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H C J N E

Welcome to the inaugural edition of the *Holy Cross Journal of Nursing Excellence*, a publication dedicated to fostering scholarly innovation, research, and academic rigor within the field of nursing and healthcare. Holy Cross College of Nursing, Kottiyam, established this journal as a platform to celebrate and showcase pioneering research, insights, and advancements by faculty, students, and collaborators who are committed to enhancing healthcare quality and education standards.

The *Holy Cross Journal of Nursing Excellence* aspires to serve as an interdisciplinary medium that captures the dynamic growth of nursing education, clinical practice, and healthcare research. With each issue, we strive to bring forward evidence-based studies, best practices, case studies, and novel methodologies that address the complexities of modern healthcare. By promoting scholarly communication and professional growth, we aim to contribute meaningfully to the broader academic and healthcare communities.

As we embark on this journey, we invite readers to engage with, reflect upon, and apply the insights shared within these pages. May the *Holy Cross Journal of Nursing Excellence* serve as both an inspiration and a resource for those devoted to healthcare excellence and academic growth.

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**SIMULATION BASED-EDUCATION ON KNOWLEDGE AND SKILL
ACQUISITION IN ADULT CARDIOPULMONARY RESUSCITATION AMONG
ARTS COLLEGE STUDENTS.**

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Abstract

Background: The heart pumps blood to sustain life; during cardiac arrest CPR and early AED use maintain oxygen flow and greatly improve survival. Out-of-hospital cardiac arrest (OHCA) occurs globally at an alarming rate of around 55 cases per 100,000 person years. In India 700,000 deaths a year. In India in 2024 there was cardiovascular disease (CVD) with Approx 28% of all deaths and sudden cardiac death (SCD) represents an important part of the problem with 4.5 million cases every year. In Kerala the rate of deaths due to heart attack were 21.39% in 2020 of all registered deaths and in 2020, 25.43%. The National Crime Records Bureau (NCRB) reported 3,993 deaths due to heart attacks in 2022

Objectives: Evaluation of the effect of simulation-based education on knowledge and skill acquisition in adult cardiopulmonary resuscitation among arts college students.

Method:

The study design was a quasi-experimental pretest-posttest control group design. Data was collected after obtaining permission the researcher selected 60 arts students through purposive sampling. Pre-test knowledge and skills were assessed followed by a simulation-based education. After seven days a post-test was conducted.

Results: The mean between post-test knowledge score of the experimental group ($p < 0.005$) indicates that there is a significant increase in the knowledge and skill were significantly higher than those in the control group.

Conclusion: Simulation based education on cardiopulmonary resuscitation was found to be an effective teaching strategy.

Keywords: Simulation based education; Knowledge; Skill; Adult cardiopulmonary resuscitation, Arts college students.

Simulation -based education on knowledge and skill acquisition in adult cardiopulmonary resuscitation among arts college students.

Introduction

Background of the study

The human heart is a very complex organ which is muscular in structure and which serves as the center of the circulatory system. It's mainly to pump oxygen rich blood from the lungs out to the body and to return the oxygen poor blood back to the lungs for reoxygenation. Anatomically the heart has four chambers, two atria and two ventricles which are separated by valves that produce unidirectional blood flow. The in and out movement of blood which we known as the cardiac cycle is regulated by the heart's internal conduction system in particular the sinoatrial (SA) node which in fact acts as the natural pacemaker. Proper heart function is very much a requirement for life, and issues with the heart's rhythm or structure which we see in cardiovascular disease are the leading cause of death worldwide. Cardiopulmonary Resuscitation (CPR) consists of immediate actions which restore the flow of oxygenated blood to a person's brain and vital organs after a Sudden Cardiac Arrest (SCA) incident. It takes a matter of minutes for a person to die or suffer extreme brain damage when oxygenated blood is not taken to the brain. CPR is critical and life-saving when a person's heart stops beating or is not breathing properly. This includes drowning and severe trauma. CPR aim is to keep blood flow and oxygen to the brain and vital organs until professional medical assistance arrives. CPR involves chest compressions and, if trained, mouth-to-mouth breathing. It is recommended for untrained bystanders to perform adult hands-only CPR which consists of pressing the center of the chest at a rate of 100-120 compressions per minute. This is because it is simple to perform and effective. In scenarios involving infants and children, or in situations such as drowning and drug overdose, the recommended course of action is to provide a combination of rescue breaths and compressions. The implementation of an automated external defibrillator (AED) immediately increases the likelihood of survival. Studies show that early CPR tends to improve survival and long-term neurological function, reinforcing the necessity of CPR and first aid as an essential skill for everyone. Those first few minutes are critical, and decisive action during that time may determine the patient's survival. As noted by the American Heart Association, a considerable proportion of out-of-hospital cardiac arrests involve CPR, with 73.4% occurring in homes/residences, 16.3% in public places, and 10.3% in nursing homes. CPR can dramatically improve the chances of surviving a cardiac arrest. Administration of CPR in the early minutes after cardiac arrest occurs can help preserve blood

flow to the brain, and help prevent brain damage due to hypoxia. Given the unsustainable nature of CPR, its effectiveness rapidly declines with the passage of time, and the need for immediate action is imperative. To enhance cardiac arrest survival rates, there is a need to increase public CPR awareness and training . In New Delhi, India, a quasi-interventional study was conducted to determine the Knowledge and Skill in Cardiopulmonary Resuscitation and the Effect of Simulation Training on it among Healthcare Workers in a Tertiary Care Centre. The study consisted of 82 HCWs (54 resident doctors in the postgraduate training program and 28 nurses) assigned to the medical wards. A knowledge baseline was assessed through a questionnaire. The participants went through simulation training, which was followed by a questionnaire type knowledge assessment and a skills assessment. At 6 months, a repeat questionnaire was used to assess knowledge retention. The simulations consisted of 7 training workshops, each with 10-14 participants. The assessment showed that the participants, which consisted of 82 HCWs (54 doctors and 28 nurses) scored 22.28 ± 6.06 out of 35 (63.65%) in the pretraining knowledge assessment and the lowest scoring in post-cardiac arrest care, advanced life support and defibrillation. The training resulted in a significantly increased score of 28.32 ± 4.08 out of 35 (80.9%) ($p < 0.01$) with 6 months of knowledge retention at 68.87% ($p < 0.01$). The participants scored in the skill assessment $92.61 \pm 4.75\%$ with lower scores in chest compressions and in team leader roles. Knowledge and skills scores exhibited a positive correlation ($r = 0.35$) and statistical significance ($p < 0.01$). The simulation training program for adult training also noted an improvement in the knowledge of the physicians and nurses . This assesses the impact of Basic Life Support (B.L.S.) simulation on knowledge acquisition, knowledge retention, and self-efficacy on the impact of B.L.S. simulation on Non-Medical Students Studying in United University, Prayagraj, Uttar Pradesh, India. A total of 60 adult subjects in a baccalaureate program were recruited for this study from August 2023 and December 2023, comprising all courses and genders. This recruitment was based on a single proportion design. From a total target population of 300 the sample was randomly selected, with a confidence level of 95% and a 10% confidence interval. To account for a 5% dropout rate, the sample size was increased to 64 participants for each group. In regard to the first objective, the knowledge acquisition level prior to high fidelity basic life support (BLS) simulation was analysed. From the results, we can argue that the null hypothesis is accepted.

Knowledge Scores: The range and median of scores for both groups were similar. However there was a mean difference as the control group (6.17) mean score was higher in the mean score than 5.67 of the experiment group, this difference though was not statistically significant ($P < 0.05$) . In India, a retrospective study was done to assess the outcomes of

sudden cardiac arrest out of hospital. This involved 350 patients of which only 8 received bystander CPR which was attributed to lack of awareness and training and bystander education of which 58% had a college education. Pandian et al. (2016) stated that only 5 of the 67 OHCA cases in Tamil Nadu received bystander CPR and out of these most patients presented non-shockable rhythms. The CARO study (2017) in New Delhi showed that out of 46 witnessed OHCA cases, CPR was only given in 1 instance, most of which occurred in residential settings. Bhat et al. (2021) in Manipal similarly observed only 9.8% of 205 OHCA patients received bystander CPR and there was a lack of BLS trained ambulance personnel. The WACAR study (2020) which is the largest prospective study from Warangal came to the conclusion that only 27.8% of the 500 OHCA patients received CPR and there was EMS response and ambulance service utilization. These studies showed that there are critical gaps in the public training on CPR and emergency response.

A comparative pilot study was undertaken on CPR knowledge and skills acquisition and training methods on nursing students has included 20 students from nursing college of Dharwad, Karnataka, as study population. The students were purposively sampled and equally split into two groups for training. Group A was trained in a traditional classroom, while simulation Group B was trained using simulation methods. The study considered knowledge and skills in CPR as the dependent variables for the study. Knowledge and practice after the intervention were significantly inline with the study objectives, Knowledge score improved from a mean of 10.13 to 18.8 and practice score from 6.13 to 11.8, with t-test values, was statistically significant ($p < 0.05$). The study overall, revealed that simulation methods of teaching CPR are more effective than traditional methods.

Need and significance of study

Worldwide, cardiovascular diseases take a significant toll as a cause of death. During the second wave of COVID in Mumbai, the first half of 2021 recorded a six-fold increase in deaths due to heart attacks. Over 1.2 million young people die due to cardiac arrests every year. Looking at the current scenario, deaths due to heart attacks, mainly in India, become more apparent. Problems of the heart were previously seen as an affliction of the older generation. The younger population being diagnosed and succumbing to heart attacks directly contradicts this belief. Children are now at an alarming rate being affected by cardiovascular diseases. It is apparent that the increasing death rate due to heart attacks calls for timely interventions that are medical in nature to save lives. The first hour after a heart attack is typically termed the golden hour; timely help offered in this hour can be life saving. Almost 47% of sudden cardiac arrest cases end in death before a patient even reaches the hospital, as

per a report by the Centers for Disease Control and Prevention (CDC). During a heart attack, the only possible way to save a life is to provide immediate and appropriate care . Cardiac arrest indicates an important situation and emergency. Hence it should be attended to promptly and prepared to manage such situations efficiently. Most cardiac arrests take place in public venues. Out-of-hospital cardiac arrest (OHCA) occurs globally at an alarming rate of around 55 cases per 100,000 person years according to the National Institute of Health. In India, sudden cardiac arrest represents an important public health issue and leads to roughly 700,000 deaths a year. The leading cause of death in India in 2024 was cardiovascular disease (CVD) with approx 28% of all deaths and sudden cardiac death (SCD) represents an important part of the problem with 4.5 million cases every year. A large majority of these cases are people between the ages of 30 and 50 years with little to no prior warning. In Kerala the rate of deaths due to heart attack were 21.39% in 2020 of all registered deaths and in 2020, 25.43%. The National Crime Records Bureau (NCRB)reported 3,993 deaths due to heart attacks in 2022 . S. Thulang studied the effect of a training program on the knowledge,attitudes, and skills of staff members at Manipal Integrated Services (MIS), Manipal University, regarding cardiopulmonary resuscitation (CPR). The research participants consisted of 80 individuals, most of whom were in the 20-40 year age group. The sample was composed of 73.8% men and 26.2% women. 77.5% of the participants had only completed education up to the 10th grade, and all had no prior exposure to CPR. In the lower tier of the pre-test results, 73% of the 80 participants had a knowledge deficit regarding CPR, and only 26.2% held an average knowledge of CPR. In contrast, the post-test conducted 7days after the training, only 2.5% of the participants had a knowledge deficit, 55% held an average knowledge, and 42.5% had a knowledge of CPR that can be classified as good. The study has shown a significant level of knowledge on CPR after training as evidenced by the data analysis whereby a p value of $p > 0.05$ was computed. In addition, the training was successful in increasing the knowledge and skill level to perform CPR . After going through all the above-mentioned facts, it is clear that there are many life-threatening emergency conditions which necessitate the need for basic cardiopulmonary life support to the life of individuals with emergency conditions, so the investigator strongly felt that every person should have adequate knowledge of CPR/BCLS so that precious lives could be saved, the training programme is a logical solution for this problem and would greatly help these students to equip themselves in the correct procedure of CPR in public places where medical professionals are not available. For this reason, the researcher carried out this study to assess the knowledge, skill and practice of college students.

Statement of the problem

A study to assess simulation based education on knowledge and skill acquisition in adult cardiopulmonary resuscitation among arts college students at Kollam district.

Objectives

1. To assess the level of knowledge of adult cardiopulmonary resuscitation among Arts College Students
2. To assess the skill of adult cardiopulmonary resuscitation among Arts College Students.
3. To evaluate the effect of simulation-based education on knowledge of adult cardiopulmonary resuscitation among Arts College Students.
4. To evaluate the effect of simulation-based education on skill of Adult cardiopulmonary resuscitation among Arts College Students.

Hypothesis

H 1 : There is a significant difference between the pretest and the post-test knowledge score of experimental group after simulation-based education.

H 2 : There is a significant difference between the pretest and the post-test skill score of experimental group after simulation-based education.

H 3 : There is a significant difference between the post-test knowledge score of experimental and control group.

H 4 : There is a significant difference between the post-test skill score of experimental and control group

Research Methodology

Research Approach

A quantitative research approach was adopted in order to to assess the effectiveness of simulation-based education on knowledge and skill acquisition in cardiopulmonary resuscitation among arts college students

Research Design

A Quasi experimental pre test post test control group design was used in this study.

Variables

The following variables were identified in the present study.

Independent Variables:

In the present study, the independent variable is simulation based education.

Dependent Variables

In the present study, it refers to knowledge and skill .

Demographic Variables:

In the present study demographic variables including age in years, gender, religion, educational status, area of residence, previous source of information, previous experience on cardiopulmonary resuscitation.

Setting of the study

The present study was conducted at Fatima Mata National College, Kollam

Population

The target population in this study was selected arts college students at Kollam.

The accessible population in the study comprised students of Fatima Mata National College, Kollam

Sample and Sampling Technique

In this study, the sample consisted of B.com/M.com students in Fatima Mata National College, Kollam who fulfilled the sample selection criteria. Purposive sampling was used in this study.

Sample size

In this study investigators selected 60 samples in the age group of 18-23 years Fatima Mata National College, Kollam

Sample size calculation

The sample size was fixed at 60 participants. The participants were then equally allocated into two groups: 30 in the experimental group and 30 in the control group.

Sample Selection Criteria

Inclusion criteria:

- Students who are willing to participate in the study.
- Both sex (male and female)
- Students available during the time of data collection
- Those who are able to understand English

Exclusion Criteria

- Those who have attended BLS training
- Those who are physically challenged
- Those who have attended paramedical courses

Tool

The following instruments were used for collecting the data.

Tool I consist of:

- Tool 1: Socio-Demographic Data
- Tool 2: Structured knowledge questionnaire on adult CPR.
- Tool 3: Observation checklist to assess the skill of arts college students regarding adult CPR

Description of the tool

Tool 1: Socio-demographic data

The tool consists of 7 items: age in years, gender, religion, educational status, area residence, previous source of information, previous experience on basic life support regarding CPR.

Tool 2: Structured knowledge questionnaire on adult CPR.

The tool consists of 25 items to assess the knowledge regarding adult CPR.

The participants will have to select the appropriate option based on their experience and knowledge from the sessions.

Data collection process

Phase I

After getting official permission from the principal, the data were collected from Don Bosco College, Kottiyam, Kollam. The researcher approached the study setting. The objectives and significance of the study were explained to the college authorities, and assurance was given that the normal academic activities of the students would not be disturbed.

Phase II

The sample consisted of 60 arts college students who were selected using a non-probability purposive sampling technique based on the inclusion and exclusion criteria. The data collection period extended from 24-06-2025 to 30-06-2025. On the first day, the researcher introduced herself to the participants, established rapport, and explained the purpose of the study. Anonymity and confidentiality were assured and informed consent was obtained. The demographic variables of the participants were collected using a demographic proforma. Pre-test knowledge was assessed using a structured knowledge questionnaire which required about 10 minutes to complete. Skills were assessed individually using an observational checklist while each student performed cardiopulmonary resuscitation (CPR) demonstration, for which 15 minutes were allotted per student. Following the pre-test, the researcher administered the educational intervention, which included a structured teaching session on CPR for 45 minutes

followed by a CPR demonstration for 30 minutes. At the end of the intervention, the participants were informed that a post-test would be conducted on the seventh day.

Phase III

On the seventh day after the intervention, the post-test was administered using the same tools to assess both knowledge and skills related to CPR. Each student was individually evaluated for their performance. Upon completion of data collection, the researcher expressed gratitude to the participants for their willingness, interest, and cooperation throughout the study.

RESULT

SECTION A-Graphical Representation of Demographic Variables

GRAPHICAL REPRESENTATION

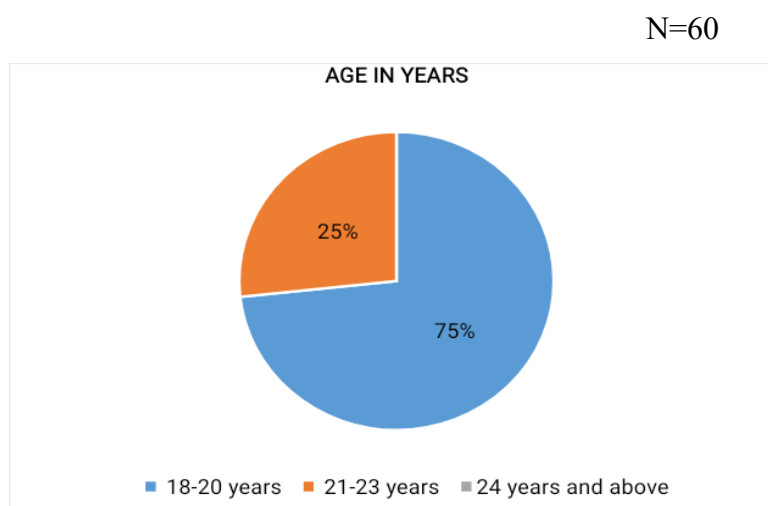


Figure 1; bar diagram showing the percentage distribution of the sample according to age

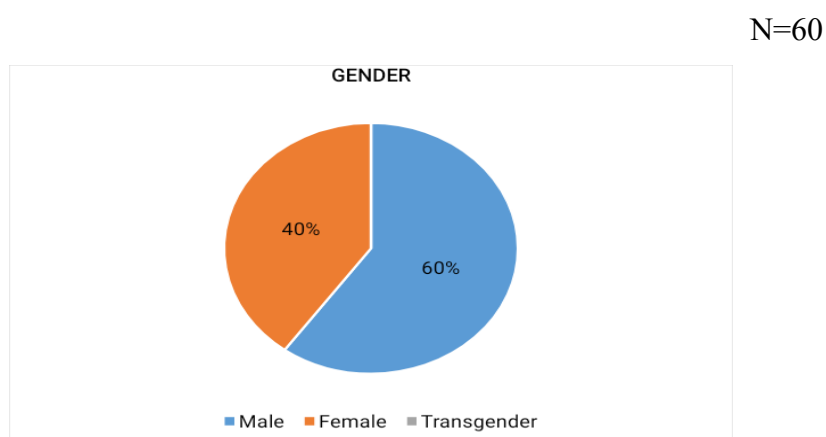


Figure 2; Pie diagram showing the percentage distribution of the sample according to the gender.

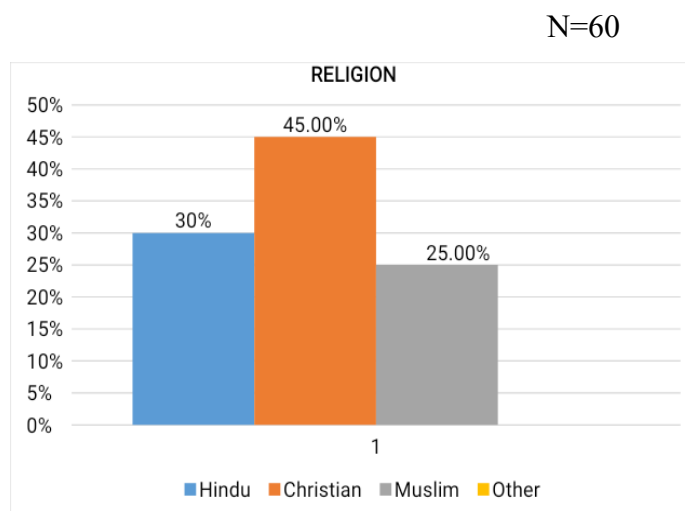


Figure 3; Bar diagram showing the percentage distribution of the sample according to religion of arts college students.



Figure 4; Pie diagram showing the percentage distribution of the sample according to the educational qualification.

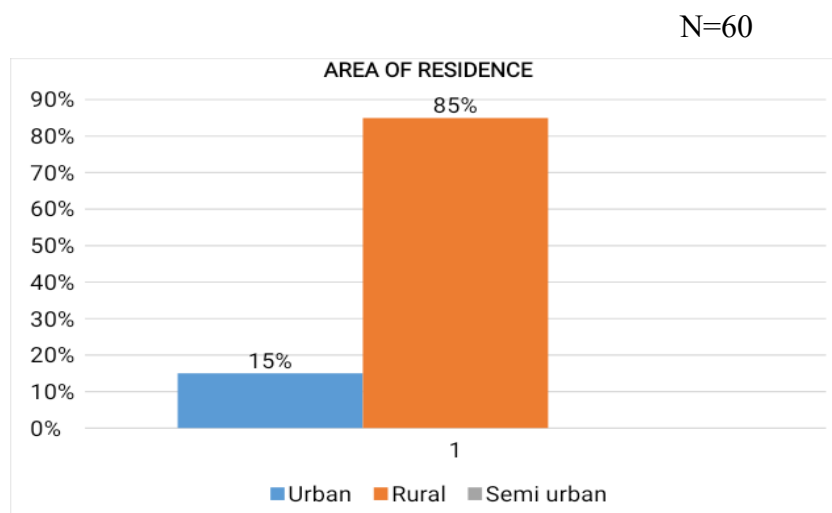


Figure 5; Bar diagram showing the percentage distribution of the sample according to the area of residence.

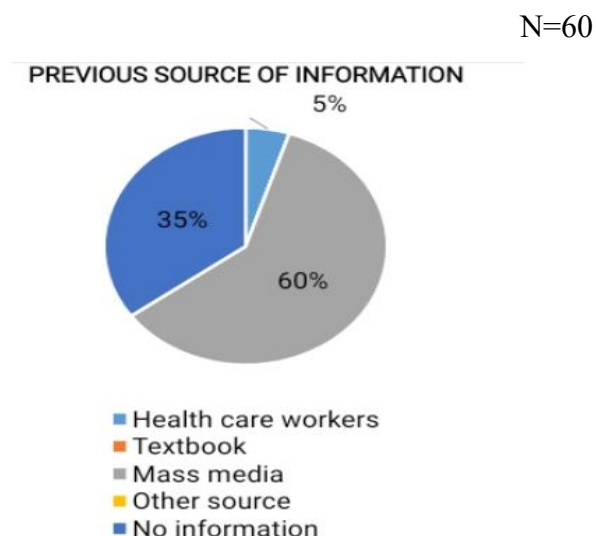


Figure 6; Pie diagram showing the percentage distribution of the sample according to the previous source of information.

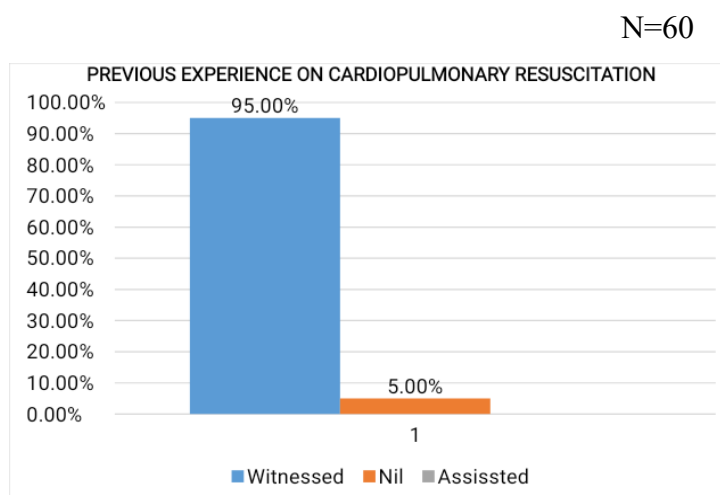


Figure 7; Bar diagram showing the percentage distribution of the sample according to the previous experience on cardiopulmonary resuscitation

SECTION B: Evaluation of simulation-based education on knowledge and skill acquisition in adult cardiopulmonary resuscitation among arts college students.

This section describes the effect of simulation-based education on knowledge and skill acquisition in adult cardiopulmonary resuscitation among arts college students. Parametric tests were used to determine the effect of simulation-based education

B (a) Comparison of the pre-test and post-test knowledge score of the experimental group after simulation-based education.

In order to find the effect of simulation-based education by comparing pre-test and post-test knowledge scores of experimental groups in adult cardiopulmonary resuscitation

among arts college students.

H₁: There is a significant difference between the pre-test and post-test knowledge score of experimental group after simulation-based education

Table 3; Mean standard deviation and 't' value of pre-test and post-tests knowledge score of the experimental group after simulation-based education

Paired t test is used			n=30
	Mean	SD	T
Pre-test	9.5	1.83	13.24
Post-test	17.4	2.78	
Tabulated t (t29) = 2.045			*significant

The calculated paired t value is greater than table t value ($p < 0.05$). Hence research hypothesis H₁ was accepted. So there is a significant change occurring in pre-test and post-test knowledge scores after simulation-based education.

B (b) Comparison of the pre-test and post-test skill score of the experimental group after simulation-based education

In order to find the effectiveness of simulation-based education by comparing pre-test and post-test skill scores of experimental group in adult cardiopulmonary resuscitation among arts college students.

