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Impact of Multifaceted Intervention on Knowledge, Attitude and Practice Preventing Health Problems Among Adolescent Girls in Coastal Kerala

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ABSTRACT

Background: Adolescence is one of life's exciting stage and has complex phases, a time when young people take on new responsibilities and experiment with independence. India has the largest adolescent population in the world. Adolescence is characterized by the rapid changes, a period in which growth is in a good pace. There are health problems showed by adolescent girls during their teenage in three major stages, nutritional, menstrual and psychological. The present study focused on such health issues in coastal areas of Kerala where the living standards are average or poor. The research highlights these adolescent girls' issues using a multifaceted intervention to find putative solutions.
Methodology: The research method adopted for the present study was mixed method approach to assess the effectiveness of multifaceted intervention on knowledge, attitude and practice regarding prevention of health problems among adolescent girls. This would help the investigator to evaluate the effect of intervention that is "structured education" on the variable that is "knowledge", "Attitude" and "practice" of adolescent girls regarding prevention of health problems. Mixed methods research integrates two forms of data (quantitative and qualitative data) and using unique designs that involve philosophical and theoretical approach.
Result: Results demonstrated that there is strong relationship between the demographic profile and knowledge, attitude & practice among adolescent girls in selected coastal areas of Kerala. In addition to that, a significant association between the knowledge and practice score focusing on preventing health problems (nutritional, menstrual and psychological) also observed using the appropriate tools and methods.
Conclusion: Adolescence is a beautiful period of life and generally a healthy one. The major health risks found during adolescent ages or a girl include nutritional, menstrual and psychological related issues. The present study focused on the study of such health issues in coastal areas of Kerala where the living standards are average or poor. Our results suggest that the poor knowledge level pertaining to the adolescent health problems affects the well-being in the coastal area and this needs to be addressed by healthcare providers and Nursing educators.

Keywords: Adolescent, Knowledge, Practice, Structured education

INTRODUCTION

Life is filled with joy and sorrow, success and failure, health and sickness, wealth and poverty. It is rare to find a person or family without any problems. Problems can arise at any stage of life, and globalization has significantly impacted people's lives, work, and family lifestyles, especially affecting adolescents. Technological advancements and changing socio-economic situations shape adolescents as they transition into adult roles and responsibilities.

According to the World Health Organization [1], adolescents are between 10 and 19 years of age, a time of rapid physical, cognitive, social, emotional, and sexual development. Adolescence is a transitional period from childhood to adulthood, where individuals search for identity, apply values, and develop skills to become responsible adults. With support from caring adults, adolescents can become resourceful and contribute to their families and communities. Adolescent health issues in the acronym "A.D.O.L.E.S.C.E.N.T.", covering topics like anxiety, anemia, identity crises, experimentation, sexual abuse, emotional turmoil, and teenage pregnancy. In India, investing in adolescent health is crucial for demographic and economic growth. The Government of India launched the "Rashtriya Kishor Swasthya Karyakram" in 2014, focusing on adolescent sexual health and well-being [2]. India has the world's largest adolescent population, with varying proportions across states: 24.5% in Uttar Pradesh, 16.3% in Kerala, 19% in Maharashtra, and 21% nationwide (International Institute for Population Sciences, 2007). Adolescent girls face significant health challenges, including nutritional, menstrual, and mental health issues, as well as early pregnancy and childbirth. Serious adult health problems often have roots in adolescence. The various health problems are generally classified as explained below.

Nutritional Problems in Adolescent Girls

Adolescence is the transition from childhood to adulthood, a crucial time for improving nutritional status and modifying eating habits. Puberty typically occurs between 10 and 13 years in girls, marked by rapid growth and physical changes that affect nutritional needs. Good nutrition during adolescence supports physical growth and prevents future health problems. Therefore, families should pay special attention to the nutritional needs of their teenagers [3].

Nutritional deficiencies during this period can impact future health and offspring. Inadequate diet can result in delayed sexual maturation and physical growth. The growth changes during adolescence, second only to the first year of life, create increased energy and nutrient demands. Optimal nutrition is essential for achieving full growth potential (National Health and Medical Research Council, 2001). Adolescent girls' nutrition is often not monitored by their families or themselves. Adequate nutrition is essential for preparing for future pregnancy and lactation. Under-nutrition affects adolescent girls by: 1) Decreasing productivity, 2) Increasing the risk of poor pregnancy outcomes, 3) Affecting sexual maturation and growth, and 4) Preventing normal bone and dental development [4].

Children born to malnourished women are more likely to be stunted and underweight, and the negative effects of adolescent malnutrition can persist throughout reproductive life. The National Health and Medical Research Council's Dietary Reference Intakes (DRIs) provide guidelines for adolescent nutrient needs, including energy, protein, calcium, and iron [5].

Potential nutrition-related problems: Poor eating habits during adolescence can lead to obesity, osteoporosis, and delays in sexual maturation. Adolescents are at risk of obesity-related diseases, eating disorders, and nutrient deficiencies due to rapid growth and increased physical activity. According to NFHS-3 data, 47% of girls and 58% of boys aged 15-19 were thin, 56% of girls and 30% of boys were anemic, and 2/1000 girls and

1/1000 boys had diabetes. Adolescents are also prone to eating disorders like anorexia nervosa or binge eating due to body dissatisfaction and depression [6].

Menstrual Problems in Adolescent Girls

Young girls often describe the onset of menarche as a shocking or fearful event, with menstruation frequently seen as a curse or sin in some families. Menstruation's normal onset is influenced by climatic conditions, diet, and socioeconomic factors [7]. Adolescent girls may suffer from problems without understanding the cause and should be educated about menstruation, secondary sexual characteristics, and sanitary practices [8]. Menstruation is a vital part of reproductive health, yet it is often surrounded by myths, beliefs, and sociocultural restrictions, especially in countries like India [9]. Lack of awareness leads to hesitation and fear in discussing menstrual problems such as emotional disturbances, dysmenorrhea, pre-menstrual syndrome (PMS), and polycystic ovary syndrome (PCOS). A study highlights menstruation's importance in relation to women's reproductive health [10].

