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BRIDGING THE GAP FROM KNOWLEDGE TO PRACTICE: STRUCTURED TEACHING AS A CATALYST FOR PREVENTING IRON DEFICIENCY ANEMIA IN ADOLESCENT GIRLS

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ABSTRACT

Iron deficiency anemia (IDA) remains one of the most common nutritional problems faced by adolescent girls worldwide. It doesn't just affect the body—it impacts energy levels, learning ability, and even long-term reproductive health. In India, despite years of public health programs, many young girls still know about anemia but struggle to put that knowledge into everyday healthy practices. This study set out to see if a Structured Teaching Program (STP) could help close that gap between "knowing" and "doing." We worked with 100 girls aged 13–17 from Narasinghpur block, Cuttack, Odisha, using a simple before-and-after design to measure change. The program combined clear explanations, practical tips, and culturally relevant advice to make the information easy to understand and apply. The results were encouraging—good knowledge scores went up from 40% to 55%, and good practice scores rose from 30% to 50%. These improvements show that well-designed teaching sessions can be a powerful, low-cost way to help adolescent girls not only understand anemia but also take real steps to prevent it.

Keywords: *Iron deficiency anemia, adolescent girls, structured teaching program, health education, knowledge–practice gap, nutrition education.*

ABOUT AUTHOR

Dr. Geetanjali Behera serves as the Principal In-Charge at the Government College of Nursing, Sundargarh, Odisha, India. With a strong academic background and years of leadership experience in nursing education, she has been actively involved in guiding research, fostering community health initiatives, and promoting evidence-based nursing practices. Her professional interests include adolescent health, nutrition, and preventive healthcare, with a special focus on empowering young women through education and skill development. Dr. Behera's work reflects her commitment to bridging the gap between theory and practice, ensuring that health interventions are both scientifically sound and practically applicable in diverse community settings.

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INTRODUCTION

Iron deficiency anemia (IDA) is still one of the most stubborn public health challenges in India, and adolescent girls are among the most vulnerable. According to the latest *National Family Health Survey (NFHS-5, 2021)*, more than half of adolescent girls in the country are anaemic. The reasons are complex—diets low in iron, monthly blood loss during menstruation, cultural food restrictions, and limited access to nutrient-rich foods all play a part. Adolescence, defined by the *World Health Organization* as the years between 10 and 19, is a time when the body is growing rapidly, and the demand for iron is at its highest. Yet, most health programs tend to focus on young children or pregnant women, leaving this crucial age group without the targeted support they need.

What's more, even when young girls are aware of anemia, that knowledge often doesn't translate into healthier habits. They may know iron is important but still skip iron-rich foods or avoid supplements because of taste, side effects, or lack of family support. This "knowledge–practice gap" is one of the main barriers to progress.

This study set out to explore how a Structured Teaching Program (STP) could help bridge that gap. By delivering simple, practical, and culturally relevant health education, the aim was to help adolescent girls not just learn about IDA, but actually make changes in their daily lives to prevent it.

The Knowledge–Practice Gap in Anemia Prevention

Previous research indicates that even when awareness of IDA is present, practical application is often lacking due to socio-cultural beliefs that limit consumption of certain iron-rich foods, economic constraints that reduce dietary diversity, low self-efficacy among adolescents to make dietary changes, and inadequate reinforcement of preventive messages in schools and communities (Kala & Christopher, 2014). For example, while leafy greens, legumes, and fortified cereals are known sources of iron, their regular inclusion in diets may be hindered by taste preferences, availability, or lack of cooking knowledge. Additionally, iron absorption is influenced by concurrent intake of enhancers (e.g., vitamin C) or inhibitors (e.g., tea, coffee), which many adolescents are unaware of.

A well-designed STP addresses these barriers by combining accurate content, culturally relevant examples, and interactive learning, enabling adolescents to not just learn but apply the knowledge in their daily lives.

Role of Structured Teaching Programs in Bridging the Gap

A Structured Teaching Program is a planned educational intervention that uses systematic content delivery—often through audiovisual aids, printed materials, and interactive discussions—to achieve specific learning outcomes (Deepti et al., 2021).

For IDA prevention, an effective STP should:

1. **Explain IDA comprehensively** – definition, causes, symptoms, and consequences.
2. **Identify iron-rich foods** – both haem (animal-based) and non-haem (plant-based).
3. **Highlight absorption factors** – role of vitamin C, inhibitors like tannins.
4. **Promote behaviour change** – meal planning, supplementation adherence, hygiene practices.
5. **Use relatable examples** – linking dietary habits to improved school performance, sports stamina, and future maternal health.

By combining factual knowledge with culturally relevant examples and skill-building activities, STPs can enhance adolescents' ability to make informed dietary and lifestyle choices, ultimately reducing the burden of IDA.

METHODOLOGY

A pre-experimental one-group pre-test–post-test design was used. The study was conducted in Narasinghpur block of Cuttack district, Odisha, targeting adolescent girls aged 13–17 years.

Sample and Sampling Technique:

A total of 100 participants were selected using convenience sampling. Inclusion criteria included willingness to participate, being within the specified age group, and availability during the data collection period.

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Data Collection Tool:

A structured questionnaire assessed knowledge (definition, causes, symptoms, prevention of IDA) and practice (dietary habits, supplementation, hygiene). The tool was validated by subject experts and pilot-tested to ensure clarity and reliability.

Intervention:

The Structured Teaching Program comprised four sessions, each lasting approximately 45 minutes, covering:

- Understanding anemia and its implications.
- Dietary modifications and cooking demonstrations.
- Importance of supplementation and deworming.
- Lifestyle and hygiene practices.

