A case study of adolescent's schoolgirls in Moradabad District, India, regarding their understanding, mindsets and actions about anemia

Sagheer Ahmad[1], Dr.Shweta Shukla[2]
[1]*Research scholar, Shri Ramswaroop Memorial University, Lucknow -Deva Road*
[2]*Assistant professor, Humanities and Social science, Shri Ramswaroop Memorial University, Lucknow-Deva Road*
Email. - sagheerhm@gmail.com, shwetashukla.hum@srmu.ac.in

KEYWORDS
Adolescent schoolgirls, Anemia, Health-seeking behavior, Supplements rich in iron

ABSTRACT:
A major public health issue is anemia, particularly in a developing nation like India. One of the main causes of nutritional issues is a lack of information about nutrition. As a result, inappropriate behavior may have an effect throughout generations. to investigate adolescents schoolgirls' knowledge, attitudes, and practices (KAP) linked to anemia and to identify their health-seeking behavior in relation to anemia. The Moradabad District of Uttar Pradesh, India, was the site of this cross-sectional study. This study comprised 350 adolescents schoolgirls in total. KAP was assessed regarding anemia using a semi structured questionnaire that had been predesigned and pretested. According to the current study, adolescents schoolgirls knew less about anemia. Only 77% of the 350 girls had heard of anemia, and 80% of them thought it was a medical condition. Few girls were able to correctly respond to questions about anemia's symptoms, prevention, and treatment. Twenty percent of the 280 students washed their hands with water alone, while the majority used soap. Before eating, 80% of females washed their hands with soap. Twenty percent of the girls walked barefoot outside the house and 270 (77%) of the girls consistently trimmed their nails. adolescents girls showed rudimentary awareness of anemia but little concern for it. This study conclude that there should be required to disseminate thorough nutritional information about food and iron-rich supplements.

1. Introduction

Due to their fast growth, menstruation, and insufficient dietary intake, adolescents girls are particularly susceptible to anemia in environments with limited resources. In addition to having a detrimental effect on physical health, anemia impairs cognitive growth and academic achievement, which keeps these young girls trapped in a cycle of poverty and limited options. The need for certain minerals is crucial because of the increased growth that occurs during adolescence. A common medical illness around the world, anemia is defined by a reduction in either the quantity of red blood cells (RBCs) or the amount of hemoglobin present in the blood. A lack of hemoglobin can result in reduced oxygen delivery, which can cause a number of health difficulties. Hemoglobin is necessary for carrying oxygen from the lungs to different tissues and organs. Iron deficiency anemia, vitamin deficiency anemia, hemolytic anemia, aplastic anemia, anemia of chronic disease (ACD) and sickle cell anemia are among the different types of anemia (Camaschella, 2015). People of all ages can suffer from anemia, which can be brought on by a number of conditions such as hereditary problems, chronic illnesses, and nutritional inadequacies. 253 million adolescents aged 10 to 19 live in India, making it one of the largest populations in the world. For this age group, there aren't many nationally representative nutrition survey data. Limited nutrition indicators and only the 15–19 age group are covered by the National Family Health Surveys (NFHS). Anaemia prevalence among Indian adolescents aged 15 to 19 years has slightly increased from 2005–2006 to 2019–2021, according to NFHS estimates (boys: 30.2% to 31.1%, girls: 55.8% to 59.1%) (International Institute for Population Sciences, 2022). The female child is more likely to be neglected in a household with insufficient funds. She is denied access to healthy food and education. Too frequently, crises are triggered by the additional burden of menstrual blood loss, whether it is normal or abnormal. It results in widespread weakness and a sluggish feeling, which eventually lowers productivity at work. India's adolescent anemia control programs should keep addressing iron deficiency, improve methods for detecting hemoglobinopathies and other micronutrient deficiencies, and investigate regional differences in related factors. The nutritional status of adolescents schoolgirls has a significant intergenerational impact, which means that it impacts multiple generations and may even have an impact on the

country's future. Access to resources and dietary knowledge are essential for long-term nutrition and health improvement. In order to prevent numerous health and nutritional issues in later life, adolescence is the ideal time to learn and adopt healthy habits. In order to increase students' knowledge, health education in schools is crucial. The goal of the current study was to examine adolescents schoolgirls' appropriate knowledge, attitude and practices (KAP) and treatment-seeking behavior regarding anemia. Although a lot of research has been done on anemia in different populations, little is known about the particular population of adolescents girls in Uttar Pradesh's Moradabad District. The prevalence of anemia and its relationships to different sociodemographic characteristics across different age groups and geographical areas have been the main topics of the literature that is currently available. Research specifically evaluating the knowledge, attitude, and practices (KAP) surrounding anemia among adolescents girls in Moradabad District is, however, scarce. The need to investigate the degree of knowledge and awareness regarding anemia among adolescents girls in this specific geographic area represents the study's research gap. To create successful intervention strategies, it is equally important to comprehend their attitudes regarding anemia and how to prevent it. Furthermore, little is known about the nutritional habits and dietary practices of adolescents girls in Moradabad District, which may be important for managing and preventing anemia.

