

Effects of nutritional education on teenage girls' knowledge, attitudes, and practices around anaemia in the Moradabad district

¹Sagheer Ahmad, ²Dr.Shweta Shukla

¹Research scholar, Shri Ramswaroop Memorial University, Lucknow -Deva Road

²Assistant Professor, Humanities and Social Science, Shri Ramswaroop Memorial University, Lucknow-Deva Road

Cite this paper as: Sagheer Ahmad, Dr.Shweta Shukla, (2024). Effects of nutritional education on teenage girls' knowledge, attitudes, and practices around anaemia in the Moradabad district. *Frontiers in Health Informatics*, 13 (8) 715-719

Abstract

Globally, anaemia is a prevalent public health issue that mostly affects people's health as well as socioeconomic advancement. A high rate of anaemia in school-age children is a sign of a serious issue that emphasises the need for appropriate intervention to stop further decline. The purpose of this study was to investigate how nutritional education affected teenage girls' knowledge, attitudes, and practices around anaemia. Adolescent girls attending public and private schools in the Moradabad area of India are the subjects of this interventional investigation. Students' knowledge, attitudes, and practices regarding anaemia were assessed using structured and self-administered questionnaires. The paired t-test was used to analyse the data. When comparing the mean knowledge and attitude scores of teenage girls attending private schools to those attending government schools, there was a notable increase. There was an overall rise of 18% in the mean score of attitudes and 53.6% in the mean score of knowledge ($P < 0.05$). It has been noted that the frequency of consuming iron-rich foods, particularly ragi, jaggery, green leafy vegetables, and sprouted grains, has increased. Increased consumption of foods high in iron and improved understanding and attitudes surrounding anaemia were the outcomes of the nutritional education. As a result, one of the sustainable and affordable strategies for reducing the incidence of anaemia is nutritional education.

Keywords: Anemia, Nutritional education, Adolescent girls, Government and Private School, Intervention programme

Introduction

The disorder known as anaemia occurs when red blood cells are unable to supply enough oxygen to bodily tissues, either because of a reduction in the quantity or size of red blood cells or because of a drop in haemoglobin levels in red blood cells (Garcia-Casal et al., 2023). One of the most prevalent public health issues in the world, it has a significant impact on both socioeconomic development and individual health. The World Health Organisation estimates that two billion individuals worldwide suffer from anaemia, with iron deficiency accounting for almost half of these cases (World Health Organisation, Regional Office for South East Asia). Worldwide, anaemia affects 25.4% of school-age children, 41.8% of pregnant women, and 47.4% of preschool-aged children (less than five years old) (World Health Organisation, Worldwide Prevalence of Anaemia 1993–2005). In Southeast Asia, the prevalence of anaemia varies from 17% to 90% in adolescent girls (World Health Organisation, Regional Office for South East Asia), whereas it is 65.5% in preschoolers and 48.2% in pregnant women (Hanna-Rivero et al., 2022). According to the World Health Organization's Regional Office for South East Asia, the frequency among teenage girls in India varies from 50% to over 90% across several states. According to data from the 2005–2006 national survey, 56% of teenage girls had anaemia. According to reports, 48.63% of teenage females (10–19 years old) in rural Tamil Nadu, India, had anaemia in 2019. According to Chandrakumari et al. (2019), the prevalence was 47.34% among females aged 10–14 years, whereas it was high (53.24%)

among late adolescents (15–19 years).

Anaemia is a serious public health issue that requires immediate attention due to its high frequency among school-age children. Children who get health education on anaemia will benefit from increased knowledge, attitude, and practice as well as the creation of a healthy family and community, which will lower the prevalence of anaemia (Yusoff et al., 2013). The impact of dietary education on schoolchildren was the subject of very few anaemia studies (Sasmita et al., 2022). Therefore, the goal of this study is to evaluate how nutritional education affects schoolchildren's knowledge, attitudes, and practices around anaemia.

