Zokirjonugli Z. A. *Approaches to studying the scientific heritage of Alikhantora Soguni //Asian Journal of Multidimensional Research*. - 2022. - T. 1
30. Zokirjonugli Z. A. *APPROACHES TO STUDYING THE SCIENTIFIC HERITAGE OF ALIKHANTORA SOGUNI*.
31. Arslonov Z. Z. *THE PLACE OF ALIKHANTORA SOGUNIY IN THE HISTORY OF EAST TURKESTAN //Colloquium-journal*. - Голопристанський міськрайонний центр зайнятості= Голопристанский районный центр занятости, 2020. - №. 24-2. - C. 9-11.



“EMPOWERED WOMEN ENTREPRENEURS IN VEDIC INDIA” - A CASE STUDY

Dr.Kavita Shastri, Dr.Rajendra Mishra ,Shambhavi Shastri

Associate Professor, Globsyn Business School

Professor, The Business School, University of Jammu

Pursuing Masters in Psychology Honours, Thapar School of Liberal Arts and Sciences, Patiala.

ABSTRACT

At a time when India is grappling with increase in incidents of crime and harassment against women coupled with glass ceiling effect at the workplace, one is left wondering if this was existing in earlier times too. The answer is a big no as women of Vedic India were immensely empowered and far ahead of their times. Though we highlight the role of various men who have made a purposeful impact very little is known about the contribution of lesser known women from ancient times whose stories are poignant and inspirational. There is mention of many women who hold positions of power and influence. Some of these revered women who are mentioned in the ancient texts, are still unknown to the outside world. The purpose of this study is to highlight the lesser known empowered women of Vedic era who were independent and far ahead of their times in every field ranging from art, literature, poetry and related fields. Renowned among this tribe but forgotten in the present times their lives serve as a beacon light for the common masses. There is a saying in Manu Smriti which states that where women are worshipped, there deities will dwell and there will be prosperity. Throughout the Vedic culture, women have not only been given the highest level of respect and freedom, but also protection and safety. This paper tries to highlight the impeccable personality and characteristic traits of not so popular women from this period and how the present generation can learn and get inspired from their lives.

KEY WORDS: *Vedic Women, scriptures, ancient, Indian civilisation, women leaders, entrepreneurs, visionary women ,family, knowledge, rights.*

INTRODUCTION

Being one of the oldest civilisations in the world, India is the origin of many religions and philosophies which are followed all over the world today. When we trace the history of different periods it is observed that the Vedic period in ancient India is known for its religious and cultural development. It has been seen that many breakthroughs and developments took place during this time related to education, empowerment of women, and culture among others. India known for its rich cultural heritage and ancient spiritual wisdom has lately become a trend setter as the western world is fervently imbibing it. If someone wants to see how developed a community is then one has to see the education women possess. India is uniquely juxtaposed when the culture is studied. Women were regarded as caretakers of society with caring ideals. What's more noteworthy is that they are shown as people with enormous potential for realising the deepest truths. Woman is a creator of institutions. The subject of women's position and status is broad and extensive, and important at the same time. By virtue of their creativeness, intellect, and spirit of sacrifice, they played an admirable role in family and social life and made a humungous contribution to society. Status of a woman refers to her place in a network of social roles, advantages, rights, and responsibilities. In India, women's status has been in a state of flux. It has undergone huge transformation. Women in India have historically gone through a state of dominance to a state of deliverance. She has been

oppressed and suppressed at times, and she has also been revered as the deity of the household. From the Vedic era till today, her status as well as position has undergone many changes.

Scriptural evidences to support Avenues Provided to Vedic Women

The position of women in India during the Vedic Period we observe and analyse multiple factors. The ancient body of laws known as **Smritis**, enumerated a legal system that served as the framework of society and governance. Women in Vedic times which refer to the period between 1500 BCE to 500 BCE played a significant role in society. **Dharmashastras** included life-cycle rites, daily rituals, specific responsibilities, and proper behaviour for all four varnas. **Taitriya Samhita**, compared man and woman to two wheels of a cart. It is believed that women, are the pivot in their families. It was believed that, Brahma (the Creator) had a man arise from his right side and a woman emerge from his left side. The lesson delivered by the Vedas through this symbolic account is that there is equality between men and women and that humanity should be mindful of it in all their dealings. Women were considered equal to men in terms of their potential and were allowed to participate in rituals and ceremonies. They were free to choose their husbands and also remarry in case of their husband's demise. As women were educated, they were involved in many creative and intellectual