H₂ : There is a significant difference between the pre-test and post-test skill scores of the experimental group after simulation-based education.

Table 4; Mean standard deviation and 't' value of pre-test and post-test skill score of the experimental group after simulation-based education

Paired t test is used			n=30
	Mean	SD	T
Pre-test	6.5	1.70	19.69
Post-test	15.13	1.99	
Tabulated T(t29) =2.045			*significant

The calculated paired 't' value is greater than table t value ($p < 0.05$). Hence research hypothesis H₂ was accepted. So there is a significant change occurs in pre-test and post-test skill score after simulation-based education

B (c) Comparison of the post-test knowledge scores of experimental and control group

In order to find the effectiveness of simulation-based education by comparing the post-test knowledge score of experimental and control group in adult cardiopulmonary resuscitation

among arts college students.

H₃: There is a significant difference between post-test knowledge score of experimental and control group

Table 5; Mean, standard deviation and ‘t’ value of the post-test knowledge score of experimental and control group after simulation-based education on adult cardiopulmonary resuscitation among arts college students

Unpaired t test is used			n=60
	Mean	SD	t
Experimental group	17.4	2.78	15.96
Control group	7.96	1.64	
tabulated t(t58) = 2			*significant

The calculated paired ‘t’ value is greater than table t value ($p < 0.05$). Hence research hypothesis **H₃** was accepted. So a significant change occurs in the post-test knowledge score of the experimental and control group.

B. (d) Comparison of the post-test attitude score of experimental and control group

In order to find the effectiveness of simulation-based education by comparing the post test skill score of experimental and control group in adult cardiopulmonary resuscitation among arts college students

H₄: There is a significant difference between post-test skill scores of the experimental and control group.

Table 6; Mean, standard deviation and ‘t’ value of the post-test skill score of experimental and control group after simulation-based education on adult cardiopulmonary resuscitation among arts college students

Unpaired t test is used			n=60
	Mean	SD	t
Experimental group	15.13	1.99	18.37
Control group	5.4	2.10	
Tabulated t(t58) = 2			*significant

The calculated paired ‘t’ value is greater than table t value ($p < 0.05$). Hence research hypothesis **H₄** was accepted. So a significant change occurs in the post-test skill score of the experimental and control group.

Discussion

In this study, most students (73.3%) were aged 18–20 years and 26.6% were 21–23 years; 60% were male and 40% female. Regarding religion, 30% were Hindu, 46.6% Christian, and 23.3% Muslim. All participants were graduates. Most students (86.6%) lived in rural areas, while 13.3% lived in urban areas. Only 6.6% had prior CPR information from healthcare workers, 65% from mass media, and 28.3% had no previous knowledge. Very few (3.3%) had witnessed life support. Before simulation-based education, 36% of the experimental group and 10% of the control group had average CPR knowledge, while the rest showed poor knowledge. Similarly, 13.33% in both groups had average CPR skills and the majority had poor skills. After the intervention, the experimental group showed a significant improvement: knowledge scores increased from 9.5 to 17.4 ($t=13.24$), and skills from 6.5 to 15.13 ($t=19.69$), confirming hypotheses H1 and H2. When comparing post-test results between groups, the experimental group outperformed the control group in both knowledge (mean difference 9.44; $t=15.96$) and skills (mean difference 9.9; $t=18.37$), supporting hypotheses H3 and H4. Overall, simulation-based education significantly enhanced students' CPR knowledge and skills.

Conclusion

The study concluded that the simulation-based education on cardiopulmonary resuscitation was found to be an effective teaching strategy whereby the arts college students got adequate information on cardiopulmonary resuscitation.

References

1. Rehman I, Rehman A. Anatomy, thorax, heart. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2025 Jan-. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK470256/>
2. Mayo Clinic. Cardiopulmonary resuscitation (CPR): First aid [Internet]. [cited 2025 Sep 23]. Available from: <https://www.mayoclinic.org/first-aid/first-aid-cpr/basics/art-20056600>
3. American Heart Association. What is CPR? [Internet]. [cited 2025 Sep 23]. Available from: <https://cpr.heart.org/en/resources/what-is-cpr>
4. Agarwal A, Baitha U, Ranjan P, Swarnkar NK, Singh GP, Baidya DK, Garg R, Gupta N, Choudhury A, Kumar A, Roy A, Naik N, Khan MA, Wig N. Knowledge and skills in cardiopulmonary resuscitation and effect of simulation training on it among healthcare workers in a tertiary care center in India. *Indian J Crit Care Med*. 2024 Apr;28(4):336–42. doi: 10.5005/jp-journals-10071-24670.
5. Srivastava J, Rani J, Roy P, Bansirar A, Gupta A (2024) Impact of B.L.S Simulation on Knowledge Acquisition, Knowledge Retention, Self-Efficacy among Non-Medical

- Students Studying in United University, Prayagraj. *J Family Med Prim Care Open Acc* 8: 266. <https://doi.org/10.29011/2688-7460.100266>
6. Patel H, Mahtani AU, Mehta LS, Kalra A, Prabhakaran D, Yadav R, Naik N, Tamirisa KP. Outcomes of out of hospital sudden cardiac arrest in India: a review and proposed reforms. *Indian Heart J.* 2023 Sep-Oct;75(5):321–6. doi:10.1016/j.ihj.2023.08.005.
 7. Sullad V, Vijaykumar S. Comparative pilot study: Traditional classroom vs. simulation-based training for CPR knowledge and skill acquisition among nursing students in Dharwad, Karnataka. *Int J Adv Res Med Surg Nurs.* 2024;6(2):95–8. doi:10.33545/surgicalnursing.2024.v6.i2b.197. Available from: <https://www.surgicalnursingjournal.com/article/view/197/6-2-12>
 8. Economic Times. Deaths due to heart failures or lack of emergency medical attention [Internet]. 2022 Jul 27 [cited 2025 Oct 1]. Available from: <https://health.economictimes.indiatimes.com/news/industry/deaths-due-to-heart-failures-or-lack-of-emergency-medical-attention/93148663>
 9. Kauvery Hospital. The Golden Hour: Why the First Hour is the Most Important after a Heart Attack [Internet]. 2020 Mar 31 [cited 2025 Oct 1]. Available from: <https://www.kauveryhospital.com/blog/heart-health/the-golden-hour-why-the-first-hour-is-the-most-important-after-a-heart-attack/>
 10. Sharabi AF, Singh A. Cardiopulmonary arrest in adults. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2025 Jan [cited 2025 Oct 1]. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK563231/>
 11. Thulung S. Effectiveness of a training program on improving the knowledge, attitude and skill in providing cardiopulmonary resuscitation (CPR) among the employees working under Manipal Integrated Services (MIS), Manipal University, Manipal [thesis on the Internet]. Manipal (India): Manipal College of Nursing; 2016 [cited 2025 Oct 1]. Available from: <https://impressions.manipal.edu/cgi/viewcontent.cgi?article=1008&context=mcon>

EFFECT OF NURSE DIRECTED CARE PROGRAMME ON KNOWLEDGE REGARDING METABOLIC DYSFUNCTION ASSOCIATED STEATOTIC LIVER DISEASE (MASLD) AMONG CLIENTS WITH TYPE 2 DIABETES MELLITUS

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ABSTRACT

A quantitative study was conducted to assess the Effect of Nurse -Directed Care Programme (NDCP) on knowledge regarding Metabolic Dysfunction Associated Steatotic Liver Diseases (MASLD)among patients with Type 2 Diabetes Mellitus. The primary objectives of the study are to assess the knowledge regarding Metabolic Dysfunction Associated Steatotic Liver Diseases (MASLD) among clients with Type 2 Diabetes Mellitus, Evaluate Effect of Nurse Directed Care Programme on knowledge regarding the Metabolic Dysfunction Associated Steatotic Liver Diseases (MASLD) among clients with Type 2 Diabetes Mellitus and the secondary objective To find out the association between pre-test knowledge regarding Metabolic Dysfunction Associated Steatotic Liver Diseases (MASLD) among clients with Type 2 Diabetes Mellitus with selected socio-demographic variables. Non-probability purposive sampling technique used to select 40 Type 2 Diabetes Mellitus patients for the study. The tool used for data collection was socio demographic data and structured knowledge questionnaire. The findings of the study showed that there was significant improvement in the knowledge regarding Metabolic Dysfunction Associated Steatotic Liver Diseases (MASLD)among patients with Type 2 Diabetes Mellitus after conducting structured teaching program was significant at 0.001 level. Hence the study suggested that structured teaching programme was effective in improving the knowledge aboutMetabolic Dysfunction Associated Steatotic Liver Diseases (MASLD) among clients with Type 2 Diabetes Mellitus

KEY WORDS

Effect, knowledge, nurse directed care program, Metabolic Dysfunction Associated Steatotic Liver Diseases (MASLD), Type2 Diabetes Mellitus.

INTRODUCTION

Good health is the cornerstone of a fulfilling life, and managing it becomes even more vital in the face of chronic conditions like diabetes mellitus. This metabolic disorder, marked by high blood sugar levels, can silently affect multiple organs if not controlled. Maintaining a balanced diet, regular exercise, and proper medication are key to keeping diabetes in check and preserving overall well-being.¹

Diabetes Mellitus (DM) is a chronic metabolic disorder characterized by elevated blood glucose levels due to the body's inability to produce or effectively use insulin. It is a serious health condition that, if left unmanaged, can lead to severe complications such as heart disease, fatty liver, kidney failure, blindness, and nerve damage.¹ This may occur due to sedentary lifestyle and unhealthy dietary practices and this leads to further complications. In this era of sedentary lifestyle Diabetes Mellitus has emerged as a major public health concern. The modern lifestyle—characterized by reduced physical activity, high-calorie diets, and increased screen time—has contributed significantly to the rise of obesity, type 2 diabetes, and insulin resistance, all of which are key risk factors for Metabolic Dysfunction–Associated Steatotic Liver Disease (MASLD).² The prevalence of diabetes is rapidly rising worldwide, making it one of the most common and costly non-communicable diseases. Effective prevention and early management are essential to reduce its impact on individuals and healthcare systems.²

BACKGROUND OF THE STUDY

MASLD (Metabolic dysfunction-Associated Steatotic Liver Disease), is strongly associated with insulin resistance, a key driver in its development and progression. In insulin resistance, the body's cells fail to respond properly to insulin, leading to increased blood glucose and insulin levels.⁷ This metabolic imbalance promotes fat accumulation in liver cells, even in individuals who consume little or no alcohol. Over time, this fat buildup can lead to inflammation, fibrosis, and more severe liver conditions like Metabolic dysfunction-Associated Steatohepatitis (MASH).⁸ Insulin resistance not only contributes to liver fat storage but also increases the risk of Type 2 Diabetes, obesity, and cardiovascular disease—all of which are commonly seen in Metabolic Dysfunction–Associated Steatotic Liver Disease (MASLD) patients. Addressing insulin resistance through lifestyle changes such as a healthy diet, weight management, and regular exercise is essential in preventing and managing Metabolic Dysfunction–Associated Steatotic Liver Disease (MASLD). Early detection and intervention are crucial to reduce the risk of liver-related complications and improve overall metabolic health.⁹

Metabolic dysfunction-associated steatotic liver disease (MASLD), is often referred to

as a "silent killer" because it progresses slowly without obvious symptoms, making early detection challenging. It is emerging as one of the leading liver-related complications in individuals with diabetes mellitus (DM), especially type 2 diabetes. Due to shared metabolic risk factors such as insulin resistance, obesity, and dyslipidemia, Metabolic Dysfunction–Associated Steatotic Liver Disease (MASLD) has become increasingly prevalent among diabetic patients.¹⁰ It affects a wide range of age groups, but is most commonly seen in adults aged 30 to 60 years.¹¹ Alarming, younger populations are also being diagnosed due to rising sedentary lifestyles and poor dietary habits. If left unrecognized, Metabolic Dysfunction–Associated Steatotic Liver Disease (MASLD) can progress to more severe forms such as metabolic dysfunction-associated steatohepatitis (MASH), fibrosis, cirrhosis, and even liver cancer.¹⁰

Metabolic dysfunction-associated steatotic liver disease (MASLD) has become one of the most common liver disorders globally, with a rising incidence and prevalence driven by increasing rates of obesity, type 2 diabetes, and sedentary lifestyles. The global prevalence of Metabolic Dysfunction–Associated Steatotic Liver Disease (MASLD) is estimated to be around 25–30% in the general population, but it is significantly higher—up to 70–80%—in people with diabetes mellitus.¹² The incidence of Metabolic Dysfunction–Associated Steatotic Liver Disease (MASLD) is also steadily increasing, with millions of new cases diagnosed each year, especially in rapidly urbanizing regions such as South Asia and the Middle East. In India, studies suggest a prevalence of 20–32% in the general population, and even higher among individuals with metabolic syndrome. Despite its high occurrence, Metabolic Dysfunction–Associated Steatotic Liver Disease (MASLD) often remains undetected due to its asymptomatic progression, highlighting the importance of early screening and lifestyle modifications to prevent complications such as liver fibrosis, cirrhosis, and hepatocellular carcinoma.¹³

In India, the prevalence of Metabolic Dysfunction-Associated Steatotic Liver Disease (MASLD) ranges from 9% to over 50%, with a pooled average of around 38.6%, and the incidence is rising rapidly—particularly among individuals with obesity, diabetes, and metabolic syndrome—making it one of the fastest-growing liver diseases in the country.¹⁴ According to the Global Burden of Disease (GBD) Study, India experienced a 13.2% rise in age-standardized Metabolic Dysfunction–Associated Steatotic Liver Disease (MASLD) prevalence between 2010 and 2021, one of the highest globally.¹⁵

In Kerala, regions such as Thiruvananthapuram report a prevalence of Metabolic Dysfunction–Associated Steatotic Liver Disease (MASLD) (formerly NAFLD) around 50%

among adults, significantly higher than the global average of 25%. Community studies show nearly half of adults carry fatty liver, with obesity being a stronger risk factor than diabetes. Among children, particularly in North Kerala, 60% of obese children (ages 5–18) were found to have fatty liver via ultrasound.¹⁶In young adults (mean age ~24), a 27.4% prevalence of Metabolic Dysfunction–Associated Steatotic Liver Disease (MASLD) and 25.9% with elevated liver enzymes was observed. While exact annual incidence rates are scarce, the state has seen a shift in cirrhosis etiology, with ~30% now linked to Metabolic Dysfunction–Associated Steatotic Liver Disease (MASLD), driving a growing trend of liver-related disease. These findings reflect a rapidly escalating burden in Kerala across all age groups, paralleling lifestyle changes and high rates of obesity and metabolic conditions¹⁷.

NEED AND SIGNIFICANCE

Metabolic Dysfunction–Associated Steatotic Liver Disease (MASLD), previously known as Non-Alcoholic Fatty Liver Disease (NAFLD), is a prevalent liver condition characterized by the accumulation of fat in the liver in individuals who consume little to no alcohol.¹⁹This disease is closely associated with metabolic risk factors such as obesity, type 2 diabetes, hypertension, and dyslipidemia. Metabolic Dysfunction–Associated Steatotic Liver Disease (MASLD) encompasses a spectrum of liver conditions, ranging from simple steatosis, where fat accumulates in the liver without significant inflammation, to more severe forms like Metabolic Dysfunction–Associated Steatohepatitis (MASH), which involves liver inflammation and can progress to fibrosis, cirrhosis, and hepatocellular carcinoma.²⁰

Fatty liver is a condition characterized by the accumulation of excess fat in the liver cells, exceeding 5-10% of the liver's weight. This fat buildup can occur due to various causes, including alcohol use or metabolic factors, and may lead to liver inflammation, damage, and impaired function.²¹

In Type 2 Diabetes Mellitus, the body's cells—particularly those in muscle, liver, and adipose tissue—become less responsive to insulin. This resistance impairs glucose uptake and utilization, leading to elevated blood glucose levels. Concurrently, the liver continues to produce glucose, exacerbating hyperglycemia. Insulin resistance is often associated with obesity, especially visceral fat accumulation, which contributes to the release of free fatty acids and pro-inflammatory cytokines, further impairing insulin signaling pathways.²²

Type 2 Diabetes Mellitus (T2DM) and Non-Alcoholic Fatty Liver Disease (NAFLD) have a strong, bidirectional relationship, meaning they influence each other's development and progression. Non-Alcoholic Fatty Liver Disease (NAFLD) is highly prevalent in individuals with Type 2 Diabetes Mellitus often due to shared risk factors like obesity and insulin

resistance. Furthermore, Non-Alcoholic Fatty Liver Disease (NAFLD) can increase the risk of developing Type 2 Diabetes Mellitus, and the severity of NAFLD can impact the likelihood of complications Type 2 Diabetes Mellitus.²³

The primary mechanism connecting Type 2 Diabetes Mellitus and Metabolic Dysfunction–Associated Steatotic Liver Disease (MASLD) is insulin resistance.²⁴ In Type 2 Diabetes Mellitus, insulin resistance leads to elevated blood glucose levels and increased free fatty acid release from adipose tissue. These free fatty acids are taken up by the liver, leading to fat accumulation (steatosis). Additionally, insulin resistance impairs the liver's ability to export triglycerides, further contributing to fat buildup. This accumulation triggers oxidative stress, inflammation, and liver cell injury, potentially progressing to Non-Alcoholic Steatohepatitis (NASH), Fibrosis, Cirrhosis, and even Hepatocellular Carcinoma (HCC).²⁵

A cross sectional study was conducted (2024) at Karachi Pakistan to assess the knowledge regarding Metabolic Dysfunction–Associated Steatotic Liver Disease (MASLD) among clients with Type-2 Diabetes Mellitus in private health care facilities in Karachi, Pakistan for receiving record. A total of 646 persons aged between 18 or above with a diagnosis of Type-2 DM were selected by Non-probability Consecutive Sampling Technique. Data is analysed through descriptive analysis the study result shows Type-2 DM was noted in 351 (54.3%) persons.²⁶ A strong association between T2 DM ($P=0.009$) and Metabolic Dysfunction–Associated Steatotic Liver Disease (MASLD) was found in the study.²⁶

A cross sectional study was conducted on 2013 in Italy to assess the knowledge regarding “Both resistance training and aerobic training reduce hepatic fat content in type 2 diabetic subjects with nonalcoholic fatty liver disease “ in the university of Berona Italy.²⁶ A total of 60 participants within the age group of 56 years were taken 20 in aerobic group, 20 in resistance group and 20 in control group. The data was collected by web administered questionnaire and the data is analyzed by Meta-analysis and the result shows Liver Fat Reduction: Aerobic Group: ~20% decrease (vs. Baseline). Resistance Group 15% decrease (vs. baseline). Control Group No significant change. HbA1c Reduction: Aerobic Group 0.7% decrease.²⁷ This concludes that both aerobic and resistance training significantly reduced liver fat in type diabetes patients with Metabolic Dysfunction–Associated Steatotic Liver Disease (MASLD).²⁶

A randomized controlled trial was conducted (2019) to assess the knowledge regarding effect of a low carbohydrates Mediterranean diet vs High carbohydrates diet on liver fat in, Non-Alcoholic Fatty Liver Disease (NAFLD) in Ireland. A total of 65 participants between the age group of 30-65 were selected by randomization. The data was collected by self-

administered questionnaire. The data analysis was done by statistical method and the result shows that a low carbohydrates Mediterranean diet reduced liver fat by 35-40%.²⁸

A cross sectional study conducted (2019) to assess the knowledge regarding exercise and diet in the management of Nonalcoholic fatty liver disease (NAFLD) at university of Sydney Australia. A total of 100 adult aged between 45 -60 year were selected. The data was collected using AMSTAR 2. The data analyzed by meta-analysis and the result shows that liver fat reduction in aerobic exercise is 18.9% to 20.4%. Hence the study concluded that the nurse prescribed exercise as a 1st line therapy for Metabolic Dysfunction–Associated Steatotic Liver Disease (MASLD) in type 2 Diabetes Mellitus.²⁹

OBJECTIVES

PRIMARY OBJECTIVE:

- To assess knowledge regarding Metabolic Dysfunction–Associated Steatotic Liver Disease (MASLD) among clients with Type 2 Diabetes Mellitus.
- Evaluate the effect of Nurse Directed Care Programme (NDCP) on knowledge regarding Metabolic Dysfunction–Associated Steatotic Liver Disease (MASLD) among clients with Type 2 Diabetes Mellitus.

SECONDARY OBJECTIVE:

- To find the association between knowledge regarding Metabolic Dysfunction–Associated Steatotic Liver Disease (MASLD) with selected demographic variables.

HYPOTHESES

- H1: There is a significant difference in knowledge regarding Metabolic Associated Steatotic Liver Disease (MASLD) and knowledge among patients with Type 2 Diabetes Mellitus.
- H2: There is a significant association between the knowledge regarding Metabolic Associated Steatotic Liver Disease (MASLD) and selected demographic variables among patients with Type 2 Diabetes Mellitus.

RESEARCH APPROACH

Research approach adopted by the present study was Quantitative approach. It was developed to evaluate the effect of Nurse Directed Care Program (NDCP) on knowledge regarding Metabolic Associated Steatotic Liver Diseases (MASLD) among clients with type 2 diabetes mellitus.

RESEARCH DESIGN

Research design is a comprehensive plan or blueprint for conducting a research study. It includes the strategies, processes, and methods used to collect, measure, and analyze data. A good research design ensures the validity, reliability, and objectivity of the research findings.

The Research design used in this study was Quasi-Experimental one group Pre-test, Post- test design.

C	O ₁	O ₂
E	O ₃	x O ₄

- O₁: Pretest of control group prior to Nurse Directed Care Programme
- O₂: Post test of the control group 3 days after Nurse Directed Care Programme
- O₃: Pretest of experimental group prior to Nurse Directed Care Programme
- x: Nurse Directed Care Programme
- O₄: Post test of experimental group 3 days after nurse directed care program

It is the researcher's overall plan for answering the research question. It indicates whether or not there is an intervention, the type of intervention, the nature of any comparison to be made.

VARIABLES

Variables are elements or factors that can be manipulated, controlled, or measured in research.

The variables used in this study are follow:

1. Independent variable
2. Dependent variable

INDEPENDENT VARIABLE

Independent variable is defined as the experimental activity that is manipulated or varied by the researcher to cause an effect on dependent variable

In this study independent variable is Nurse –Directed Care Programme.

DEPENDENT VARIABLE

A dependent variable is the variable that changes as a result of the independent variable manipulation. It's the outcome you are interested in measuring, and it “depends” on your independent variable.

In this study the dependent variable was knowledge.

SETTING OF STUDY POPULATION

Setting is the location for conducting research; can be natural partially control or highly control

In this study the data collection done from Holy Cross Hospital, Kottiyam

POPULATION

Population is all elements that meet the sample criteria for inclusion in a study; sometimes referred to as a target population

Target population of the study include Type 2 Diabetes Mellitus Patients.

The accessible population of present study include all patients coming to Holy Cross Hospital, Kottiyam.

SAMPLING CRITERIA

INCLUSION CRITERIA:

- Type 2 Diabetes Mellitus patients with Diabetes Mellitus more than 3 years.
- Who are willing to participate in the study.

EXCLUSION CRITERIA:

- Unstable cardiovascular or neurovascular condition.
- With significant alcohol drinking.

INTERVENTION

An intervention refers to an action or process of becoming intentionally involved in a situation in order to influence the outcome usually to improve or alter what's happening.

Nurse Directed Care Programme was our intention for Type 2 Diabetes Mellitus patients our interventions were health education about Mediterranean diet and demonstration of exercises that reduces the risk of Metabolic Associated Steatotic Liver Disease (MASLD) in Type 2 Diabetes patients. We referred about the intervention through magazines, journals and online sources. The confidentiality of our study was well maintained. The components of the intervention include introducing the topic, list down the risk factors, signs and symptoms, complication and connection of Diabetes with Metabolic Associated Steatotic Liver Disease (MASLD) and its management. We explained about the benefits of Mediterranean diet and focused on exercises such as Aerobic Exercises, Resistance (Strength) Training, Mindfulness Meditation, Deep Breathing Exercises, Progressive Muscle Relaxation (PMR). The duration of intervention taken was about 20min. Through Nurse Directed Care Programme there will be increase in the knowledge level of type 2 Diabetes Mellitus patient regarding Metabolic Associated Steatotic Liver Disease (MASLD).

TOOLS / INSTRUMENTS

Tool is defined as a device for measuring a given event, such as, a questionnaire, an interview or a set of guidelines or checklist for observation.

The tools used in this study are:

SECTION A: A Socio-demographic data to collect the baseline information about the sample.

SECTION B: Structured Knowledge Questionnaire used to collect data from Type 2 Diabetes Mellitus Patients.

DESCRIPTION OF THE TOOL

The tool consists of 2 sections

SECTION A: Socio- Demographic Data

It consists of age, gender, marital status, area of residence, monthly income, education, occupation dietary habit, health status, family history of, Type 2 Diabetes Mellitus Patients. BMI, duration of Diabetes Mellitus.

SECTION B: Structured Knowledge Questionnaire

Section B consist of 16 structured questionnaire following knowledge regarding Diabetes Mellitus and MASLD. It was developed based on different content variables includes Diabetes Mellitus, physiological changes, clinical features, risk factors, preventive measures, and also about fatty liver, diagnostic evaluation, insulin resistance and management of fatty liver. The tool consist of 16 questions was given to knowledge assessment. It interprets the level of knowledge

ANALYSIS AND INTERPRETATION

Analysis and interpretation of data is most important phase of research process. Analysis and interpretation data includes compilation, editing, classification and presentation of data. The analysis of data includes comparison of the various intervention.

This chapter deals with analysis of data and interpretation of result obtained from 40 samples by using demographic performa and knowledge questionnaire. The present study was aimed to evaluate the effect of Nurse Directed Care Programme (NDCP)on knowledge regarding Metabolic Dysfunction Associated Steatotic Liver Disease (MASLD) among clients with Type2 Diabetes Mellitus. The data obtained were tabulated, analysed, and interpreted using descriptive and inferential statistics based on the objectives of the present study. The findings are given under the following section.

