



Research Article

Effectiveness of a Structured Teaching Programme on Knowledge Regarding Iron Deficiency Anaemia Among Antenatal Mothers Attending the Outpatient Department at Apollo Hospitals, Visakhapatnam: A Pre-Experimental Study

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Abstract

Background: Iron deficiency anaemia is an important nutritional concern during pregnancy. Increased iron requirements, inadequate dietary intake, poor adherence to supplementation, and limited awareness may increase the risk of anaemia and related complications.

Aim: To evaluate the effectiveness of a structured teaching programme on knowledge regarding iron deficiency anaemia among antenatal mothers attending the outpatient department at Apollo Hospitals, Health City, Visakhapatnam.

Materials and Methods: A quantitative pre-experimental one-group pre-test and post-test design was used among 50 antenatal mothers selected through purposive sampling. Knowledge was assessed using a structured questionnaire. A structured teaching programme covering causes, signs and symptoms, dietary management, iron supplementation, and prevention was administered, followed by a post-test after seven days.

Results: The mean pre-test knowledge score was 11.03 ± 2.87 and the mean post-test score was 14.73 ± 2.45 . The paired t-test value was 7.96 with $p < 0.001$, indicating a statistically significant improvement in knowledge following the intervention.

Conclusion: The structured teaching programme was effective in improving knowledge regarding iron deficiency anaemia among the antenatal mothers included in the study. Structured health education may be incorporated into routine antenatal care to strengthen maternal awareness and preventive practices.

Keywords: Iron Deficiency Anaemia; Antenatal Mothers; Structured Teaching Programme; Maternal Health; Health Education; Pregnancy.

1. INTRODUCTION

Iron deficiency anaemia (IDA) is an important nutritional and public health concern during pregnancy and remains a common problem among women, particularly in developing countries. During pregnancy, the requirement for iron increases substantially due to expansion of maternal blood volume, placental development, and fetal growth. Inadequate dietary intake, poor iron absorption, closely spaced pregnancies, and inadequate adherence to iron supplementation can contribute to the development of anaemia. Maternal anaemia may be associated with fatigue, reduced work capacity, preterm labour, postpartum haemorrhage, low birth weight, and increased maternal and neonatal morbidity and mortality. Therefore, early identification, adequate nutrition, appropriate supplementation, and preventive health education are essential components of quality antenatal care.

Health education plays an important role in improving the awareness of antenatal mothers regarding the prevention and management of iron deficiency anaemia. Nurses have frequent contact with pregnant women and are in a key position to provide information regarding iron-rich foods, iron supplementation, signs and symptoms of anaemia, and preventive

practices. A structured teaching programme provides information in a systematic and standardized manner and can help address existing knowledge gaps. The present study was therefore undertaken to evaluate the effectiveness of a structured teaching programme on knowledge regarding iron deficiency anaemia among antenatal mothers attending the outpatient department at Apollo Hospitals, Health City, Visakhapatnam.

2. BACKGROUND AND NEED FOR THE STUDY

Iron deficiency anaemia continues to be an important maternal health concern. The increased physiological requirements of pregnancy, together with inadequate dietary intake and poor adherence to supplementation, may contribute to iron deficiency. Maternal anaemia can affect maternal well-being and may be associated with adverse pregnancy outcomes.

The provision of supplements alone may not ensure appropriate use. Pregnant women need clear information regarding the importance of supplementation, dietary sources of iron, possible signs and symptoms of anaemia, and preventive practices. Planned health education can provide consistent information and allow healthcare professionals to identify and address knowledge gaps. Nurses are particularly well placed to provide individualized education, reinforce adherence, clarify misconceptions, and encourage appropriate nutritional practices.

3. PROBLEM STATEMENT

“A study to evaluate the effectiveness of a structured teaching programme on knowledge regarding iron deficiency anaemia among antenatal mothers attending the outpatient department at Apollo Hospitals, Health City, Visakhapatnam.”