areas. Though the status of women varied depending on their social and economic backgrounds, It was seen that women from high castes had more freedom and opportunities than those from lower castes. Higher caste women were trained in sacred texts and were respected for their knowledge and wisdom.e.g. kshatriya women were trained in warfare as they were expected to protect their families and kingdoms. Social and cultural norms had an immense influence on women. Women held positions of leadership and had the basic right to education. They were trained in various fields like music, dance, poetry, philosophy and politics. They were also active in religious rituals and were regarded as equal partners with men in performing them. There are evidences which reflect that women during those times were empowered and enjoyed high status. There is scriptural evidence which suggests that women played important role in religious rituals and were often praised for their intelligence and wisdom. For example the Rigveda contains hymns written by women. It was noticed that some women were acting as seers and teachers of the Vedas. Women also had property rights and were allowed to inherit wealth from their parents. On the contrary, women in Vedic society were subject to strict social norms and restrictions such as modesty in dress and behaviour. Works by ancient. Rigvedic verses suggest that women married at a mature age and were hence free to choose their own husbands in a practice called Swayamvar or could marry and live together after undergoing "Gandharva Vivah". Women were regarded as mother goddess (Shakti) in the Vedic Period, a symbol of life with enormous ability for tolerance and sacrifice, and therefore they held a respectable place in society. Women, who so desired, could undergo the sacred thread ceremony or 'Upanayana' (a ritual to pursue Vedic studies), which is only meant for males even to this day. Many women were regarded as Rishis or seers as they had written hymns and some of the hymns mention women. Twenty such hymns written about women are given in Sarvanukramanika. The names of sages of the Vedic age like Vac, Ambhrni, Romasa, Gargi, Khona in the texts further supports this view. This group of intellectual and knowledgeable women, who chose the path of Vedic studies, were called 'brahmavadinis', and women who opted out of education for married life were called 'sadyovadhus'. Co-education seems to have existed in this period and both the sexes got equal attention from the teacher. Kshatriya women received martial arts courses and were also trained to use many arms. It was also noticed that women had the access to property as it is mentioned in the Epics and Puranas. This undoubtedly reflects their entrepreneurial spirit and strength of character. The freedom to think and take decisions as an important member of the household talks a lot about their forward looking attitude and broad outlook towards life. As womenfolk commanded the same respect as men in all aspects of life, they were not confined to the domestic sphere only but also actively participated in religious and cultural practices. Interestingly women were free to choose their husbands and were free to even reject a marriage proposal if they desired to remain single throughout their life. They had the right to education and were allowed to study the Vedas and other religious texts. Women were also allowed to perform religious rituals and ceremonies

and some of the hymns in the Rig Veda were composed by women. However it is important to note that Vedic society was patriarchal and men held most positions of power. Women's roles were primarily defined by their relationship with men as wives, daughters, sisters or mothers. Despite some limitations, women enjoyed freedom and respect that was uncommon in many other ancient societies. Their contributions to religion, literature and culture were recognised and celebrated and their voices were heard in public arenas. Although we do not find much historical records on women entrepreneurs in ancient India there are some examples of women who were successful in business and commerce during that time. Unlike later eras, the Vedic age did allow women a considerable amount of freedom and respect and they weren't looked down upon. Firstly, girls could be educated, by means of Brahmacharya or Upanayana, which suggests a sense of equality. There is mention of women sages that contributed to the composition of the Vedas, but also of goddesses and their worship and women taking part in sacrifices and rituals. Hymns of the Rig Veda speak of the honour and love a man must have for his wife, while comparing the purity of the relationship to that of God. Also widow remarriage was not uncommon as the system of Gandharva Vivaha where a man and a woman may both choose their own spouses, unravelling decent amount of equality between the two sexes. Within Ancient times, women have been held in equal honour as men. The Manusmriti states that the society that provides respect and dignity to women flourishes with nobility and prosperity whereas if it does not then it has to face miseries and failures.(Manusmriti Chapter 3 Verse 56).Within the Vedas women were given the highest possible respect and equality. During marriage ceremonies, grooms recited shlokas which highlighted their equal contribution as a wife as the woman leads and the man follows. Women were considered to be the embodiment of great virtue and wisdom. Atharva Veda 14-1-64 states that women were free to do yagna, sandhya and all other daily rituals. If, for some reason, her husband is not present, the woman alone has full rights to do yagna. Rigveda Samhita, (part 1, sukta 79, sloka 872). There is no single set of qualities that define all Vedic women as women in ancient India were diverse and had different personalities, talents and interests like women today.

Striking features which make them stand Apart:

Education: Women in the Vedic period were educated and had access to knowledge and learning. They were trained in multifaceted fields like music, dance, poetry, philosophy and politics.