Dysmenorrhea, painful menstruation, affects 50-75% of young girls and is a leading cause of school absenteeism. PMS, characterized by mood changes and physical symptoms like backache and breast tenderness, is a common reason for girls to visit gynecologists. Irregular periods, if undiagnosed, can lead to PCOS, a major cause of infertility. Attitudes toward menstruation are often negative, with feelings of anxiety, fear, or shame reported during first menstruation [11]. Cultural taboos also contribute to negative menstrual experiences [12, 13]. Menstrual dysfunction is common among adolescent girls. A study found that 25% of girls experience menstrual issues that affect daily life, leading to school absence [14]. Menstrual cycles may be irregular, heavy, or painful, but serious conditions are rare, and symptoms can often be managed with simple analgesics. Referral to specialists is needed only in complex cases [15]. Adolescents face diverse sexual and reproductive health challenges. In India, adolescent fertility contributes 17% to the total fertility rate, with 14% of births to women under 20 being unplanned. Early pregnancies increase the risk of adverse outcomes like eclampsia, low birth weight, and neonatal death. Moreover, 34% of ever-married adolescent girls report physical, emotional, or sexual violence [16]. Adolescence, a transitional phase between childhood and adulthood, typically refers to individuals aged 10-24 [17]. While puberty and physical changes define adolescence in some societies, others also consider emotional, social, and moral development. During this phase, emotional separation from parents occurs, and teenagers often face ambiguous roles in society. This period is crucial for the development of personal values and sexual self-control.

Psychological Problems in Adolescent Girls

Adolescence is crucial for developing social and emotional habits important for mental well-being, such as healthy sleep patterns, regular exercise, and managing emotions. Supportive environments in the family, school, and community are vital. Around 10-20% of adolescents globally experience mental health conditions, but these remain underdiagnosed and under-treated [18].

Mental health outcomes are influenced by multiple factors, including stress, autonomy, peer pressure, exploration of sexual identity, and media influence. Violence, socioeconomic problems, and sexual violence also pose risks to mental health [19]. Adolescents at higher risk include those living in fragile settings, with chronic illness, or facing stigma or discrimination. Adolescents with mental health conditions are vulnerable to social exclusion, educational difficulties, and physical health issues and few mentioned as follows.

Emotional disorders often emerge during adolescence, including depression and anxiety, alongside irritability and anger.

Behavioral disorders such as attention deficit hyperactivity disorder (ADHD) and

conduct disorder are common and can affect education and behavior [18].

Eating disorders like anorexia and bulimia affect mainly females and often coexist with anxiety, depression, and substance misuse.

Psychosis, marked by hallucinations or delusions, often begins in late adolescence and can impair daily functioning.

Suicide and self-harm remain serious concerns, with approximately 62,000 adolescent deaths in 2016. Risk factors include substance abuse, childhood abuse, stigma, and access to means. Over 90% of adolescent suicides occur in low- or middle-income countries [19].

Risk-taking behaviors, such as substance use and unsafe sexual practices, start during adolescence and can severely impact physical and mental health.

Social constraints during adolescence can make this phase stressful. Despite inherent resilience, many teens struggle with societal restrictions, schoolwork, and a lack of productive activities. Teens often prefer spending time with friends or engaging with digital media.

Malnourishment and obesity can predispose adolescents to health issues like polycystic ovary syndrome and metabolic syndrome. Promoting a healthy diet and physical activity is essential for future health. Educating adolescent girls about menstruation, hygiene, and reproductive health can help them manage challenges during this stage.

Around 1.2 billion people, or 1 in 6 of the world's population, are adolescents aged 10 to 19. Most are healthy, but there are still substantial premature death, illness, and injury among them. Illnesses can hinder their ability to grow and develop. Alcohol or tobacco use, lack of physical activity, unprotected sex, and exposure to violence can jeopardize not only their current health, but also their health as adults, and even the health of their future children. Promoting healthy behaviors during adolescence and protecting young people from health risks is critical for preventing health problems in adulthood.

Diarrhea and lower respiratory tract infections are among the top causes of death for adolescents, especially in low- and middle-income countries. Interpersonal violence is the third leading cause of death in adolescents globally, causing nearly a third of all adolescent male deaths in the WHO Region of the Americas. Globally, nearly one in three adolescent girls aged 15-19 years has been a victim of emotional, physical, or sexual violence by their partner.

Developing healthy eating habits in adolescence is crucial for good health in adulthood. Reducing the marketing of unhealthy foods and providing access to healthy foods, along with creating safe environments for physical activity, are key to promoting adolescent health.

Kerala has made significant gains in health indices such as high life expectancy, low infant mortality rate, birth rate, and death rate. The State must ensure that these gains are sustained. Besides, the State also needs to address problems or life style diseases (Non-Communicable Diseases) like diabetes, hypertension, coronary heart diseases, cancer and geriatric problems (Economic Review, 2018). However, there are new challenges to the health scenario of the State, like adolescent menstrual, and mental health problems, suicide, substance abuse and alcoholism. The present study aims at developing and evaluating the effect of multifaceted intervention on prevention of health problems among adolescent girls in coastal area in Thiruvananthapuram district, Kerala.

MATERIALS & METHODS

Methodology of research indicates the general pattern for organizing the procedure for the empirical study together with the method of obtaining valid and reliable data for an investigation. Research methodology is a way to systematically solve the research problem. It may be understood as a science of studying how research is done scientifically [20].