SECTION 1: Description of demographic variables

SECTION 2: Assessment of level of knowledge regarding Metabolic Dysfunction Associated Steatotic Liver Disease (MASLD) among clients with Type2 Diabetes Mellitus.

SECTION 3: EffectofNurse Directed Care Programme (NDCP)on knowledge regarding Metabolic Dysfunction Associated Steatotic Liver Disease (MASLD) among clients with Type 2 Diabetes Mellitus.

SECTION 4: Association of pre-test knowledge scores with selected demographic variable of samples.

SECTION 1: DESCRIPTION OF DEMOGRAPHIC VARIABLES

This section deals with socio-demographic data of 40 samples selected for the study. The demographic data includes age, gender, education, occupational status, area of residence, dietary habits, unhealthy habits, family history of Type 2 Diabetes Mellitus, monthly income, body mass index, physical activity per week, duration of diabetes mellitus, presence of co-morbidities. It was analysed by using descriptive statistics in terms of frequency and percentage.

FIGURE 3: THE BAR DIAGRAM SHOWS FREQUENCY AND DISTRIBUTION OF CLIENTS WITH TYPE 2 DIABETES MELLITUS WITH REFERENCE TO AGE

(n=40)

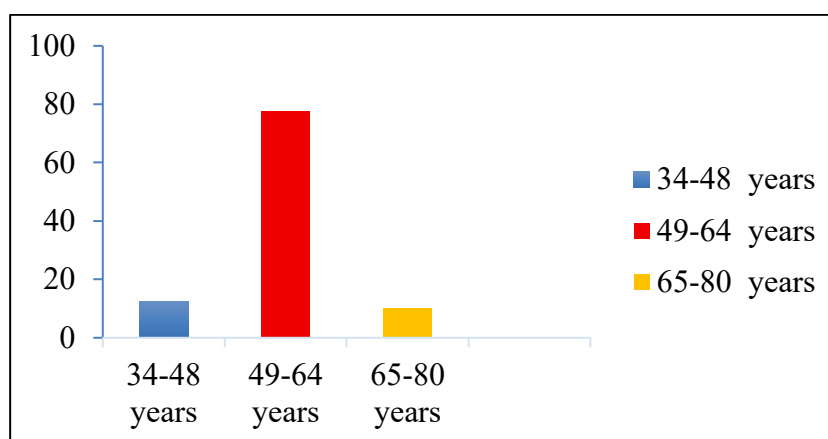


FIGURE 3: Shows that 12.5%of diabetic patient belongs to 34-48 year of age,77.8% belongs to 49-64 of years of age, 10% belongs to 65-80% of year of age.

TABLE 1: THE TABLE SHOWS FREQUENCY AND PERCENTAGE DISTRIBUTION OF DIABETIC PATIENTS WITH REFERENCE TO GENDER

GENDER	FREQUENCY	PERCENTAGE
MALE	23	57.5%
FEMALE	17	42.5%
TRANSGENDER	-	-

TABLE 1. Shows that 57.5% are male and 42.5% are female.

FIGURE 4: THE BAR DIAGRAM SHOWS FREQUENCY AND DISTRIBUTION OF CLIENTS WITH TYPE 2 DIABETES MELLITUS WITH REFERENCE TO MARITAL STATUS

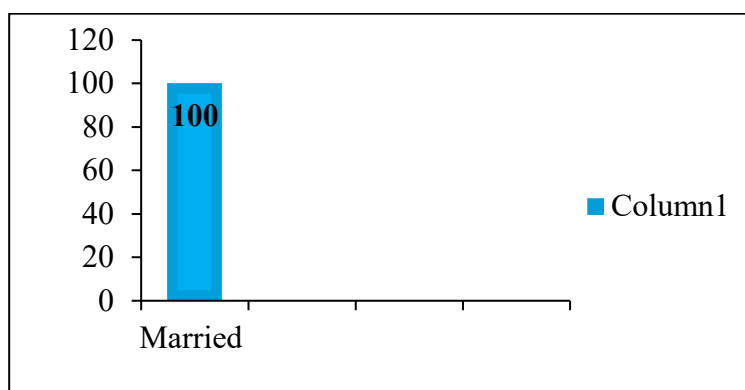


FIGURE 4. Shows that 100% of sample are married

TABLE 2: THE TABLE SHOWS FREQUENCY AND PERCENTAGE DISTRIBUTION OF DIABETS PATIENTS ON EDUCATION

EDUCATION	FREQUENCY	PERCENTAGE
PRIMARY	8	20%
HIGH SCHOOL	19	47.5%
HIGHER SECONARY	-	-
GRADUATE/POST GRADUATE	13	32.5%

TABLE 2: shows that 20%of sample have primary education, 47.5% have high school education and 32.5% are graduated.

FIGURE 5: THE PIE DIAGRAM SHOWS FREQUENCY AND PERCENTAGE DISTRIBUTION OF DIABETIC PATIENTS WITH REFERENCE TO OCCUPATIONAL STATUS

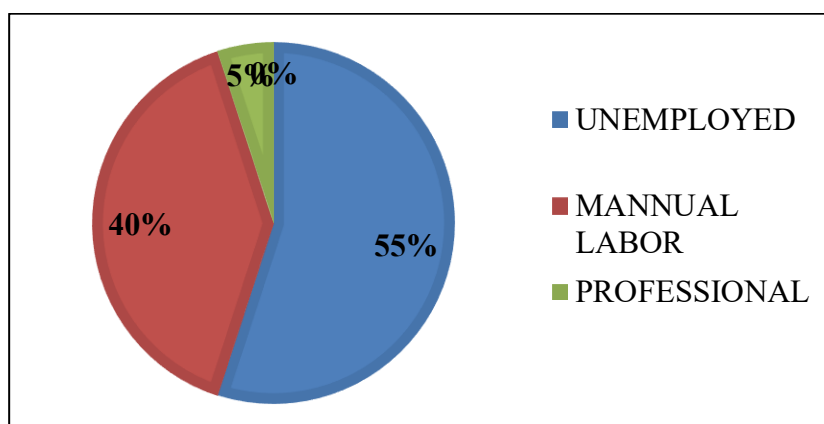


FIGURE 5: Diagram shows that 55% of sample are unemployed, 40%have manual labour and 5% are professional.

TABLE 3: THE TABLE SHOWS FREQUENCY AND PERCENTAGE DISTRIBUTION OF DIABETIC PATIENTS WITH REFERENCE TO RESIDENCE

AREA OF RESIDENCE	FREQUENCY	PERCENTAGE
URBAN	10	25%
RURAL	10	25%
SEMI URBAN	20	50%

TABLE 3. Shows that 25% of sample living in urban area 25% living in rural area and 50% live in semi urban.

FIGURE 6: THE BAR DIAGRAM SHOWS FREQUENCY AND PERCENTAGE DISTRIBUTION OF DIABETIC PATIENTS WITH REFERENCE TO DIETARY HABITS

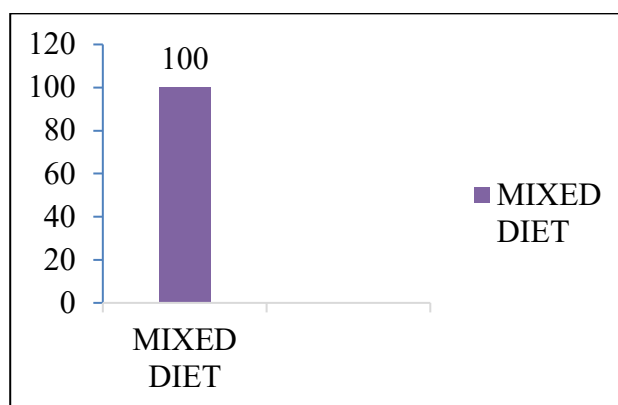


FIGURE 6: The diagram shows that 100% of sample are mixed diet

TABLE 4: THE TABLE SHOWS FREQUENCY AND PERCENTAGE DISTRIBUTION OF DIABETIC PATIENTS WITH REFERENCE TO UNHEALTHY HABITS

UNHEALTHY HABITS	FREQUENCY	PERCENTAGE
YES	-	-
NO	40	100%

TABLE 4. Shows that 100% sample does not have any unhealthy habits

FIGURE 7: THE BAR DIAGRAM SHOWS FREQUENCY AND PERCENTAGE DISTRIBUTION OF DIABETIC PATIENTS WITH REFERENCE TO FAMILY HISTORY OF TYPE 2 DAIBETES MELLITUS

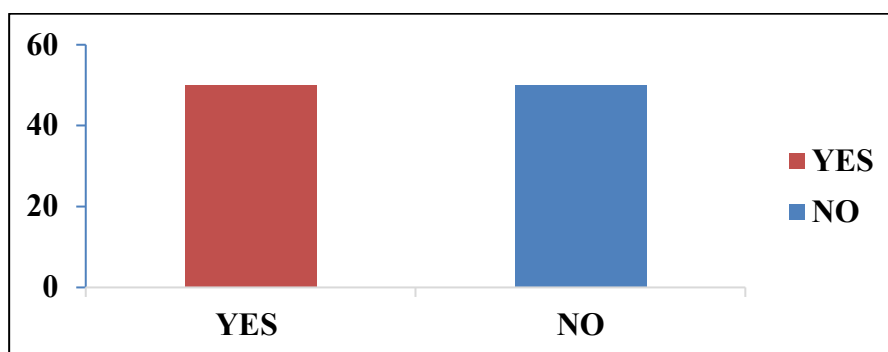


FIGURE 7: The diagram Shows that 50% sample have a family history of type 2 diabetes mellitus, 50% sample have no family history of type 2 diabetes mellitus.

TABLE 5: THE TABLE SHOWS FREQUENCY AND PERCENTAGE DISTRIBUTION OF DIABETES PATIENTS WITH REFERENCE TO MONTHLY INCOME

MONTHLY INCOME	FREQUENCY	PERCENTAGE
500-5000	-	-
5001-10000	23	57.5%
10001-15000	15	37.5%
>15001	2	5%

TABLE 5: Shows that 57.5%of sample is having a monthly income of Rs 5001-10000, 37.5% have Rs10001-15000 and 5% have >15001

FIGURE 8: THE BAR DIAGRAM SHOWS FREQUENCY AND PERCENTAGE DISTRIBUTION OF DIABETIC PATIENTS WITH REFERENCE TO BMI

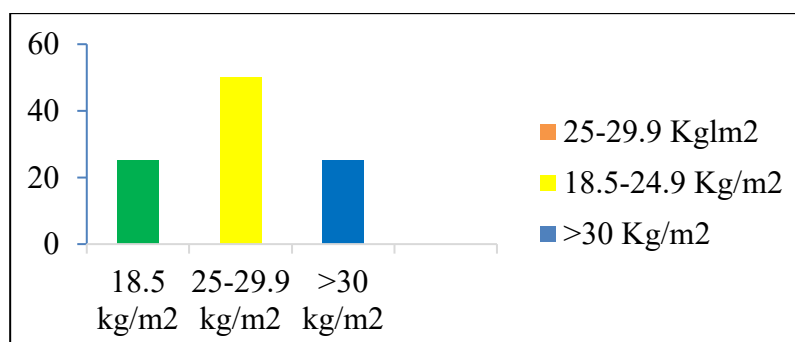


FIGURE 8: The diagram shows that 25% of sample have a BMI of 18.5-24.9 kg/m², 50% of sample have a 25-29.9 an 25% have >30kg/m²

TABLE 6: THE TABLE SHOWS FREQUENCY AND PERCENTAGE DISTRIBUTION OF DIABETIC PATIENTS WITH REFERENCE TO PHYSICAL ACTIVITY PER WEEK

PHYSICAL ACTIVITY	FREQUENCY	PERCENTAGE
SEDENTARY	17	42.5%
MODERATE	11	27.5%
ACTIVE	-	-
NONE	12	30%

TABLE 6. Shows that 42.5% have sedentary, 27.5% have moderate and 30 % of sample does not do any physical activity.

FIGURE 7: THE BAR DIAGRAM SHOWS FREQUENCY AND PERCENTAGE DISTRIBUTION OF DIABTES PATIENT WITH REFERENCE TO DURATION OF DIABETES MELLITUS

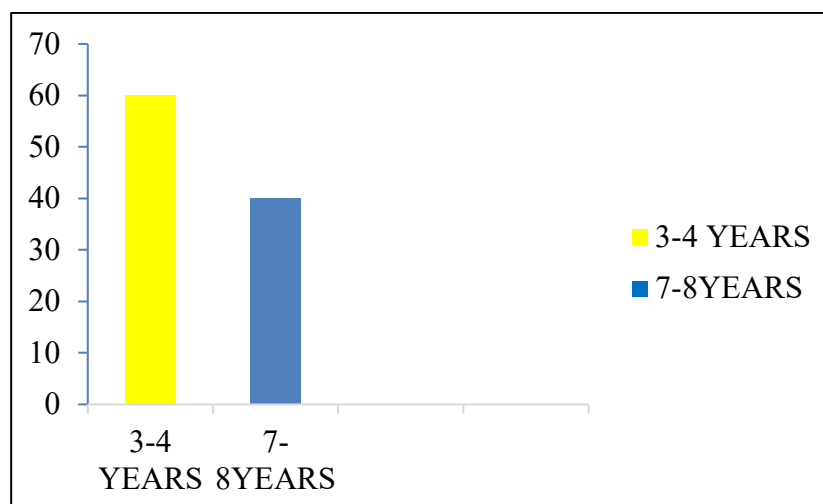


FIGURE 6: The diagram shows that 60% of sample have duration of 5-6 years ,40% of sample have duration of 7- 8 years.

TABLE 7: THE TABLE SHOWS FREQUENCY AND PERCENTAGE DISTRIBUTION OF DIABETIC PATIENTS WITH REFERENCE TO PRESENCE OF CO- MORBIDITIES

PRESENCE OF CO-MORBIDITES	FREQUENCY	PERCENTAGE
HYPOTHYROIDISM	8	20%
HYPERTENSION	22	55%
CORONARY ARTERY DIEASE	0	0
STROKE	10	25%

TABLE 7. Shows that 20%of sample have hypothyroidism,55%of sample have hypertension, and 25% of sample have stroke.

SECTION 3: EFFECT OF PLANNED TEACHING PROGRAMME

Data on Effect of Nurse Directed Care Programme (NDCP) on knowledge regarding Metabolic Dysfunction Associated Steatotic Liver Disease (MASLD) among clients with Type 2 Diabetes Mellitus, analysed by mean, standard deviation, t test, chi square test, p value.

TABLE 9 : MEAN, SD, DF AND T VALUE TO ASSESS THE EFFECT OF NURSE DIRECTED CARE PROGRAMME

SCORE	MEAN	SD	df	P value	t value
PRE TEST	3.18	2.10	39	0.0001	31.0011
POST TEST	2.10	2.16	39		

SIGINIFICANT AT 0.05 LEVEL

Table shows that the mean post-test knowledge score is 2.10 among clients with Diabetes Mellitus regarding Metabolic Dysfunction Associated Steatotic Liver Disease higher than pretest knowledge score 3.18. Here the p value is >0.05 so there is significance in p value. It was inferred that Nurse Care Directed Care Programme was effective in improving knowledge regarding Metabolic Dysfunction Associated Steatotic Liver Disease (MASLD) among clients with Type 2 Diabetes Mellitus. Hence it rejects the null hypothesis (H_0) and accept the research hypothesis (H_1).

SECTION 4: ASSOCIATION OF PRE TEST KNOWLEDGE SCORE WITH DEMOGRAPHIC VARIABLES SAMPLES

The selected demographic data includes age, gender, education, occupational status, area of residence, dietary habits, unhealthy habits, family history of Type2 Diabetes Mellitus, monthly income, body mass index, physical activity per week, duration of diabetes mellitus, presence of co-morbidities

TABLE 10. BASED ON AGE

Demographic variables	Poor	Average	Good	Excellent	Total	Chi Square	t Value
AGE							
18-33	0	0	0	0	0	0.0775	4.303
34-48	4	1	0	0	5		
49-64	23	8	0	0	31		
65-80	3	1	0	0	4		
TOTAL	30	10	0	0	40		

INFERENCE: The table shows that 31 clients belong to 49-64 years of age, 5 belongs to 34-48 years of age and 4 belongs to 65-80 years of age

TABLE 11. BASED ON GENDER

Demographic variables	Poor	Average	Good	Excellent	Total	Chi Square	t Value
GENDER							
MALE	16	7	0	0	23	0.8531	
FEMALE	14	3	0	0	17		
TOTAL	30	10	0	0	40		

INFERENCE: The table shows that 23 clients belong to male and 17 belongs to female

TABLE 12. BASED ON MARITAL STATUS

Demographic variables	Poor	Average	Good	Excellent	Total	Chi Square	t Value
MARITAL STATUS							
UN MARRIED	0	0	0	0	0	-	12.71
MARRIED	30	10	0	0	40		
SEPERATED/DIVORCED	0	0	0	0	0		
WIDOW/WIDOWER	0	0	0	0	0		
TOTAL	30	30	0	0	40		

INFERENCE: The table shows that 40 clients are married

TABLE 13. BASED ON EDUCATION

Demographic variables	Poor	Average	Good	Excellent	Total	Chi Square	t Value
EDUCATION							
PRIMARY	6	2	0	0	30	4.303	4.303
HIGH SCHOOL	13	6	0	0	10		
HIGHER	0	0	0	0	0		
SECONDARY							
GRADUATE	11	2	0	0	0		
TOTAL	30	10	0	0	40		

INFERENCE: The table shows that 30 clients have primary education,10 clients have high school education

TABLE 14. BASED ON OCCUPATION

Demographic variables	Poor	Average	Good	Excellent	Total	Chi Square	t Value
OCCUPATION							
UN EMPLOYED	17	5	0	0	22	0.727	4.303
MANUAL LABOR	12	4	0	0	16		
PROFESSIONAL	1	1	0	0	2		
SELF EMPLOYED	0	0	0	0	0		
TOTAL	30	10	0	0	40		

INFERENCE: The table shows that 22 clients are unemployed, 16 are manual labours,2 are professionals.

TABLE 15. BASED ON AREA OF RESIDENCE

Demographic variables	Poor	Average	Good	Excellent	Total	Chi Square	t Value
AREA OF RESIDENCE							
URBAN	25	15	0	0	40	-	12.71
RURAL	0	0	0	0	0		
SEMIURBAN	0	0	0	0	0		
TOTAL	25	15	0	0	40		

INFERENCE: The table shows that 40 clients live in urban areas

TABLE 16. BASED ON DIETARY HABITS

Demographic variables	Poor	Average	Good	Excellent	Total	Chi Square	t Value
DIETARY HABITS							
VEGETARIAN	0	0	0	0	0	-	12.71
NON-VEGETARIAN	0	0	0	0	0		
MIXED	20	20	0	0	40		
TOTAL	20	20	0	0	40		

INFERENCE: The table shows that 40 clients follow mixed diet.

TABLE 17. BASED ON UNHEALTHY HABITS

Demographic variables	Poor	Average	Good	Excellent	Total	Chi Square	t Value
UNHEALTHY HABITS							
YES	0	0	0	0	0	-	12.71
NO	10	30	0	0	40		
TOTAL	10	30	0	0	40		

INFERENCE: The table shows that 40 clients have no unhealthy habits.

TABLE 18. BASED ON FAMILY HISTORY

Demographic variables	Poor	Average	Good	Excellent	Total	Chi Square	t Value
FAMILY HISTORY							
YES	14	6	0	0	20	0.5334	12.71
NO	16	4	0	0	20		
TOTAL	30	10	0	0	40		

INFERENCE: The table shows that 20 clients have family history of diabetes mellitus and 20 clients have no family history of diabetes mellitus

TABLE 19. BASED ON MONTHLY INCOME

Demographic variables	Poor	Average	Good	Excellent	Total	Chi Square	t Value
MONTHLY INCOME							
500-5000	20	4	0	0	24	2.412	4.303
5001-10000	9	5	0	0	14		
10001-15000	0	0	0	0	0		
>15001	1	1	0	0	2		
TOTAL	30	10	0	0	40		

INFERENCE: The table shows that 24 clients have a monthly income of 500-5000, 14 clients have monthly income of 5001-10000, 2 clients have >1500

TABLE 20. BASED ON BODY MASS INDEX

Demographic Variables	Poor	Average	Good	Excellent	Total	Chi Square	t Value
BMI							
<18.5	0	0	0	0	0	-	12.7
18.5-24.9	25	15	0	0	40		
25-29.9	0	0	0	0	0		
>30	0	0	0	0	0		
TOTAL	25	15	0	0	40		

INFERENCE: The table shows that 40 clients have a normal BMI of 18.5-24.9.

TABLE 21. BASED ON PHYSICAL ACTIVITY

Demographic variables	Poor	Average	Good	Excellent	Total	Chi Square	t Value
PHYSICAL ACTIVITY							
SEDENTARY	12	5	0	0	17	0.449	4.303
MODERATE	9	2	0	0	11		
NONE	9	3	0	0	12		
TOTAL	30	10	0	0	40		

INFERENCE: The table shows that 17 clients do sedentary physical activity ,11 clients do moderate physical activity ,11 clients does not do any physical activity.

TABLE 22. BASED ON DURATION OF DIABETES MELLITUS

Demographic variables	Poor	Average	Good	Excellent	Total	Chi Square	t Value
DURATION OF DM							
3-4 YEARS	0	0	0	0	0	0.556	12.71
5-6 YEARS	19	5	0	0	24		
7-8 YEARS	11	5	0	0	16		
>8 YEARS	0	0	0	0	0		
TOTAL	30	10	0	0	40		

INFERENCE: The table shows that 24 clients have 5-6 years of duration, 16 clients have 7-8years

TABLE 23. BASED ON CO MORBIDITIES

Demographic variables	Poor	Average	Good	Excellent	Total	Chi Square	t Value
	16	6	0	0	22	0.193	4.303
	6	2	0	0	8		
	8	2	0	0	10		
	30	10	0	0	40		

INFERENCE: The table shows that 22 clients have hypertension, 8 clients have hypothyroidism and 10 clients have no comorbidities.

SECTION 2: ASSESSMENT OF KNOWLEDGE SCORES OF CLIENTS WITH TYPE 2 DIABETES MELLITUS

Table 8 : Frequency distribution and percentage of clients with Type 2 Diabetes Mellitus reference to pretest and post-test knowledge score

Level of knowledge	Pre test		Post test	
	Frequency	percentage	Frequency	percentage
POOR (1-4)	30	75%	0	0
AVERAGE (5-8)	10	25%	0	0
GOOD (9-12)	0	0	28	70%
EXCELLENT (13-16)	0	0	12	36%

The table 8 shows that among 40 type 2 Diabetic patients, during Pretest 75% (30) had adequate knowledge, 25% (10) had moderate knowledge and where as in post-test 70% (28) had good knowledge and 36% (12) had excellent knowledge.

DISCUSSION, SUMMARY, CONCLUSION

This chapter deals with discussion, summary, conclusion, nursing implication, limitations and recommendations. Discussion is to interpret and describe the significance of findings in light of what was already known about the research problem being invested, and to explain any new understanding or insights about the problem after taken the findings into consideration. The study was undertaken to evaluate the effectiveness of knowledge regarding the use of menstrual cup among adolescent girls. The findings of the study are discussed below in relation to the findings of other studies which the investigator reviewed.

REFERENCES

1. Allan, H., &Traynor, M. (Eds.). (2025). Researching racism in nursing: Reflexive accounts and personal stories. Routledge.

2. Allen, M. J., Tulleners, R., Brain, D., O'Beirne, J., Powell, E. E., Barnett, A., Valery, P. C., Kularatna, S., & Hickman, I. J. (2025). Implementation of a nurse-delivered, community-based liver screening and assessment program for people with metabolic dysfunction-associated steatotic liver disease (LOCATE-NAFLD trial). *BMC Health Services Research*, 25(1), 421. <https://doi.org/10.1186/s12913-025-12580-5>
3. Chaban, V. (Ed.). (2023). *New research in nursing: Education and practice*. IntechOpen.
4. Chan, W.-K., Chuah, K.-H., Rajaram, R. B., Lim, L.-L., Ratnasingam, J., & Vethakkan, S. R. (2023). Metabolic dysfunction-associated steatotic liver disease (MASLD): A state-of-the-art review. *Journal of Obesity & Metabolic Syndrome*, 32(3), 197–213. <https://doi.org/10.7570/jomes23052>
5. Compton Burnett, J. (2021). *The diseases of the liver: Jaundice, gall-stones, enlargements, tumours, and cancer: And their treatment*. Legare Street Press.
6. Department of Endocrinology and Metabolism, Koç University School of Medicine, İstanbul, Türkiye, Sezer, H., Canbaz, H. B., & Department of Nursing, Nişantaşı University Faculty of Health Sciences, İstanbul, Türkiye. (2025). Frequency and characteristics of antibody negative chronic thyroiditis: An experience from a tertiary center. *Endocrinology Research and Practice*, 29(3), 223–228. <https://doi.org/10.5152/erp.2025.25643>
7. European Association for the Study of the Liver. Electronic address: globalleadership@livernomenclature.org, American Association for the Study of Liver Diseases, & Latin American Association for the Study of the Liver. (2023). A call for unity: The path towards a more precise and patient-centric nomenclature for NAFLD. *Journal of Hepatology*, 79(1), 4–5. <https://doi.org/10.1016/j.jhep.2023.05.003>
8. Inna, A. A. H., Ngwet, A. M. L., Djeugoue, P., Dodo, B. A., Njoya, J. M., Abas, A., Djalloh, A. A., Sambo, A., Galdima, M. A., Altine, F., Ibrahima, A., & Sobngwi, E. (2025). Diabetic polyneuropathy and associated factors in a population of type 2 diabetic patients in Garoua, Cameroon. *Journal of Diabetes Mellitus*, 15(03), 131–142. <https://doi.org/10.4236/jdm.2025.153010>
9. John, K., Franck, M., Geier, A., Schattenberg, J. M., Schulze-Osthoff, K., Bantel, H., & MASLD Clinical Study Group. (2025). Non-invasive identification of metabolic dysfunction-associated steatotic liver disease patients eligible for resmetirom treatment. *Clinical Gastroenterology and Hepatology: The Official Clinical Practice Journal of the American Gastroenterological Association*. <https://doi.org/10.1016/>

j.cgh.2025.02.014

10. Keating, S. E., Owen, P. J., Pugh, C. J. A., Cuthbertson, D. J., Stine, J. G., & MASLD Exercise Training Consortium (METCon). (2025). Aerobic exercise interventions lead to MASH resolution in clinical trials: Pooled analysis using the MASH resolution index. *Hepatology Communications*, 9(4). <https://doi.org/10.1097/HC9.0000000000000681>
11. Linnett, V., & Jones, D. (2024). *Masld, nafld& Nash: The definitive guide for patients with fatty liver disease*. Independently Published.