Materials and Methods

Participants sampling

Teenage females who were purposefully selected from Moradabad district's public and private schools participated in this interventional study. A total of 310 individuals between the ages of 15 and 19 participated in the interventional trial, comprising approximately 153 students from government schools and 157 students from private schools. In order to include every kid who met those conditions, the participants used the universal sampling technique. The study's selection criteria were as follows: pupils enrolled in government and private schools who were willing to participate and provided written informed consent were included in the study, while those who did not attend class that day were not.

Study design

The sociodemographic profile, as well as knowledge, attitudes, and practices related to anaemia, were evaluated using structured, self-administered questionnaires. The questionnaire contained forty different kinds of questions. They included nine questions about attitudes, nine questions about practices, and 22 questions about knowledge. 10% of the entire sample size participated in the pilot trial, and any necessary corrections were made. Before the intervention, the test was conducted using the aforementioned questionnaire. For three months, the intervention package included weekly nutritional education and training sessions lasting an hour each, covering all facets of anaemia using various health education tools and techniques. Training was conducted using a variety of tools and methods, including posters, PowerPoint presentations, songs, films, role-playing, demonstrations, and drawings.

Statistical analysis

To eliminate missing information, the gathered data was examined for accuracy, completeness, and internal consistency. A scoring system of 1 for right answers and 0 for wrong responses was used to enter the results. The statistical difference between girls attending government and private schools in terms of knowledge, attitude, and practice was evaluated using the independent t-test. Software called SPSS version 16 (IBM Corporation, New York, USA) was used to analyse all of the data.

Results

Socio-demographic findings

This study involved 310 adolescents' girls in total. Ninety-three percent of the students are Hindu, and 79.1% are from a nuclear household. Most of the students' moms were homemaker, while their fathers were businessmen.

Knowledge and attitude related findings

Of the 87 participants, 56.7% received a mean score of 6.30 ± 2.83 for girls attending government schools, whereas 78.6% received a mean score of 13.68 ± 3.49 for girls attending private schools. For 53.6% of students, the mean change was 21.9 ± 2.68 , indicating a substantial increase in knowledge ($P < 0.05$). Similarly, 68.7% of participants received a mean score of 3.16 ± 1.65 for government school girls and 4.92 ± 1.84 for private school girls (86.7% of participants) from the nine attitude-related statements on anaemia. For 18% of participants, the mean difference was 1.86 ± 2.16 , indicating a substantial improvement in the relevant attitude ($P < 0.05$, Fig. 1). There was a notable improvement in both knowledge and a positive attitude regarding anaemia ($P < 0.05$).

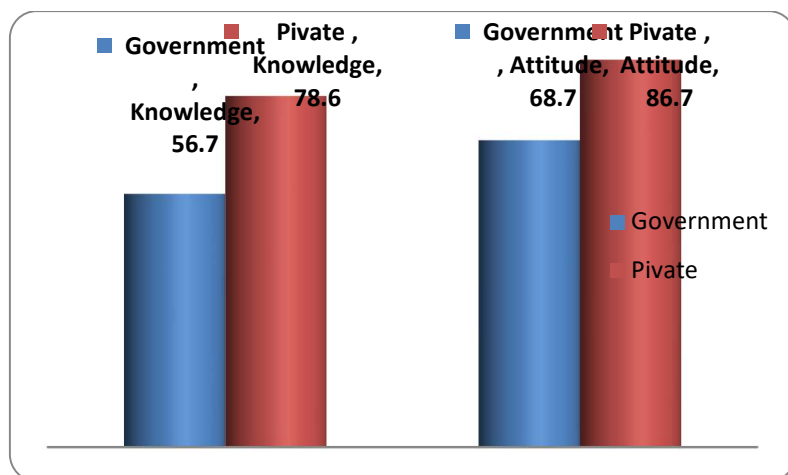


Fig. 1. Overall mean score of knowledge and attitude of government and private school adolescent girls.