2. Materials and Methods

2.1. Experimental methods

In Moradabad District, Uttar Pradesh, 350 adolescents schoolgirls between the ages of 15 and 19 participated in a cross-sectional study. The study's objective was to observe the KAP regarding anemia in adolescents schoolgirls. Students were interviewed using a predesigned, pretested, semistructured questionnaire after obtaining written consent from the parents and approval from the school's principal and school health services. The sampling frame comprised all senior secondary government schools in that district. The Directorate of Education provided a list of schools in the selected district for this purpose. Ultimately, a lottery was used to choose two schools.

All of the girls in Class XI were included in the study after the class was chosen at random using the lottery method. Included were the students who agreed to take part in the study. Participants were selected from among the students present on the day of the visit. Data on KAP and anemia-related health-seeking behavior were gathered using a pretested, semi structured questionnaire.

2.2. Statistical analysis:

Mean and percentage analysis were calculated using the Graph Pad Software, San Diego, Calif(Ott, 1984). The final sample size was 350. The study excluded adolescents girls who were unwilling to participate and girls whose parents declined to provide their consent.

3. Results and Discussions:

Tables 1 and 2 provide information on adolescents schoolgirls' awareness of anemia. When asked about their knowledge of anemia, 77% of the girls said that low iron blood is the cause of anemia, while 23% were unsure. 36% of adolescents schoolgirls believed that worm infestation causes anemia, while 64% believed that a lower dietary intake of iron causes anemia. 73% of students in another study had heard of anemia, but only 36% were aware that it is a medical condition (Angadi et al., 2016). Lower dietary intake and poor iron absorption appear to be the main causes of anemia in India. Over 80% of women suffer from nutritional anemia as a result of their bodies' excessive demands.

Seventy-five percent of the girls in this study who were asked about anemia symptoms said that it causes pale skin. In contrast to studies carried out in other regions of the nation, it was found that although girls are aware of various symptoms, including decreased appetite (33%), fatigue (26.7%), shortness of breath (30%), irritability (35%), and paleness of the skin (70%), their knowledge of anemia was lower (Angadi et al., 2016; Pareek and Hafiz, 2015). According to the study, 44% of the girls stated that anemia impairs learning abilities, while 56% of the girls believed that it affects growth and development. The questions had multiple choice answers.

When girls were asked how to treat anemia, it was found that 79% of them believed that IFA could help, 11% said that vitamin C tablets could help, and 10% said that deworming tablets could help. The majority of participants (56%) stated that green leafy vegetables are the only food that contains iron. Twenty-seven percent of the adolescents girls were aware that anemia is caused by increased menstrual loss. One of the major contributing factors to anemia, according to a study that measured

menstrual blood loss, is heavy menstrual bleeding (Malcolm, 2023). Only 45% of the 350 girls in the current study knew what anemia was.

When asked about their knowledge of anemia, 65% of the girls responded that it is brought on by low iron blood, while 5% were unsure of the causes. Girls who menstruate are more likely to be anemic, according to studies. In order to gauge the awareness of anemia among adolescents schoolgirls, some questionnaires were created using the techniques outlined by Singh et al. (2021). It was found that approximately 280 out of 350 of them washed their hands with soap before eating. Twenty percent or so did not wash their hands with soap before eating.

Similar findings were also noted for routine nail care, washing fruits and vegetables before eating them, and washing your hands with soap after urinating. However, as table 1 illustrates, the opposite result was noted when walking barefoot outside the house. Table 2 illustrates how little awareness there is of anemia among adolescent schoolgirls based on observations regarding their health-seeking behavior.

Table 1: Anemia-related behaviors of 350 adolescents schoolgirls. The desired questionnaire parameters are based on Sing et al., 2021.

Parameters	**Responces**	**No. of adolescent schoolgirls**
Before eating, do you wash your hands with soap?	Yes	280 (80%)
	No	70 (20%)
Do you cut your nails once a week?	Yes	270 (77%)
	No	80 (23O%)
Do you wash fruits and vegetables before eating it?	Yes	280 (80%)
	No	70 (20%)
After defecating, do you wash your hands with soap?	Yes	260 (74%)
	No	90 (25%)
Do you go outside in your bare feet?	Yes	70 (20%)
	No	280 (80%)

When asked about ways to prevent anemia, 76% of the 350 girls said they ate foods high in iron, 14% said they avoided tea and coffee, 28% said they ate fruits high in vitamin C, and 48% said they kept their personal hygiene. The results of previous research are consistent with this study (18,19,22,25). Similarly, IDA was linked to inadequate diet knowledge, according to a study (Patimah et al., 2016). It has been noted that drinking tea with meals prevents the body from absorbing iron, which may be the cause of their low hemoglobin levels. When asked how to treat anemia, it was found that 97% of the girls believed that IFA could help, and 29% believed that deworming tablets could help.

Table 2: Anemia-related health-seeking behavior among 350 adolescent schoolgirls. The desired questionnaire parameters are based on Sing et al. (2021).