EXPLORE THE BARRIERS AFFECTING THE LIMITED USAGE OF MENSTRUAL CUP AMONG LATE ADOLESCENT GIRLS ”

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ABSTRACT

Introduction : Menstrual cup is an advanced technology alternative to sanitary pads and due to higher adoption barriers. It is offering up to twelve hours of protection and being more eco friendly. Its purpose is to collect menstrual fluid. Cups can hold more blood than other methods. **Objectives:** To explore the barriers affecting the limited usage of menstrual cup among late adolescent girls in a selected school of nursing at Kollam District. **Methodology :** A qualitative general inductive approach employed for the research study. The study was undertaken among 24 samples selected by purposive homogenous sampling technique. Data was collected through focused group discussion. Discussion were recorded, transcribed, coded through thematic analysis. **Result :** The result reveals that the barriers affecting the limited usage of menstrual cup among late adolescent girls in the selected nursing school are limited awareness, fear and discomfort, lack of guidance and support, cultural taboos and stigma and also based on the hygiene concerns. **Conclusion:** The study concluded that that there are many barriers affecting the limited usage of menstrual cup like lack of awareness and cultural taboos. The study recommended that interventions like menstrual health education, demonstration workshops, and open discussions may be effective in addressing misconceptions and encouraging safe adoption of menstrual cups in adolescent populations.

Key words : Barriers , menstrual cup ,focused group discussion , thematic analysis

INTRODUCTION:

“Small acts when multiplied by millions of people can transform the world.”

– Howard Zinn

Menstruation is a natural and essential biological process for female reproductive health, involving the monthly shedding of the uterine lining and resulting in approximately 50-60ml of blood loss. It is a critical indicator of reproductive health, though its patterns can be confusing for adolescent girls.

Late adolescence (18-21 years) is a pivotal period where girls form long-term health habits and become independent. During this time, proper Menstrual Hygiene Management (MHM) is crucial for their health, dignity, and well-being, yet it is often influenced by social pressures and misinformation.

BACKGROUND OF THE STUDY

Menstruation is the cyclical shedding of the functional layer of the endometrium, accompanied by bleeding, occurring at approximately 28 day intervals in women of reproductive age under the influence of hormonal changes. Menstrual products may be disposable (eg, disposable pads, tampons) or reusable (eg, reusable pads, the menstrual cup). Menstruation is the regular, natural part of the menstrual cycle in which the uterus sheds its lining. It occurs in individuals with a uterus, typically once a month, starting during puberty and ending at menopause. During menstruation, blood and tissue exit the body through the vagina. The cycle is regulated by hormones like estrogen and progesterone. Menstruation is a sign of reproductive health and plays a key role in the body's preparation for potential pregnancy.⁶ Late adolescence is typically defined as the age range of 18 to 21 years is a critical transitional period during which girls develop greater autonomy, form health related habits and become more responsible for personal care decisions including menstrual hygiene.

Menstrual hygiene management (MHM) has gained increasing attention as a critical aspect of Adolescent health, gender equality, and human rights. Proper menstrual hygiene enables girls and women to manage their menstruation in a safe, hygienic, and dignified manner, Contributing to improved school attendance, reduced infections, and enhanced quality of life. Despite progress in awareness and the availability of menstrual products, challenges persist, Particularly among adolescent girls in resource-limited settings. It is a crucial component of Adolescent reproductive health and general wellbeing. Despite the availability of multiple Menstrual hygiene products such as sanitary pads and tampons, the menstrual cup. A reusable, cost effective and environmental friendly alternative remains significantly under utilized especially among the late adolescent girls.

NEED AND SIGNIFICANCE OF THE STUDY

Menstruation is a natural bodily process experienced by many people, often surrounded by Cultural beliefs, taboos, or practices that vary widely across societies. It is a natural part of the Menstrual cycle, which prepares the body for a possible pregnancy. If no pregnancy occurs, Hormone levels drop, causing the uterine lining to break down and exit the body as blood and Tissue. Menstruation typically begins during puberty and continues until menopause. It is a Normal biological function that indicates the reproductive system is working properly. Menstrual hygiene refers to the practices and conditions necessary for women and girls to Manage their menstruation safely and with dignity. It involves using clean menstrual products, such as pads, tampons, or menstrual cups, and having access to clean water, private sanitation facilities, and proper disposal methods The need for menstrual hygiene in late adolescence is crucial as this stage involves increased physical, emotional, and social development. Proper menstrual hygiene helps prevent infections, promotes comfort, and supports overall health and well-being. During late adolescence, girls often face stigma, misinformation, and limited access to sanitary products, especially in low-resource settings. Ensuring they have accurate knowledge, access to hygiene products, and safe sanitation facilities empowers them to manage menstruation confidently, attend school regularly, and participate fully in daily activities, contributing to their self-esteem and long-term development.

The menstrual cup is an important menstrual hygiene product because it offers a reusable, eco- friendly alternative to disposable pads and tampons, reducing environmental waste. Unlike some disposable products, menstrual cups do not contain harmful chemicals, making them a healthier option for many users. They also promote greater body awareness and comfort once users become accustomed to them. Overall, menstrual cups support sustainable, affordable, and safe menstrual care, especially in areas with limited access to hygiene products

OBJECTIVES

- To explore the barriers affecting the limited usage of menstrual cups among late adolescent girls.

ASSUMPTIONS

The study assumes that the barriers affecting the limited usage of menstrual cup among late Adolescent girls.

MATERIAL AND METHODS

Research Approach & Design

Approach: General Inductive Approach (Qualitative Research) was adopted for systematic data analysis to identify patterns, themes, and categories from non-numerical data.

Design: Explorative Qualitative Research Design was selected to explore the barriers.

Variables & Population

Variables:

Demographic Variables: Age, religion, area of residence, type of family, monthly income, age of menarche, regulation of menstrual cycle, duration of menstruation, any gynecological symptoms, and currently using menstrual products.

Population: Late adolescent girls.

Accessible Population: Late adolescent girls studying in Lourde School of Nursing, Kollam District.

Setting, Sample & Technique

Setting: Lourde School of Nursing, Kottiyam, Kollam.

Sample: 28 late adolescent girls.

Sampling Technique: Purposive Sampling (Homogeneous Sampling).

Inclusion Criteria

Age 18-21, attained menarche, not adopted menstrual cups, enrolled in Diploma courses, willing and present for the study.

Exclusion criteria

Already adopted menstrual cups, unwilling/absent, diagnosed with gynecological conditions (e.g., dysmenorrhea, PID). |

Instruments (Tools)

The tool consisted of two sections:

Section I: Demographic Performa (Collected background information).

Section II: Focused Group Discussion (FGD) Guide (Comprised of open-ended, non-judgmental questions, including Engagement, Exploration, and Concluding questions). Validity: Ensured through expert opinion. Content Validity Index (CVI) for FGD guide was 0.81.

Reliability: Established through Inter-coder reliability (agreement among independent coders using a common coding framework, measured by k).

Pilot Study

Purpose: To test feasibility of methods, instruments, and recruitment. Conducted at: CSI School of Nursing Kundara, Kollam, with 6 participants via Purposive Sampling. Duration: Each FGD lasted 45-60 minutes, audio-recorded with consent. Outcome: Found feasible. Initial thematic analysis showed lack of knowledge, fear, pain, social taboos, and misconceptions as barriers.

Data Collection & Analysis Process

Data Collection: Conducted at Lourde School of Nursing Kottiyam. Formal permission and written informed consent were obtained. **Procedure:** 3 FGDs were conducted with 6-8 participants each, using the FGD guide, until data saturation. Sessions were audio-recorded, transcribed verbatim (in Malayalam), and translated into English.

Data Analysis:

Section I (Demographic): Descriptive statistics (frequency and percentage).

Section II (FGD): Thematic Data Analysis (following the six-step approach by Braun and Clarke: Familiarization, Coding, Developing themes, Reviewing themes, Defining/Naming themes). **Variables & Population**

Variables:

Demographic Variables: Age, religion, area of residence, type of family, monthly income, age of menarche, regulation of menstrual cycle, duration of menstruation, any gynecological symptoms, and currently using menstrual products.

Instruments (Tools)

The tool consisted of two sections:

Section I: Demographic Performa (Collected background information).

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Pilot Study

Purpose: To test feasibility of methods, instruments, and recruitment.

Conducted at: CSI School of Nursing Kundara, Kollam, with 6 participants via Purposive **Sampling.**

Duration: Each FGD lasted 45-60 minutes, audio-recorded with consent.

Outcome: Found feasible. Initial thematic analysis showed lack of knowledge, fear, pain, social taboos, and misconceptions as barriers.

Analysis and interpretation of data is the most important phase of the research process. Analysis is referred to as a method of organizing data in such a way that research questions can be answered. Analysis and interpretation of data include compilation, editing, classification and the presenting of data. Chapter deals with analysis of data and interpretation of results

obtained from 24 samples by using demographic performana and focused group discussion. The present study was aimed to assess the barriers affecting the limited usage of menstrual cups among late adolescent girls in a selected School of Nursing at Kollam district. Thematic analysis technique was used to analyse the data. Participant characteristics and questionnaire data were analysed using descriptive statistics including frequency and percentage. The interviews were analysed to discover themes articulated by the participants. Verbatim transcript was made from the audiotapes, and the researchers listened to the tapes, studied the transcript, and made memos about major thematic categories. The data collection failed to uncover new ideas, it was determined that saturation had occurred and data collection was concluded.

Section I – demographic variables

Section II – FGD

SECTION I – DESCRIPTION OF DEMOGRAPHIC VARIABLES

This section deals with the sociodemographic data of 24 samples selected for the study. The demographic data includes age, religion, area of residence, type of family, monthly income of parents per month, age of menarche, monthly menstrual cycle, duration of menstruation, gynaecological symptoms, currently using menstrual products. It was analysed by using descriptive statistics in terms of frequency and percentage.

Figure 1: frequency and percentage distribution of adolescent girls with reference to age.

(n=24)

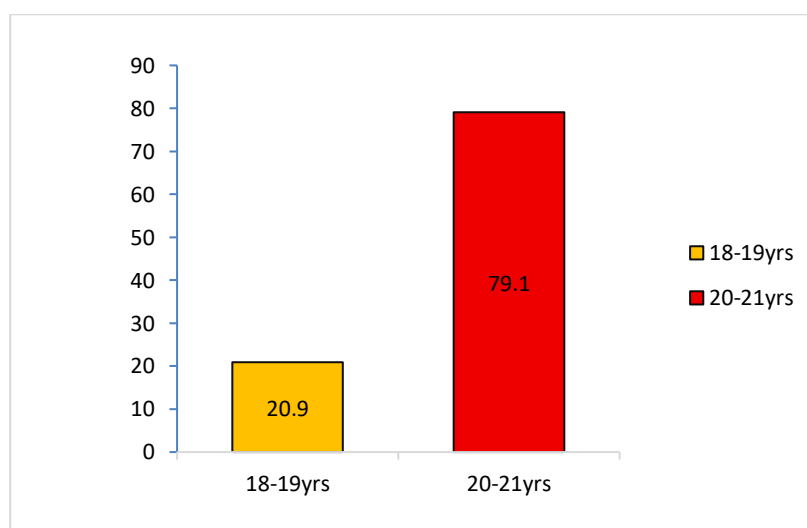


Figure 1. shows that 20.1% belongs to 18-19yrs age and 79.1% belong to 20-21yrs a

TABLE 1. frequency and percentage distribution of adolescent girls with reference to religion

(n=24)

RELIGION	FREQUENCY	PERCENTAGE
Hindu	2	8.4%
Christian	17	70.8%
Muslim	5	20.8%

TABLE 1 . shows that 8.4% belongs to Hindu, 70.8% belongs to Christian and 20.8% belongs to Muslim.

Figure 2. frequency and distribution of adolescent girls with reference to area of residence.

(n=24)

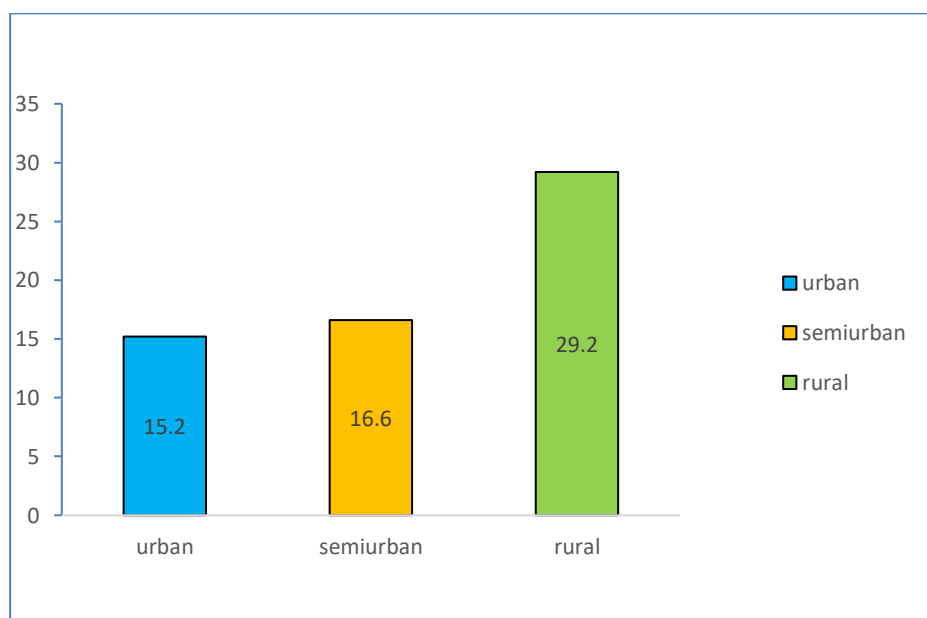


Figure 2. shows 54.2% lives in urban areas, 16.6% in semiurban areas, and 29.2% in rural areas.

TABLE 2. frequency and percentage distribution of adolescent girls with reference to type of family.

TYPE OF FAMILY	FREQUENCY	PERCENTAGE
Nuclear	22	91.6%
Joint	2	8.4%
Extended	0	0
Blended	0	0

TABLE 2. shows 91.6% belong to the nuclear family, 8.4% belong to the joint family.

FIGURE 3. frequency and percentage distribution of adolescent girls with reference to monthly income of parents per month.

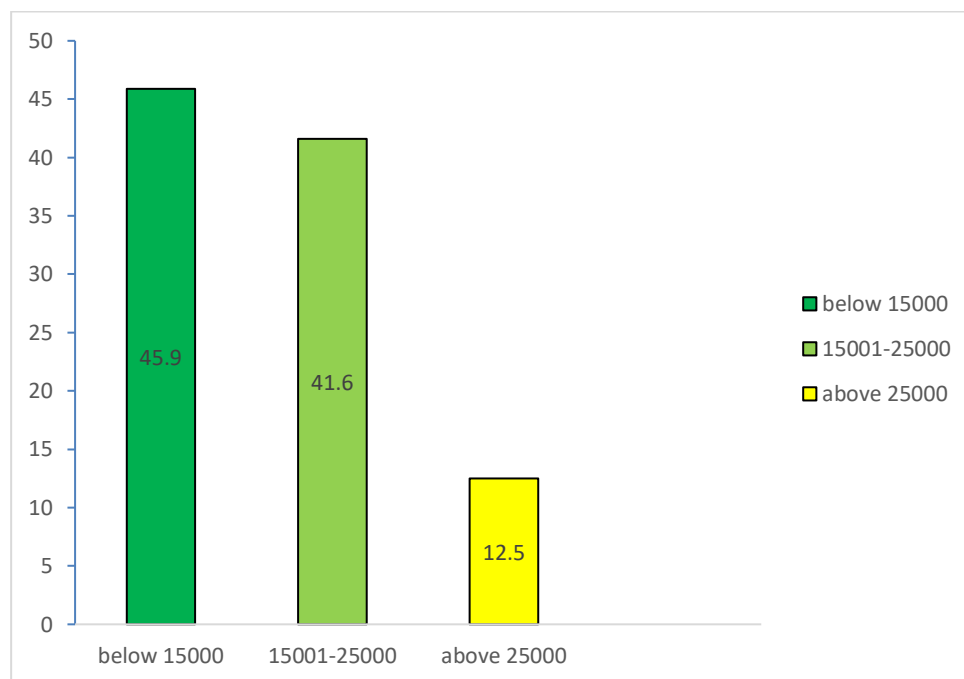


FIGURE 3 shows that 45.9% of parents have a monthly income below 15000, 41.6% of parents have a monthly income between 15001-25000, 12.5% of parents have a monthly income of above 25000.

TABLE 4. frequency and percentage distribution of adolescent girls with reference to age of menarche.

AGE OF MENARCHE	FREQUENCY	PERCENTAGE
8-10yrs	2	8.4%
11-13yrs	19	79.1%
14-16yrs	3	12.5%

TABLE 4 . shows 8.4% belongs to the 8-10yrs age group, 79.1% to the 11-13yrs age group, 12.5% to the 14-16yrs age group.

FIGURE 5 .frequency and percentage of distribution of adolescent girls with reference to monthly menstrual cycle.

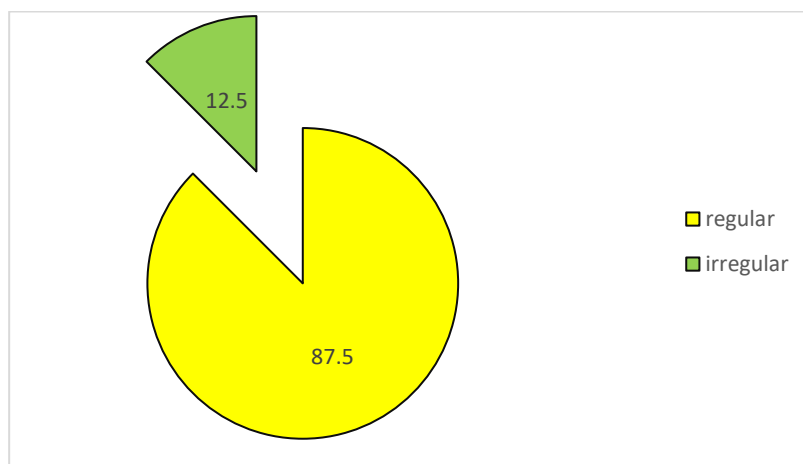


Figure 5. shows 87.5% have regular menstrual cycle, 12.5% have irregular menstrual cycle.

TABLE 4 frequency and percentage of distribution of adolescent girls with reference to duration of menstruation.

DURATION OF MENSTRUATION	FREQUENCY	PERCENTAGE
1-3 days	8	33.3%
4-6 days	15	62.5%
More than 6 days	1	4.2%

TABLE 4. shows that 33.3% reported menstrual cycle duration of 1-3 days, 62.5% reported 4-6 days, 4.2% reported more than 6 days.

FIGURE 6. frequency and percentage of distribution of adolescent girls with reference to gynecological symptoms.

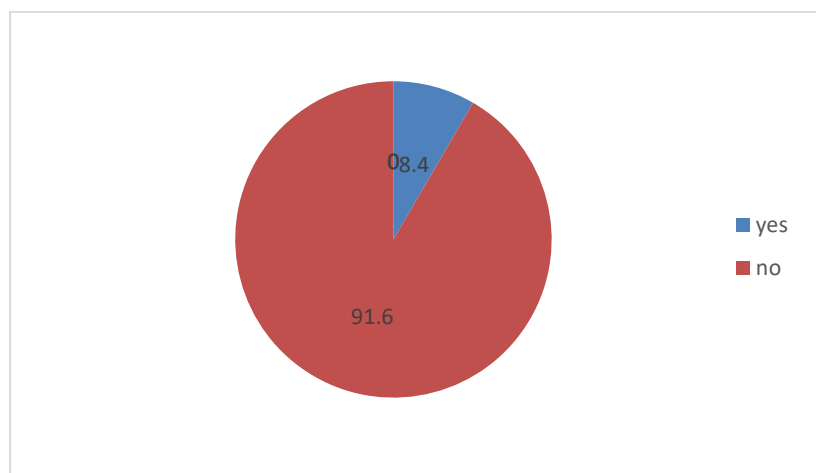


FIGURE 6. shows 8.4% have gynecological symptoms, 91.6% have no gynecological symptoms.

TABLE 5. frequency and percentage of distribution of adolescent girls with reference to currently using menstrual products.

CURRENTLY USING MENSTRUAL PRODUCT	FREQUENCY	PERCENTAGE
Sanitary napkin	24	100%
Cloth pad	0	0
Tampons	0	0
Menstrual cup	0	0

TABLE 5. shows 100% using sanitary napkins.

Discussion and conclusion

The study explored barriers to menstrual cup use among late adolescent girls (Nursing School, Kollam District), revealing a comprehensive set of challenges categorized as: Physical concern, Perception of hygiene, Psychological barriers and fear, Lack of knowledge, Lack of emotional readiness, Social, cultural and family concerns, and Lack of peer support.

These findings are strongly supported by similar international research (e.g., in rural Western Kenya), which also identified fear of pain/discomfort, cultural links to loss of virginity, stigma, and practical cleaning difficulties as key barriers. While high awareness of menstrual cups was noted in another comparative study (90.5%), the present study's core finding is that 100% of participants used sanitary pads, and none used cups, highlighting that awareness often does not translate to adoption due to these deep-rooted barriers.

The key themes identified through selective coding—Lack of Awareness/Knowledge, Cultural Taboos/ Stigma, Fear/ Discomfort, Lack of Guidance/Support, Accessibility/ Availability, and Perceived Inconvenience/Hygiene—directly address the study's objective and align with the need for culturally sensitive, demonstration-based interventions.

The limited usage of menstrual cups among late adolescent girls stems from a multifaceted combination of factors, including:

- Cultural Taboos and Stigma.
- Limited Awareness and Misinformation.
- Fear and Discomfort (especially concerns about bodily integrity and perceived virginity).
- Lack of Access to proper education and support.

Despite the benefits of menstrual cups, deep-rooted social norms and misconceptions significantly hinder acceptance. Addressing these barriers requires a holistic approach

involving targeted educational interventions, demonstration workshops, and promoting open dialogue to empower young girls to make informed decisions about their menstrual health.

References

1. D.C. Dutta's Textbook of Gynecology ,Hiralal Konar 8th edition.
2. No title [Internet]. Vikaspedia.in. [cited 2025 Jul 26]. Available from: <https://en.vikaspedia.in/viewcontent/health/women-health/adolescent-health-1/management-of-adolescent-health/adolescent-growth-and-development>
3. World Bank Group. Menstrual Health and hygiene. World Bank Group; 2025.
4. The Palgrave Handbook of Critical Menstruation Studies (eds. Bobel, Winkler et al., 2020)
5. Wilbur J, Kayastha S, Mahon T, Torondel B, Hameed S, Sigdel A, et al. Qualitative study exploring the barriers to menstrual hygiene management faced by adolescents and young people with a disability, and their carers in the Kavrepalanchok district, Nepal. BMC Public Health [Internet]. 2021;21(1):476. Available from: <http://dx.doi.org/10.1186/s12889-021-10439-y>

**THE EFFECT OF BEETROOT JUICE WITH JAGGERY IN IMPROVING THE
HAEMOGLOBIN LEVEL AMONG NURSING STUDENTS IN EDUCATIONAL
INSTITUTIONS AT KOLLAM DISTRICT.**

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Vincy Vinny.

ABSTRACT:

Introduction: Anemia remains a significant health concern among nursing students, Impacting their academic performance and overall well-being. Dietary interventions Offer a promising approach to address anemia. This study investigates the effect of Beetroot juice with jaggery on hemoglobin levels in nursing students, exploring its Potential as a natural and accessible remedy. **Research Question:** Is there any effect of Beetroot juice with Jaggery in improving the Level of Haemoglobin among Nursing students in Educational Institutions at Kollam District? **Objectives:** Assess the level of Haemoglobin among Nursing students in Educational Institution, evaluate the effect of Beetroot juice with Jaggery in improving the level Of Haemoglobin among Nursing students in Educational Institution and to find out The association between the pretest level of Haemoglobin among Nursing students with Selected demographic variables.**Methodology:** Pre – experimental one group pretest posttest design was used in this Study among 40 Nursing students at Holy Cross College of Nursing, Kottiyam, Kollam And were selected by randomization. The pretest was done to assess the level of Haemoglobin among Nursing students in Educational Institution by using Haemoglobin Estimation Scale. After the pretest the investigator administered Beetroot juice with Jaggery in improving the level of Haemoglobin. The posttest was Conducted after 15 days of intervention. The collected data was analyzed with Inferential and descriptive statistics. **Result:** In this study, out of 40 subjects 85% of the Nursing students had moderate Anaemia, 15% of the Nursing students had severe anaemia in the pretest. In the posttest 20% of Nursing students have mild anaemia, 45% of Nursing students have moderate Anaemia, 10% of Nursing students have severe anaemia. An average pretest and posttest Haemoglobin rating scale were 9.965 and 10.777 respectively. The computed ‘t’ value Of pretest – posttest Haemoglobin rating scale score effect Beetroot juice with Jaggery In improving the hemoglobin level was 4.28 and p

value of 0.000059. Since calculated P value was less than 0.05 ($P < 0.05$). So Null Hypothesis (H_0) is rejected. There was a Significant association between pretest Haemoglobin estimation scale scores and Demographic variables such as religion ($\chi^2 = 6.33$, p value = 0.03), socio economic status ($\chi^2 = 5.77$, p value = 0.04), history of illness / infection ($\chi^2 = 6.79$, p value = 0.009) And family history of anemia ($\chi^2 = 3.75$, p value = 0.04). Conclusion: This study demonstrates the efficacy of beetroot juice with jaggery in Significantly improving hemoglobin levels among nursing students. The findings Suggest that this natural intervention can be a valuable adjunct to traditional anemia Management strategies, offering a practical and accessible solution for nursing students.