There are three research approaches: (a) qualitative, (b) quantitative, and (c) mixed

methods. These approaches should not be seen as rigid categories but as different ends on a continuum. A study tends to be more qualitative or quantitative, with mixed methods research residing in the middle, incorporating both approaches [21]. The research method adopted for this study was the mixed method approach, as it aimed to assess the effectiveness of a multifaceted intervention on the knowledge, attitude, and practice regarding the prevention of health problems among adolescent girls. This approach allowed the investigator to evaluate the effect of "structured education" on these variables. Mixed methods research integrates quantitative and qualitative data using unique designs that involve philosophical and theoretical approaches. The blueprint of the research design [22] for conducting a study with maximum control over factors that could interfere with the validity of the results. It is the researcher's overall plan for obtaining answers to the research questions. A well-designed study helps researchers organize and implement the study to obtain optimal results that are relevant to real-life scenarios [23].

A research design is a basic plan guiding data collection and analysis. It specifies the type of information to be collected, its sources, and collection procedures [24]. It ensures the study is relevant to the problem and uses economical procedures.

An Explanatory Sequential Mixed Methods design was used in this study. The researcher first conducts quantitative research, analyzes the results, and then builds on them with qualitative research to explain the findings in more detail. The study includes both experimental and control groups, with pre-tests conducted before the intervention. The intervention (structured education program and aerobic exercise program) was administered to the experimental group, and both groups were reassessed post-test.

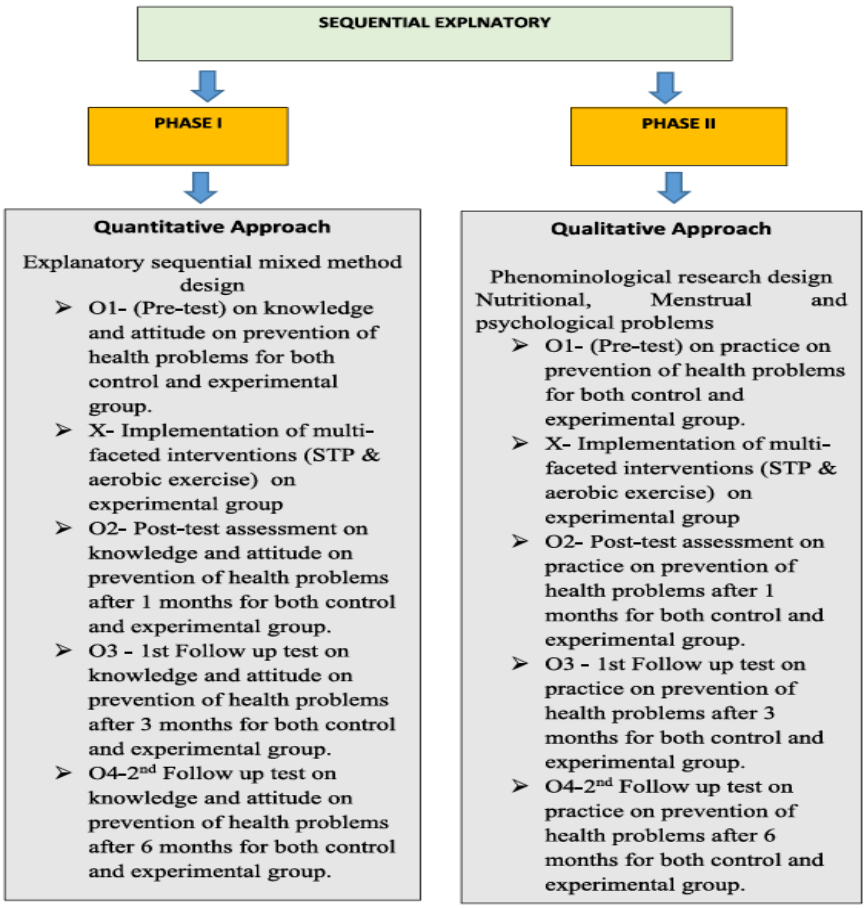
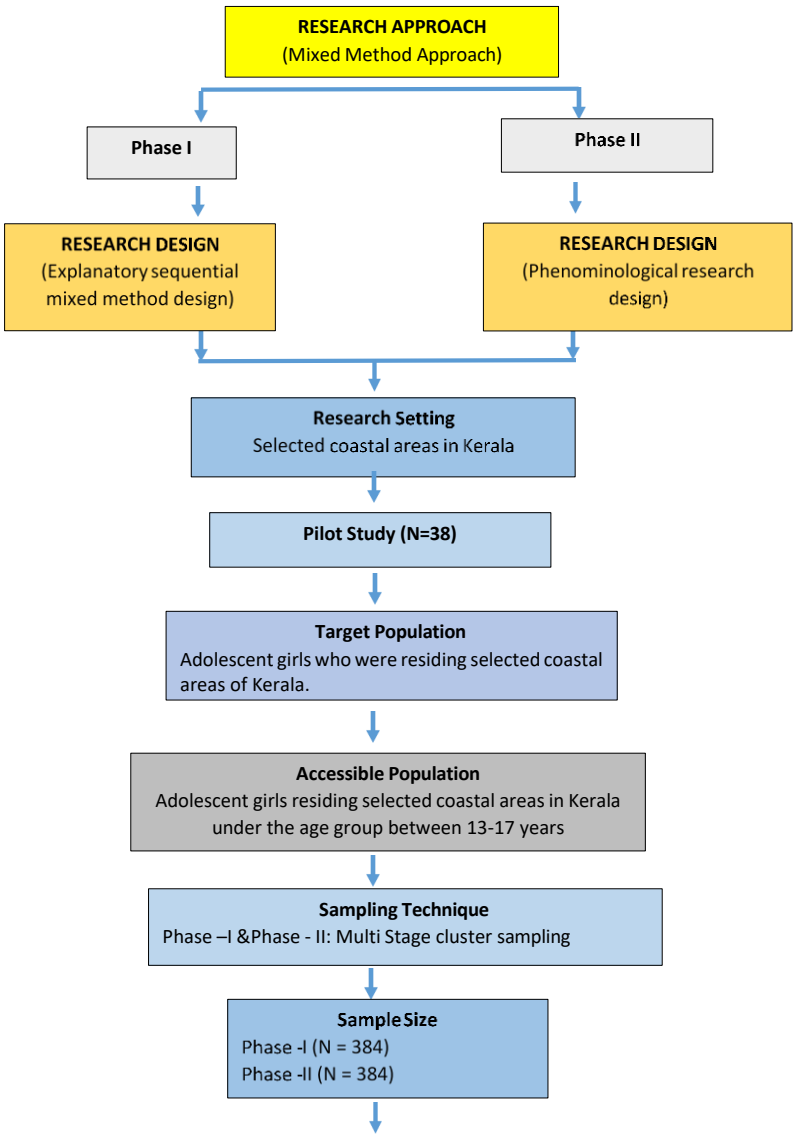