Wisdom: Women were regarded as wise and knowledgeable and their opinions were respected. Their opinions were valued on insightful matters.

Strength and Courage: As women in the Vedic period were courageous they spoke their minds and stood up for what they believed in. They were strong and courageous and were not afraid to challenge authority or question the status quo.



Creativity: Women were valued for their creativity and artistic abilities. They were skilled in music, dance, poetry, philosophy and politics.

Piety: Women in the Vedic period were highly spiritual and devoted. They were active participants in religious rituals and were regarded as equal partners with men in performing them.

The reasons for such high accolades were attributed to a strong foundation right from childhood. The girls too like boys, underwent Upanayana ceremony (sacred initiation) at an early age. It was the usual practice, and continued even in later ages. It is mentioned in the Atharva Samhita, 11-5-18, that 'by Vedic studentship a girl wins a young husband'. This shows that high education was instrumental for being well placed in life. Patanjali and Katyayana reiterate this view. In later Vedic age we hear of two classes of educated women namely:

1. **Sadyowadhush**, who continued their studies till their marriage,
2. **Brahmavaadinis**, who did not marry and pursued their studies throughout life.

It is interesting to note in this connection that the list of great Vedic teachers to whom tribute of respect had to be paid at the time of Brahmayajna, includes the names of some ladies, viz. Gaargi Vaachaknavi, Vadavaa Praatithyei, Sulabhaa Maitreyi (see Ashwalaayana Grihya Sutra 3-4-4). These evidences to which others may be added, show that the highest education, including Vedic studies was open equally to men and women, and many ladies distinguished themselves not only as Vedic scholars but also as great philosophers, debaters and teachers.

Learned Women-Far Ahead of Their Times

It may be stated without any hesitation that the general position and status of Indian women in the Vedic age was much higher than in any other ancient society that we know of, those of Greece and Rome not excluded. It is necessary to point out that the picture is an ideal one, and cannot be regarded as applicable to all women. Though sons were preferred to daughters as they had the eligibility to lit the pyre in case of death of their parents. The Women Rishis though very few contributed a lot for the cause of society and Vedas.

Empowered and Multitalented Women

Overall women in the Vedic period were highly respected and admired for their many talents and virtues. They were seen as equal partners with men in all aspects of life including education, politics, religion and culture. Vedic period was a time of great spiritual and intellectual exploration and while the vast majority of texts from this period were written by men, there are a few stories that mention women and their roles in Vedic society. The role of women during Rig-Veda society was that of a homemaker and a wife. However there are a few references to women in the Rig-Veda that suggest that they played an important role in the society. Rigveda contains hymns that are attributed to women. These women were known as Rishikas (female seers) and they composed slokas, hymns in praise of the Gods. In the Rigveda a number of women Rishis are mentioned and popular ones are Ghosha, Godha, Gargi,

Vishwawra, Apala, Brahmjaya, Aditi, Indrani, Sarma, Romasha, Maitreyi, Kathyayini, Urvashi, Lopamudra, Yami, Shashwati, Sri, Laksha and many others. Women during these times were free to enter into brahmacharya just like men, and attain salvation. Women had all rights to study Vedas and wore sacred thread. Wearing of the sacred thread is itself a case of women empowerment. We are proud of the accomplishments of all these women. They are still role models for today's women. Such women's character and intellect were glorified in the past, and old customs were revered. In terms of possessing the ultimate knowledge of the Absolute, they were fully equal to men. They chanted mantras; they undertook huge penances and did what only men could do. The society imposed no restrictions of any kind as such. They possessed great wealth, land, and were the only guardians of their offsprings. They were viewed as embodiments of the Divine. The Rig-Veda, is filled with hymns on natural events. Women's status is depicted with reverence in the Rig-Veda. Usha (the goddess of Dawn) and Aditi, the mother of many Gods such as Mitra, Varun, Rudra, and Aryaman, are mentioned in the Rig-Veda. The goddess Usha brings in the new day by removing the darkness. Rati, (Night), is Usha's sister, and it is because of her that all creatures rest after a day's work, hence Usha and Rati are daughters of Heaven.

Family-A strong unit which instilled qualities of an entrepreneur in women

Family was a significant institution in the Rig-Vedic era. In Vedic times, a parent seldom differentiated between his son and daughter. He treated them all the same. Duhitri was the name given to the family's daughter. Women were provided education so that they may live their social and personal lives to the fullest. There are hymns which describe the contribution of twenty seven such women seers. Gosha, Apala, Lopamudra, Saci, and Vishvavara, find mention in the texts as they penned hymns and rose to prominence as intellectuals. Marriage was viewed as a sacred institution. Daughters were given the opportunity to choose their husbands in this manner. It is said that matured girls used to attend numerous festivals and public gatherings to meet with potential husbands. Unmarried daughters, stayed at their father's house. As the girls were grown at the time of their marriage, there is no record of child marriage in the Rig-Vedic period. Brides were thought to bring good luck to their groom's home once they married. They were given a high-ranking position in the family.

