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A Randomized Controlled Study To Evaluate The Effectiveness Of A Structured Nutritional Education Program On Knowledge, Dietary Habits, And Nutritional Status Among Adolescent Girls In Selected Schools Of Nawanshahr, Punjab

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ABSTRACT

Background

Adolescence is a critical period of growth and development that requires adequate nutrition for maintaining optimal health and preventing nutritional deficiencies. Poor dietary habits, inadequate nutritional knowledge, and unhealthy lifestyle practices among adolescent girls may adversely affect their physical growth, academic performance, and future maternal health. Nutritional education programs play a significant role in improving awareness and promoting healthy dietary behaviors among adolescents.

Objectives

1. To assess the pre-test level of knowledge regarding nutrition among adolescent girls.
2. To evaluate the effectiveness of a structured nutritional education program on knowledge regarding nutrition.
3. To assess the dietary habits and nutritional status of adolescent girls before and after intervention.
4. To determine the association between post-test knowledge scores and selected demographic variables.

Methodology

A randomized controlled study was conducted among 100 adolescent girls studying in selected schools of Nawanshahr, Punjab. Participants were selected using simple random sampling technique and divided equally into experimental group (50) and control group (50). A structured knowledge questionnaire, dietary habits checklist, and nutritional assessment scale were used for data collection. The experimental group received a structured nutritional education program, while the control group received routine school health education. Post-test assessment was conducted after four weeks. Data were analyzed using descriptive and inferential statistics including mean, standard deviation, paired and unpaired 't' test, and chi-square test.

Results

The findings revealed that the mean post-test knowledge score of the experimental group was significantly higher than the control group. Improvement was also observed in dietary habits and nutritional status among adolescent girls who received the educational intervention. The calculated paired 't' value was found statistically significant at $p < 0.05$ level, indicating the effectiveness of the structured nutritional education program.

Conclusion

The study concluded that the structured nutritional education program was highly effective in improving knowledge, dietary habits, and nutritional status among adolescent girls. Regular nutritional education initiatives in schools can help promote healthy eating behaviors and prevent nutritional deficiencies among adolescents.

Keywords

Structured Nutritional Education Program, Knowledge, Dietary Habits, Nutritional Status, Adolescent Girls, Nutrition Education, Randomized Controlled Study.

INTRODUCTION

Adolescence is a transitional stage of physical, psychological, emotional, and social development between childhood and adulthood. Adequate nutrition during adolescence is essential because rapid growth increases nutritional requirements. Adolescent girls are particularly vulnerable to nutritional deficiencies due to increased physiological demands, poor dietary practices, peer influence, and lack of nutritional awareness.

In India, malnutrition and anemia among adolescent girls remain major public health concerns. Improper eating habits such as skipping meals, excessive junk food consumption, and inadequate intake of iron-rich foods contribute to poor nutritional status. Nutritional education is considered an effective strategy to improve awareness and encourage healthy dietary practices among adolescents.

Schools provide an ideal setting for implementing nutritional education programs because adolescents spend a considerable amount of time in educational institutions. Structured educational interventions can improve nutritional knowledge, modify unhealthy dietary behaviors, and enhance overall nutritional status.

NEED OF THE STUDY

Adolescent girls represent the future mothers of society, and their nutritional status directly influences the health of future generations. Poor nutrition during adolescence can lead to anemia, stunted growth,

decreased immunity, fatigue, poor academic performance, menstrual problems, and increased risk of complications during future pregnancy and childbirth.

Despite various national nutrition and school health programs, many adolescent girls continue to have inadequate knowledge regarding balanced diet, healthy eating habits, and prevention of nutritional deficiencies. Increased consumption of fast foods, irregular meal patterns, and lack of awareness regarding nutritious foods further worsen their health status.

Studies conducted in different parts of India have shown a high prevalence of undernutrition and iron deficiency anemia among adolescent girls. Lack of proper nutritional education in schools contributes to unhealthy dietary practices and poor lifestyle behaviors. Therefore, there is a strong need for structured nutritional education programs that can improve awareness and promote positive behavioral changes among adolescents.

The present study was undertaken to evaluate the effectiveness of a structured nutritional education program on knowledge, dietary habits, and nutritional status among adolescent girls in selected schools of Nawanshahr, Punjab. The findings of the study may help nurses, educators, school health administrators, and policymakers develop effective school-based nutritional intervention programs for improving adolescent health.

Objectives

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HYPOTHESES

H1

There will be a significant improvement in knowledge, dietary habits, and nutritional status among adolescent girls in the experimental group after administration of the structured nutritional education program at $p < 0.05$ level of significance.

H2

There will be a significant association between post-test scores regarding knowledge, dietary habits, and nutritional status with selected demographic variables among adolescent girls at $p < 0.05$ level of significance.