Figure 1. Research design

The objectives of the study focused on knowledge and attitude regarding the prevention of health problems among adolescent girls, collected through quantitative research. The third objective was based on the phenomenological approach, with data collected through qualitative research. In this study, experimental and control groups were used for data analysis.

An explanatory sequential design was applied, where, in the first phase, knowledge and attitude on the prevention of health problems were assessed for both groups. This was followed by a multi-faceted intervention (STP & aerobic exercise) for the experimental group. The effectiveness of the intervention was assessed in both groups at 1 month, 3 months, and 6 months. A phenomenological research design focused on nutritional, menstrual, and psychological problems was used to achieve the third objective. Practices on the prevention of health problems were assessed for both groups, followed by the multi-faceted intervention for the experimental group. The effectiveness of the intervention was assessed in both groups at 1 month, 3 months, and 6 months.



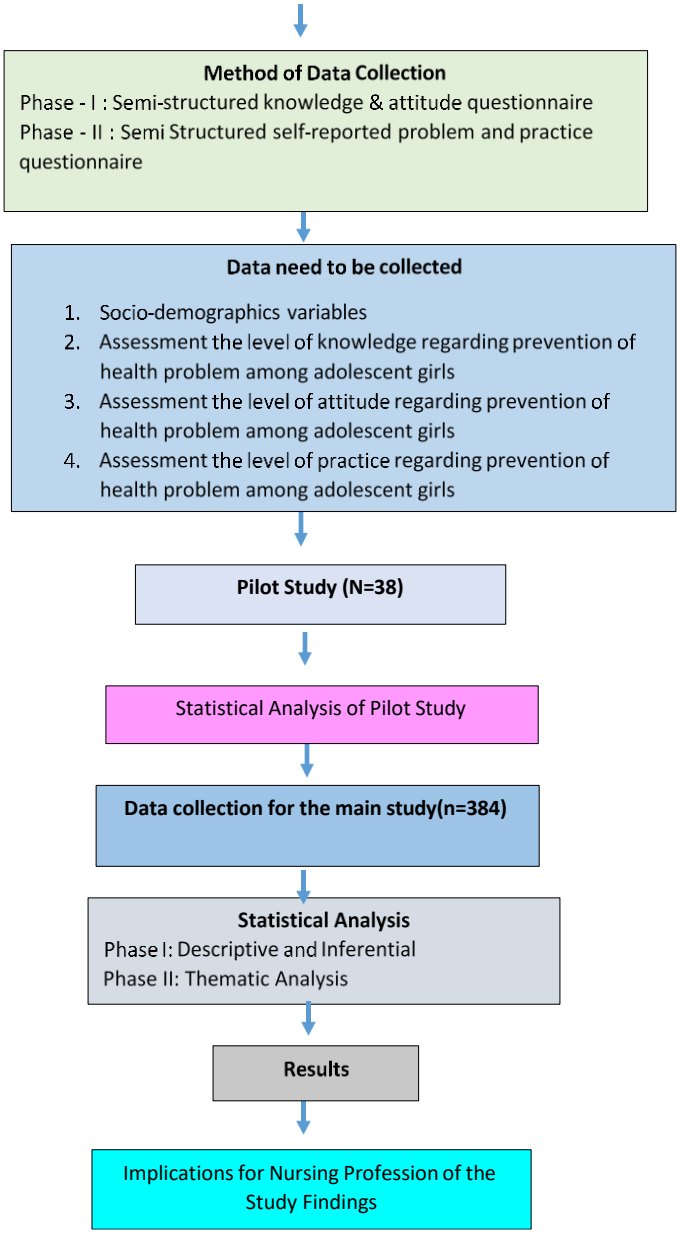


Figure 2. Schematic representation of the research methodology

Research Setting

The research setting refers to the place where the data are collected. It is the location where the research takes place. It can be seen as the physical, social, and cultural site in which the researcher conducts the study. In qualitative research, focused mainly on meaning-making, and the studies the participants in their natural set-up. The setting of the study gives the reader the context or background and how this setting influenced the responses to the researcher's views. The present study was conducted in the selected coastal areas of Kerala.

Population

According to a study, the population is the entire aggregation of cases in which a researcher is interested or objects having some common characteristics [25]. The requirement of defining the population for the research project arises from the need to specify the group to which the result of the study can be generalized. Population in the present study were the adolescent girls of Kerala.

Target Population

Target population defines the population in which the researcher wishes to study and

make generalization. The target population in present study was adolescent girls who were residing selected coastal areas in Kerala.

Accessible Population

Accessible population refers to the aggregate of cases which conforms to the designated criteria and which to assessable as the pool of subject for the study. Accessible population in the present study was the adolescent girls residing selected coastal areas in Kerala under the age group between 13-17 years.