Entrepreneurial Traits of some Vedic Women Ghosha

Ghosha, was the grand daughter of Dirghatamas and daughter of Kakshivat, both composers of hymns in praise of Ashwins, Ghosha has written two entire hymns of the tenth book, each containing 14 verses. The first hymn praised the Ashwins, the second hymn narrated her personal feelings and desires for married life. However, Ghosha suffered from an incurable disfiguring disease, and did not marry. Her faith towards Ashwins, and the devotion of her forefathers towards them made them cure her disease and allow her to experience wedded bliss again.



Brahmavadini Apala was a notable woman of substance. When she was affected by leprosy her husband abandoned her. Instead of feeling sad and isolated she went to her father's home and educated herself in the field of ayurveda and started research in medicinal herbs. It is said that she discovered "Som Ras" and once Lord Indra came and got the knowledge of making it from Apala. She also gathered huge knowledge of Vedas and was given the title "Brahmavadini" and she also composed some hymns.

Lopamudra

The Rig Veda has long conversations between sage Agastya and his wife Lopamudra that testifies to the great intelligence and goodness of the latter. Lopamudra was created by the powerful sage Agasthya and was given as a daughter to the King of Vidarbha. The royal couple gave her the best upbringing. When she attained puberty, Agastya, the sage got mesmerised by her beauty and wanted to make her his wife. Lopa agreed to marry him. However, after serving her husband faithfully for a long period, Lopa grew tired of his spiritual practices. She wrote a hymn where she made a request for his attention and love. Realising about his duties towards his wife the sage performed both his domestic and ascetic life with equal zeal, reaching a wholeness of spiritual and physical powers. In due course of time a son was born to them named Dridhasyu.

Jabala

Indian women were so intelligent that they could easily solve difficult problems. A boy wanted to study Vedas. But he knew only his mother Jabala. When he went to the teacher he asked what was his Kulam, Gotra (clan and sub sects), names of parents etc. He replied truthfully that his mother asked him to give the mother's name only as **Jabala**. The teacher was so impressed by his honesty, he took him immediately as his student. He gave the boy a new name— Satyakama (one who seeks truth) Jabala.

Maitreyi

One of the earliest known female philosophers and scholars in the world, Maitreyi was the wife of the sage Yajnavalkya. She is known for her profound philosophical debates with her husband. The Rig Veda contains about one thousand hymns, of which about 10 are accredited to Maitreyi. She played an important role in improving Yajnavalkya's personality and shaped his spiritual thoughts. She regularly discussed about the soul and the body of the human beings with Yajnavalkya in the Brihadaranyaka Upanishad. Yajnavalkya had two wives Maitreyi and Katyayani. While Maitreyi was well versed in the scriptures and was a 'brahmavadini', Katyayani was an ordinary woman. One day the sage decided to divide his worldly possessions between his two wives so that he could renounce the world. He asked his wives what they desired. The learned Maitreyi asked her husband if all the wealth in the world would make her immortal. The sage replied that wealth could only make one rich, hearing this she asked for the wealth of immortality. Yajnavalkya happily granted this boon.

Gargi

Gargi Vachaknavi illustrious philosopher and daughter of sage Vachaknu, composed several hymns that questioned the origin of all existence. She was regarded as one of the navratnas (nine jewels) in the court of King Janak. When the king organized a 'Rajsuya Yagna' Gargi was the only woman present in that philosophical debate wherein she challenged the great sage Yajnavalkya with various questions on the soul or 'atman' that confounded the learned man who had till then silenced many eminent scholars. She is known for her intellectual contributions and is considered one of the earliest known female philosophers in the world. She was a scholar and a Vedic Seer who is regarded as the most learned women of her time. Out of eight scholars who finally entered into a debate with rishi Yajnavalkya she was the only woman scholar and she asked a lot of challenging questions which reflected her profound intelligence and knowledge of the Vedas. She is known for making breakthrough contributions to the development of Hindu Philosophy and is remembered as a pioneering figure in the field of meta physics. Gargi's teachings and ideas continue to inspire philosophy scholars and students. Gargi has made a mark in the area of women empowerment and is a role model for many women.

