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Effectiveness Of Nutrition Education Programme On Prevention Of Iron Deficiency Anemia Among Adolescent Girls In Rural Punjab

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ABSTRACT

Background

Iron deficiency anemia is one of the major nutritional problems among adolescent girls in India, especially in rural areas where inadequate dietary intake, poor nutritional awareness, and unhealthy food habits contribute significantly to anemia. Adolescent girls are particularly vulnerable due to rapid growth, menstrual blood loss, and increased nutritional requirements.

Objectives

1. To assess the pre-test knowledge regarding prevention of iron deficiency anemia among adolescent girls.
2. To evaluate the effectiveness of Nutrition Education Programme on knowledge regarding prevention of iron deficiency anemia.
3. To assess the hemoglobin level before and after intervention.
4. To determine the association between post-test knowledge scores and selected demographic variables.

Methodology

A quantitative research approach with pre-experimental one group pre-test and post-test design was adopted for the study. The study was conducted among 100 adolescent girls studying in selected rural schools of Punjab. Non-probability purposive sampling technique was used. Structured knowledge questionnaire and hemoglobin assessment checklist were utilized for data collection. Nutrition Education Programme was administered after pre-test. Post-test was conducted after seven days.

Results

The study findings revealed that in the pre-test, 62% of adolescent girls had inadequate knowledge, 28% had moderately adequate knowledge, and 10% had adequate knowledge regarding prevention of iron deficiency anemia. In the post-test, 12% had inadequate knowledge, 26% had moderately adequate knowledge, and 62% had adequate knowledge.

The mean pre-test knowledge score was 11.24 ± 3.18 , whereas the mean post-test knowledge score was 21.86 ± 2.74 . The calculated paired 't' value was 22.14, which was statistically significant at $p < 0.05$ level.

The mean hemoglobin level improved from 9.8 g/dl in pre-test to 11.4 g/dl in post-test assessment.

Conclusion

The study concluded that the Nutrition Education Programme was highly effective in improving knowledge and hemoglobin level among adolescent girls regarding prevention of iron deficiency anemia.

Keywords

Nutrition Education Programme, Iron Deficiency Anemia, Adolescent Girls, Hemoglobin Level, Rural Punjab

INTRODUCTION

Adolescence is a critical phase of growth and development characterized by increased nutritional requirements. Iron deficiency anemia remains one of the most prevalent nutritional disorders among adolescent girls worldwide. According to national health reports, adolescent girls in rural India suffer from poor nutritional intake due to lack of awareness, unhealthy eating habits, poverty, and inadequate consumption of iron-rich foods.

Iron deficiency anemia negatively affects physical growth, cognitive development, school performance, immunity, and reproductive health. Nutritional education plays a vital role in enhancing awareness regarding balanced diet, iron-rich foods, personal hygiene, and healthy lifestyle practices.

School-based nutrition education programmes are considered cost-effective and sustainable interventions for improving knowledge and preventing anemia among adolescent girls. Therefore, the present study was conducted to assess the effectiveness of Nutrition Education Programme on prevention of iron deficiency anemia among adolescent girls in rural Punjab.

NEED FOR THE STUDY

Iron deficiency anemia is a serious public health problem affecting adolescent girls in developing countries. Rural adolescent girls are more vulnerable due to poor dietary habits, low socioeconomic status, and lack of nutritional knowledge.

Studies have reported that anemia among adolescent girls leads to fatigue, decreased concentration, poor academic performance, delayed growth, and increased risk during future pregnancies. Prevention through nutritional education can improve dietary behavior and hemoglobin status.

Hence, the investigator felt the need to conduct a study to evaluate the effectiveness of Nutrition Education Programme among adolescent girls.

OBJECTIVES OF THE STUDY

1. To assess the existing knowledge regarding prevention of iron deficiency anemia among adolescent girls.
2. To evaluate the effectiveness of Nutrition Education Programme on knowledge regarding prevention of iron deficiency anemia.
3. To assess the hemoglobin level before and after intervention.
4. To determine the association between post-test knowledge score and selected demographic variables.

HYPOTHESES

H1: There will be a significant difference between pre-test and post-test knowledge scores regarding prevention of iron deficiency anemia among adolescent girls.

H2: There will be a significant improvement in hemoglobin level after administration of Nutrition Education Programme.

MATERIALS AND METHODS

Research Approach

A quantitative research approach was adopted for the present study to assess the effectiveness of the Nutrition Education Programme on prevention of iron deficiency anemia among adolescent girls.