Sample

A sample refers to a smaller and a subset or a fraction of a population containing the similar properties of a larger population. Samples can be used in statistical testing when the size of a population are too large to include all possible subjects or observations. It is not reflecting any bias pertaining to any specific property. Moreover, a sample is a representative set of a target population, which is to be worked upon by researchers during their study. Otherwise, sample consist of a sub set of units which comprise the population selected by the investigator to participate in their research project. In the present study, the sample were adolescent girls, who were residing in the selected coastal areas of Kerala.

STATISTICAL ANALYSIS

A sample size deals the number of individual samples calculated or measured in the study or experiment.

Formula

$$N = \frac{2 \times S^2 (Z_{\frac{\alpha}{2}} + Z_{(1-\beta)})^2}{d^2}$$

$$s^2 = \sqrt{\frac{s_1{}^2 + s_2{}^2}{2}}$$

$$d = \mu_{2-} \mu_1$$

Sample size calculation

If the allowance of 10% for missing, losses to follow-up, withdrawals is assumed, 35 (10% of 349) is added. Then the corrected sample will be **384** subjects. ie; 192 in experimental and 192 in control group.

Mean $\mu_1 = 7.20$, $\mu_2 = 6.88$

Standard deviations $S_1 = 2.42$ and $S_2 = 2.13$

$d = \mu_{2-} \mu_1 = 0.14$

$S^2 = 2.28$

For 5% level of significance and 80% power,

$Z_{\frac{\alpha}{2}} = 1.96$

$Z_{1-\beta} = 0.80 = 0.84$

Substituting in formula

$$N = \frac{2 \times 2.28 (1.96+0.84)^2}{0.32^2}$$

$= 349.07$

The tool was developed to assess and collect data from the study respondents. It consists of a structured questionnaire to assess knowledge and attitude, and a semi-structured questionnaire to assess practices regarding the prevention of health problems among adolescent girls. The tool was submitted to experts in relevant fields to assess the accuracy, relevance, and appropriateness of the items. Items receiving 100% consensus were retained. The questionnaire was then translated into Malayalam and back-translated into English to ensure accuracy. Reliability was established using the split-half test method. The reliability score was 0.801, indicating good reliability. For attitude, the score was 0.812, also showing good reliability. The structured questionnaire consisted of two parts: Part I: Socio-Demographic Profile. This section included 20 items on socio-demographic variables, including age, education, religion, family composition, income, menstrual and mental health details. Part II: Knowledge, Attitude, and Practice Assessment on Child Health

a) Knowledge: This section assessed knowledge on the prevention of health problems across nutritional, menstrual, psychological, and general health issues.

b) Attitude: A 20-item questionnaire assessed attitudes, with half the statements positive and half negative. Respondents indicated their opinions on a 5-point scale (strongly agree to strongly disagree).

c) Practice: A semi-structured questionnaire assessed practices on prevention, focusing on problem identification, symptoms, and current practices in the areas of nutrition, menstrual health, psychological health, and general health. The data was cleaned and processed using SPSS (version 27) software.

RESULT

The below table shows that in control group, among 192 sample, 171 having poor knowledge,21 having average knowledge and no sample are having good knowledge.

Table 1 Control group: - knowledge score [pre-test]

Knowledge score	Frequency	Percentage
Poor [1-10]	171	89
Average [11-20]	21	10.93
Good [21-25]	0	0

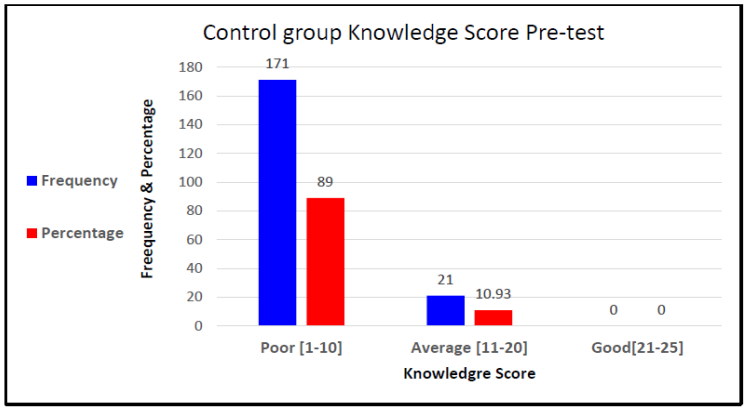


Figure 3 The column diagram depicts Control group: - knowledge score [pre-test]

The above figure shows that in control group, among 192 sample, 171 having poor knowledge,21 having average knowledge and no sample are having good knowledge.

Table 2 Control group: - knowledge score [post-test] N=192

Knowledge score	Frequency	Percentage
Poor [1-10]	174	90.6
Average [11-20]	18	9.3
Good [21-25]	0	0

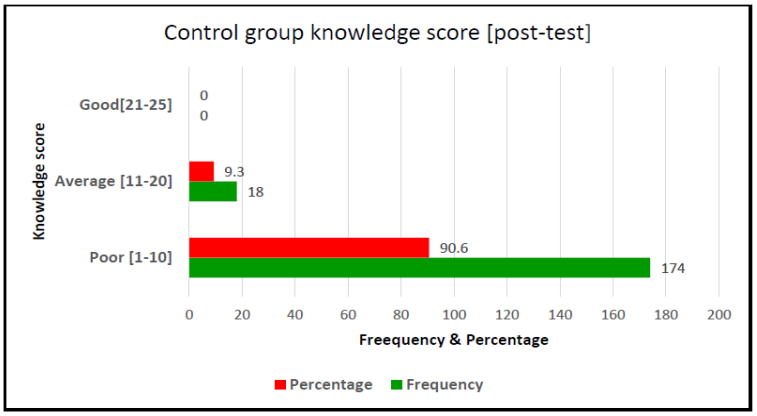


Figure 4 The bar chart shows Control group: - knowledge score [post-test]

The above figure shows that in control group, among 192 sample 174 having poor knowledge,18 having average knowledge and no sample are having good knowledge.