Table 1 displays students' attitudes and knowledge on several facets of anaemia, with all $P < 0.05$ in knowledge-related questions. The definition of anaemia, the significance of iron, the symptoms and indicators, foods high in iron sources that are beneficial in anaemic conditions, and prevention have all undergone significant modifications. Before the nutritional education, 40.32% of private teenage girls knew what anaemia was, compared to 28.7% of government adolescent girls. Adolescent girls attending government and private schools were found to know 25.16% and 38.38% of the normal haemoglobin levels, respectively. While adolescent girls attending private schools demonstrated greater knowledge to 25.16%, 26.77%, 39.67%, and 36.77%, respectively, government school adolescent girls knew 14.15%, 11.13%, 24.51%, and 26.45% about signs and symptoms, prevention, foods that are good for anaemic patients, and foods rich in iron sources. Additionally, the positive attitude has significantly improved ($P < 0.05$) in a number of areas, including food preferences, anti-helminthic tablets, the significance of routine haemoglobin testing, consumption of iron tablets and iron-rich foods in anaemic conditions, and adolescents at risk of anaemia. From 19.35% of government school teenage girls to 33.54% of private school adolescent girls and 18.38% to 28.70% of private school adolescent girls, the percentage of positive attitudes towards preferred foods and periodic haemoglobin assessments has improved.

Practice related findings

Of the students, 47.7% are not vegetarians. From 13.54% to 15.80%, 13.22% to 15.16%, and 19.35% to 20.96%, respectively, the intake of meat, fish, and eggs rose. Adolescent girls attending private schools also consume more ragi, jaggery, green leafy vegetables, and sprouted grains (Table 2). Additionally, teenage girls attending private schools are consuming iron-rich meals more frequently. In the government school, over one-fifth of the pupils had taken deworming tablets; in the private school, that number rose to two-thirds.

Discussion

Adolescence (10–19 years old) is the ideal time to develop and reinforce healthy lifestyle choices. A number of deficits and health issues are included in the issue of malnutrition, particularly when it comes to micronutrient deficiencies in developing nations. In India, anaemia is one of the most prevalent issues. Even though anaemia was a prevalent issue in this age group prior to the nutritional education intervention, it is evident from the results that the majority of the children had inadequate understanding, attitudes, and practices regarding the condition. The lack of nutritional and health awareness in this age range may be the cause, as it improves their cognitive abilities and eventually encourages them to adopt healthy habits. This research shows how important it is to continuously promote health and nutritional education. The study's total mean knowledge difference score was 21.9 ± 2.68 (53.6% of the mean score), which amply demonstrates the gain in knowledge among teenage females attending private schools. Similar to the results of the current investigation,

studies carried out in the districts of Belgaum and Dharwad, India and Malaysia, respectively, showed mean differences of 16.04 and 18.3 (Sajjan et al., 2011; Yusoff et al., 2013). The results of this study are in line with those of other research on children's increased knowledge following intervention (Robalo Nunes et al., 2020; Kusuma and Kartini, 2021). One possible explanation for this is that all of the research is done on schoolchildren, and the standardised nutrition education program was implemented as a government and private school intervention program. Following the intervention, there was a general increase in positive attitudes and a decrease in misconceptions. Before the intervention, there were a few common misconceptions, such as the following: a) eating foods high in iron is not required under normal bodily conditions, and b) teenagers are not at risk of becoming adolescents. Following the school intervention program, it was discovered that these misconceptions were decreased. Significant improvements in positive attitude were observed in the following areas: the need of predoctoral haemoglobin testing, the necessity to prevent anaemia in pregnant women and adolescents, the intake of deworming tablets twice a year, and preferred foods. Following the intervention, pregnant women's misconceptions about jaggery, a food high in iron, decreased, and their positive attitudes about the need to prevent anaemia increased. These findings are consistent with those of the current study (Simbar et al., 2020). Furthermore, following nutritional education, the current study revealed significantly higher consumption patterns of ragi, jaggery, sprouted grains, and green leafy vegetables in both groups, which was consistent with the results of a study by Nesrin et al., 2021. Overall, the study's findings demonstrated the effectiveness of the nutritional education intervention by showing improvements in knowledge, a positive outlook, and appropriate behaviour at the post-intervention stage. In terms of both knowledge and attitude, the results for teenage girls attending private schools were statistically significant ($P < 0.05$) compared to those attending government schools. According to the knowledge, attitude, and practice findings thus far, nutritional education for kids is a successful strategy for raising awareness and forming good habits.