Research Design

A pre-experimental one-group pre-test and post-test research design was used in the study. The design helped in assessing the knowledge and hemoglobin level before and after administration of the Nutrition Education Programme.

Setting of the Study

The study was conducted in selected rural schools of Punjab. The schools were selected based on feasibility, accessibility, and availability of adolescent girls.

Population

The target population for the study comprised adolescent girls studying in selected rural schools of Punjab.

Sample Size

The sample size of the study consisted of 100 adolescent girls.

Sampling Technique

Non-probability purposive sampling technique was used to select the samples for the study.

Inclusion Criteria

The study included:

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

Exclusion Criteria

The study excluded:

- Students suffering from severe illness or chronic health problems.
- Students who were absent during the intervention or post-test period.

Development of the Tool

The data collection tool was developed by the investigator after extensive review of literature and consultation with experts in the field of nursing and community health. The tool consisted of two sections.

Section A: Demographic Variables

This section included demographic information such as:

- Age
- Religion
- Educational status
- Family income
- Dietary pattern
- Parental education
- Source of health information

Section B: Structured Knowledge Questionnaire

This section consisted of 30 multiple-choice questions related to prevention of iron deficiency anemia. The questionnaire covered the following areas:

- Meaning and definition of anemia
- Causes of iron deficiency anemia
- Signs and symptoms
- Prevention and management
- Iron-rich foods
- Healthy dietary practices

Each correct answer was awarded one mark, and the total score was used to assess the level of knowledge among adolescent girls.

Reliability of the Tool

The reliability of the structured knowledge questionnaire was established using the split-half method. The reliability coefficient was found to be $r = 0.86$, indicating that the tool was reliable and suitable for data collection.

Data Collection Procedure

Prior to data collection, formal permission was obtained from the school authorities of selected rural schools. Informed consent was obtained from all participants. The pre-test was conducted using the structured knowledge questionnaire and hemoglobin assessment checklist.

Following the pre-test, the Nutrition Education Programme was administered to the adolescent girls through lecture-cum-discussion methods using charts, flashcards, and pamphlets. Information regarding balanced diet, iron-rich foods, causes and prevention of anemia, and healthy dietary practices was provided.

The post-test was conducted after seven days using the same structured questionnaire to evaluate the effectiveness of the intervention.

Ethical Consideration

Ethical clearance was obtained from the concerned ethical committee prior to the study. Informed consent was obtained from participants, and confidentiality and anonymity of the data were maintained throughout the study.

RESULTS

Table 1: Distribution of Adolescent Girls According to Age

Age Group (Years)	Frequency (f)	Percentage (%)
13–14 Years	34	34%
15–16 Years	46	46%
17–18 Years	20	20%

Table 2: Distribution According to Dietary Pattern

Dietary Pattern	Frequency (f)	Percentage (%)
Vegetarian	58	58%
Mixed Diet	42	42%

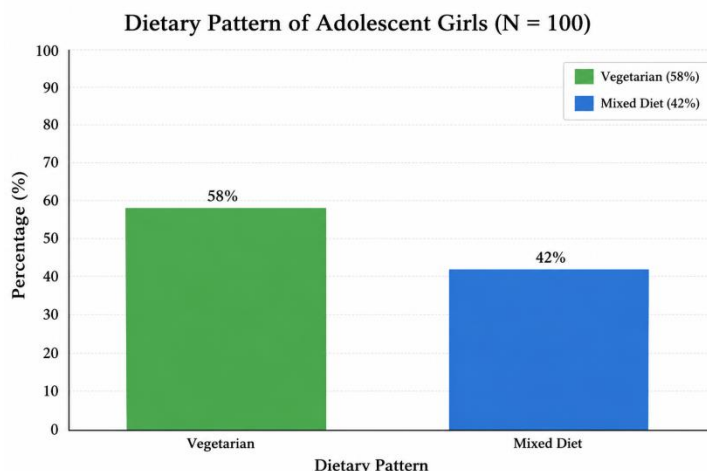
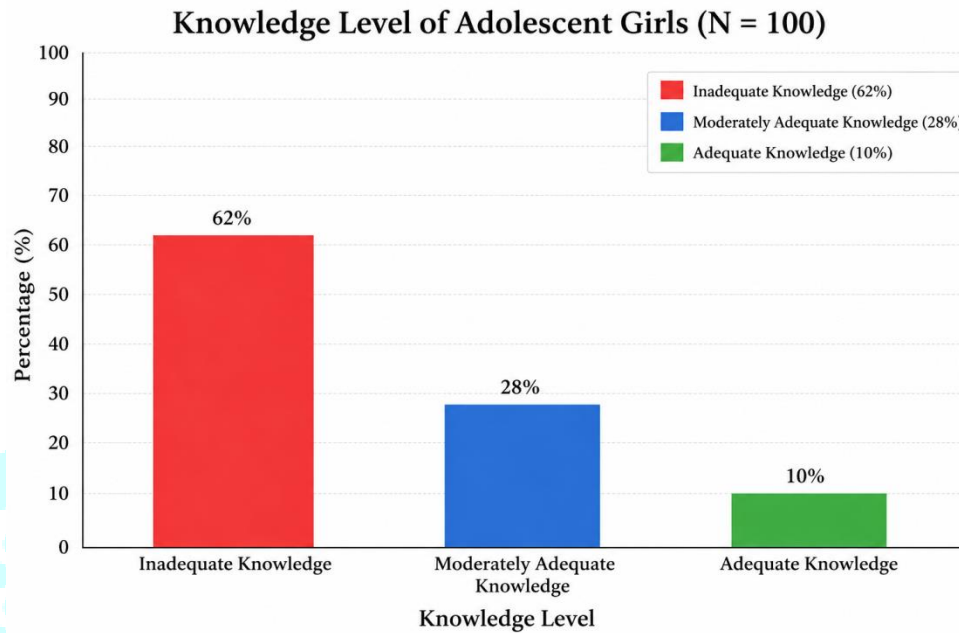