Table 3 Experimental group: - knowledge score [pre-test]. N=192

Knowledge score	Frequency	Percentage
Poor [1-10]	183	95.3
Average [11-20]	9	4.6
Good [21-25]	0	0

The above table shows that, in Experimental group, among 192 sample, 183 having poor knowledge,9 having average knowledge and no sample are having good knowledge.

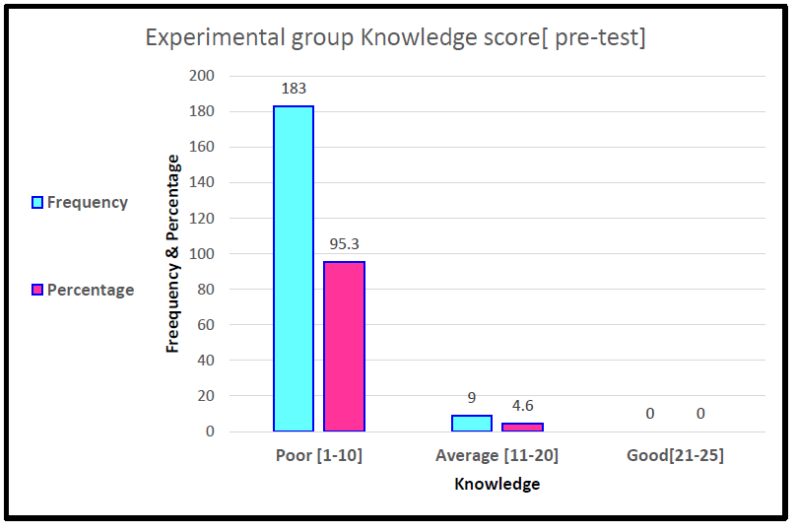


Figure 5 The column chart showing Experimental group: - knowledge score [pre-test]

The above figure shows that shows that, in Experimental group, among 192 sample 183 having poor knowledge,9 having average knowledge and no sample are having good knowledge.

Table 4 Experimental group: - knowledge score [post-test] N=1

Knowledge score	Frequency	Percentage
Poor [1-10]	0	0
Average [11-20]	74	24.4
Good [21-25]	118	61.4

The above table shows that, in Experimental group, among 192 sample no one having poor knowledge,74 having average knowledge and 118 sample are having good knowledge.

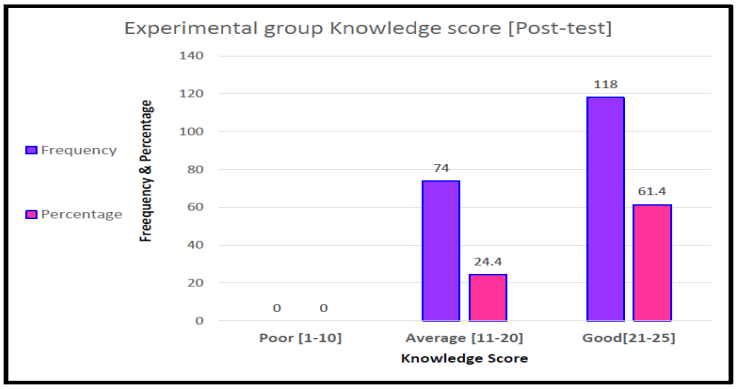


Figure 6 The chart shows the Experimental group: - knowledge score [Post-test]

The above figure shows that, in Experimental group, among 192 sample no one having poor knowledge, 74 having average knowledge and 118 sample are having good knowledge.

Table 5: Knowledge on prevention of health problems among adolescent girls N= 384

	Experimental group			Control group		
	Range	**Mean ± SD**	**Median**	**Range**	**Mean ± SD**	**Median**
Pre- test	2- 12	6.56 ± 2.33	7	2-20	7.05 ± 2.76	7
Post-test 1	6- 19	12.26 ± 2.52	12	2- 20	7.05 ± 2.76	7
Post-test 2	11- 21	16.94 ± 2.15	17	0-15	7.26± 2.60	7
Post-test 3	15-25	21.24± 2.33	21	0-14	6.67± 2.66	6.5

In Experimental Group the mean pre-test level of knowledge is 6.56 with a SD of 2.33. And majority of respondents, ie, 183(95.3%) fall in poor knowledge level in the pre-test. In the post test, significant increase in knowledge was found. Mean post-test level of knowledge was 21.24 with a SD of 2.33. And majority of respondents 118(61.4%) fall in good knowledge level. 183 sample ie,(95.3%) of participants had poor level of knowledge before Multifaceted intervention and 118(61.4%) gained good knowledge after Multifaceted intervention. In Control Group The mean pre-test level of knowledge is 7.05 with a SD of 2.76. And majority of respondents, ie, 171(89%) fall in poor knowledge level in the pre-test. In the post test, there is no significant increase in knowledge was found. Mean post-test level of knowledge was 6.67 with a SD of 2.66. And majority of respondents 174(90.6%) fall in poor knowledge level.

Table 6 Effectiveness of Multifaceted intervention on knowledge regarding prevention of health problems among adolescent girls.

No.	Group	Mean ± SD	Mean difference	df	t value	p value
Post- test1	Experimental group	12.26 ± 2.52	5.20	382	19.278*	< 0.001
	Control group	7.05 ± 2.76				
Post-test 2	Experimental group	16.94 ± 2.15	9.68	382	39.805*	< 0.001
	Control group	7.26± 2.60				
Post-test 3	Experimental group	21.24± 2.33	14.57	382	57.038*	< 0.001
	Control group	6.67± 2.66				

*** = significant at 0.05 level**

In order to find out the effectiveness of Multifaceted intervention on prevention of health problems among adolescent girls in experimental and control group, independent 't' test was used. Result shows that there will be a significant difference between pre-test and post-test knowledge score on prevention of health problems among experimental group is higher than control group.