KEYWORDS: Beetroot juice with Jaggery, improving the level of Haemoglobin, Nursing students

INTRODUCTION:

According to WHO, adolescent girls faces nutritional problems like low Haemoglobin level in the prevalence of 40% in the age between 15 – 45 years.⁵ Low Haemoglobin levels can drain the colour from life, leaving adults feeling drained, Fatigued and breathless, as their bodies struggle to deliver oxygen's vital spark. Home Remedies like natural resources can improve the Haemoglobin level and help to improve The lifestyle.⁵ Nature's medicine cabinet offers a treasure trove of remedies for anaemia. Beetroot juice, with its deep crimson hue, seeps iron rich goodness in the bloodstream. Beetroot juice with Jaggery, a ruby – red duo that synergizes irons potency, as the earthy Sweetness of Jaggery enhances absorption, nurturing haemoglobin's growth and Reviving vitality in anaemia's gentle grasp.

BACKGROUND OF THE PROBLEM

Anaemia among teenagers can be seriously almost entirely caused by a lack Of substance iron, which is closely related to the level of severity of anaemia. The most Visible effect of anaemia is a decline in achievement studying in school. This article Briefly introduces anaemia, aetiology, pathophysiology, impact, and preventive Measures. A qualitative study was conducted in 2023, with an aim to determine the Effectiveness of beetroot juice administration in increasing Haemoglobin levels in Adolescent girls with mild anaemia in the PMB S working area of Cianjur District. The Research method is a case study literature review that measures before and after the Intervention, allowing the assessment of effectiveness between the situations before and After the intervention and obtaining a more accurate overview of the intervention results. The results showed that the Haemoglobin levels of the respondents increased after Receiving the intervention for 7 days with the administration of 100 grams of beetroot Juice per day. There was a significant difference in the increase in Haemoglobin levels Between adolescent girls 1 after receiving beetroot juice and adolescent girls 2 after Receiving counselling and health education in adolescents with mild anaemia. The Difference between the two respondents was quite significant, with respondent Showing an increase in Hb levels of 1.1 g/dl, and respondent 2 showing an increase in Hb levels of 1.3 g/dl. The study not helped only to identify the positive impact of beet Juice consumption on increasing Haemoglobin levels but also provide a strong scientific Foundation to recommend more effective prevention and treatment strategies. The Contribution of this study includes enhancing knowledge on effective ways to address Anaemia in this adolescent group, offering an in – depth understanding of factors Influencing the effectiveness of beet juice, and providing a basis for healthcare Practitioners to design appropriate and relevant interventions.

NEED AND SIGNIFICANCE

Anaemia is a condition in which the concentration of Haemoglobin falls below Normal threshold, reducing the blood's ability to transport oxygen effectively throughout the body.¹ Haemoglobin is a protein found in red blood cells that carries oxygen from the lungs to all over the body. Globally, an estimated 24.3% of the population, or 1.92 billion people, were affected by anaemia in 2021, according to a study published in *The Lancet*. This prevalence has decreased slightly from 28.2% in 1990. The highest prevalence was observed in western sub-Saharan Africa (47.4%), South Asia (43.0%), and central sub-Saharan Africa (35.7%). However, the proportion of anaemia attributable to iron deficiency appears to vary according to geographic region, demographics, and anaemia severity and infection burden. Many conditions associated with anaemia are known to be more common among people in lower – and middle-income countries (LMICs), and particularly preschool children and women of reproductive age, meaning that anaemia affects these population groups disproportionately. In 2019, 1.76 billion people were affected by anaemia worldwide (prevalence of 23.67%). The Global Burden of Disease 2019 found that anaemia was responsible for 50.3 million years lived with disability representing 5.8%. The National Family Health Survey 5 (NFHS-5) conducted in 2019 – 21, revealed that 67.1% of children aged 6 – 59 months, 59.1% of adolescent girls, and 57.0% of women aged 15 – 49 years were anaemic.

OBJECTIVES

Primary Objectives

1. To assess the level of Haemoglobin among Nursing students in Educational Institution.
2. To evaluate the effect of Beetroot juice with Jaggery in improving the level of Haemoglobin among Nursing students in Educational Institution.

Secondary Objective

1. To find out the association between the pretest level of Haemoglobin among Nursing students with selected demographic variables

HYPOTHESIS

HA1 : There is a statistically significant difference in the mean pretest and posttest Level of Haemoglobin among Nursing student in selected Educational Institution.

H01 : There is a no statistically significant difference in the mean pretest and Posttest levels of Haemoglobin among Nursing student in selected Educational Institution.

HA2 : There is a statistically significant association between the pretest level of Haemoglobin among Nursing students with selected demographic variables.

H02 : There is a no statistically significant association between the pretest level of

Haemoglobin among Nursing students with selected demographic variables.

MATERIAL AND METHODS

Research Approach

In this study, a quantitative research approach was used to assess the effect of Beetroot juice with Jaggery in improving the level of Haemoglobin among Nursing students in educational institution at Kollam district.

Research Design

For assessing the effect of Beetroot juice with Jaggery in improving the level of Haemoglobin among Nursing students in educational institution at Kollam district. The design used was pre-experimental one group pretest posttest design.

Variables

Variables are concepts at different level of abstraction that are concisely defined to prompt the measurement or manipulation with in a study.

Independent variable:

In this study, independent variable is Beetroot juice with Jaggery.

Dependent variable

The dependent variable used in the study is Nursing students with low Haemoglobin level between the age group of 18 – 21 years.

Demographic variables:

In the study, the demographic variables are age in years, religion, residence, type of family, socio economic status of the family as per the ration card, diet pattern, pattern of menstruation, treatment for any illness/infection, history of any illness/infection, Body Mass Index (BMI) and family history of anemia.

Setting of the study

In this study, the selected setting was Holy Cross College of Nursing Kottiyam, Kollam.

Population

The population for this study comprised of Nursing students who are studying at Holy Cross College of Nursing Kottiyam, Kollam.

Sample and Sampling Technique

Sample

In this study, the sample comprised of Nursing students with low Haemoglobin level between the age group of 18 – 21 years who fulfilled the sample selection criteria.

Sample size

In this study, investigators selected 40 Nursing students with low Haemoglobin level in

the age group of 18 – 21 years at Holy Cross College of Nursing Kottiyam, Kollam.

Sampling technique

In this study, Second, Fourth and Sixth Semester B.Sc. Nursing students were randomly selected by selection criteria.

Inclusion criteria

Nursing students who are,

- Adolescent girls between the age group of 18 – 21 years
- For moderate to severe anemia
- Not taking treatment for anemia
- Past history of anemia

Exclusion criteria

Nursing students who are,

- Menstruation during the study.
- Unavailability of the participants at the time of data collection
- Irregular menstruation
- History of any Illness/infection

Development / Selection of Tool

- **Tool 1:** Demographic Proforma
- **Tool 2:** Haemoglobin Estimation Scale

Tool 1: Demographic variables

Demographic variables are age in years, religion, residence, type of family, socio economic status of the family as per the ration card, diet pattern, pattern of menstruation, history of any illness/infection, treatment of infection/illness, Body Mass Index (BMI) and family history of anemia.

Tool 2: Haemoglobin Estimation Scale

A Haemoglobinometer is an instrument used to determine the Haemoglobin content of the blood by spectrophotometric measurement. Portable Haemoglobinometer provide easy and convenient measurement, which is particularly useful in areas where no clinical laboratories are available. It is also useful in emergencies due to its ease-of use, accuracy, and fast delivery of results.

Data collection process

The data collection process was identified of subjects and precise systematic gathering of information relevant to the research purpose, questions or hypothesis of the study.

Phase I

Data collection is carried out to assess the Haemoglobin level by using a Haemoglobinometer, along with the Haemoglobin Estimation Scale and demographic variables. Pre-experimental one group pretest posttest was conducted and the investigator identified 40 adolescent girls with low Haemoglobin level between the age group of 18 – 21 years by selection criteria.

Phase II

Following the preliminary test, Beetroot juice with Jaggery was administered to the Nursing students included in this study according to the investigators schedule. The intervention was administered for 15 consecutive days after pretest.

Phase III

Posttest was conducted in 17th day after the intervention and the Haemoglobin levels were monitored.

ORGANIZATION OF FINDINGS

Data was analysed and presented under the following heading:

Section A

Distribution of different demographic variables.

Table 4: Based on age

Age in years	Frequency (f)	Percentage (%)
17 – 19 years	9	22.5%
20 – 22 years	31	77.5%

Fig 3: Based on religion

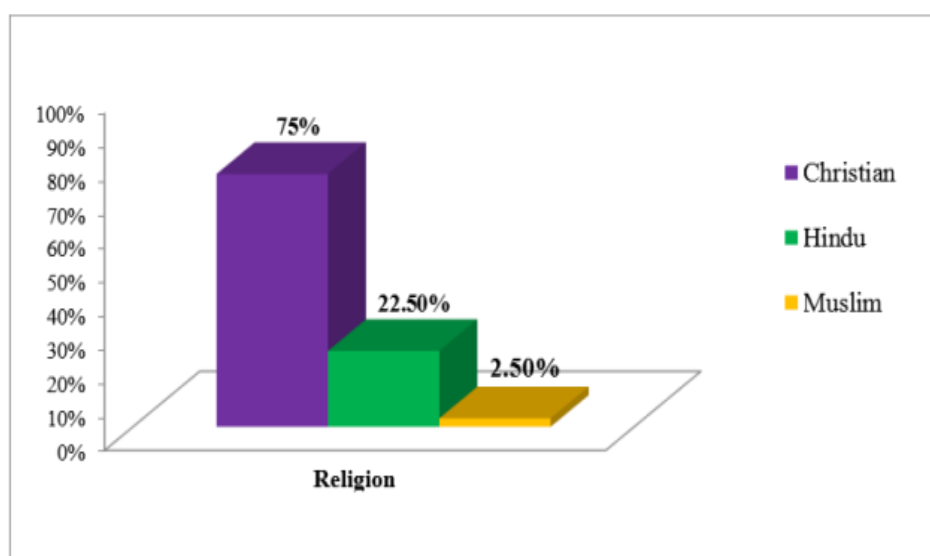
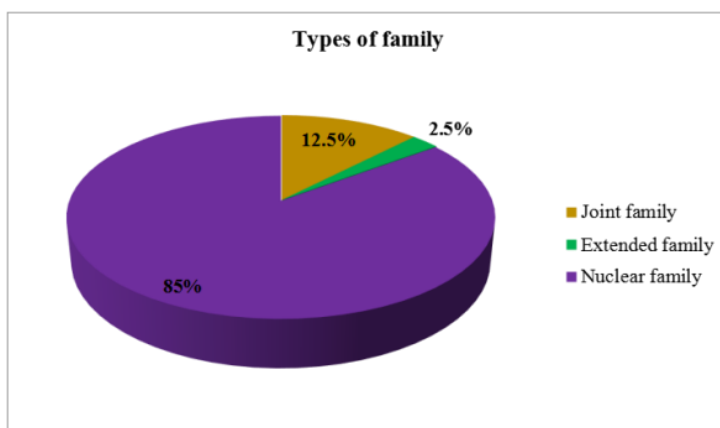


Table 5: Residence

Residence	Frequency (f)	Percentage (%)
Urban	11	27.5%
Rural	29	72.5%

Fig 4: type of family



Socioeconomic status of the family	Frequency (f)	Percentage (%)
Pink colour card	07	17.5%
Blue colour card	22	55%
White colour card	11	27.5%

Fig 5: Diet pattern

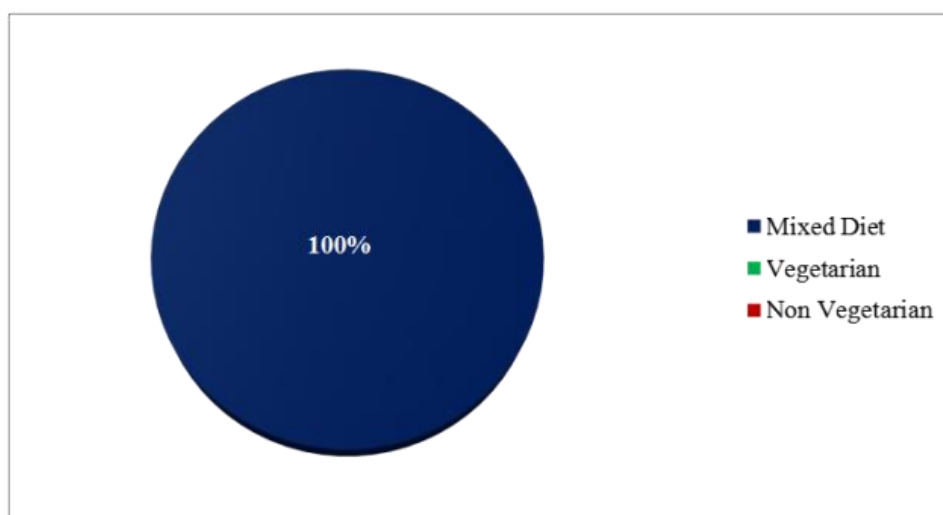


Table 7: length of Menstrual cycle day

Pattern of Menstruation	Frequency (f)	Percentage (%)
Regular	29	72.5%
Irregular	11	27.5%

Fig 6: History of any illness

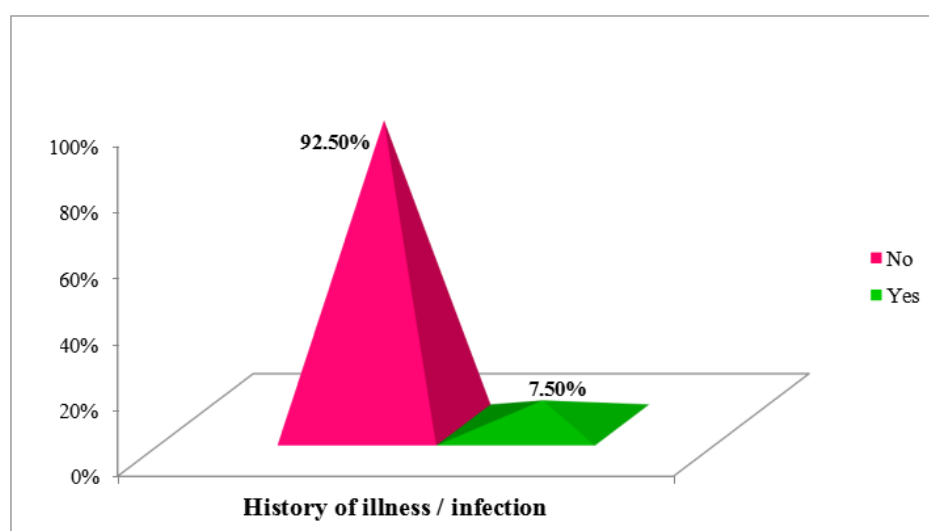


Table 8: Treatment for any illness

Treatment for any illness or infection	Frequency	Percentage
Yes	27	67.5%
No	13	32.5%

Fig 7: Body index

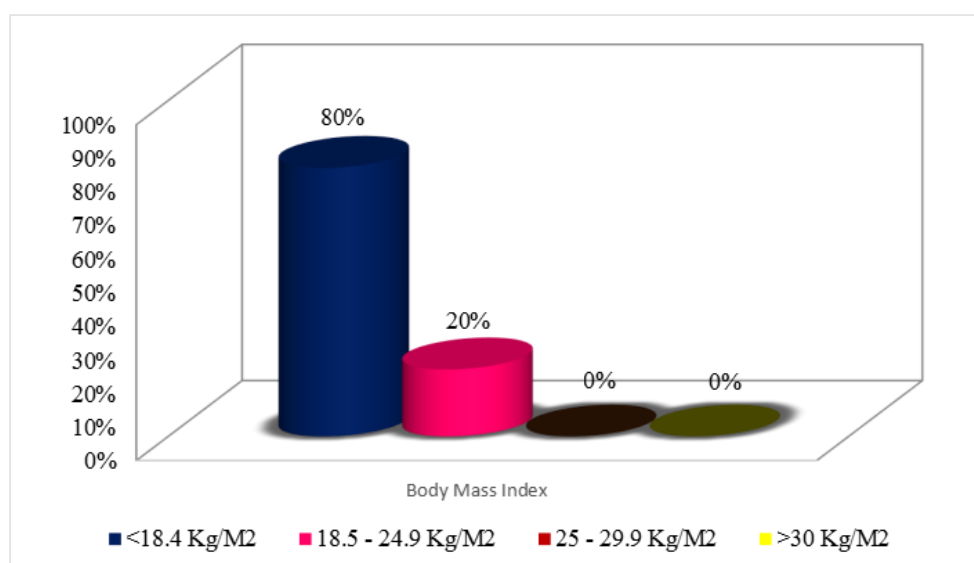


Table 9: Family history of anemia

Family History of Anaemia	Frequency	Percentage
Yes	27	67.5%
No	13	32.5%

Section B:

To assess the pretest and posttest scores of Nursing students with low Haemoglobin level.

Health status of Nursing students	Score								
	Normal		Mild		Moderate		Severe		Total
	No.	%	No.	%	No.	%	No.	%	%
Pretest	0	0	0	0	34	85	6	15	100
Posttest	10	25	8	20	18	45	4	10	100

Section C:

To assess the effect of Beetroot juice with jiggery in improving the level of haemoglobin in Nursing students.

Table 11: Mean and standard deviation

Assessment of Nursing students with Anemia	Mean	Mean Difference	Standard Deviation	t value	p value
Pretest	9.965	0.812	1.38	4.28	0.000059*
Posttest	10.777				

Section D:

To determine the association between pretest scores and demographic variables.

Table 12: Association with pretest hemoglobin rating scale scores and Demographic variables

Age in Years	1	0.36	0.8 ^{ns}
Religion	2	6.33	0.03*
Residence	1	0.41	0.51 ^{ns}
Type of Family	2	0.27	0.87 ^{ns}
Socioeconomic status of the family as per the ration	2	5.77	0.04*

card

Pattern of menstruation	1	0.79	0.18 ^{ns}
History of illness /infection	1	6.79	0.009 [*]
Treatment for any illness or infection	1	2.02	0.15 ^{ns}
Body Mass Index	1	0.04	0.82 ^{ns}
Family history of Anemia	1	3.75	0.04 [*]

DISCUSSION AND CONCLUSION

In this study, out of 40 subjects 85% of the Nursing students had moderate anemia and 15% of the Nursing students had severe anaemia in the pretest. In the posttest 20% of Nursing students have mild anaemia, 45% of Nursing students have moderate anemia, 10% of Nursing students have severe anaemia.

REFERENCE

1. Deekala RS, Akkapeddi SA, Rosivari PS. Prevalence of Dysmenorrhea and Determinants of Menstrual Distress in Adolescent Girls with Dysmenorrhoea, In Tirupati Town. National Journal of Community Medicine. 2022 Apr 30;13(04):229 - 34.
2. Agarwal AK, Agarwal A. A Study of Dysmenorrhea During Menstruation in Adolescent Girls. Indian Journal of Community Medicine, 2010 Jan;35(1):159.
3. P NB, L M, S AB, Haran JC, Jose R. Menstrual problems among adolescent girls In Thiruvananthapuram district. International Journal of Community Medicine and Public Health. 2017 Jul 22;4(8):2995-
4. S DA, Karunakaran U, K JA, Antony R, S AS, H HC. Prevalence and pattern of Menstrual disorders among school going adolescents in northern district of Kerala. Public Health Review: International Journal of Public Health Research 2016 Jun 30;3(3):109-18,
5. Ajesh kumar. T. Soumya Chandran, Application of nursing theories Jaypee Brothers' medical publishers(p)Ltd, 1 edition 2017:194-201
6. Suresh K Sharma, Nursing Research & Statistics, 2nd edition, Reed Elsevier Publishers: 101.
7. B.T. Basavanthappa, Text book of Midwifery & amp; Reproductive Health Nursing, 7th edition, Jaypee Brothers Medical Publishers: 302-306.

8. Paul M Lehrer, Robert L. Woolflok, Principle's and practice of stress Management, 2nd edition, Regal Publications: 241-245.
9. Dr. Guneet Monga Bhargava, Text book of yoga, 11 editions, Goyal Brothers Publications: 202-207.
10. V. Sathyanand, Shoba C. Effects of Yogasanas in the Management of pain during Menstruation: 114-116.
11. Dr. JB Sharma, Text book of Gynecology, 2nd edition, Arya Publication: 98 – 102
12. B Presannakumari, Lekshmi Sivanandan, Text book of Gynecology, 7^a edition,PARAS Medical Publishers: 108-114.
13. Best R. Mint and Menthol: A Review of Potential Health Benefits and wider Human Effects. 2022

Effect of child neglect and abuse among mothers of under five children

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ABSTRACT :

A quantitative study was conducted to assess the effect of structured teaching program on level of knowledge regarding child neglect and abuse among mothers of under-five children in a selected hospital at Kollam district .The objective of study wereto assess the level of knowledge regarding child neglect and abuse among mothers of under five children, to evaluate the effect of structured teaching program on knowledge regarding child neglect and abuse among mothers of under five children, to find out the association between the pre-test knowledge on child neglect and abuse among mothers of under five children with selected socio demographic variable. Purposive sampling technique was used to select 30 mothers of under five children for the study. The tools used for data collection were demographic data and structured knowledge questionnaire. The findings of the study showed that there was significant improvement in the knowledge regarding child neglect and abuse among mothers of under five children after conducting structured teaching program was statistically significant at 0.001 level. Hence the study concluded that structured teaching programme is effective in improving the knowledge of mothers of under five children regarding child abuse and neglect.

INTRODUCTION

Child abuse and neglect, as defined by the World Health Organization (WHO), include physical, emotional, and sexual abuse, as well as neglect and exploitation. These forms of maltreatment jeopardize a child's health, development, and dignity within a relationship of responsibility, trust, or power. Physical abuse involves intentional harm committed against a child, which often presents with injuries such as rib fractures, head trauma, or unexplained injuries. Neglect is the most common and lethal form of maltreatment, which results from the failure to provide essential care. Due to its profound physical and psychological effects, child maltreatment is a serious public health concern, with significant short- and long-term consequence.

BACKGROUND OF THE STUDY

Child abuse and neglect, as defined by the World Health Organization (WHO), include physical, emotional, and sexual abuse, as well as neglect and exploitation. These forms of

maltreatment jeopardize a child's health, development, and dignity within a relationship of responsibility, trust, or power. From 2011 to 2017, there were 1285 reported cases of child abuse in Kashmir, according to a report by the Jammu and Kashmir State Commission for Protection of Child Rights in 2018. A 2019 study by the organization Child Rights and You revealed that three out of every five children in Kashmir had undergone some kind of violence, which included physical, sexual or emotional abuse. In 2020, the Jammu and Kashmir Police launched a campaign to raise awareness about child abuse, stating that they had received over 200 complaints of child abuse in the first 6 months of the year. A large number of child abuse cases are quite often overlooked by healthcare professionals.

A National Study on Child Abuse, a programme was conducted "Save the Children and Prayas" by the Ministry of Women and Child Development in India with the support of UNICEF. The study, which covers 13 states in India and a sample size of 12,447 children, looks at the extent and characteristics of child abuse and girl neglect in India. The purpose of the study was to develop a dependable and comprehensive understanding of the phenomenon of child abuse, with a view to facilitate the formulation of appropriate policies and programme meant to effectively curb and control the problem of child abuse in India. Findings show that children on the street, children at work and children in institutional care reported the highest incidence of sexual assault, while the majority of abuse cases take place within the family environment, the perpetrators being close family relatives. The study has provided revealing statistics on the extent and magnitude of various forms of child abuse and has generated data on variations among different age groups, gender variations, state variations and variations within evidence groups.

According to findings, children who have experienced child abuse are at an increased risk of numerous problematic, developmental, health, and mental health outcomes. These include, Learning difficulties such as inattention and shortfalls in executive functions. Difficulty bonding with peers due to fear of rejection, internalizing their fears, leading to related issues like anxiety and depression, externalizing their symptoms in the form of aggression, defiance, and poor conduct. Moreover, children who have experienced significant harm respond to the incident in different ways. In fact, the true impact of the abuse may not always be evident in their behaviour.