4. AIM OF THE STUDY

To evaluate the effectiveness of a structured teaching programme on knowledge regarding iron deficiency anaemia among antenatal mothers attending the outpatient department.

5. OBJECTIVES

1. To assess the pre-test knowledge regarding iron deficiency anaemia among antenatal mothers.
2. To evaluate the effectiveness of the structured teaching programme.
3. To compare pre-test and post-test knowledge scores.
4. To determine the association between knowledge scores and selected demographic variables.

6. RESEARCH HYPOTHESIS

H: There will be a statistically significant difference between the mean pre-test and post-test knowledge scores regarding iron deficiency anaemia among antenatal mothers following the structured teaching programme.

7. OPERATIONAL DEFINITIONS

Structured Teaching Programme: A planned educational intervention regarding causes, signs and symptoms, dietary management, iron supplementation, and prevention of iron deficiency anaemia.

Knowledge: The level of understanding regarding iron deficiency anaemia measured using the structured knowledge questionnaire before and after the intervention.

Antenatal Mothers: Pregnant women attending the Antenatal Outpatient Department at Apollo Hospitals, Health City, Visakhapatnam who met the study criteria.

Iron Deficiency Anaemia: Anaemia related to inadequate iron availability, considered in this study in relation to causes, symptoms, dietary management, supplementation, and prevention.

8. REVIEW OF LITERATURE

Pregnancy increases the physiological requirement for iron because of expansion of maternal red blood cell mass and the needs of the developing fetus and placenta. Inadequate dietary intake, poor absorption, closely spaced pregnancies, and non-adherence to iron supplementation are recognized contributors to anaemia.

Iron and folic acid supplementation is an established component of antenatal care. Dietary counselling is also important because mothers need practical knowledge regarding iron-rich foods, balanced nutrition, and preventive practices. Structured health education can help organize this information and improve understanding.

9. MATERIALS AND METHODS

Research approach: Quantitative research approach.

Research design: Pre-experimental one-group pre-test and post-test design.

Setting: Antenatal Outpatient Department, Apollo Hospitals, Health City, Visakhapatnam. **Population:** Antenatal mothers attending the outpatient department.

Sample size: 50 antenatal mothers. **Sampling technique:** Purposive sampling.

Inclusion criteria: Antenatal mothers attending the OPD, willing to participate, and able to understand Telugu or English.
Exclusion criteria: Mothers with severe complications and mothers unavailable during data collection.

9.1 ETHICAL COMMITTEE APPROVAL AND ETHICAL CONSIDERATIONS

Ethical committee approval was obtained prior to commencement of the study. Institutional permission was obtained from Apollo Hospitals, Health City, Visakhapatnam. Informed consent was obtained from all participants after explaining the purpose and procedure of the study. Participation was voluntary, confidentiality of the information collected was maintained, and participants were informed that they could withdraw from the study at any time.

10. DATA COLLECTION TOOL AND INTERVENTION

A structured questionnaire was used to assess knowledge regarding iron deficiency anaemia. The structured teaching programme covered five major areas: causes of anaemia, signs and symptoms, dietary management, iron supplementation, and prevention strategies.

The intervention was delivered after the pre-test. A post-test was conducted seven days later to assess change in knowledge following the teaching programme. Institutional permission, informed consent, and confidentiality were maintained.

11. STATISTICAL ANALYSIS

Mean and standard deviation were used to summarize knowledge scores. The paired t-test was used to compare pre-test and post-test knowledge scores.

12. RESULTS

The mean pre-test knowledge score was 11.03 ± 2.87 , whereas the mean post-test knowledge score increased to 14.73 ± 2.45 . The mean increase was 3.70 points. The calculated paired t-test value was 7.96 with $p < 0.001$, demonstrating a statistically significant improvement in knowledge following the structured teaching programme.