Romasha

Romasha was a seer and a poet who composed several hymns in the Rig-Veda. She was one of the respected Rishikas in Vedic culture. Rigveda contains hymns composed by various sages including Romasha. One of the hymns in the Rigveda 10.86 is associated with Romasha known as Romasha Mandalam. It praises the Gods and their divine qualities. The power and grandeur of the deities and their connection with the natural world is described in this hymn. Information about Romasha is limited but her inclusion as an important female sage in the Rigveda indicates that women played empowering roles and were respected for their wisdom and spiritual contributions.

CONCLUSION

In addition to gaining knowledge women were involved in various trades like textile production, pottery and jewellery making in Arthashastra and the Manusmriti. Women established themselves as successful entrepreneurs in ancient India though societal norms and customs were not conducive. In the family unit women held influential roles as mothers, wives and daughters. They were regarded as the foundation of the household and were held in high esteem for their contributions to maintaining the family structure. Women with their evolved intelligence participated in intellectual and philosophical discourses. They were given a choice in either remaining single or choosing their life partner. Rigveda contains verses which imply women's right to own and inherit property. This suggests that women had some legal rights in terms of property ownership. The concept of "Ardhangini" indicates the importance of partnership and mutual respect within marital relationships. Vedic period saw empowerment of women in multiple domains including education, religion, family and literature. Hence it can be said that women empowerment during this time was influenced by



societal norms and values of that era. The Generation Z is ignorant of such multi faceted personalities in the present times.

REFERENCES

1. Jan-Jun-2014 Vol. 2 International Journal of Yoga - Philosophy, Psychology and Parapsychology, Naorem Jiteswori Devi, Kambhampati Subrahmanyam I Division of Yoga and Humanities, I Division of Humanities, S-VYASA Yoga University, Bengaluru, Karnataka, India
2. Jain Neera , Mukherji Shoma , Women in Management Worldwide, 3rd edition, 2016
3. Concept of Shaktitva and Women Saints in Medieval Maharashtra-Chitalkar Sonali, Social Thought in Indic Civilisation.
4. Dr. Kumari Pooja, Vedic Aged Women Empowerment, The Creative Launcher Vol. V Issue III, August 2020 (Journal)
5. Keith, Arthur B, The Religion and Philosophy of the Vedas and Upanishads. Motilal banarsidass Publishers, 1989.
6. Barman Milan, Assam University, Silchar, The Position of Women in the Vedic Ritual
7. Majhi Laxman, status of women Reflected in Vedic Literature, Partners Universal, International Innovation Journal, Vol. I Issue I, Jan-Feb 2023
8. <https://www.streeshakti.com>
9. hinduscriptures.in/rushi-women/romasha
10. [streeshakti.com](https://www.streeshakti.com)
11. hindupad.com/sikata-nivavari/
12. epgp.inflibnet.ac.in



THE WRITING STYLE OF HIS WORK “AL-MUXTASARUL – VIQOYA”

Nabijanov Sirojiddin Abdumutalib ugli

Graduate student of the International Islamic Academy of Uzbekistan, Tashkent, Uzbekistan

ABSTRACT

The writing style of the work directly depends on the scientist's scientific potential. For this reason, it was found appropriate to research the writing style of the work. And the reason why the work "al-Mukhtasarul - viqaya" is read on a very wide scale is that the work uses a short writing style. However, this brevity did not detract from the meaning of the work. Perhaps it made the work easier to understand and memorize.

INTRODUCTION

The author of the work was a great scholar of fiqh, usul, hadith, tafsir, language, literature, speech and logic. His full name is Ubaidullah ibn Mas'ud ibn Mahmud ibn Ahmad¹ (His full name is Ahmad ibn Ubaidullah ibn ibn Ahmad ibn Abdulmalik al-Ubadi al-Mahbubi al-Bukhari. Also known as Sadrushsharia al-Akbar. The writing style of the work is directly from the scientific scholar For this reason, it was found appropriate to research the writing style of the work.

Our scholars who wrote books in the past took two different paths. Some scholars give information about his method at the beginning of the book or in the first pages of the book. Some scholars do not give any information about this and do not mention the method he followed. They start writing the book directly. Sadrushsharia al-Asghar is one of the scholars of the second group. because he did not write a single long or short question about the method he followed in his book. He only uses the phrase at the beginning of his book, "Based on the incident, I have compiled this short pamphlet containing the necessary information.."

LITERATURE ANALYSIS AND METHODS

“An-Nuqaya” is a summarized work (summary of the story) and followed the method used by jurists in writing compact books. Based on the author's explanations and general review of the book, we can summarize the author's style in the book as follows:

1. Dividing the author's work into books, chapters and sections according to fiqh topics is the same as the division used in the Hanafi madhhab. The author divides his work into main sections, and these sections into chapters.
2. Since the author included only the original (tamal) and main issues in his book, Tajushsharia did not mention all the issues that he discussed in his book.