Table 3: Pre-test Knowledge Level Regarding Prevention of Iron Deficiency Anemia

Knowledge Level	Frequency (f)	Percentage (%)
Inadequate Knowledge	62	62%
Moderately Adequate Knowledge	28	28%
Adequate Knowledge	10	10%

**Table 4: Post-test Knowledge Level Regarding Prevention of Iron Deficiency Anemia**

Knowledge Level	Frequency (f)	Percentage (%)
Inadequate Knowledge	12	12%
Moderately Adequate Knowledge	26	26%
Adequate Knowledge	62	62%

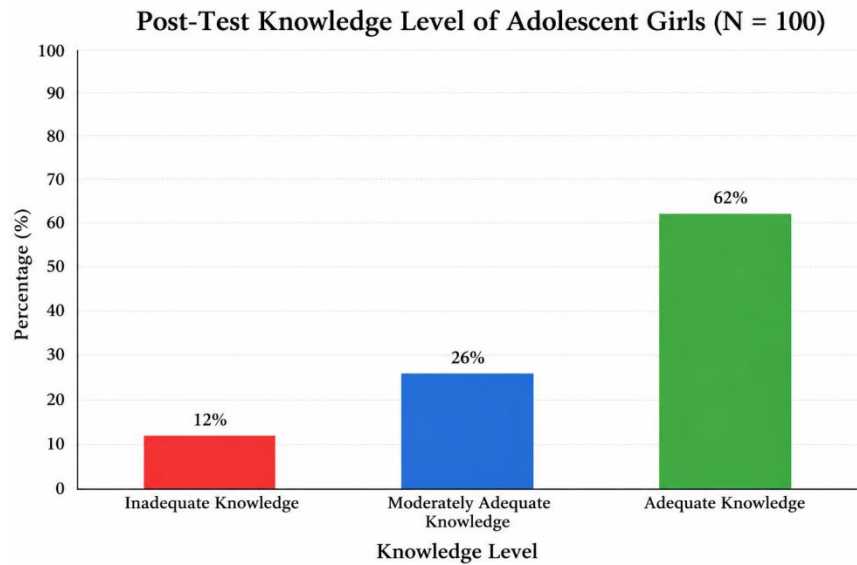


Table 5: Comparison of Pre-test and Post-test Knowledge Scores

Test	Mean	Standard Deviation	Mean Difference	Paired 't' Value	Significance
Pre-test	11.24	3.18	10.62	22.14	Significant
Post-test	21.86	2.74			p<0.05