Table 1. Comparison of Mean Knowledge Scores

Assessment	Mean $\pm$ SD	Result
Pre-test	11.03 ± 2.87	
Post-test	14.73 ± 2.45	
Mean increase	3.70	
Paired t-test	7.96	$p < 0.001$

Figure 1. Comparison of Mean Knowledge Scores (Pre-test vs Post-test)

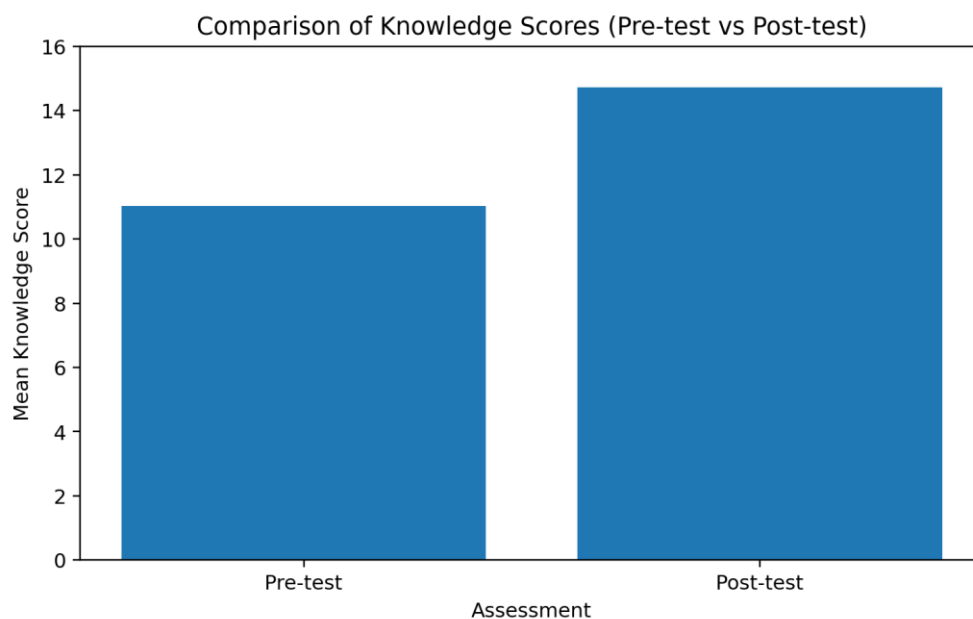
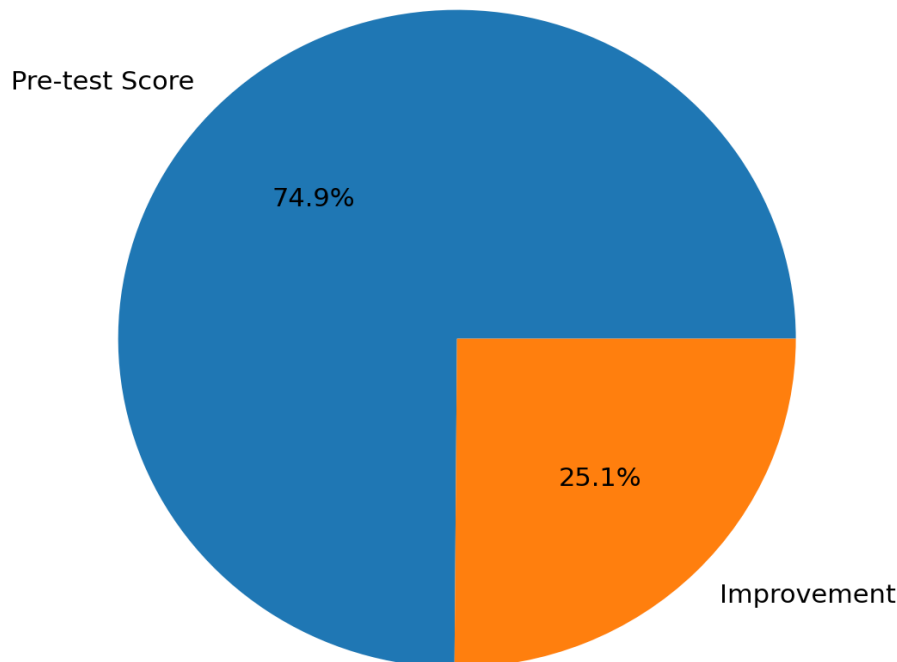