MATERIALS AND METHODS

Research Approach

A quantitative research approach was adopted for the present study to evaluate the effectiveness of a structured nutritional education program on knowledge, dietary habits, and nutritional status among adolescent girls.

Research Design

A randomized controlled study design was used in the study. The design enabled the researcher to compare the outcomes between the experimental and control groups and determine the effectiveness of the intervention.

Setting of the Study

The study was conducted in selected schools of Nawanshahr, Punjab.

Population

The target population comprised adolescent girls studying in selected schools of Nawanshahr, Punjab.

Sample Size

The sample size of the study consisted of 100 adolescent girls. The participants were randomly assigned into:

- Experimental Group – 50 participants
- Control Group – 50 participants

Sampling Technique

Simple random sampling technique was used to select the participants for the study.

Sampling Criteria

Inclusion Criteria

- Adolescent girls aged between 13–18 years.
- Students who were willing to participate in the study.
- Students available during the period of data collection.

Exclusion Criteria

- Students suffering from severe illness or chronic health problems.
- Students who were absent during data collection.

Description of the Tool

The data collection tool consisted of four sections:

Section I: Socio-demographic Variables

This section included items related to age, class, family income, dietary pattern, parents' education, and source of health information.

Section II: Structured Knowledge Questionnaire

A structured questionnaire was prepared to assess knowledge regarding nutrition, balanced diet, nutritional deficiencies, healthy eating habits, and personal hygiene.

Section III: Dietary Habits Checklist

This section assessed the dietary practices of adolescent girls including meal patterns, intake of fruits, vegetables, milk products, junk food consumption, and water intake.

Section IV: Nutritional Assessment Scale

The nutritional status of adolescent girls was assessed using selected nutritional assessment parameters such as body mass index (BMI) and general nutritional indicators.

Intervention

The experimental group received a structured nutritional education program prepared by the researcher. The program included the following topics:

- Balanced diet
- Importance of iron, protein, vitamins, and minerals
- Healthy eating practices
- Prevention of nutritional deficiencies
- Importance of personal hygiene and physical activity

Various teaching methods such as lecture, group discussion, charts, flashcards, and audiovisual aids were used to enhance understanding and participation among the students. The control group received routine school health education.

Procedure for Data Collection

Formal permission was obtained from the concerned school authorities before conducting the study. Informed consent was obtained from the participants. Pre-test assessment was conducted for both experimental and control groups using the structured tool. The structured nutritional education program was administered to the experimental group. Post-test assessment was conducted after four weeks using the same tool to evaluate the effectiveness of the intervention.

Data Analysis

The collected data were organized, tabulated, and analyzed using descriptive and inferential statistics.

Descriptive Statistics

- Frequency and percentage
- Mean and standard deviation

Inferential Statistics

- Paired 't' test
- Unpaired 't' test
- Chi-square test

The level of significance was set at $p < 0.05$.

RESULTS

The study findings revealed that most adolescent girls had inadequate knowledge regarding nutrition during the pre-test assessment. After administration of the structured nutritional education program, the experimental group demonstrated significant improvement in knowledge scores, dietary habits, and nutritional status.

The mean post-test knowledge score of the experimental group was significantly higher compared to the control group. The calculated paired 't' value showed statistically significant improvement at $p < 0.05$ level.

The study also indicated positive changes in healthy dietary practices such as increased consumption of green leafy vegetables, fruits, milk products, and iron-rich foods among participants in the experimental group.

Table 1: Comparison of Pre-test and Post-test Knowledge Scores among Adolescent Girls in Experimental Group (N = 50)

Test Score	Mean	SD	Mean Difference	Paired 't' Value	Level of Significance
Pre-test	11.24	2.85			
Post-test	21.68	3.12	10.44	15.62	Significant at $p < 0.05$

Comparison of Pre-test and Post-test Knowledge Scores in Experimental Group (N = 50)



Table 2: Comparison of Post-test Knowledge Scores between Experimental and Control Group (N = 100)

Group	Mean	SD	Unpaired 't' Value	Level of Significance
Experimental Group	21.68	3.12	8.74	Significant at $p < 0.05$
Control Group	14.26	2.94		

Comparison of Post-test Knowledge Scores between Experimental and Control Groups (N = 100)