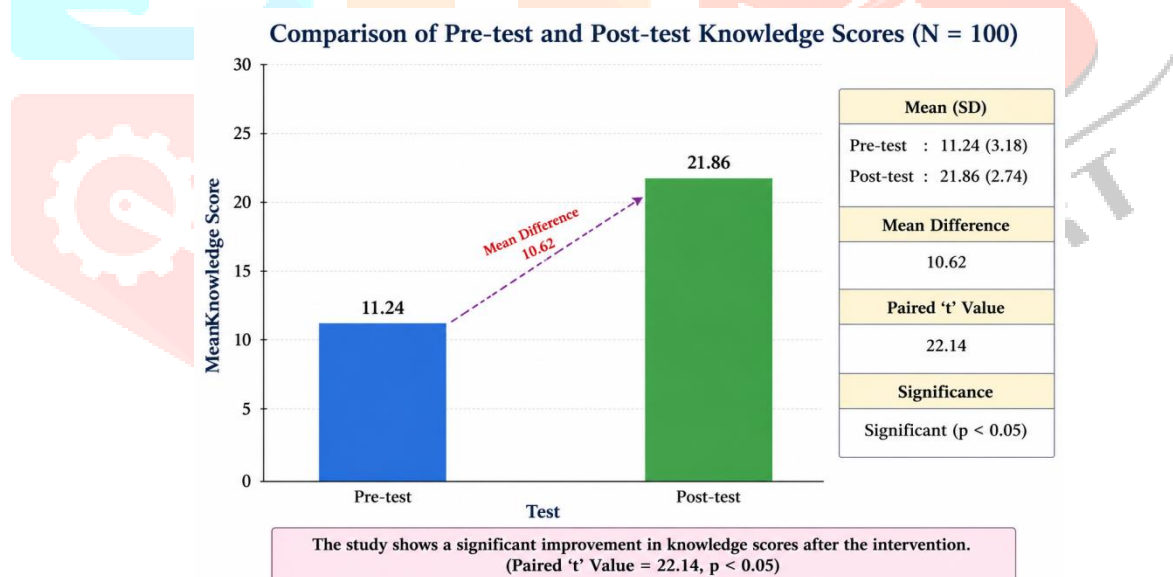
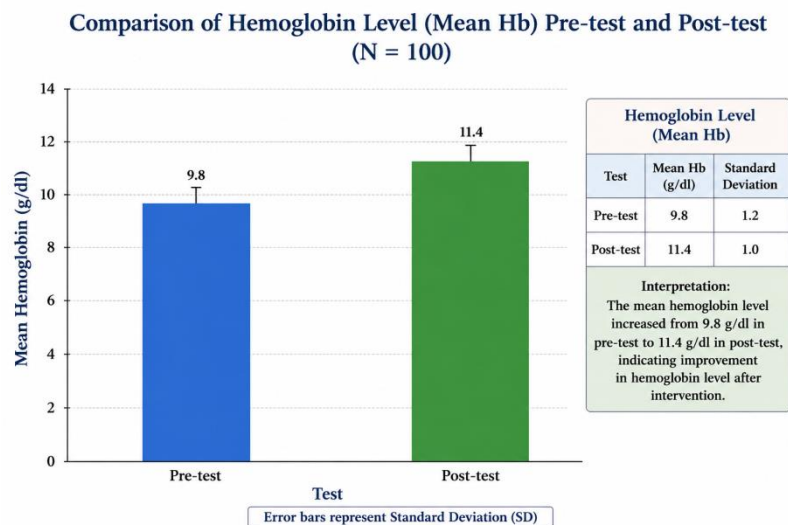


Table 6: Comparison of Hemoglobin Level Before and After Intervention

Hemoglobin Level	Mean Hb (g/dl)	Standard Deviation
Pre-test	9.8	1.2
Post-test	11.4	1.0



Interpretation:
The mean hemoglobin level increased from 9.8 g/dl in pre-test to 11.4 g/dl in post-test, indicating improvement in hemoglobin level after intervention.

DISCUSSION

The findings of the present study revealed that the majority of adolescent girls had inadequate knowledge regarding prevention of iron deficiency anemia before administration of the Nutrition Education Programme. This indicates that adolescent girls in rural areas possess limited awareness regarding causes, symptoms, prevention, and management of anemia. Poor dietary habits, lack of nutritional awareness, and inadequate intake of iron-rich foods contribute significantly to the prevalence of anemia among adolescent girls.

After implementation of the Nutrition Education Programme, a remarkable improvement was observed in the post-test knowledge scores of adolescent girls. The mean post-test knowledge score was significantly higher than the mean pre-test score, indicating the effectiveness of the educational intervention. The calculated paired 't' test value showed statistically significant improvement at $p < 0.05$ level.