Conclusion

According to the study, adolescent girls attending government and private schools now have a far better understanding of anaemia, a more positive outlook, and healthier habits as a result of the nutritional education intervention. Although anaemia is a prevalent condition in adolescence, little was known about it among teenage girls attending government schools. Additionally, kids got better at using foods high in iron. Despite these advancements, there is still room to replicate these types of interventions frequently in order to modify behaviour and achieve long-lasting, sustainable results. As a result, the study finds that nutrition education in both public and private schools is one of the sustainable and affordable programs that may be added to the curriculum to broaden the program's scope. In addition to advancing their knowledge and broadening their positive outlook, this time-tested, successful nutritional education intervention for schoolchildren in their formative years aids in maintaining good habits.

References

1. Garcia-Casal MN, Dary O, Jefferds ME, Pasricha SR. Diagnosing anemia: challenges selecting methods, addressing underlying causes, and implementing actions at the public health level. *Ann N Y Acad Sci.* (2023) 1524:37–50.
2. World Health Organization, Regional Office for South East Asia. Prevention of Iron Deficiency Anemia in Adolescents. Geneva: WHO; 2011.
3. World Health Organization. Worldwide Prevalence of Anemia 1993–2005: WHO Global Database on Anaemia. Geneva: WHO; 2008.
4. Chandrakumari AS, Sinha P, Singaravelu S, Jaikumar S. Prevalence of anemia among adolescent girls in a rural area of Tamil Nadu, India. *J Family Med Prim Care.* 2019;8(4):1414-1417.
5. Hanna-Rivero N, Tu SJ, Elliott AD, Pitman BM, Gallagher C, Lau DH, et al. Anemia and iron deficiency in patients with atrial fibrillation. *BMC Cardiovasc Disord.* (2022) 22:204.
6. Yusoff H, Wan Daud WN, Ahmad Z. Effectiveness of nutrition education vs. non-nutrition education intervention in

- improving awareness pertaining iron deficiency among anemic adolescents. *Iran J Public Health*. 2013;42(5):467-471.
7. Adhikari Poudel Sasmitaa, Angolkar Mubashir b , Naik Vijaya (2022). Impact of nutritional education on knowledge, attitude and practice regarding anemia among school children in Belgaum, India. *Global Health Journal* 6 (2022) 91–94.
8. Sajjan J, Kasturiba B, Naik RK, Bharati PC. Impact of child-to-child nutrition education intervention on nutrition knowledge scores and hemoglobin status of rural adolescent girls. *Karnataka J Agric Sci*. 2011;24(4):513-515.
9. Robalo Nunes A, Mairos J, Brilhante D, Marques F, Belo A, Cortez J, et al. Screening for anemia and iron deficiency in the adult Portuguese population. *Anemia*. (2020) 2020:1–10.
10. Nur Intan Kusuma1 , Farida Kartini (2021). Changes in Knowledge and Attitudes in Preventing Anemia in Female Adolescents: A Comparative Study. *Women, Midwives and Midwifery*, 1(2): 46-54.
11. Simbar, M., Nazarpour, S., Arabi, Z., Keshavarz, Z., & Baghestani, A. R. (2020). SkillsBased Education for Promoting Healthy Diet Among Female Adolescents: A Randomized Controlled Trial Study. *Child and Adolescent Social Work Journal*, 0123456789.
12. Nesrin NA, Anwar ME, Abdullah MK. The impact of nutrition education on knowledge, attitude, and practice regarding iron deficiency anemia among female adolescent students in Jordan. *Heliyon*. 2021;7(2):e06348.