Table 7 Effectiveness of Multifaceted intervention on knowledge regarding prevention of health problems among adolescent girls in experimental group

	Sum of squares	Mean squares	df	F value	p value	Inference
Time	22887.53	7629.18	3	1440.024	< 0.001	Significant
Within group	3035.73	5.298	576			

Table 8 Effectiveness of Multifaceted intervention on knowledge regarding prevention of health problems among adolescent girls in control group.

	Sum of squares	Mean squares	df	F value	p value	Inference
Time	34.264	11.421	3	1.674	0.172	Not significant
Within group	3909.99	6.824	573			

The above table shows that the repeated ANNOVA test was used to find the effectiveness of multifaceted intervention on knowledge regarding prevention of health problems among adolescent girls in control and experimental group, the result shows that in experimental group "P" value is < 0.001, i.e. statistically significant and in control group "P" value is 0.172, i.e. Statistically not significant. The mean knowledge score shows that in experimental group, post-test: -1 shows that the mean score is 12.26 with the standard deviation of 2.52 and the post-test; -3 Shows That, the mean score is 21.24 with the standard deviation of 2.33. In control group post-test: -1 shows that the mean score is 7.05 with the standard deviation of 2.76 and the post-test; -3 Shows that the score is 6.67 with the standard deviation of 2.66. The above result can be concluded that Multifaceted intervention on prevention of health problems among adolescent girls was effective in Experimental group.

DISCUSSION

According to The World Health Organization, adolescents are those people between 10 and 19 years of age. It is one of the most rapid and challenging phases of human development, and the distinctive physical, cognitive, social, emotional and sexual development that happens during adolescence which required special attention in our family. The present study was taken to determine the impact of multifaceted intervention on prevention of health problems among the adolescent girls in selected coastal Ares of Kerala.

The pre-test was administered by distributing the knowledge, attitude, and practice questionnaire on prevention of health problems for both control and experimental group (n=384). A multifaceted intervention (structured teaching program regarding prevention of health problem among adolescent girls and a schedule of aerobic exercise program) was given to experimental group (n=192). After one month of duration, a post-test was conducted for both the experimental and control groups (n=384) by administering the same knowledge, attitude, and practice questionnaire. The follow up post-tests were conducted at the 3rd and 6th months respectively based on same questionnaire.

Regarding knowledge score, in Experimental Group, the mean pre-test level of knowledge is 6.56 with a SD of 2.33 and majority of respondents, ie, 183(95.3%) fall in poor knowledge level in the pre-test. In the post test, significant increase in knowledge was found. The mean post-test level of knowledge was 21.24 with a SD of 2.33 and larger group of respondents 118(61.4%) fall in good knowledge level. However, among this group sample (183) ie, (95.3%) of participants had poor level of knowledge before Multifaceted intervention and 118 (61.4%) gained good knowledge after Multifaceted intervention.

In Control Group The mean pre-test level of knowledge is 7.05 with a SD of 2.76. And majority of respondents, ie, 171(89%) fall in poor knowledge level in the pre-test. In the post test, there is no significant increase in knowledge was found. Mean post-test level of knowledge was 6.67 with a SD of 2.66. And majority of respondents 174(90.6%) fall in poor knowledge level. Regarding the attitude Score, In Experimental Group, The mean pre-test level of attitude is 55.2 with a SD of 2.43. The mean post-test level of attitude was 62.06 with a SD of 2.19 and majority of respondents fall in positive attitude level. In Control Group, the mean pre-test level of attitude is 58.44 with a SD of 2.01 and Mean post-test level of attitude was 59.01 with a SD of 2.02. And majority of respondents fall in negative attitude level.

It showed that multifaceted intervention on Knowledge, attitude and practice regarding prevention of health problem was effective in improving the knowledge, attitude as well as the practice level of adolescent girls who were residing the selected coastal areas of Kerala.

CONCLUSION

Adolescence is a crucial period for developing and maintaining social and emotional habits important for mental well-being. These include adopting healthy sleep patterns; taking regular exercise; developing coping, problem-solving, and interpersonal skills; and learning to manage emotions. Multiple factors determine mental health outcomes. The more risk factors adolescents are exposed to, the greater the potential impact on their mental health. Factors that can contribute to stress during adolescence include a desire for greater autonomy, pressure to conform to peers, exploration of sexual identity, and increased access to and use of technology. Worldwide, the prevalence of episodic drinking among adolescents aged 15-19 years was 13.6% in 2016, with males most at risk. Research approaches are plans and the procedures for research that covers the steps from broad assumptions to detailed methods of data collection, analysis, and interpretation. This plan involves many decisions, and need to be considered in order. This involves which approach should be used to study. There are three research approaches included: (a) qualitative, (b) quantitative, and (c) mixed methods. Qualitative and quantitative approaches should not be viewed as rigid, distinct categories, polar opposites, or dichotomies. Instead, they represent different ends on a continuum.

In the present study, the investigator selected Explanatory sequential mixed methods design. In this design researcher first begins with quantitative research, analyzes the results and then builds on the results to explain them in more detail with qualitative research. It is considered explanatory because the initial quantitative data results are explained further with the qualitative data. It is considered sequential because the initial quantitative phase is followed by the qualitative phase. A structured questionnaire was developed for assessing the knowledge and attitude, a semi-structured questionnaire for assessing the practice regarding prevention of health problem of adolescent girls. This tool was developed in order to attain the objectives of the study. The researcher adopted the following steps in the development of the tool.