NEED AND SIGNIFICANCE OF THE STUDY

Abuse was more frequent in the higher age groups and classes at school. Abuse was also more frequent in nuclear families and families that reported alcohol use. The One-year prevalence of any abuse was 89.9% (95% CI: 89.1–90.7) suggesting that child Maltreatment

was widespread. Physical and emotional abuses were also very common. Recently a case reported in Ernakulum, a 4 year old child was thrown into the River by her mother and the post-mortem report shows that the child was abused shortly before death and her paternal uncle was responsible. Child abuse and neglect has been Determined to be highly prevalent across the globe. Epidemiology survey has established globally that at least 50% of the child and youth population (aged 2 to 17) Experience violence in the past year. Adverse childhood experiences (ACEs) estimates Show that the majority of adolescents and adults report at least one ACE. Further, a Staggering global estimate of female victims of child sexual abuse is about 25%. The Online environment has lead to rapidly changing victimization contexts. Similarly, Changing policies, pandemics and extended conflict zones have created different modes Compromised child well-being. Child marriage data indicates the persistence negative Healthconsequences to not only the child bride, but also the economic well-being of the country. Given the high prevalence of child maltreatment and its importance, a Public health approach is strongly warranted that prioritizes the rights of the children.

The United Nations target for 2030 on reduced levels of violence against children is Rapidly approaching. This special issue is intended to profile review articles of topical Interest to the areas of child abuse, neglect and adversity. Topics may range from Epidemiology to intervention to policy.

A Descriptive study on child abuse shows that 70% of respondents came across Child abuse cases, wherein sexual abuse was found to be the commonest (58%), Followed by physical abuse (28%). Nearly 40% of child abuse cases were reported in The hospital where they worked, while 15% of child abuse cases occurred in other Hospital areas. The study also revealed that 81% of respondents had knowledge about Child sexual abuse. However, only 34% were aware of the repercussions of non-Reporting of a child abuse case. Nearly 64% of respondents had an idea about an online Complaint system for child abuse, and 70% were aware of the availability of a one-stop Center at a respondent's hospital. The majority (68%) were aware of the POCSO (Protection of Children from Sexual Offences) Act on sexual abuse. On seeking Information regarding evidence of anal sexual abuse among children and adolescents, 36% were completely aware, and 13% were partly aware of it. Child abuse and neglect remain deeply relevant issues in today's society, With long-lasting consequences on the physical, emotional, and psychological well-Being of children. Their impact extends beyond the individual, affecting, communities, And broader societal development. Recognizing the signs, raising awareness, and Implementing effective prevention and intervention strategies are critical steps in Protecting children and ensuring their right to a safe and nurturing environment.

Hence, the researcher decided to conduct a study to to Assess the effect of structured teaching program on level of knowledge regarding child Neglect and abuse among mothers of under-five children in selected hospitals at KollamDistrict

MATERIAL AND METHODS

Research Approach

A quantitative research approach was used to assess the effect of a structured teaching programme on the level of knowledge regarding child neglect and abuse among mothers of under-five children in a selected hospital of Kollam district.

Research Design

The study adopted a one-group pre-test–post-test research design to evaluate the effect of the structured teaching programme on mothers’ knowledge regarding child neglect and abuse.

Variables

Independent Variable:

Structured teaching programme on child neglect and abuse.

Dependent Variable:

Knowledge of mothers regarding child neglect and abuse.

Setting of the Study

The study was conducted in the paediatric ward of Holy Cross Hospital, Kottiyam.

Population

Mothers of children aged 0–5 years.

Sample and Sampling Technique

Mothers of under-five children who met the sampling criteria.

Sampling Technique

Non-probability sampling technique based on inclusion and exclusion criteria.

Inclusion Criteria

Mothers of children aged 0–5 years.

Mothers available during data collection.

Exclusion Criteria

Mothers who cannot understand the language used by the researcher.

Mothers not available at the time of data collection.

The tool used for the study consisted of a structured knowledge questionnaire to assess the level of knowledge regarding child neglect and abuse among mothers of under-five children.

Section A

Section a collected demographic data of the mothers. It included age, education, occupation, religion, family type, number of children, and previous information regarding child neglect and abuse.

Section B

Section B consisted of a structured knowledge questionnaire regarding child neglect and abuse. It included multiple items, each carrying one mark for the correct answer and zero for an incorrect answer.

Data Collection Process

Phase 1

After obtaining permission from concerned authorities, the demographic tool, questionnaire, and structured teaching programme were prepared.

Phase 2

Eligible mothers were selected according to the sampling criteria. The researcher explained the purpose of the study, obtained informed consent, and collected demographic data. A pre-test was conducted using the structured knowledge questionnaire. The structured teaching programme was administered with the help of audiovisual aids.

Phase 3

A post-test was conducted after 7 days to assess the change in knowledge regarding child neglect and abuse following the structured teaching programme.

ORGANIZATION OF FINDINGS:

Data was analysed and presented under the following headings.

SECTION A: Distribution of demographic variables.

SECTION B: To assess the pre-test and post-test knowledge regarding child neglect and abuse among mothers of under five children in a selected hospital at Kollam district

SECTION C: To determine association between mean pre-test score on knowledge regarding child neglect and abuse among mothers of under five children in a selected hospital at Kollam district, with selected demographic variable.

SECTION A

Description of socio demographic variables of mothers of under five children.

The section deals with the description of demographic variables which include age, education, occupation, and number of children and previous knowledge on child neglect and abuse

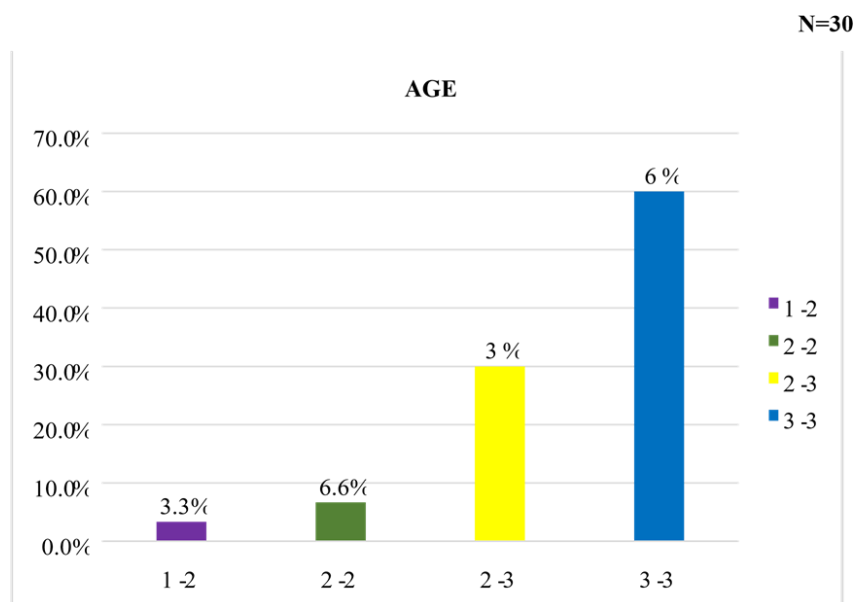


Figure 3: bar diagram showing the percentage distribution of the sample according to age

Figure 3 shows that most of the of under five children belongs to the age group of 3134(60%), about 30% belongs to the age group of 27-30,6.66% belongs to the2326 and 3.33% mothers belongs to the age group19-22.

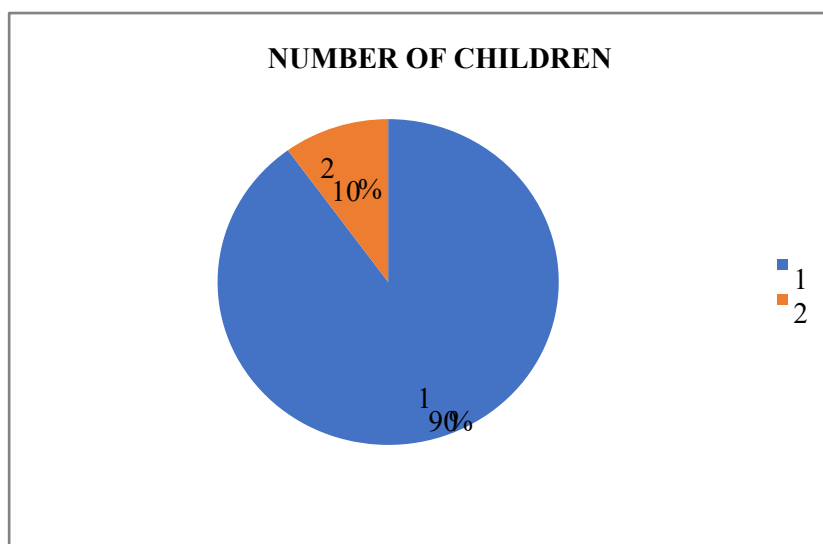


Figure 4: Pie diagram showing percentage distribution of the sample according to the number of under five children.

Figure 4 shows that 90% of the sample indicates number of children under one year of age among mothers of under five children and 10% of the sample indicates number of children under two years of age among mothers of under five children.

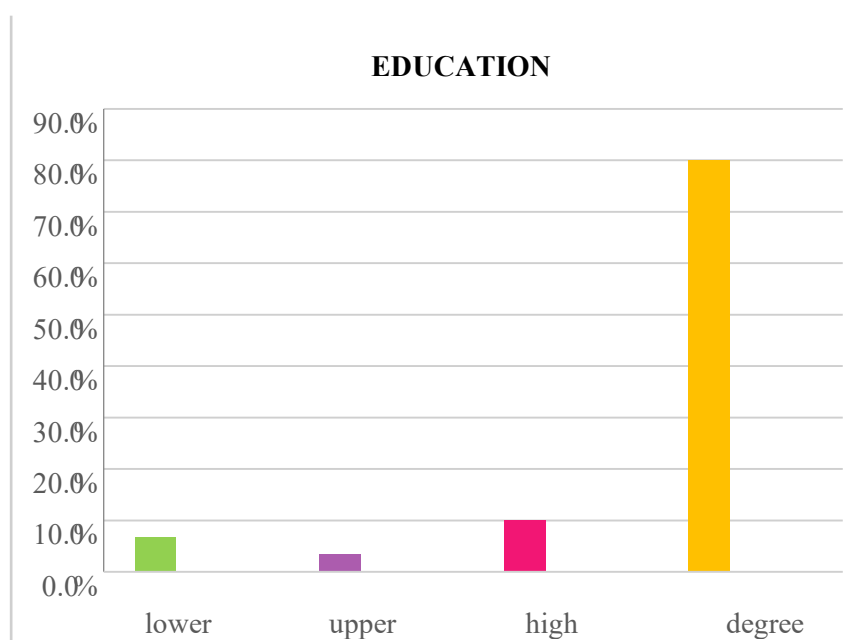


Figure 5: Bar diagram showing the percentage distribution of the sample according to the educational qualification.

Figure 5 shows that 6.66% of the sample indicates lower primary education, 3.33% shows upper primary education, 10% shows high school education and 80% shows degree qualification among mothers of under five children.

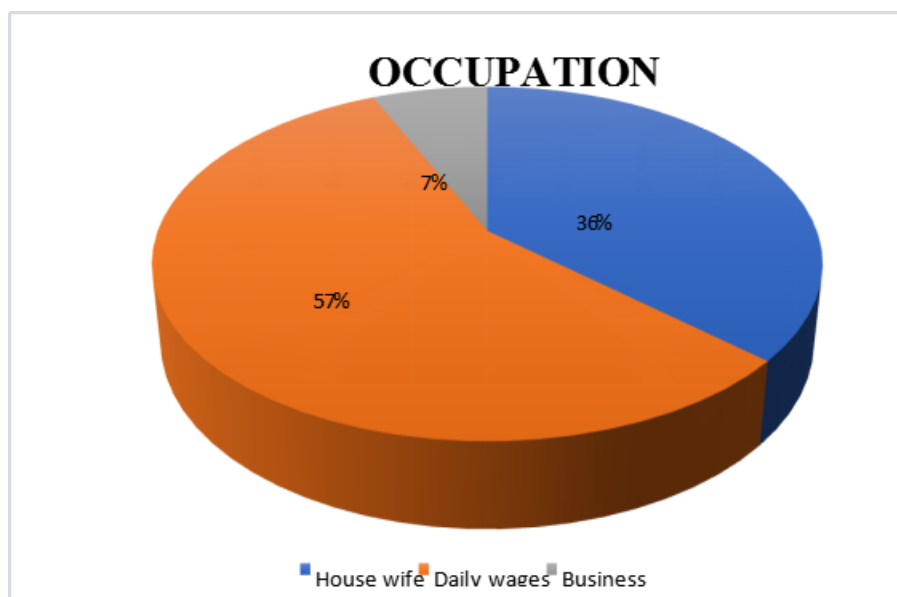


Figure 6: Pie diagram showing the percentage distribution of the sample according to the occupation of under- five mothers.

Figure 6 shows that 36% of the sample indicate housewife, 57% shows daily wages, 7% shows business among mother of under five children .

SECTION B

Description of pretest and post test knowledge scores of mothers of under five children about child neglect and abuse

The section deals with the knowledge scores of description scores of mothers of under five children about child neglect and abuse. Knowledge of 30 mothers of under- five was assessed by structured knowledge questionnaire and was analyzed using descriptive statistical method

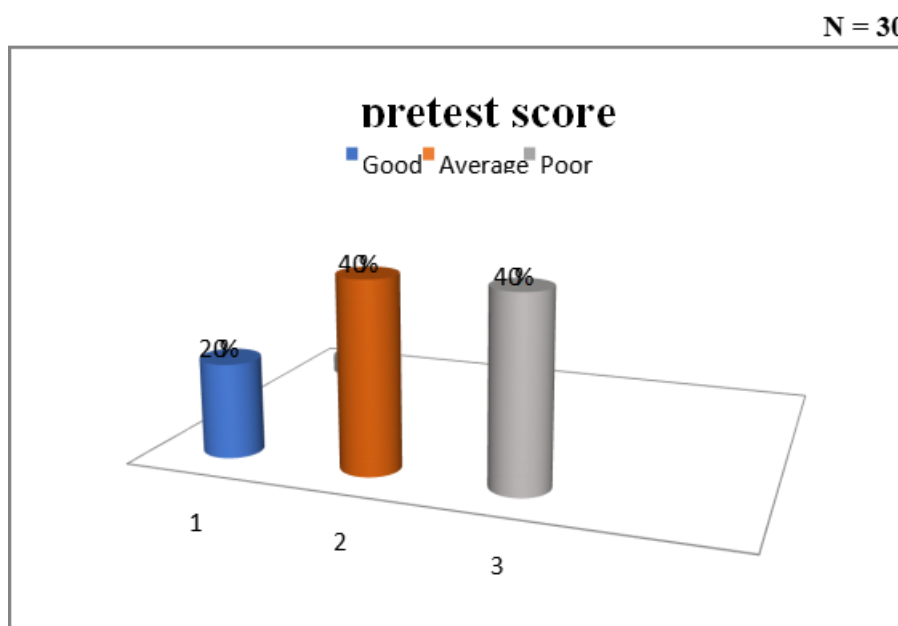


Figure 7: cylindrical diagram showing percentage distribution of sample according to pretest score of knowledge.

The figure 7 shows that before conducting structured teaching programme shows that 40% is having poor knowledge and 40% is having average knowledge, 20% is having good knowledge about child neglect and abuse

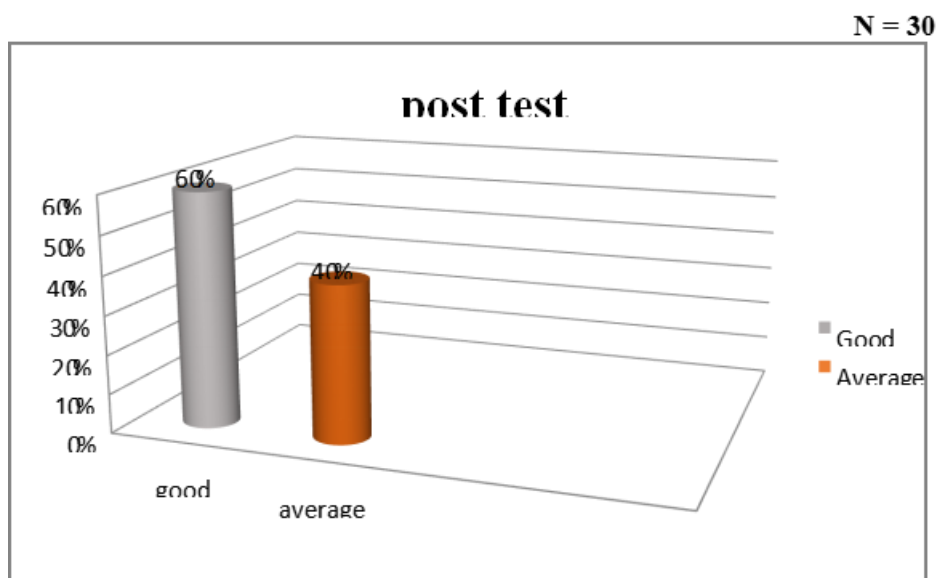


Figure 8: cylindrical diagram showing percentage distribution of the sample according to posttest score of knowledge

The figure 8 shows that more than half sample is having good knowledge 60% and 40% of the sample had average knowledge after conducting structured teaching programme about child neglect and abuse.

SECTION B

A study to assess the effect of structured teaching program on level of knowledge regarding child neglect and abuse among mothers of under-five children in a selected hospital at Kollam District.

Table 1: A study to assess the effect of structured teaching program on level of knowledge regarding child neglect and abuse among mothers of under-five children in a selected hospital at Kollam District.

Knowledge	Mean	Standard deviation	N	Mean difference	Paired t value	P value
Pretest	12.033	4.049	30	2.827	5.22	0.001
Posttest	14.87	3.041	30			

*Significant at 0.001 level

The above table shows that the paired t test value for the pretest and posttest knowledge scores is 5.22 which is greater than the table value at 0.01 level of significance and there is significant difference in the mean posttest knowledge score. Therefore, research hypothesis H1 was accepted hence this indicates that the structured teaching programme was effective in improving the knowledge regarding child neglect and abuse among mothers of under five children.

SECTION C

The association between the pretest knowledge scores of mothers of under five children on child neglect and abuse with the selected socio demographic variables.

Table 2: Association between pretest knowledge scores with selected socio demographic variables.

Demographic variable	Good	Average	Poor	Chi-square	df	P value	Inference
Age							
23-26 years	0	2	1	3.176	1	1	NS
27-30 years	2	4	2				
31-34 years	4	7	6				
No.of children							
1 year	6	11	10	21.3	1	0.02	S
2 years	1	1	1				

Education							
LP	0	1	2	4.54	1	1	NS
UP	0	2	0				
High school	1	1	2				
Degree							
Occupation							
House wife	4	3	4	5.418	1	0.02	S
Daily wages	3	7	7				
Buisness	0	2	0				
Significance level 0.001 level				NS: Not Significant			

Data represented in table 2 reveals that the calculated chi-square values were greater than the table values. The findings showed there was no significant association between the pretest level of knowledge and selected socio demographic variables.

Hence research hypothesisH2 was rejected

Summary

This chapter deals with distribution of subject based on socio demographic variables, distribution of subject base on the pre-test scores of knowledges, effectiveness of structured teaching programme among mothers of under five children and association between pretest scores ofknowledges and selected socio demographic variables.

The results shows that the calculated paired' value for the pre-test and post test scores are 5.22 which is greater than the table value at 0.01 level of significance and there is significant difference in the mean post-test knowledge. The research hypothesis (H1) is accepted. Hence, this indicates that the structured teaching programme is effective in improving the knowledge of mothers of under five children.

The result of association reveals that the calculated chi-square values of variables other than were lesser than the p values. Findings shows that the significant association exists between the pre-test level of knowledge only with the education.

Discussion and conclusion

The findings of the study indicates that more than half of the sample is having good knowledge 60% and 40% of the sample had average knowledge after conducting structured teaching programme about child neglect and abuse. The pretest knowledge score of mothers of under five children showed mean is 12.033 and standard deviation 4.049.

Reference

1. Polit DF, Beck CT. Is there still gender bias in nursing research? An update. *Res NursHealth* [Internet]. 2013;36(1):75–83. Available from: <http://dx.doi.org/10.1002/nur.21514>
2. Kaunain Z, Silla SS, Cheruku SR, Mohammad Z, Penmetcha S, Manivannan PC. Awareness of child abuse and neglect among teachers of urban and rural schools – A comparative study. *J Family Med Prim Care* [Internet]. 2025;14(4):1288–94. Available from: http://dx.doi.org/10.4103/jfmpe.jfmpe_1213_24
3. Tyagi U, Chougule VT, Devanna R, Anand RK, Alessa NA, Jain A, et al. Knowledge and awareness of child sexual abuse related to POCSO (Protection of Children from Sexual Offences) Act among medical and dental professionals in India: A cross-sectional study. *J Family Med Prim Care* [Internet]. 2024;13(11):4880–4. Available from: <http://dx.doi.org/10.4103/jfmpe.jfmpe43024>
4. Moorman J, Romano E. The experience of childhood sexual abuse: An exploratory description of psychological and adaptive functioning in Canadian men. *Child Abuse Negl* [Internet]. 2023;145(106402):106402. Available from: <http://dx.doi.org/10.1016/j.chiabu.2023.106402>
5. Singh R, Koushal V, Bharti B. A descriptive study on child sexual abuse act in India. *J Family Med Prim Care* [Internet]. 2022;11(6):2923–32. Available from: http://dx.doi.org/10.4103/jfmpe.jfmpe_1071_21
6. Apaydin Cirik V, Aksoy B, Bulut E. Investigation of fathers' metaphors regarding child sexual abuse in Turkey: A metaphor study. *J PediatrNurs* [Internet]. 2023;72:e210–6. Available from: <http://dx.doi.org/10.1016/j.pedn.2023.06.030>
7. Lakhtdir MPA, Pasha A, Allana A, Khaliq A, Farooq S, Ali NA, et al. Effect of frequency of parent to child maltreatment on symptoms of anxiety disorder in Pakistani adolescents: A community based cohort study. *Child Abuse Negl* [Internet]. 2022;133(105872):105872. Available from: <http://dx.doi.org/10.1016/j.chiabu.2022.105872>
8. Kumar MT, Kumar S, Singh SP, Kar N. Prevalence of child abuse in school environment in Kerala, India: An ICAST-CI based survey. *Child Abuse Negl* [Internet]. 2017;70:356–63. Available from: <http://dx.doi.org/10.1016/j.chiabu.2017.06.025>
9. Grummitt L, Baldwin JR, Lafoa'i J, Keyes KM, Barrett EL. Burden of mental disorders and suicide attributable to childhood maltreatment. *JAMA Psychiatry* [Internet].

2024;81(8):782. Available from: <http://dx.doi.org/10.1001/jamapsychiatry.2024.0804>

10. LeMoult J, Humphreys KL, Tracy A, Hoffmeister J-A, Ip E, Gotlib IH. Metaanalysis: Exposure to early life stress and risk for depression in childhood and adolescence. *J Am Acad Child Adolesc Psychiatry* [Internet]. 2020;59(7):842–55.

Effectiveness Of Self-Instructional Module on Knowledge Regarding Selfitis Among Undergraduate Students

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ABSTRACT

A quantitative study was conducted to assess the effectiveness of self- instructional module on knowledge regarding selfitis among undergraduate students at selected college at Kollam district. The objective of the study were to assess the knowledge regarding selfitis among undergraduate students, to evaluate effectiveness of self-instructional modules on knowledge regarding selfitis among undergraduate students, to find out the association between the pre-test scores of knowledge regarding selfitis among undergraduate students with selected socio demographic variables. Nonprobability convenience sampling technique was used to select 30 undergraduate students for the study. The tools used for data collection were socio demographic variables and knowledge assessment questionnaire. The data collected were tabulated and analyzed using descriptive and inferential statistics. The mean post test knowledge score 14.97 with standard deviation 2.44 was significantly higher than the mean pre test score 9 with standard deviation 2.84. The findings of the study showed that there was improvement in the knowledge regarding selfitis among undergraduate students after conducting self-instructional module and it was statistically significant at 0.001 level($t=12.29$, $p<0.001$). Hence the study suggested that self-instructional module was very effective in improving the knowledge regarding selfitis among undergraduate students.

KEYWORDS: selfitis, undergraduate students, self-instructional module

INTRODUCTION:

Taking selfies is deeply connected to how individuals perceive their body image and self-worth. Many people feel good and proud when they receive positive responses to their selfies, which can lead to excessive efforts to appear attractive online. However, not all responses are positive and negative feedback, body shaming and online bullying are also common. These experiences can influence body satisfaction and self-esteem. Low self-esteem is directly linked to psychological distress.

With the rise of smartphones and social media platforms like Instagram, Snapchat, and Tik Tok visual self-presentation has become increasingly important especially among younger generations⁶. The widespread use of high-quality front cameras has further increased selfie-taking behavior. It is estimated that billions of selfies are taken daily, with a portion reflecting compulsive patterns that may require psychological attention.

BACKGROUND OF THE STUDY:

Reports of “selfie addiction,” including the widely publicized case of Danny Bowman, highlight its psychological and social impact. Global estimates indicate that 40–47% of young adults take selfies daily, with women engaging in this behavior more frequently. Excessive selfie-taking has been associated with body dissatisfaction,

decreased self-esteem, impaired academic performance, and strained real-world social interactions. Notably, India has recorded the highest number of selfie-related accidental deaths worldwide, with young adults comprising the majority of victims.

The Selfitis Behavior Scale (SBS), developed by Balakrishnan and Griffiths, identifies six dimensions of selfitis: environmental enhancement, social competition, attention seeking, mood modification, self-confidence, and social conformity, demonstrating high reliability and validity. Additional research from educational institutions in Kerala shows high levels of smartphone ownership and frequent selfie-taking among students, underscoring the growing need for preventive and educational interventions.

NEED AND SIGNIFICANCE OF STUDY:

The rising incidence of selfitis and selfie-related injuries or fatalities signals an urgent public health concern. Among undergraduate students, compulsive selfie behavior can lead to psychological distress, academic decline, and social withdrawal. Given the increasing prevalence of smartphone addiction in India and documented associations between selfitis and poor mental health outcomes, improving students’ knowledge and awareness is essential.