Parameters		**No. of adolescent schoolgirls**
Have you checked your Hb levels in the past 1 year?	Yes	10 (3%)
	No	340 (97%)
Have you taken iron, folic acid tablets in the past 1 year?	Yes	10 (3%)
	No	340 (97%)
Have you taken deworming tablet in the past 6 months?	Yes	100 (29%)
	No	250 (71%)

However, according to a Madhya Pradesh study, 81.4% of the adolescent girls were unaware that anemia could be treated or prevented (Chakma et al., 2012). Adolescent girls who suffer from IDA should be encouraged to use food-based strategies. Iron-rich foods and fruits that contain vitamin C, which improves iron absorption, can be included in the strategies, as can consumer education to promote dietary diversity. Just 4% of adolescents schoolgirls believed that pregnant and lactating women, as well as girls reaching puberty, should eat a diet high in iron. Of the 350 girls, 80% washed their hands with soap, while the remaining 20% only used water. Before eating, almost 77% of the

girls washed their hands with soap. Seventy-seven percent of girls regularly trimmed their nails, and twenty percent of girls walked barefoot outside the house. According to a study done in a Kolkata slum, adolescents schoolgirls knew a fair amount about personal hygiene, but they didn't practice it well. But this knowledge wasn't always applied to the right mindset and methods. Practices of personal hygiene are essential for improving health by preventing related morbidities. Only 3% of the school's female students had their hemoglobin levels checked in the previous 12 months.

In a different study, 55% of participants said that if they experience symptoms related to anemia, they will visit a doctor for a checkup and take iron supplements. Other studies found higher KAP and health-seeking behavior (Angadi et al., 2016; Pareek and Hafiz, 2015). This reaffirms how important health education is to bridging the gap in the continuum of care. Studies conducted in the community can provide a deeper understanding of this topic than those conducted in schools.

4. Conclusion

Researchers can find awareness gaps and put in place focused educational programs to increase knowledge of anemia and its consequences by carrying out an extensive study on the knowledge, attitudes, and practices regarding anemia in this particular population. adolescents girls showed awareness of anemia, but their attitudes and behaviors were lacking. Adolescent girls' knowledge by itself, however, is insufficient to influence behaviors and attitudes. It is necessary to effectively address behavioral, socioeconomic, and physiological limitations. It should be required to spread thorough nutritional information about anemia. sessions of nutritional education that concentrate more on particular topics, like details on anemia. The lack of thorough studies evaluating adolescents girls' knowledge, attitudes, and practices regarding anemia in Moradabad District, Uttar Pradesh, represents a research gap.

The results of such a study will help educators, legislators, and medical professionals create effective and focused plans for managing and preventing anemia in this susceptible group.

5. References:

Angadi N, Ranjitha A. (2016). Knowledge, attitude and practice about anemia among adolescent girls in urban slums of Davangere city, Karnataka. Int J Med Sci Public Health 5, 416-9.

Camaschella, C. (2015). Iron-deficiency anemia. New England Journal of Medicine, 372(19), 1832-1843.

Chakma T, Rao PV, Meshram PK (2012). Feasibility of iron-folic acid supplementation among tribal adolescent girls, Mandla district, Madhya Pradesh. Public Health Nutr 16,377-80.

International Institute for Population Sciences . (2022). India Fact Sheet. National Family Health Survey-5 2019-21. Ministry of Health and Family Welfare, Government of India.

Malcolm G. M. (2023). Heavy menstrual bleeding, iron deficiency, and iron deficiencyanemia: Framing the issue. Int J Gynecol Obstet. 162(Suppl. 2), 7–13.

Ott, L. (1984). An Introduction to Statistical Methods and Data Analysis, 2nd ed. PWS Pobl, Boston, Massachusetts.

Pareek P, Hafiz A. (2015). A study on anemia related knowledge among adolescent girls. Int J. Nutr Food Sci 3, 273-6.

Patimah S, Royani I, Mursaha A, Thaha AR. (2016). Knowledge, attitude and practice of balanced diet and correlation with hypochromic microcytic anemia among adolescent school girls in Maros district, South Sulawesi, Indonesia. Biomed Res 27.

Santhi, P. and Ambujam, G. (2021). Awareness on nutritional anemia and its prevention among adolescent girls. Medico Legal Update, 21(1), 925-929.

Scott S, Lahiri A, Sethi V, de Wagt A, Menon P, Yadav K, Varghese M, Joe W, Vir SC, Nguyen PH (2022). Anaemia in Indians aged 10-19 years: Prevalence, burden and associated factors at national and regional levels. Matern Child Nutr. Oct;18(4):e13391.

Singh, M, Rajoura, OP, Honnakamble, R. (2021). Anemia-related knowledge, attitude, and practices in adolescent schoolgirls of Delhi: A cross-sectional study. International Journal of Health & Allied Sciences. 8, 144-148.

Verma, SK, D. and Khanum, R. S. (2021). A study on prevalence of anemia among late adolescent girls in JSS Schools and Colleges of rural and urban Mysuru district, Karnataka, India. International Journal Of Community Medicine And Public Health, 8(9), 4475–4479