Socio demographic data would be analyzed based on the given parameters and characteristics of the sample. The knowledge and attitude data scores on prevention of health problems among adolescent girls obtained before and after multifaceted intervention would be analysed by using ANOVA to find out the level of significant difference between the pre-test and post-tests scores of the subjects. To identify the association among the knowledge and attitude with sociodemographic variable a $\chi 2$ test was performed. A thematic analysis was used to assess the pre and post-practice score among adolescent girls regarding prevention of health problems

One of the most significant problems in most countries is the failure of education systems to realize their potential to empower adolescent girls. Fewer girls attend formal education in later adolescence and, of those who do, many are in formal primary rather than secondary school, where one might expect to find them. Existing education programs are bereft of curricula with adolescent learning needs in mind, in particular the needs of girls whose lives often close down rather than open up during adolescence. The results of this study proposed that structured education can improve adolescent girls' knowledge of nutrition, menstrual and psychological health. Such educational programs must be given due importance to safeguard the health of adolescent girls that eventually lead to a healthy adult. This study also showed that an educational intervention program can bring about a significant impact in knowledge among adolescent girls regarding the healthy lifestyle practices. A school-based structured education is much needed to promote knowledge and prevention in adolescent health issues among teenagers.

Declaration by Authors

Ethical Approval: Approved

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REFERENCES

1. World Health Organization. "Adolescent Health." *World Health Organization*, 2023, www.who.int/health-topics/adolescent-health.
2. Rashtriya Kishor Swasthya Karyakram, National Health Mission https://nhm.gov.in/index4.php?lang=1&level=0&linkid=152&lid=173
3. Elviera Gamelia, Anies Anies, Bagoes Widjanarko, Zahroh Shaluhiyah. Risk sexual behavior, sexually-transmitted infections and adolescent pregnancy prevention interventions. Journal of Public Health in Africa. 2023 Dec 15;14(12).
4. Howard BV, Manson JE, Stefanick ML, Beresford SA, Frank G, Jones B, et al. Low-Fat Dietary Pattern and Weight Change Over 7 Years: The Women's Health Initiative Dietary Modification Trial. JAMA . 2006;295(1):39–49. Available from: https://jamanetwork.com/journals/jama/article-abstract/202138
5. Peterson S, Sigman-Grant M. Impact of Adopting Lower-fat Food Choices on Nutrient Intake of American Children. PEDIATRICS. 1997 Sep 1;100(3):e4–4.
6. Sivagurunathan C. Adolescent Health: Present Status and Its Related Programmes in India. Are We in the Right Direction? JOURNAL OF CLINICAL AND DIAGNOSTIC RESEARCH. 2015;9(3). Available from: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4413087/
7. Pandey A. Challenges experienced by adolescent girls while menstruation in Kathmandu, Valley. A qualitative study. IOSR Journal of Nursing and Health Science. 2014;3(2):41–5.
8. Sharma A, Taneja DK, Sharma P, Saha R. Problems Related to Menstruation and Their Effect on Daily Routine of Students of a Medical College in Delhi, India. Asia Pacific Journal of Public Health. 2008 May 28;20(3):234–41.
9. Kumar D, Goel N, Sharma M, Kaur G. Menstrual problems of school going unmarried adolescent girls and their treatment seeking behavior in Chandigarh, India. International Journal of Community Medicine and Public Health. 2016; 3:3106–16.
10. Committee Opinion No. 651 Summary. Obstetrics & Gynecology. 2015 Dec;126(6):1328.
11. Beevi P. N, 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.
12. Sudha Salhan. Textbook of Gynecology. 1st ed. In Adolescent gynaecological issue, Mashankar (Ed) VA, editor. JP Medical Ltd; 2011:70-42.
13. Steiner M, Macdougall M, Brown E. The premenstrual symptoms screening tool (PSST) for clinicians. Archives of Women's Mental Health. 2003 Aug 1;6(3):203–9.
14. Parker M, Sneddon A, Arbon P. The menstrual disorder of teenagers (MDOT) study: determining typical menstrual patterns and menstrual disturbance in a large population-based study of Australian teenagers. BJOG: An International Journal of Obstetrics & Gynaecology. 2009 Oct 29;117(2):185–92.
15. Williams CE, Creighton SM. Menstrual Disorders in Adolescents: Review of Current Practice. Hormone Research in Paediatrics. 2012;78(3):135–43.
16. UN Population Fund (UNFPA), Report of the International Conference on Population and Development. Cairo: A/CONF.171/Rev. 1; 1994 Sep.
17. Csikszentmihalyi M. Adolescence | Definition, Characteristics, & Stages. In: Britannica [Internet]. 2019. Available from: https://www.britannica.com/science/adolescence
18. Kessler RC, Matthias Angermeyer, Anthony JC, Graaf RD, Koen Demyttenaere, Gasquet I, et al. Lifetime prevalence and age-of-onset distributions of mental disorders in the World Health Organization's World Mental

Health Survey Initiative. PubMed. 2007 Oct 1;6(3):168–76.
19. Publications, U. N. executive summary, conclusions and policy implications (Sales No. E.18.XI.9: 12). PA: United Nations Office on Drugs and Crime UNODC Research; 2018.
20. Kothari CR. Research Methodology: Methods and Techniques. New Delhi: New Age International; 2004.
21. Newman I, Benz CR. Qualitative-quantitative Research Methodology: Exploring the Interactive Continuum. Carbondale, Ill. Southern Illinois Univ. Press; 1998.
22. Polit DF, Hungler BP, Nursing Research, Principles and methods, Philadelphia PA, JB Lippincott; 1995.
23. Burns NA, Grove SK. The Practice of Nursing Research: Conduct, Critique & Utilization. Philadelphia, PA: Saunders; 2001.
24. Kinnear TC, Taylor JR. Marketing research an applied approach, 5th edition. Mc-GrawHill;1996

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