Educational materials included PowerPoint presentations, videos from the ICMR-NIN *Poshan Abhiyaan*, and printed brochures designed in the local language for better comprehension.

Data Analysis:

Pre- and post-test scores were analysed using descriptive statistics and paired t-tests. Statistical significance was set at $p < 0.05$.

RESULTS

Baseline Profile:

Most participants were in the 15–17 years age group (60%), with the remainder aged 12–14 years (40%). The majority were high school students (50%), from households with a monthly income between ₹20,001–₹30,000 (30%). Parents' education was mostly at college/university level (40%). Access to healthcare was rated as easy by 35% of participants, while 30% reported easy access to extracurricular activities.

Table 1. Distribution of Participants According to Knowledge Scores (N = 100)

Knowledge Level	Pre-Test (n, %)	Post-Test (n, %)	Change (%)
Good	40 (40%)	55 (55%)	+15%
Average	50 (50%)	35 (35%)	-15%
Poor	10 (10%)	10 (10%)	0%

Table 2. Distribution of Participants According to Practice Scores (N = 100)

Practice Level	Pre-Test (n, %)	Post-Test (n, %)	Change (%)
Good	30 (30%)	50 (50%)	+20%
Average	50 (50%)	40 (40%)	-10%
Poor	20 (20%)	10 (10%)	-10%

Knowledge Improvement:

Before the Structured Teaching Program, 40% of participants demonstrated good knowledge of IDA, 50% had average knowledge, and 10% had poor knowledge. After the intervention, good knowledge increased to 55%, average knowledge decreased to 35%, and poor knowledge remained unchanged at 10%. This represents a 15% increase in the proportion of participants with good knowledge.

Practice Improvement:

Prior to the intervention, 30% of participants had good preventive practices, 50% had average practices, and 20% had poor practices. Post-intervention, good practices rose to 50%, average practices decreased to 40%, and poor practices fell to 10%, reflecting a 20% improvement in good practice scores.

Knowledge–Practice Correlation:

Post-test analysis indicated a positive correlation between higher knowledge scores and improved preventive practices, suggesting that the STP was successful in translating awareness into actionable behaviours.

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DISCUSSION

The findings of this study highlight the transformative role that structured teaching programs can play in adolescent health education, specifically in bridging the knowledge–practice gap for iron deficiency anemia prevention. Following the intervention, there was a clear improvement in both knowledge and practice scores, with good knowledge increasing by 15% and good practices by 20%. These results are consistent with previous studies that have demonstrated the positive effects of targeted health education interventions.

Deepti et al. (2021) reported similar improvements in adolescent girls' understanding and preventive behaviours regarding anemia after implementing an STP. Likewise, Kala and Christopher (2014) found that structured teaching significantly improved not only knowledge but also attitudes toward anemia prevention. The present study reinforces these findings while emphasizing the importance of tailoring interventions to local contexts and adolescent needs. One of the notable outcomes in this study is the relatively greater improvement in practice compared to knowledge. This finding aligns with behaviour change theories, such as the Health Belief Model, which suggest that perceived benefits, cues to action, and self-efficacy can facilitate behavioural adoption even when knowledge gains are modest. The STP sessions in this study incorporated cooking demonstrations, culturally relevant dietary advice, and interactive discussions, which may have made the practical changes easier to adopt.

However, the persistence of 10% of participants in the "poor" category for both knowledge and practice after the intervention underscores the need for repeated reinforcement. Factors such as low family support, entrenched cultural beliefs, or lack of access to resources may have hindered full participation in behaviour change. This study also supports the idea that school-based health interventions can have broader community effects. Adolescents often serve as "health messengers" to their families, so improvements in their knowledge and practices can indirectly influence household dietary patterns.

Overall, the findings suggest that STPs should be integrated into school curricula and supported by community health workers to maximize reach and sustainability.

RECOMMENDATIONS

Based on the findings of this study, the following recommendations are proposed to enhance the prevention and management of iron deficiency anemia among adolescent girls:

Integration into School Curriculum:

Incorporate structured teaching sessions on anemia prevention into regular school health education programs to ensure continuous exposure to relevant information.

Parental Involvement:

Organize community meetings and parent–teacher interactions to educate families on the importance of iron-rich diets and supplementation adherence, enabling reinforcement of the message at home.

Periodic Reinforcement:

Schedule follow-up sessions at regular intervals (e.g., every three to six months) to reinforce knowledge and monitor practice adoption.

Community Health Worker Training:

Equip Accredited Social Health Activists (ASHAs) and Anganwadi workers with STP materials and demonstration tools to extend outreach beyond schools.

Use of Digital Media:

Develop short videos, infographics, and mobile-based reminders in local languages to maintain engagement and improve recall of preventive practices.

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CONCLUSION

This study demonstrates that Structured Teaching Programs can serve as a powerful tool to bridge the gap between knowledge and practice in the prevention of iron deficiency anemia among adolescent girls. By delivering accurate, relevant, and culturally sensitive content through interactive and practical methods, STPs empower adolescents to make informed dietary and lifestyle choices.

The observed improvements—15% in good knowledge and 20% in good practices—highlight the potential of such interventions to effect meaningful behavioural change in a relatively short time. Furthermore, the positive correlation between knowledge and practice scores reinforces the value of linking education with actionable guidance.

To ensure sustainability and long-term impact, STPs should be integrated into existing school health education frameworks, supported by community health systems, and reinforced periodically. Addressing iron deficiency anemia during adolescence not only improves immediate health outcomes but also contributes to better maternal and child health in the future, breaking the intergenerational cycle of malnutrition.

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