Despite the growing relevance of this issue,

limited studies in Kerala have addressed selfitis among undergraduate populations. This gap highlights the need for targeted educational strategies. The present study aims to assess knowledge regarding selfitis among undergraduate students and to evaluate the effectiveness of a Self-Instructional Module designed to promote healthier selfie-taking behaviors and reduce associated risks.

OBJECTIVES:

1. To assess the knowledge regarding selfitis among undergraduate students.
2. To evaluate the effectiveness of a self-instructional module on knowledge regarding selfitis among undergraduate students.
3. To find the association between the pre-test scores of knowledge regarding selfitis among undergraduate students with selected socio-demographic variable.

HYPOTHESES:

Hypotheses will be tested at 0.05 level of significance

- **H1:** The mean post-test knowledge score will be significantly higher than the mean pre-test score.
- **H2:** There will be a significant association between pre-test knowledge scores and selected socio-demographic variables.

MATERIALS AND METHODS:

Research approach

Quantitative research approach was used to assess the effectiveness of Self-Instructional Module on knowledge regarding selfitis among undergraduate students of selected colleges at Kollam district.

RESEARCH DESIGN:

The present study is intended to assess the effectiveness of Self-Instructional Module on knowledge regarding selfitis among undergraduate students of selected colleges at Kollam district.. The research design selected for the present study is Pre-experimental - one group pre-test post-test design.

Variables

Variables are concept of different levels of abstractions that are concisely defined to promote their measurement or manipulation within a study

Demographic Variable

In the present study, demographic variables include age in years, gender, years of clinical exposure, nursing profession, occupation of parents, type of family. Socio- economic status and previous knowledge regarding selfitis.

Research Variable

In this study, research variable refers to knowledge regarding selfitis among undergraduate students

Setting of the study

The present study was conducted at Holy Cross College of Nursing, Kottiyam, Kollam.

Population

Population is the entire set of individuals or objects having some common characteristics selected for a research study.

In this study, the target population comprises of undergraduate students at Holy Cross College of Nursing Kottiyam, Kollam.

SAMPLE AND SAMPLING

TECHNIQUE:

Sample

The sample comprises of Undergraduate students of Holy Cross College of Nursing, Kottiyam, Kollam who fulfilled the sample selection criteria.

Sampling technique

Sampling technique used is Non-Probability Convenience sampling technique. The samples were selected based on the inclusion and exclusion criteria.

The **inclusion criteria** in this study were:

- undergraduate
- willing to participate in the study
- age above 17 years
- age below 23 years

Exclusion Criteria:

The study excludes students who are:

- non smart phone users
- having lack of social media engagement

- having psychiatric or neurological disorders
- having no access to internet

DESCRIPTION OF THE TOOL:

Tool 1: Socio-demographic proforma

Socio-demographic proforma consists of selected items such as age in years, gender, type of phone, socio- economic status, family income. The technique used was pen and paper method.

Tool 2: Knowledge Assessment Questionnaire (KAQ)

The tool was prepared by the investigators. The tool consists of 20 items to assess the knowledge using Likert scale. Likert scale indicates the range of numerical values. Total score is $20 \times 1 = 20$. The participants were asked to select the appropriate options and the technique was pen and paper method.

Interpretation of knowledge is as follows:

Excellent-16-20 score, Good-11-15 score, Average-6-10 score, Poor-Below 5 score

DATA COLLECTION PROCESS:

Data collection involved the systematic identification of participants and the gathering of information relevant to the study objectives.

Phase 1:

The main study was conducted at Holy Cross College of Nursing, Kottiyam, Kollam, from 20 to 27 June 2025. Formal written permission was obtained from the Principal of Holy Cross College of Nursing

prior to data collection. Using a convenience sampling technique, 30 undergraduate students who expressed willingness to participate were selected.

Phase 2:

The purpose of the study was explained, informed consent was secured, and participants were assured of confidentiality to encourage honest responses. During the pre-test, participants completed a socio-demographic proforma and a Knowledge Assessment Questionnaire. This was followed by the administration of the Self-Instructional Module.

Phase 3:

After seven days, a post-test was conducted using the same questionnaire to assess changes in knowledge. The collected data were then prepared for statistical analysis.

ORGANIZATION OF FINDINGS:

Data was analysed and presented under the following headings.

SECTION 1:

Description of samples based on demographic variables.

SECTION 2:

Assess the knowledge regarding selfitis among the undergraduate students. Knowledge of undergraduate students regarding selfitis was analyzed by using frequency and percentage distribution.

SECTION 3:

Evaluation of the Self-Instructional

Module on knowledge regarding selfitis among undergraduate students.

The effectiveness of Self-Instructional Module was analyzed by computing mean, standard deviation, paired t test value

SECTION 4:

Association between the pretest scores of knowledge regarding selfitis among undergraduate students with selected socio-demographic variables.

SECTION 1:

Description of samples based on demographic variables.

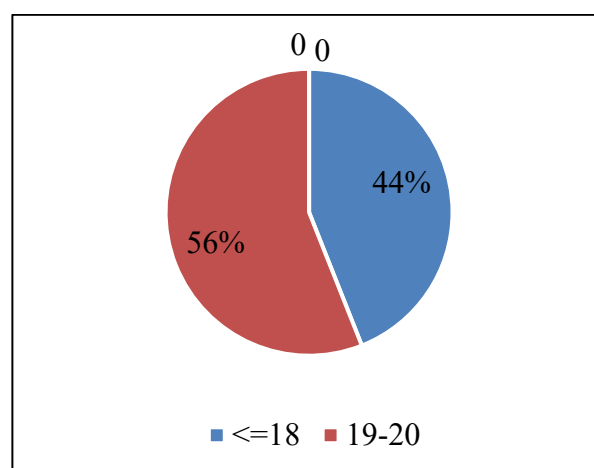


Fig3: Pie chart shows percentage distribution of undergraduate students according to age. 44% belongs to 18 years of age and 56% belongs to 19-20 years.

Gender	Frequency	Percentage
Male	0	0
Female	30	100

Table 1: The above table shows that 100% of undergraduate students belong to female.

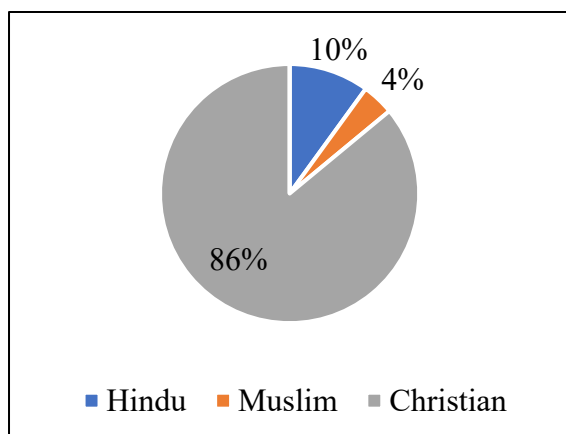


Fig 4: The pie diagram shows that 10% belongs to Hindu, 4% belongs to Muslim and 86% belongs to Christian.

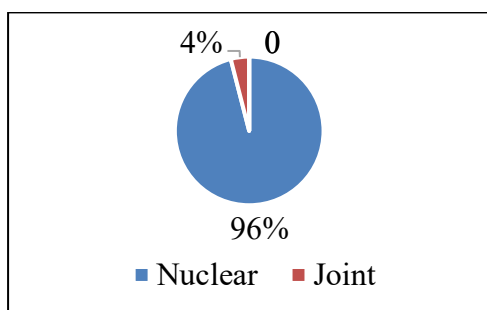


Fig 5–The pie diagram shows that 96% belongs to nuclear family and 4% belongs to joint family

Socio-Economic status	Frequency	Percentage
Low	1	4
Middle	29	96
High	0	0

Table 2: The above table shows that 4% belongs to low socio-economic status, 96% belongs to middle socio-economic status.

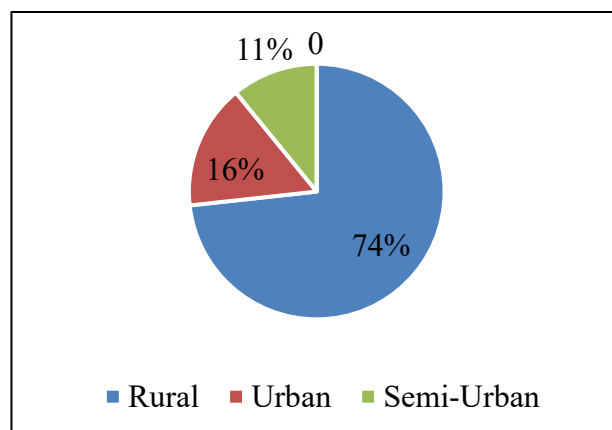


Fig6: The pie diagram shows that 74% belongs to rural,16% belongs to urban and 11% belongs to semi- urban.

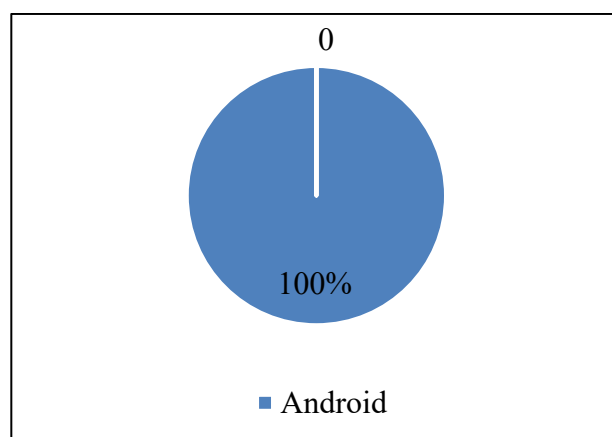


Fig7:The diagram shows that 100% students uses android phones.

Previous knowledge	Frequency	Percentage
Yes	0	0
No	30	100

Table 3: Shows that 100% of undergraduate students have no previous knowledge about selfitis.

Take more selfies at	Frequency	Percentage
Home	26	86
College	4	14

Table 4: Shows that 86% of undergraduate

students taking selfies at home and 40% of undergraduate students taking selfie at college.

Commonly used apps	Frequency	Percentage
WhatsApp	7	23
Instagram	23	77
Facebook	0	0

Table 5: Shows that 23% of undergraduate students use WhatsApp , 77% of undergraduate students use Instagram

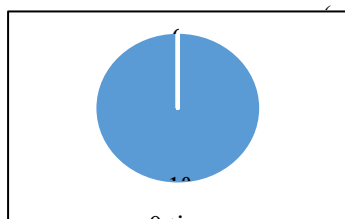


Fig8: The pie diagram shows that 100% undergraduate students posting selfies 0-1 times per day.

Expected number of likes in selfies	Frequency	Percentage
<100	12	40
100-150	18	60

Table 6 : Shows that 40% of undergraduate students expected <100 number of likes in

selfies, 60% of undergraduate students expected 100-500 number of likes in selfies.

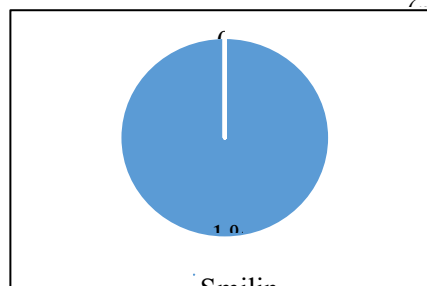


Fig9: The pie diagram shows that 100% of students prefer smiling faces

Programs attended earlier regarding selfitis in your college	Frequency	Percentage
Yes	0	0
No	30	100

Table 7: The above table shows that 100% of undergraduate students have not attended any programs regarding selfitis.

SECTION 2

Assess the knowledge regarding selfitis among undergraduate students .

Table 8:Distribution of samples based on pre test and posttest scores.

N =30

Knowledge level	Pretest score		Post test score	
	Frequency	Percentage	Frequency	Percentage
Excellent	0	0	10	33
Good	9	30	18	60
Average	17	56	2	7
Poor	4	14	0	0

Table 8: The above table shows that in pre test 30% of under graduate students have good knowledge ,56 % have average knowledge and 14% have poor knowledge.In post test , 33% of under graduate students have excellent knowledge 60 5 have good knowledge and 7% has average knowledge .

Table 9: The above table shows the mean value of pretest and posttest were 9 and 14.97 respectively .The standard deviation were 2.84 and 2.44.Hence the paired t test value was 12.29 .

SECTION 3

Evaluation of self instructional module on knowledge regarding selfitis among undergraduate students.

The effectiveness of self instructional module was analyzed by computing mean standard deviation paired t test value.

N=30					
	Mean	Standard deviation	df	t	Table value
Pre test	9.00	2.84	29	12.29	0.001
Post test	14.97	2.44			

Significant at 0.01 level

SECTION 4**Association between the pretest scores of knowledge regarding selfitis among undergraduate students with selected socio-demographic variables.**

Table 11: Association between the pretest scores of knowledge regarding selfitis among undergraduate students with selected socio-demographic variables.

Variables	Knowledge scores				Total	Df	X2	Table value
	Excellent	Good	Average	Poor				
Age in years								
≥18	0	2	11	0	13	0	5.3	
19-20	0	5	8	4	17			
21-22	0	0	0	0	0			
Gender								
Male	0	0	0	0	0	0	12.6	
Female	0	7	19	4	30			
Religion								
Hindu	0	0	2	1	3	4	4.54	2.776
Muslim	0	1	0	0	1			
Christian	0	7	16	3	26			
Type of family								
Nuclear	0	6	19	4	29	2	4	4.303
Joint	0	1	0	0	1			
Extended	0	0	0	0	0			
Socio- Economic status								
Low	0	0	1	0	1	2	0.80	4.30
Middle	0	8	17	4	29			
High	0	0	0	0	0			
Residence								
Urban	0	1	4	0	5	4	2.72	2.77
Rural	0	6	13	3	22			
Semi-urban	0	0	2	1	3			
Type of mobile phones used								
Android	0	7	19	4	30	0	12.6	
iPhone	0	0	0	0	0			

Variables	Knowledge scores				Total	Df	X2	Table value
	Excellent	Good	Average	Poor				
Windows	0	0	0	0	0			
Other Smartphones	0	0	0	0	0			
Previous knowledge								
Yes	0	0	0	0	0	0	12.6	
No	0	7	19	4	30			
Take more selfies at								
Home	0	3	1	0	4	2	1.5	4.30
College	0	4	18	4	26			
Common social media apps used								
Instagram	0	6	14	3	23	2	0.39	4.30
Facebook	0	0	0	0	0			
WhatsApp	0	1	5	1	7			
Number of posting selfies to social networking platform								
0-1 time per day	0	7	19	4	30	0	12.6	
2-3 times per day	0	0	0	0	0			
Above 4	0	0	0	0	0			
Expected number of likes in selfies								
<100	0	4	7	1	12	2	10.11	4.30
100-500	0	5	10	3	18			
Poses preferred for selfie taking								
Smiling face	0	7	19	4	30	0	12.6	
Duck face	0	0	0	0	0			
Two handed selfie	0	0	0	0	0			
Programs regarding selfitis in your college								
Yes	0	7	19	4	30	0	12.6	
No	0	0	0	0	0			
Attended any seminars or classes regarding selfitis								
Yes	0	7	19	4	30	0	12.6	
No	0	0	0	0	0			

Paired 't' test was used to find out the effectiveness of Self-Instructional Module on knowledge regarding selfitis among undergraduate students and the computed 't' value was 12.29. Chi-square test is used to find out the association. It was found that, there is no significant association between pre-test scores of knowledge and socio demographic variables.

DISCUSSION AND CONCLUSION

The findings of the study revealed that 33% had excellent knowledge and 60% had good knowledge in post-test. The post-test knowledge scores with mean of 14.97 and standard deviation 2.44 demonstrated a significant increase in post-test knowledge scores with t value of (12.29) at 0.001 level of significance. The null hypothesis (H_0) was rejected and research hypothesis (H_1) was accepted. Hence the self-instructional module was effective in increasing the knowledge regarding selfitis among undergraduate students in selected colleges.

REFERENCE:

1. Richard West and Lynn .H, Communication as a Mirror into Who You Are: The Role of Self-concept, Available from: <https://gradesfixer.com/free-essay-examples/communication-as-a-mirror-into-who-you-are-the-role-of-self-concept/?nowprocket=1>
2. Vivian Maier , Feb 1, 1926 - Apr 21,2009, Personnel Project ; An article on :The Selfie, Available from :<https://luciagcseportfolio.weebly.com/the-selfie.html>
3. Jeffery Goldstein, Chicago; 2010, Personnel Project ; The Selfie, Available from <https://luciagcseportfolio.weebly.com/the-selfie.html>
4. Sian A McLean, Hannah K Jarmon,, Rachel F Rodgers , How do “selfies” impact adolescents’ well-being and body confidence, Available from: <https://pubmed.ncbi.nlm.nih.gov/?term=%22Rodgers%20RF%22%5BAuthor%5D>
5. The Mediating Role of Selfitis in the Associations between Self-Esteem, Problematic Social Media Use, Problematic Smartphone Use, Body-Self Appearance, and Psychological Distress among Young Ghanaian Adults, Available from :<https://pmc.ncbi.nlm.nih.gov/articles/PMC9778429/>
6. African Journal of Applied Research, Vol. 10, No. 2 (2024), Special Issue: Applied Research Conference of Technical Universities in Ghana 2024 pp. 627-643 , Available from : https://www.researchgate.net/publication/388677219_Effects_of_Smartphone_Photography_on_Commercial_Photographers_in_Bolgatanga_Ghana
7. Alexander Britton ,Selfitis: Obsessive taking of selfies ‘a serious psychological complex’; Friday 15 December 2017, Available from : <https://www.independent.co.uk/life-style/health-and-families/health-news/selfitis-selfies-obsession-real-condition-social-media-narcissism-research-nottingham-trent-a8112066.html>

8. Gemma Aldridge, Kerry Harden , Selfie addict took two hundred a day - and tried to kill himself when he couldn't take perfect photo ,23 march 2014, Available from <https://www.mirror.co.uk/news/real-life-stories/selfie-addict-took-two-hundred-327381977> journal/home.html
9. Indian Journal of Psychiatric Nursing 20(2):p 133-136, Jul-Dec 2023, Available from journals.lww.com/iopn/fulltext/2023/20020/selfitis__an_analysis_on_prevalence_and_attitude.7.aspx
10. Divya P .Vijayan ,TokaniGhuhato, EslavathRajkumar,International Journal of Mental Health Promotion, Exploring the Reasons for Selfie-Taking and Selfie- Posting on Social Media with Its Effect on Psychological and Social Lives: A Study among Indian Youths Volume 26, Issue 5, 30 May 2024, Pages 389 ,Available from [:https://www.sciencedirect.com/org/science/article/pii/S1462373024000014](https://www.sciencedirect.com/org/science/article/pii/S1462373024000014)
11. Dalia El-Sayed Desouky and Hany Abu-Zaid, Eastern Mediterranean Health Journal ,Mobile phone use pattern and addiction in relation to depression and anxiety, Available from [:https://www.emro.who.int/emh-journal/eastern-mediterranean-health-](https://www.emro.who.int/emh-journal/eastern-mediterranean-health-)

Effectiveness of Educational Program on Knowledge and Practice Regarding Basic life support (BLS) and Advanced Cardiac Life Support (ACLS) Among Nursing Officers

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ABSTRACT

Background: Cardiac arrest is a life-threatening emergency that can happen at any time and anywhere in the world. Immediate start of Basic Life Support (BLS) significantly increases chances of survival. Heart disease is the leading cause of death in the world (17. 1 million deaths annually) and is projected to grow to 23. 4 million by 2030.

Objective: Evaluation of the effectiveness of the educational program on nursing officers' knowledge and practice in Basic life support (BLS)and Advanced Cardiac Life Support (ACLS).

Method: The study design was a quasi-experimental pretest-posttest control group trial involving 200 nursing officers (100 experimental, 100 control). The intervention was structured training using a questionnaire and skill checklist. Ethical standards were followed throughout the whole study.

Results: Knowledge scores in the experimental group rose from 21. 1% to 38. 9% after intervention (mean difference: 17. 8%); Practice scores climbed significantly from 22. 2 to 62. 5 (mean difference: 40. 3%). Post-test scores in the experimental group were significantly higher than those in the control group.

Conclusion: Among nursing officers taking part in the educational program the knowledge and practical skills in BLS/ACLS were increased.

Keywords: effectiveness, educational program, BLS, ACLS, nursing officers.

Effectiveness of Educational Program on Knowledge and Practice Regarding Basic life support (BLS) and Advanced Cardiac Life Support (ACLS) Among Nursing Officers

INTRODUCTION

Background of the study

Cardiopulmonary Resuscitation (CPR) is divided into two main levels: Basic Cardiac Life Support (BCLS) and Advanced Cardiac Life Support (ACLS). This distinction exists because, in reality, most cardiac arrests don't happen in hospitals; they happen at home, at work, or in public places. In those vital seconds, a friend or a relative, or even a passerby could be standing close by, as opposed to a doctor or a nurse. This is where BCLS steps in. It equips these ordinary lifesavers with the clear skills that enable them to intervene and alter the situation until trained personnel come.¹

It really matters to know how well students know how to give first aid and perform CPR because every second counts when there is an emergency. Additionally, one should take into account how accessible this type of training is from various fields of study. BLS is all about keeping someone alive in those first critical moments by making sure their airway is open, they are breathing and their heart is pumping. That means checking the person's condition, managing their airway, giving rescue breaths and chest compressions – what we call CPR.²

Cardiac arrest is a serious and potentially lethal emergency that can happen any time, anywhere, at home, at work or a hospital. So while it's a scary situation indeed, it's a situation where immediate action can truly save a life. Right away, starting Basic Life Support (BLS) can greatly improve the chances of survival. It can make the difference between life and death when someone has the right knowledge and confidence to step in and help. Being prepared isn't just important in those critical moments, it's everything.³

Cardiac arrest is a sudden, life-threatening event in which the heart stops beating and blood flow to the brain and other vital organs is stopped. It's one of the leading killers in the world, and it frequently occurs in places besides hospitals where every second matters. In moments as such, the difference between life and death depends on quick action. CPR is a simple, but powerful technique that uses chest compressions and rescue breaths to keep oxygen moving through the body until medical help arrives. This usually includes 30 chest compressions followed by 2 breaths, either mouth-to-mouth or with the use of a breathing device. In certain circumstances, in which the rescuer is not trained in breathing rescue, continuous chest compressions can still make a big difference.⁴

Now more than all types of cancer, heart disease is the number one killer in the world. In India, sudden heart attacks kill 4,280 people out of every 100,000 per year. Heart disease remains the top cause of death globally and will likely continue to be so in 2030, the World Health Organization (WHO) said. Heart disease claims about 13 percent of all deaths worldwide and 17.1 million lives each year due to heart-related conditions. By 2030, this number may reach 23.4 million. This proves that it is necessary to raise awareness and prevent heart problems, as well as quick action when required.⁵

CPR is not just a procedure for nurses, it is an important part of the care of patients in situations that are threatening to life. Technical skills alone are not enough: a nursing officer also needs to know, have confidence and be quick on the uptake when it comes to making the right decision in a critical moment. These decisions can be the difference between life and death, build trust between nurse and patient and family, and overall, quality of nursing care.⁶

There is a life-saving application that supports healthcare professionals and students in building their skills and confidence in Basic Life Support (BLS) and Advanced Cardiac Life Support (ACLS). The app has been built around real life clinical scenarios for more engaging and practical learning. Not only does it deepen understanding and sharpen the clinical decision, it also motivates self directed learning anytime, anywhere.

OBJECTIVES OF THE STUDY:

1. To investigate the knowledge levels of nursing officers on Basic Life Support (BLS) and Advanced Cardiac Life Support (ACLS) before and after the introduction of an educational programme.
2. To describe and compare the practical skills of nursing officers who had attended BLS and ACLS before and after training.
3. To develop and implement a structured training program with a view to improving the knowledge and skills of nursing officers in the areas of BLS and ACLS.
4. To compare the knowledge and practice levels of nursing officers who have completed the educational program.
5. To examine the association between post-test knowledge score of nursing officers and some socio-demographic characteristics.
6. To establish the relationship between the post-test practice scores of nursing officers and some selected socio-demographic characteristics.

Hypothesis:

H1: There will be a significant difference in the Knowledge Score of the Experimental and Control Groups between pretest and post-test, measured according to structured questionnaires of the 0.05 level of significance.

H2: There will be a Practice score differences between pretest and post-test of participants in the experimental and control groups are expected to be significantly different as assessed by an observation checklist, at the 0.5% level of significance.

MATERIALS AND METHODS

Research Approach

In this study a quantitative research method was employed to evaluate the effectiveness of an educational program designed to enhance the knowledge and practice of nursing officers in basic and advanced cardiac life support (BLS & ACLS).

Research Design

The impact of intervention was evaluated using a quasi - experimental design of pre and post test control groups.

Study Setting

The research was done in a chosen hospital and the study sample was nursing officers.

Population

The data in this study were collected from nursing officers working within the chosen healthcare setting.

Sampling Technique, Setting, and Sample Size

Purposive sampling included a total of 200 nursing officers from the hospital and of these 100 were included in the experimental group and 100 in the control group. The study was conducted in a different hospital.

Data Collection

Purposive sampling was used in choosing the study participants who met one of the following inclusion criteria: (a) are Nursing Officers currently working in Hospitals; (b) are willing to participate in the research and (c) are willing to be present during the data collection period.

The study will be conducted with a pre-test that collects socio-demographic information in an interview. Knowledge of participants will be mapped using a self-designed questionnaire and practice will be mapped to the observers checklist. The initial assessment will take approximately 20 to 30 minutes per participant.

After the pre-test, an educational activity covering the American Heart Association

(AHA) guidelines will be conducted. The 45 minute lecture-cum-discussion session will be followed by a 45 minute demonstration using a mannequin. Additional learning materials may be provided to participants for repeat reading as needed.