Figure 2. Proportion of Knowledge Improvement

Proportion of Knowledge Improvement



13. DISCUSSION

The findings of the present study demonstrate that the structured teaching programme significantly improved the knowledge of antenatal mothers regarding iron deficiency anaemia. The mean knowledge score increased from 11.03 ± 2.87 in the pre-test to 14.73 ± 2.45 in the post-test, showing an improvement of 3.70 points. The calculated paired t-test value was 7.96 with $p < 0.001$, indicating a statistically significant improvement following the intervention. The improvement suggests that planned and systematic education can be an effective approach for increasing maternal awareness about anaemia and its prevention.

The structured teaching programme addressed important areas including causes of anaemia, signs and symptoms, dietary management, iron supplementation, and prevention strategies. These areas are directly relevant to antenatal care and provide mothers with practical information that can support healthy pregnancy practices. The findings support the importance of planned educational interventions and highlight the role of nurses in implementing maternal health education in clinical settings. Therefore, structured health education may be incorporated into routine antenatal services and reinforced during subsequent visits to strengthen knowledge and encourage appropriate preventive practices.

14. RECOMMENDATIONS

1. Conduct similar studies with larger samples.
2. Use quasi-experimental or randomized controlled designs in future research.
3. Conduct multicentre studies across different hospitals and community settings.
4. Assess long-term knowledge retention and behavioural changes.
5. Evaluate adherence to iron supplementation and clinical outcomes such as haemoglobin levels.
6. Incorporate structured anaemia education into routine antenatal counselling.
7. Provide education in local languages and include family members where appropriate.

15. CONCLUSION

The present study concluded that the structured teaching programme was effective in improving knowledge regarding iron deficiency anaemia among antenatal mothers attending the outpatient department at Apollo Hospitals, Health City, Visakhapatnam. The findings demonstrated a clear improvement in knowledge following the educational intervention, with the mean knowledge score increasing from 11.03 ± 2.87 in the pre-test to 14.73 ± 2.45 in the post-test. The calculated paired t-test value of 7.96 was statistically significant at $p < 0.001$, indicating a significant difference between the pre-test and post-test knowledge scores.

The improvement in knowledge indicates that a planned and structured educational approach can effectively enhance antenatal mothers' understanding of iron deficiency anaemia. The teaching programme addressed important areas including causes, signs and symptoms, dietary management, iron supplementation, and preventive measures. These topics are particularly relevant during pregnancy because adequate knowledge may help mothers recognize potential problems early, understand the importance of prescribed supplementation, and follow appropriate nutritional practices.

The study also highlights the important role of nurses in maternal health promotion. Nurses have regular opportunities to interact with antenatal mothers and can provide individualized education, clarify misconceptions, reinforce dietary practices, encourage adherence to prescribed iron supplementation, and promote appropriate antenatal follow-up. Structured teaching can therefore be integrated into routine antenatal counselling and reinforced during subsequent visits to improve continuity of education.

Although the present study primarily assessed knowledge, improvement in knowledge represents an important first step toward promoting appropriate maternal health practices. Better awareness regarding anaemia may support informed decisions regarding nutrition, supplementation, early recognition of symptoms, and preventive care. However, the present study did not evaluate long-term behavioural changes or clinical outcomes; therefore, improvement in knowledge should not be interpreted as direct evidence of improved haemoglobin levels or reduced incidence of anaemia.

In conclusion, the structured teaching programme demonstrated a significant positive effect on knowledge regarding iron deficiency anaemia among the antenatal mothers included in this study. The findings support incorporating structured anaemia education into routine antenatal services as a practical nursing intervention for improving maternal awareness and supporting preventive health practices. Future research involving larger samples, longer follow-up, control groups, and clinical outcomes such as haemoglobin levels and adherence to iron supplementation would provide stronger evidence regarding the long-term impact of structured antenatal education.

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