3. He mentioned some issues that cannot be understood without comment in a very concise way.
4. Proofs of ideas are not included in the work.
5. The topic of Faraese is not included in the book. The reason for this is probably the absence of the subject of Faraiz in Hidaya.
6. Definitions related to language are not included, i.e. words are not analyzed according to dictionary meanings.
7. The author is generally limited to stating the opinion of Abu Hanifa. But sometimes he would convey the opinion of two Imams or one of them and express his preferred opinion.
8. The author never mentioned the views of other sects. In this regard, the method followed by the author is similar to the method used by those who wrote basic (tamal) jurisprudential texts. because they were content to give the opinion of that sect depending on the author of the sect.
9. Sadrush-Sharia's own views are not mentioned in the text. Perhaps the author intended to keep sectarian issues in harmony with the jurisprudential views of the founders of the sect.
10. Since the book is about jurisprudence, poetic styles are not used.
11. The author made corrections in the areas where Hidaya Sahib Marginani made mistakes.
12. The author stated that Abu Hanifa's point of view is weak and Abu Yusuf and Muhammad's point of view is strong on some issues.
13. The author touched on the opinion that was the basis of the fatwa at that time.
14. The author mentions the opposing (contradictory) views of Abu Yusuf and Muhammad, but does not always undertake to show it. Thus, he did not talk about any conflict in some very important issues.

¹ Abdulhasanot Muhammad Abdulhay al-Laknaviy. Favoidul bahiyya fiy tarojim al-Hanafiyya. – B. 25. Qutlubog'o. Tojut-

tarojim. – B. 115. Qurayshiy, Abul Vafo Abdulqodir. Javahiril-mudiyya fiy tabaqotil-hanafiyya. – B. 54.



15. Although Musannif mentioned Imami's opinions, he did not include Imam Zufar's opinions.
16. Some symbols are used in the book. These are popular and common symbols in the Hanafi school. Each sect has certain symbols and terms that it uses to represent certain books, authors, or meanings. Let us describe some of them now.

DISCUSSION

- a. قيل: This is the part of Tamriz. However, it is not possible to judge that the eyesight is weak based on this strength alone. This also requires a black presumption.²
- b) In usages such as عمه المشايخ and عليه المشايخ it acquires the meaning of "many of the Sheikh".³
- c) J) يجوز means Sahih or Halal.⁴
- d) لا بأس More often used in the preferred meanings of mubah and leave. Sometimes it can also be used in the sense of mandub (doing is better).⁵
- e) ينبغي means mandub and other meanings when using Muqaddi, and only mandub when using Mutahhiri.⁶
- f) عندما, لهما, فلا The pronouns in these phrases correspond to Abu Yusuf and Imam Muhammad.
- g) عند, عنه, There is an understandable difference between these two expressions. The first phrase means what the person thinks, and the second phrase means the narration made from it (the information that reached the author through something). For example. هذا ابي حنيفة. This phrase means Abu Hanifa's point of view on this matter, هذا عن ابي حنيفة Ifada means a narration on the subject from him.
- h) روايتن It is used when there are two narrations on a subject from the same person and it is not known which of them is later.
- i) الصحيح, الاصح, Al Asih is stronger than sahih. Al Asih is stronger than Sahih because there is doubt in the alternative of Sahih.
- j) There are terms that form the basis of a fatwa and are used to express preferred views. They are ranked from strongest to weakest as follows:
- عليه عما الامة -
bh yfty, 'lyh alftwy -
God, God -

17. The author did not follow the author of al-Wiqaya in arranging the topics of the book, he introduced and edited in the places he considered necessary.

CONCLUSION

The writing style of the work was determined using the following methods.

- By comparing four copies that provide information about the work;

- By not completely ignoring other manuscripts of the work;
- By the fact that the author did not mention all the differences that exist in fiqh issues;
- By including a sample of the first and last pages of the manuscripts we used for review;
- As a result, the following conclusion was reached.
- As the author has included only the original (tamal) and main issues in his book, Tajushsharia Akbar has not mentioned all the issues discussed in his book.
- He mentioned some issues that cannot be understood without comment in a very concise manner.
- Proofs of opinions are not included in the work.
- Language-related definitions are not included, i.e. words are not analyzed according to their dictionary meanings.
- The author never mentioned the views of other sects.
- Sadrushsharia's own views are not mentioned in the text. Perhaps the author intended to keep sectarian issues in harmony with the jurisprudential views of the founders of the sect.