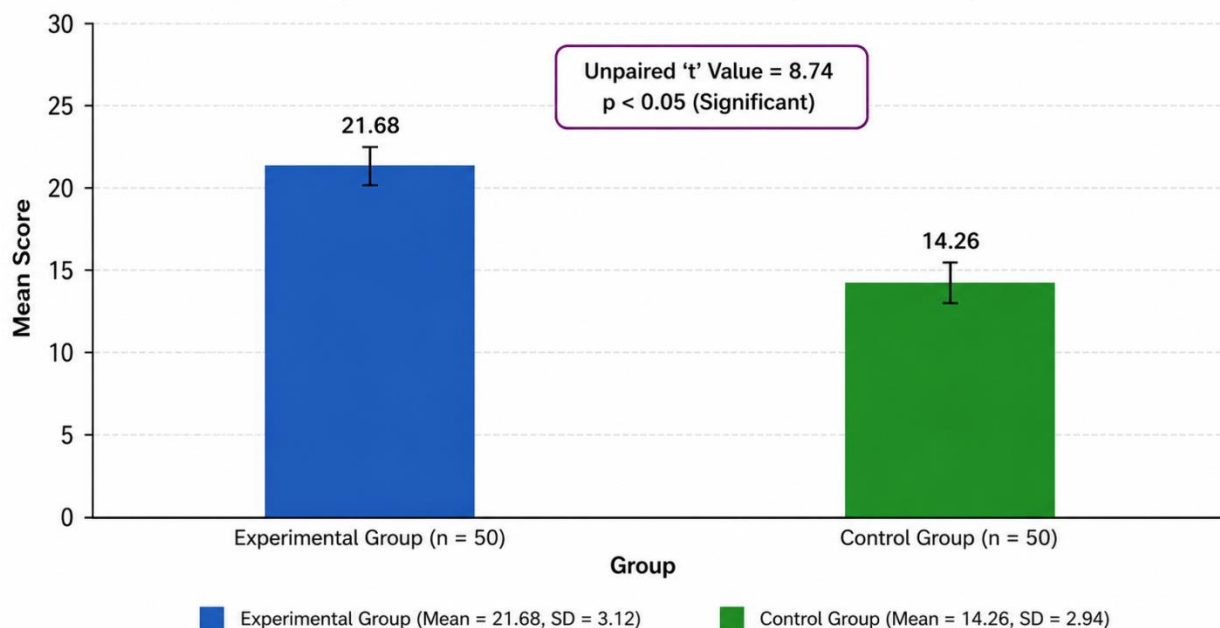
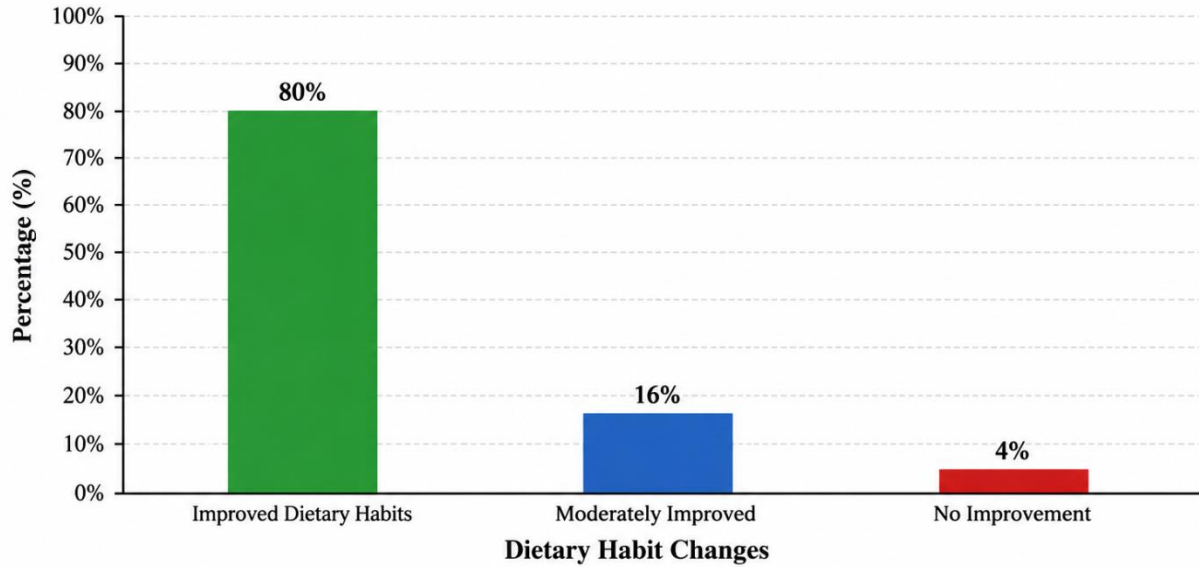


Table 3: Distribution of Adolescent Girls According to Dietary Habit Improvement in Experimental Group (N = 50)

Dietary Habit Changes	Frequency (f)	Percentage (%)
Improved Dietary Habits	40	80%
Moderately Improved	08	16%
No Improvement	02	04%

Distribution of Adolescent Girls According to Dietary Habit Changes (N = 50)