When the training has ended 15 days after the end of the training there will be a post-test (Post-Test I) involving once again the self-structured knowledge questionnaire and the observational checklist so as to re-evaluate the participants' knowledge and practice.

Data Collection Tools

To gather the necessary information, the following tools were developed:

- A knowledge questionnaire was designed to assess nursing officers' knowledge of Basic Life Support (BLS) and Advanced Cardiac Life Support (ACLS).
- The use of a structured observation checklist was developed to assess the practical skills of nursing officers in performing BLS/ACLS procedures.

RESULTS & DISCUSSION

Effectiveness in Terms of Knowledge

As explained in the results, there was a marked improvement of knowledge level of nursing officers participating in the educational program. As shown in the experimental group, the average knowledge score of the group was increased from 21. 1% in the pre-test to 38. 9% in the post-test, meaning a mean difference of 17. 8%.

Furthermore the post-test scores of both groups showed a significantly higher average score for the experimental group (mean score 38. 1) than for the control group (21. 1) which suggests that the educational intervention had a high positive effect on the knowledge of the nursing officers.

Effectiveness in Terms of Practice

Similar trends were observed in the practice scores. The experimental group showed considerable improvement, with a mean post-test practice score of 62. 5 compared to a pre-test score of 22. 2 a substantial improvement of 40. 3 points.

The post-test practice scores among the three experimental groups (62. 5%, 22. 1%, and 41. 4%) clearly showed a very high relative performance of the experimental group (over all, 62. 5%), as measured by Mann–Whitney test, and those of the control group (22. 1%) (which has a mean difference of 40. 4%).

CONCLUSION

There was a general disparity in the knowledge and skills on Basic Life Support (BLS) and Advanced Cardiac Life Support (ACLS) between nursing officers, the study found. That said, there are clearly opportunities for educational interventions to promote both

understanding and practical skills in these areas.

The educational program at the training session was found to be effective in improving knowledge of BLS and ACLS by the nursing officers.

At the same time the program significantly enhanced their practical application of these lifesaving techniques.

KEY POINTS

1. Nursing Practice

The educational program on BLS (Basic Life Support) and ACLS (Advanced Cardiovascular Life Support) provides an important clinical competence boost to the nursing officers in emergency response in life-threatening emergencies. Improved knowledge and skills facilitate timely and effective intervention in cardiac and respiratory arrest and thus better survival rate of patients. Regular training sessions are an effective method to keep the skills and knowledge in long term memory, to ensure skill retention, confidence building and readiness in emergencies.

2. Health and Social Care Policy

That point stresses the importance of resuscitation training programming that is structured and mandatory for all nursing officers as part of institutional policies. Health care institutions and their regulatory bodies need to consider making BLS/ACLS certification a precondition for employment and periodic recertification a precondition for continuing professional practice. Policy makers need to seek adequate funding for ongoing training, simulation facilities and policy development to ensure a skilled and prepared workforce, in turn improving public health outcomes and trust in health services.

3. Future Research

Further research is needed into the long-term influencing factors of BLS and ACLS training on patient outcomes, preserving skills over time, and cost/benefits of such programs. Tasks on comparative studies of trained and untrained nursing staff may inform further understanding of the relevance of the BLS/ACLS program for healthcare contexts and potentially comparative studies examining the effectiveness of different teaching methods (e. g. simulation education versus traditional lecture) in learning the skills necessary for emergency care education.

Limitations

- The study was limited only to one group .
- Study is limited to a small sample of people as there is no time.

- The study will be restricted to nursing officers willing to participate and available at the time of data collection.

Recommendations

- Depending upon the research study conducted a set of recommendations are made for future research study
- It is possible to do the study on a wider range of population, so that the results can be generalized from the study.
- The study can be conducted in a community setting .

BIBLIOGRAPHY

1. Hamilton R. Assessment of knowledge and skill retention following cardiopulmonary resuscitation training. New Ham University Hospital: NHS Trust, UK; 2005. p. 288–95.
2. Albert CM, McGovern BA, Newell JB, Ruskin JN. Sex differences in cardiac arrest survivors. *Circulation*. 1996;93(6):1170–6. Available from: <https://doi.org/10.1161/01.CIR.93.6.1170>
3. Dariush M, Emelia JB, Alan SG, Donna KA, Michael JB, Mary C, et al. Heart disease and stroke statistics—2015 update: A report from the American Heart Association. *Circulation*. 2015;131(6):152–74. Available from: <http://circ.ahajournals.org/content/early/2014/12/18/CIR.000000002000000152>
4. Bedell SE, Delbanco TL, Cook EF, Epstein FH. Survival after cardiopulmonary resuscitation (CPR) in the hospital. *N Engl J Med*. 2003;309(8):569–76.
5. World Health Organization. WHO atlas on global heart disease and stroke epidemic [Internet]. Geneva: WHO; 2004 Sep [cited 2025 May 1]. Available from: <http://www.who.int/mediacentre/news/releases/2004/pr68/en/>
6. Journal of the American Medical Association. JAMA e-journal of the American Medical Association [Internet]. [cited 2025 May 1]. Available from: <http://www.kmcmanaa.org/CARDIO.doc>

Effect of health promotion intervention on knowledge regarding prevention of coronary artery disease among college students in selected colleges at Alappuzha district in Kerala, India

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ABSTRACT

A quantitative research approach was done evaluate effect of health promotion intervention on knowledge regarding prevention of coronary artery disease among college students in selected colleges at Alappuzha district in Kerala, India. The objectives were to assess the knowledge regarding prevention of coronary artery disease and to determine the effect of health promotion intervention on knowledge regarding prevention of coronary artery disease among college students and to find out the association between the pretest score on knowledge regarding prevention of coronary artery disease among college students with their selected demographic variables. The conceptual framework was based on general system theory by Ludwing Von Bertalanffy. The quantitative research approach was selected with quasi experimental one group pretest control group design, The 80 samples were selected using non - probability convenient sampling technique. The necessary data was collected using structured questionnaire. The findings were that mean between post-test knowledge score of experimental group ($p < 0.005$) indicates that there is a significant increase in the knowledge score of experimental group on knowledge regarding prevention of coronary artery disease among college students after the structured teaching programme. The association between knowledge score with various demographic variables shows 0.05 level of significance. Therefore, there will be significant association between pretest level of knowledge score of college students regarding prevention of coronary artery disease with their selected demographic variables such as gender, personal habits and diet..

Keywords: effect; health promotion intervention; knowledge; prevention; coronary artery disease; college students..

Effect of health promotion intervention on knowledge regarding prevention of coronary artery disease among college students in selected colleges at Alappuzha district in Kerala, India.

INTRODUCTION

The heart is four chambered organ consisting of two atria and two ventricles. The right atrium and right ventricle receive unoxygenated blood from two Ven cava, i.e. superior and inferior and pump blood into the lungs through pulmonary arteries. The left atrium and left ventricle receive oxygenated blood from lungs and pushes it to various parts of the body through aorta and vascular system.¹

The four valves of the heart keep blood flowing in a forward direction. The heart muscles requires a rich oxygen supply to meet its own metabolic needs. The coronary arteries , branch off the aorta just above the aortic valve , encircle the heart , penetrate the myocardium and nourishes the heart muscles contraction of the muscles of the left ventricle generate enough extra vascular pressure to occlude the coronary blood vessels and prevent blood flow to the muscles of the heart during ventricular systole. For adequate blood flow through the coronary arteries, the diastolic blood pressure must be at least 60mmHg.²

The human heart, through rhythmic contraction, provides the pressure necessary to propel blood through the body. Blood flow is essential to deliver nutrients to the tissues of the body and to transport metabolic wastes, including heat, to removal sites. The presence of arterial pulse, caused by the beating of the heart, is appropriately designated as a vital sign.³

Background Of the Study

Health promotion intervention covers a wide range of social and environmental interventions that are designed to benefit and protect individual people's health and quality of life by addressing and preventing the root causes of ill health, not just focusing on treatment and cure. . About 17.9 million deaths reported due to cardiovascular diseases (CVD) in 2016, which contributes about 31% global mortality and major causes of death were heart attack and stroke. However, the number of deaths would be increased by 23.3 million in next ten years. Low and middle-income countries contribute nearly 82% in CVD related mortality due to poor health promotion intervention strategies.⁴

A quasi experimental study was conducted to assess the effect of knowledge about cardiovascular disease on healthy lifestyle behaviour among freshmen of Zigzag University. A quantitative research approach was used and necessary data was collected using self-administered questionnaire among 128 first-year students was calculated using the Epi Info software program version 7. The sample was collected out of six practical non-health related

colleges of Zigzag University by a simple random sampling technique. The result shown those totals mean score knowledge regarding healthy lifestyle behavioural practices of coronary artery disease among the participants were 98.35 ± 6.50 during the pre-intervention phase. After evaluating the effects of different student's characteristics on the acquisition of knowledge during the post intervention phase, we noticed that participants with CVDs and/or a positive family history had significantly higher total mean scores than those without personal or family history of CVDs, $p < 0.05$.⁵

Need and significance of the study

"No beauty shines brighter than a healthy heart"

Coronary artery disease (CAD) is the foremost cause of disability and death the world over and is one of the top five causes of death in Indian population. Mortality from CAD in Indians is predicted to increase rapidly and overtake that of the high-income countries. Among adults over 20 years of age, there has been a two-fold rise in CAD in rural areas and a 6-fold rise in urban areas during the period from 1960 to 2002.⁶ Previous studies have shown high prevalence of CAD in Asian Indians residing in the United States. Cardiovascular diseases (CVDs) are the leading cause of death globally, taking an estimated 17.9 million lives each year.⁴ The prevalence of CAD in Indians living in India is 21.4% for diabetics and 11% for nondiabetics.⁷ The prevalence of 7.4% of CAD for rural and 11% for urban Kerala. In Alappuzha district, the prevalence rate of coronary artery disease is 6.3%.⁸

A descriptive research study was conducted to assess the knowledge regarding preventive measures of coronary artery disease among patient attending outpatient departments of selected hospital of Ludhiana city. A quantitative evaluative approach design was used to assess the knowledge regarding preventive measures of coronary artery among 150 patients in OPD. The necessary data was collected using structured knowledge questionnaire consisting of 25 open ended multiple choice questions .the result revealed that only 15.33% of subjects had good level of knowledge, and 84.67% subject had poor level of knowledge regarding prevention of CAD.⁹

With the reference of the above evidence and details we find that knowledge regarding effect of lifestyle modification intervention of coronary artery disease patients is poor .Since, the health promotion intervention are encouraging and highlight the importance of introducing an effective multidimensional health promotion educational program. Such programs should be aimed at improving students' knowledge about coronary artery disease and promoting healthy lifestyle behaviours. For improving knowledge regarding the effect of lifestyle modification intervention on health status of coronary artery disease patients is the thrust to

take over the problem after study.

Objectives:

- ❖ To assess the knowledge regarding prevention of coronary artery disease among college students.
- ❖ To determine the effect of health promotion intervention on knowledge regarding prevention of coronary artery disease among college students.
- ❖ To find out the association between pretest score on knowledge regarding prevention of coronary artery disease among college students with selected demographic variables.

Hypothesis

- ❖ H1: There will be significant difference between pretest and post test knowledge scores of prevention of coronary artery disease among college students in selected areas at Alappuzha district.
- ❖ H2: There will be significant association between pretest levels of knowledge score of college students regarding prevention of coronary artery disease with their selected demographic variables.

Research Approach

In this study, a quantitative research approach was used to assess the effect of health promotion intervention on knowledge regarding prevention of coronary artery disease among college students in selected colleges at Alappuzha district.

Research Design

The Research design used in the study was one group pretest post test research design.

Setting Of The Study

The study was conducted among college students in Presidency College Of Management And Technology, Charummoodu at Alappuzha district.

Population

In this study selected population was college students in selected colleges at Alappuzha district.

Sample And Sampling Techniques

Sample size

In this study the sample consist of 80 college students in selected colleges at Alappuzha district.

Sampling technique

The sample for the study was selected by using convenient sampling technique.

The sample were selected based on the inclusion and exclusion criteria.

Description Of Tool

Section A

The section A was developed after extensive review of literature and based on expert opinion. It includes structured questionnaire to collect information regarding the sample. It includes data like age in years, gender, personal habit, type of family, family income and diet.

Section B

The section B was developed after extensive review of literature and based on expert opinion. The researcher was prepared the knowledge questionnaire regarding prevention of coronary artery disease among college students. It consists of 25 questions; each correct answer carries one mark and wrong answer carries zero mark.

Data Collection Process

It is precise, systematic gathering of information relevant to researchers' purpose or objectives or hypothesis of the study.

Phase -1

After getting approval from concern authority for the study, demographic data questionnaire and lesson plan for such as teaching are designed and prepared.

Phase-2

The study was conducted in college students at selected college at Alappuzha district. 80 samples were selected according to the non-probability convenient sampling technique. In this phase researcher explain about study and its purpose to sample and obtain informed consent for their participation.

Before data collection the investigator introduced himself and about the purpose of the study. After assuring the confidentiality the subject was requested to participate to study. The tool was administered to the group. The average time taken to conduct pre-test was 15 minutes and health promotion interventions was 45 minutes with the help of Audio-visual Aids like slides and model. The participants and management cooperated well for conducting studies. They provided positive feedback to health promotion interventions.

Phase-3

Post-test was done to assess the knowledge regarding prevention of coronary artery disease among college students using same tool after seven days.

RESULT

Data was analysed and presented under the following headings.

Section – A

Distribution of demographic variables.

Section-B

To assess the effect of health promotion intervention on knowledge regarding prevention of coronary artery disease among college students with selected demographic variables at Alappuzha district.

Section-C

To determine association between mean pre test score on knowledge regarding prevention of coronary artery disease among college students in selected areas at Alappuzha district with selected demographic variables .

Section-A

Frequency and Percentage distribution of sample based on socio demographic variable.

Graphical Representation

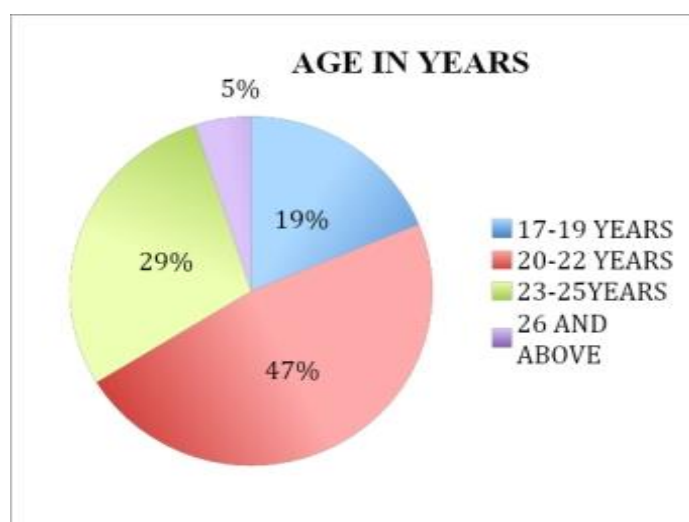


Fig 1: shows that majority 48% under the category of 20-22 years, 29% under the category of 23-25 years, 19% under the category of 17-19 years and 5% under the category of 26 and above.

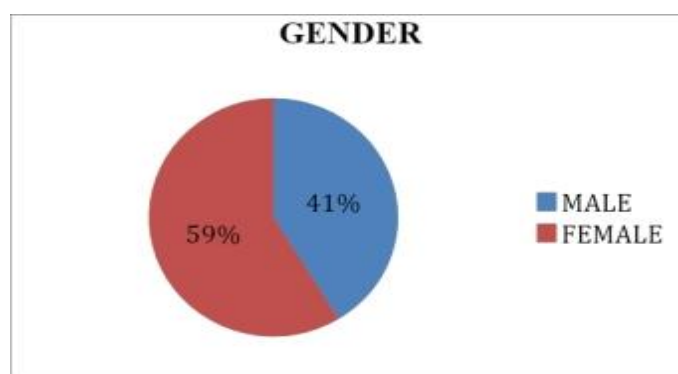


Fig 2: shows that 59% are of females and 41% are of males

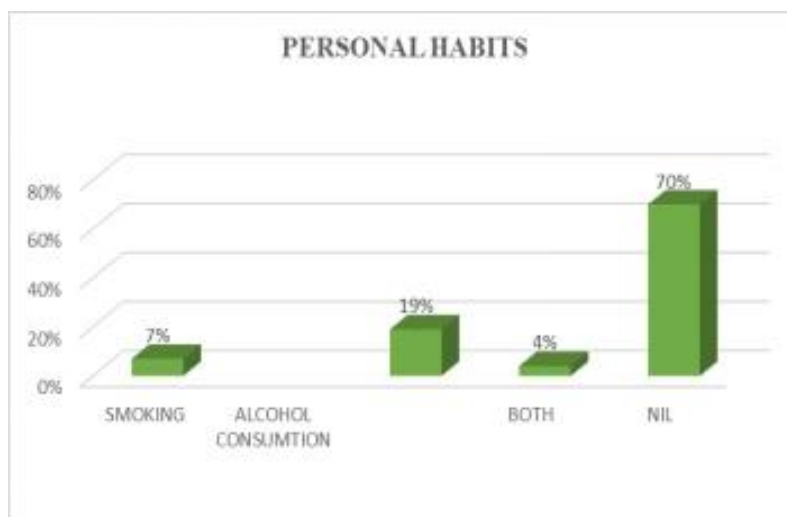


Fig 3: shows that majority 70% have no bad habits, 19% are have alcoholic conception ,7% are smokers and 4% are both alcoholics and smokers.

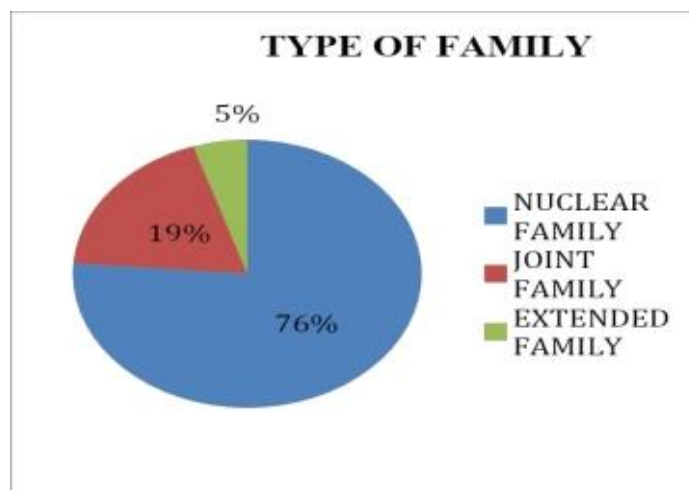


Fig 4: shows that majority 76% lives in nuclear family, 19% lives in joint family and 5% lives in extended family.

Section B :

To assess the pre and post test score of knowledge regarding prevention of coronary artery disease among college students in selected colleges at Alappuzha district.

Table 1: Comparison of frequency and percentage according to pre and post test knowledge score.

Level of knowledge	Range of score	Pre test		Post test	
Poor	1-10	70	87.5%	6	7.5%
Average	11-20	10	12.5%	66	82.5%
Good	21-25	0	0%	8	10%

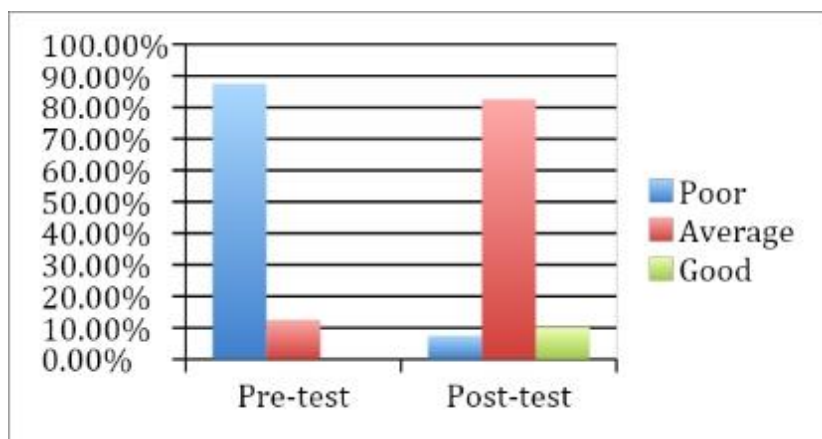


Fig :5 shows the graphical representation of pre-test and post- test knowledge scores. In pre test most of the college students had poor knowledge (87.5%) and has average knowledge (12.5%), none of them had good knowledge (0%). Whereas in the post test, most of the college students has good knowledge (10%) , average knowledge (82.5%) and poor knowledge (7.5%).

Table 2: Mean, median and standard deviation of pre test and post test

N=80

	Mean	Median	Standard deviation
Pre test	7.662	8	2.79
Post test	12.8	13	3.79

The data depicts that the mean post test knowledge score(12.8) is higher than the mean pre test knowledge score(7.662), the median value of post test score(13), higher than the median pre test value(8). To find out the significant differences between pre test and post test knowledge score, paired t - test was used in order to test the statistical significant between mean pre test and post test scores, the following hypothesis was formulated.

H_1 : The mean post test knowledge score of college students regarding prevention of coronary artery disease will be significantly higher than that of mean pre test values.

Table 3: Mean, standard deviation, mean difference, “t” value of pre test and post test.

N=80

Parameter	Mean	Standard deviation	Mean difference	Df(n-1)	t-value	P-value
Pretest	7.662	2.79	5.138	79	11.127	P<.005
Post test	12.8	3.79				

The data in the table shows that paired t – test was used to compare the pre test and post test scores. The mean pre test knowledge score was 7.662 with Sd = 2.79 and with Sd= 3.79 in the post test with a mean difference of 5.138. The calculated “t” value 11.127 greater than the table value ($t_{79} = 2.6395$) with the degree of freedom 79 $p < .005$ level of significance. Therefore health promotion intervention was effective in improving the knowledge score of college students regarding prevention of coronary artery disease with mean difference of 5.138. Hence the research hypothesis (H_1) was accepted.

Section C :

H2: There will be significant association between pretest levels of knowledge score of college students regarding prevention of coronary artery disease with their selected demographic variables

Table 4: Chi-square test showing the association of pre test knowledge score with selected demographic variables.

Demographic variables		Pre-test knowledge			Chi square table value	df	Chi square value	Inference/P-Value
		Poor	Average	Good				
-Age	17-19 years	13	2	0	12.592	6	0.9	Not significant
	20-22years	33	5	0				
	23-25years	21	2	0				
	26 and above	3	1	0				
Total=80		70	10	0				
Gender	Male	25	8	0	5.991	2	7.081	Significant
	Female	45	2	0				
Total=80		70	10	0				
Personal habits	Smoking	6	0	0	12.592	6	13.127	Significant
	Alcohol	9	6	0				
	Both	3	0	0				
	Nil	52	4	0				
Total=80		70	10	0				
Type of family	Nuclear family	55	6	0	9.488	4	5.548	Not significant

	Joint family	13	2	0				
	Extended family	2	2	0				
Total=80		70	10	0				
Monthly income	<10000	8	1	0	12.592	6	1.05	Not significant
	10001-20000	34	6	0				
	20001-30000	24	2	0				
	30001 and above	4	1	0				
Total=80		70	10	0				
Diet	Vegetarian	3	3	0	5.991	2	8.34	Significant
	Non vegetarian	67	7	0				
Total=80		70	10	0				

It reveals that the chi-square test was used to determine the association between pre test and the selected socio demographic variables. It depicts that the pre test knowledge is associated with the socio demographic variables such as gender, personal habit and diet, No significant association is present.

Conclusion

Out of 80 samples shows majority of students are in the age of 20-22years (47.5%) . 41.25% of subjects are male and 58.75% are females. Majority of the students does not have any personal habits of smoking or alcoholism 70%, only 18.75% of students have habit of alcoholism , 7.5% students have smoking and only 3.75% of the students have both the habits alcoholism and smoking. Majority of the students are belongs to nuclear family 76.25% with a monthly income of Rs.10001-20000/- (50%). The majority of the students were non-vegetarian 92.5%.

The statistical analysis of data revealed the following knowledge level :- In pre test, most of college students had poor knowledge (87.5%), has average knowledge (12.5%) and has good knowledge (0%). Whereas in the post test, most of the college students has average knowledge (82.5%), has good knowledge (10%) and (7.5%) had poor knowledge. It reveals that the chi-square test was used to determine the association between pre test and the selected socio demographic variables. It depicts that the pre test knowledge is associated with the socio demographic variables such as gender, personal habits and diet. Therefore, there will be

significant association between pretest level of knowledge score of college students regarding prevention of coronary artery disease with their selected demographic variables.

Reference

1. Brunner & Suddarth's Textbook of Medical Surgical Nursing. Thirteenth Edition. Volume-1. Wolter and Kluwer publication. Published in January 2014.
2. Lewis Textbook of Medical Surgical Nursing 4th south edition Elseiver publication
3. Black and Mattassarini Jacobs Luckman and Sorrensen's Medical Surgical Nursing Philadelphia. WB Saunders
4. [https://www.who.int/newsroom/fact-sheets/detail/cardiovascular-diseases-\(cvds\)](https://www.who.int/newsroom/fact-sheets/detail/cardiovascular-diseases-(cvds))
5. <https://www.semanticscholar.org/paper/Effect-of-Knowledge-About-Cardiovascular-Diseases-AbdoMortada/436847cb2c4e13c38f29cc7b563906555800e874>
6. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4712491>
7. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6994761/#:~:text=Indians%20are%20liable%20to%20get,diabetics%20and%2011%25%20for%20nondiabetics.>
8. <https://pubmed.ncbi.nlm.nih.gov/23809375/>
9. https://www.researchgate.net/publication/343335211_Knowledge_Regarding_Preventive_Measures_of_Coronary_Artery_Disease_among_Patient_Attending_Out_Patient_Departments_of_Selected_Hospital_Of_Ludhiana_City.