The study findings are consistent with various national and international studies which reported that structured nutrition education programmes effectively improve knowledge regarding balanced diet, healthy eating habits, iron-rich foods, and prevention of nutritional deficiencies among adolescents. Educational interventions help adolescents adopt healthier lifestyle practices and improve their understanding regarding nutritional requirements during adolescence.

The present study also demonstrated improvement in mean hemoglobin level after the intervention. The increase in hemoglobin level from pre-test to post-test suggests that nutritional counselling positively influenced dietary behavior and encouraged consumption of iron-rich foods. This finding highlights the importance of health education in improving nutritional status among adolescent girls.

The study emphasizes that school-based nutrition education programmes are effective strategies for prevention and control of iron deficiency anemia among adolescents. Such interventions can play a vital role in improving physical health, academic performance, and overall well-being of adolescent girls.

NURSING IMPLICATIONS

Nursing Practice

Community health nurses and school health nurses should organize regular nutrition education programmes and awareness campaigns regarding prevention of iron deficiency anemia among adolescent girls. Nurses can provide counselling on balanced diet, healthy eating practices, and importance of iron-rich foods to improve nutritional status.

Nursing Education

The nursing curriculum should emphasize adolescent nutrition, anemia prevention, and school health services. Student nurses should be trained to conduct nutritional assessment, health education, and counselling programmes for adolescents in community and school settings.

Nursing Administration

Nursing administrators and school health authorities should organize periodic health screening programmes, hemoglobin assessment camps, and nutritional counselling sessions in schools. Adequate educational materials such as charts, pamphlets, posters, and audiovisual aids should be made available for effective health education.

Nursing Research

Further research studies can be conducted using larger sample sizes, different settings, and experimental designs with control groups to evaluate the long-term effectiveness of nutritional education programmes. Comparative studies can also be conducted among rural and urban adolescent populations.

RECOMMENDATIONS

1. Similar studies can be conducted with larger sample sizes to increase the generalizability of findings.
2. Comparative studies can be conducted between rural and urban schools to identify differences in nutritional knowledge and practices.
3. Longitudinal studies can be undertaken to assess the long-term effectiveness of nutritional education programmes on hemoglobin level and dietary behavior.
4. Nutrition education interventions should be integrated into regular school health programmes for sustainable improvement in adolescent health.
5. Awareness programmes involving parents and teachers can be conducted to promote healthy dietary practices among adolescents.
6. Government and school authorities should strengthen anemia prevention programmes through regular nutritional assessment and supplementation services.

CONCLUSION

The study concluded that the Nutrition Education Programme was highly effective in improving knowledge and hemoglobin level regarding prevention of iron deficiency anemia among adolescent girls in rural Punjab. The findings demonstrated significant improvement in awareness related to causes, symptoms, prevention, and dietary management of anemia after administration of the educational intervention.

Improvement in hemoglobin level further confirmed that nutritional counselling positively influenced dietary behavior and nutritional practices among adolescent girls. Therefore, educational interventions play a crucial role in promoting healthy dietary habits and reducing the burden of iron deficiency anemia among adolescents.

The study highlights the importance of school-based nutrition education programmes as an effective and economical strategy for improving adolescent health and preventing nutritional deficiencies in the community.

REFERENCES

1. World Health Organization. Adolescent nutrition: A review of the situation in selected South-East Asian countries. Geneva: WHO; 2021.
2. Kaur M, Singh A. Prevalence of anemia among adolescent girls in rural India. *International Journal of Community Medicine*. 2022;8(4):145-150.
3. Sharma P, Gupta R. Effectiveness of nutrition education on anemia prevention among adolescent girls. *Journal of Nursing Research*. 2021;10(2):55-61.
4. National Family Health Survey (NFHS-5). India Fact Sheet 2021.
5. Kotecha PV. Nutritional anemia in young children with focus on Asia and India. *Indian Journal of Community Medicine*. 2020;45(3):255-260.
6. Gupta S, Kaur H. School health education and prevention of iron deficiency anemia among adolescents. *Nursing and Midwifery Research Journal*. 2021;17(1):34-39.
7. Bansal RD. Textbook of Community Health Nursing. New Delhi: Jaypee Brothers; 2020.
8. Basavanthappa BT. Nursing Research. 3rd ed. New Delhi: Jaypee Brothers; 2021.
9. Polit DF, Beck CT. Nursing Research: Generating and Assessing Evidence for Nursing Practice. Philadelphia: Wolters Kluwer; 2021.
10. Park K. Textbook of Preventive and Social Medicine. Jabalpur: Banarsidas Bhanot Publishers; 2022.