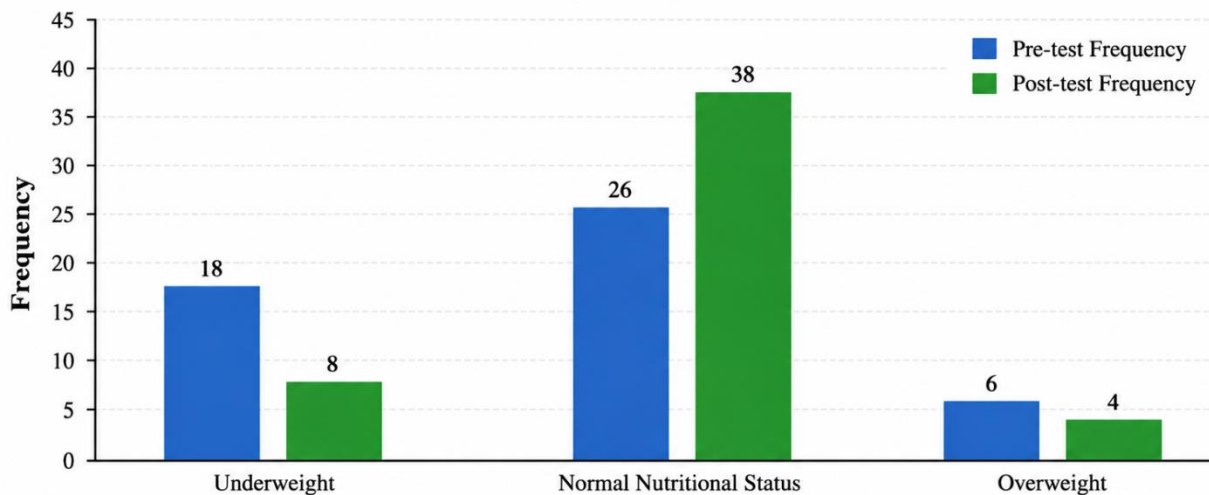


Dietary Habit Changes	Frequency (f)	Percentage (%)
Improved Dietary Habits	40	80%
Moderately Improved	08	16%
No Improvement	02	04%

Table 4: Comparison of Nutritional Status Before and After Intervention in Experimental Group (N = 50)

Nutritional Status	Pre-test Frequency	Post-test Frequency
Underweight	18	08
Normal Nutritional Status	26	38
Overweight	06	04

Comparison of Nutritional Status Before and After Intervention (N = 50)



Nutritional Status	Pre-test Frequency	Post-test Frequency
Underweight	18	08
Normal Nutritional Status	26	38
Overweight	06	04

Interpretation of Results

The findings indicate that the structured nutritional education program was effective in improving nutritional knowledge, dietary habits, and nutritional status among adolescent girls. Significant improvement was observed in post-test scores of the experimental group compared to the control group. The intervention also promoted healthier food choices and improved nutritional behaviors among participants.

DISCUSSION

The present study findings support that structured nutritional education programs are effective in enhancing nutritional knowledge and promoting healthy dietary habits among adolescent girls. The educational intervention helped participants understand the importance of balanced nutrition and encouraged healthy eating behaviors.

The findings are consistent with previous studies conducted among adolescents which reported that nutrition education significantly improves awareness regarding healthy food choices and nutritional practices. Improved nutritional knowledge contributes to better health outcomes and prevention of nutritional deficiencies during adolescence.

NURSING IMPLICATIONS

Nursing Practice

School health nurses play an important role in promoting adolescent health through regular nutrition education and counseling services. Nurses can organize health awareness programs, nutritional screening camps, and dietary counseling sessions for adolescent girls in schools. Early identification of nutritional deficiencies and timely intervention can improve the overall health status of adolescents and prevent long-term complications.

Nursing Education

The findings of the study emphasize the importance of incorporating adolescent nutrition, healthy dietary practices, and preventive healthcare measures into the nursing curriculum. Nursing students should receive adequate training regarding nutritional assessment, nutrition counseling, and school health services to effectively educate adolescents about balanced diet and healthy lifestyle practices.

Nursing Administration

Nursing administrators and school health authorities should develop and implement periodic nutritional assessment programs in schools. Regular monitoring of nutritional status, organization of health education programs, and provision of counseling services can help improve the nutritional well-being of adolescent girls. Adequate educational materials and audiovisual aids should also be made available to support health education activities.

Nursing Research

The present study provides baseline information for future research in the area of adolescent nutrition and school health. Further studies can be conducted with larger sample sizes, different settings, and long-term follow-up periods to assess the sustained effectiveness of nutritional education programs. Comparative studies can also be undertaken to evaluate different educational strategies for improving dietary habits and nutritional outcomes among adolescents.

CONCLUSION

The study concluded that the structured nutritional education program was effective in improving knowledge, dietary habits, and nutritional status among adolescent girls in selected schools of Nawanshahr, Punjab. Nutritional education should be incorporated into regular school health programs to promote healthy lifestyles and prevent nutritional deficiencies among adolescents.

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