The main reason why the author's work is widely read is that the work uses a short writing style. However, this brevity did not detract from the meaning of the work. Perhaps it made the work easier to understand and memorize. The author wrote "Annuqoya" to "Viqoya" of his grandfather. However, the goal was one of the main goals of Viqoya to simplify.

There has been a lot of confusion about the title of the work. That is, the name of the work is mentioned in different sources with the names "Annuqya", "Sharhul-viqya" and "Mukhtasar ul-viqya". And from what we learned, it turned out that these names are the names of the same work.

REFERENCES

1. Ubaydulloh ibn Mas'ud. Muxtasar. Preparers for publication in Uzbek language in Tatar translation: Rashid Zohid, Akram Dehqon. – Tashkent: Cho'lpon, 1994.
2. Maqsudxo'ja ibn Mansurxo'ja. Majmaul maqsud. ("Muxtasarul-viqoya" its uzbek review). Publisher, mahmud Hasaniy. – Tashkent: Adolat, 2000, 1- Vol.
3. Mullo Kotib Chalabiy. Kashfuz zunun a'n asamil kutub val funun. – Mecca: Dorul fikr, 1982.
4. Abdulhay Laknaviy. Muqaddimutut-taliqul-mujjamad al-muvattai –muhammad. – Damashq: Dorul-kalom, 1991.
5. Muhammad ibn Ahmad Zahabiy (v.748). Manaqibul Abu Hanifa va Sohibayh. – Egypt: maktabul-azhariyya lit – turas, 1416.
6. Muhammad Ahmad Zahabiy (v.748). al-Ibor fi habari man g'abar. – Kuwait: maktabul- hukumatil-Kuwait, 1963. J. 1.
7. Ibn Battuta, Muhammad ibn Abdulloh (v.779/1377). Rihlatu ibn Batuta. – Egypt: Maktabatul azhariyya, h 1346. J. 1.
8. Qutlubog'a, Abul-Dida Zaynuddin Qosim as-Saduni. Tojuttarajim.–Damashq: Dorul-Kalom, 1413/1992.
9. Abul-Vafo Abdulqodir Qurayshiy(v.775). al-Javohiril-mudiyya fi tabaqotil hanafiyya. – Beirut: Dorul-kitob ilmiyya, 1426/2005.

² Ibnul-Humam. Fathul-Qodir. – B. II, 330.

³ Ibnul-Humam. Fathul-Qodir. – B. I, 277.

⁴ Nevavi. al-Mu'jam. – B. I, 123.

⁵ Ibn Nujaym. al-Bahrur-raqoiq. – B. V, 99; Ibn Obidin.

Roddul-muhtor. – B. I, 119.

⁶ Ibn Obidin. Roddul-muhtor. – B. IV, 130.



10. Muhammad Said al-Mubayyid. *Mavsuatul hayatiyat-tabaiyn va tabaahim min kutubit tuross. – Qohira: maktabatul dorul-fath, 1423/2003.*
11. Ibnul-Hajar Asqaloniy. *al-Isoba fi tamyizis-sahoba. – Beirut: Dorul-ma'rifa, 1425/2004. II bound.*
12. Hayruddin az-Zirkiliy. *al-Alom. – Beirut: Dorul-ilm lil-malayin, 2005. 16 bound.*
13. Hayruddin az-Zirkiliy. *al-Alom. – Beirut: Dorul-ilm lil-malayin, 1998. – 324 b.*
14. Ahmad ibn Mustafa Toshko 'pirzoda (v.968/1561). *Miftahus-saada va misbahus-tiyada fi mavduatil-ulum. – Beirut: dorul-kutubul-ilmiiyya, 1422/2002, II Vol. –170 b.*
15. Omar Riza Kahali. *Mujamul-muallifin tarojimul musannifin fil-kutubul arabbiya. – Beirut: Doru ihyait-turosil-arabi, J. 6. – 246 b.*
16. Omar Riza Kahhali. *Mujamul-lug'atil-arabiyya. Mujamul-lug'atil-vosit. – Beirut: dorul-ma'rifa, 1980.*
17. Kotib Chalabi, *Musatafo ibn Abdillah al-Konstantini (v.1067/1657). Kashfuz-zunun an asamil-kutub val-funun. – Beirut: Dorul-fikr, 1419/1999. – 522 b.*
18. Hoji Xalifa. *Kashfuz-zunun. – Baghdad: maktabatul-msanna, 1941. –456 b.*
19. Ismail Posha Bag'dodiy (v.1339/1920). *Hidayatul-orifiyn asmaul-muallifin va asrorul-musannifin. – Beirut: Dorul ihyait-turosil-arabi, 1901. J. 1. – 649 b.*
20. Susiy. *Mujamul-musolliyn. – Beirut: Kutubul-ilmiiyya, 1423/2002. 1 bound.*
21. Sarahsi. *Al-mabsut. –Beirut: Dorul-ma'rifa, 1983. 2 bound. Kazviniy. Ajoyibul mahluqot va g'aroyibul mavjudot. – Egypt: Maktabatul iman, 1423/2003. 1 bound.*
22. Kotib Chalabiy. *Kshfuz-zunun an asamil-kutub val-funun. – Beirut: Dorul fikr, 1419/1999.*
23. Islamov Z. *Codicological Analysis of Manuscripts of "Mukaddamatu-l-Adab" of Mahmud Zamakhshari in the Funds of the World //The Light of Islam. – 2020. – T. 2020. – №. 2. – C. 30-36.*
24. Islomov Z. *International Islamic Academy of Uzbekistan—a result of the reforms worth to the centuries //The Light of Islam. – 2018. – T. 1. – №. 1.*
25. Islomov Z. *The role of the international Islamic academy of Uzbekistan in the development of Islamic studies //The Light of Islam. – 2019. – T. 2019. – №. 1. – C. 1.*
26. Islomov Z. *Source studies analysis of manuscripts of "muqaddimatu-ladab" in foreign archival funds //The Light of Islam. – 2019. – T. 2019. – №. 4. – C. 41.*
27. Islamov Z. *et al. WRITING DOWN OF HADITHS IN THE VII-VIII CENTURIES: APPROACHES AND METHODS //PSYCHOLOGY AND EDUCATION. – 2021. – T. 58. – №. 1. – C. 5536-5545.*
28. Maxsudov D. *Развитие исламоведения (корановедения) в Узбекистане: история и современность //Вестник КазНУ, Серия Религиоведение. – 2020. – T. 21. – №. 1. – C. 60-67.*
29. Maxsudov D. *Razvitie islamovedeniya (koranovedeniya) v Uzbekistane: istoriya i sovremennost' //Chabarşy. Dintanu serijasy. – 2020. – T. 21. – №. 1. – C. 60-67.*
30. Maxsudov D. *The development of transmitted and rational tafsirs //The Light of Islam. – 2019. – T. 2019. – №. 1. – C. 9.*
31. Maxsudov D. *Muslim world scientists of the temurids period //The Light of Islam. – 2019. – T. 2019. – №. 3. – C. 4.*
32. Maxsudov D. *Manuscripts of abul barakat al-nasafi's works on furu'Al-Fiqh //Asian Journal of Multidimensional Research. – 2023. – T. 12. – №. 1. – C. 31-34.*
33. Maxsudov D. *IX-XV asrларда Мовароуннахрда ёзилган тафсирларнинг хусусиятлари //Молодой ученый. – 2020. – №. 14. – C. 311-314.*
34. Maxsudov D. R. *Mufasssirs of Mawarannahr //ISJ Theoretical & Applied Science, 12 (80). – 2019. – C. 539-543.*
35. Maxsudov D. R. *МУФАСССИРЫ МАВЕРАННАХРА В СРЕДНИХ ВЕКАХ //Theoretical & Applied Science. – 2019. – №. 12. – C. 539-543.*
36. Maxsudov D. *A GENIUS OF THE WORLD //Theoretical & Applied Science. – 2019. – №. 5. – C. 544-548.*
37. Ugli A. Z. Z. *THE PLACE OF ALIKHANTORA SOGUNIY IN THE HISTORY OF EAST TURKESTAN //Colloquium-journal. – Голопристанський міськрайонний центр зайнятості, 2020. – №. 24 (76). – C. 32-33.*
38. Arslonov Z., Ergashev H. *ALIKHANTORA SOGUNIY'S VIEWS ON POLITICAL GOVERNANCE IN EAST TURKESTAN //Студенческий вестник. – 2020. – №. 32-2. – C. 84-85.*
39. Zokirjonugli Z. A. *Approaches to studying the scientific heritage of Alikhantora Soguni //Asian Journal of Multidimensional Research. – 2022. – T. 1*
40. Zokirjonugli Z. A. *APPROACHES TO STUDYING THE SCIENTIFIC HERITAGE OF ALIKHANTORA SOGUNI.*
41. Arslonov Z. Z. *THE PLACE OF ALIKHANTORA SOGUNIY IN THE HISTORY OF EAST TURKESTAN //Colloquium-journal. – Голопристанський міськрайонний центр зайнятості= Голопристанський районний центр занятості, 2020. – №. 24-2. – C. 9-11.*