

Examining the Awareness and Perception of Anemia among High School Girls, Comparing Urban and Rural Settings

Anil Kishor¹, Kalpana Kumari², Manoj Kumar Yadav³, Ravish Ranjan⁴

¹Assistant Professor, Department of Community Medicine, Shree Narayan Medical Institute and Hospital, Saharsa

²Assistant Professor, Department of Obs and Gynae, Shree Narayan Medical Institute and Hospital, Saharsa

³Associate Professor, Department of Community Medicine, Shree Narayan Medical Institute and Hospital, Saharsa Associate Professor,

⁴Assistant Professor, Department of Community Medicine, Shree Narayan Medical Institute and Hospital, Saharsa

Received: 09-11-2023 / Revised: 19-12-2023 / Accepted: 24-01-2024

Corresponding Author: Dr. Anil Kishor

Conflict of interest: Nil

Abstract:

Background: The health consequences of anemia among adolescents are well documented. Anemia not only affects growth, development and learning process during adolescence but also affects the nutritional status resulting in deleterious effects in future pregnancy, especially when they are traditionally married at an early age and are exposed to a greater risk of reproductive morbidity and mortality such as increased incidence of low birth weight, fetal wastage, high perinatal mortality, infant mortality and maternal mortality, thus perpetuating a vicious cycle of health problems passing on to next generation.

Methods: A school based Cross-sectional, comparative study. Total 650 adolescent high school girls of which 330 were from school of Darbhanga city & 320 from schools of field practice area of Darbhanga Medical College and Hospital Darbhanga Laheriasarai Bihar.

Conclusion: The present study revealed that rural adolescent girls were more aware about anemia compared to urban girls, whereas both urban & rural girls had same perception about anemia. The prevalence of anemia was higher among rural girls compared to urban girls & among girls whose mother had completed primary level of education.

Keywords: High School; Adolescent Girls; Anemia; Awareness, Perception.

This is an Open Access article that uses a funding model which does not charge readers or their institutions for access and distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>) and the Budapest Open Access Initiative (<http://www.budapestopenaccessinitiative.org/read>), which permit unrestricted use, distribution, and reproduction in any medium, provided original work is properly credited.

Introduction

Nutritional anemia is a condition in which hemoglobin content of blood is lower than normal as a result of deficiency of one or more essential nutrients, regardless of the cause of such deficiency" [1]. It is reported that 2170 million people are affected worldwide by nutritional anemia. Out of these 90% live in developing countries, especially South-East Asia. [2] The prevalence of anemia in developing countries as a whole is 36%, whereas it is only 8% in the developed countries. Thus it is disproportionately high in developing countries [3]. In India, according to National Health and Family Survey (NHFS-3), the prevalence of anemia among adolescent girls, 15-19 years, is 55.8% including 39.1% with mild anaemia, 14.9% with moderate anaemia & 1.7% with severe anaemia⁴. National Anemia Control Programme for the prevention and control of anemia among pregnant women and children. [4,5] To combat anemia during adolescence, with far reaching benefits in terms of safe motherhood and healthier future generations, The health

consequences of anemia among adolescents are well documented. Anemia not only affects growth, development and learning process during adolescence but also affects the nutritional status resulting in deleterious effects in future pregnancy, especially when they are traditionally married at an early age and are exposed to a greater risk of reproductive morbidity and mortality such as increased incidence of low birth weight, fetal wastage, high perinatal mortality, infant mortality and maternal mortality, [6] thus perpetuating a vicious cycle of health problems passing on to next generation. Girls born underweight are at risk of producing small, premature infant's themselves [7]. Adolescence is the formative period of life, in the age group of 10 to 19 years, when significant growth and maturation occurs [8]. It is a time of increased demand for iron in the food, more so among girls, not only because of menstruation but also because of social factors like preference to feed more for male children, girls eating last whatever is left, being deprived of good food, workload of

household chores, negligence of female children etc, making them vulnerable for the development of anemia[9]. Thus adolescent period not only constitutes a critical period for the development of anemia but also with the onset of menarche, they enter the reproductive life, constituting potential mothers.

Material and Methods

A school based Cross- sectional, comparative study. Total 650 adolescent high school girls of which 330 were from school of Darbhanga city & 320 from schools of field practice area of Darbhanga Medical College and Hospital Darbhanga Laheriasarai Bihar. The high school girls aged 13 to 16 years of 8th to 10th standard from government girls High School of Darbhanga city, source of data.

Sampling Technique

Selection of schools was done by Simple random sampling and selection of students was done by systematic random sampling.

Sampling procedure

According to National Family Health Survey (NHFS-3), the prevalence of anemia among school going adolescent girls is 55.8%.⁴ it is rounded up to 56%. Using this data, the following formula has been applied to determine the required sample size for the

study.

Inclusion Criteria

High school girls of 8th, 9th and 10th standard of Darbhanga city and of field practice rural areas of the college, who are in the age group of 13 to 16 years. Those girls who have attained menarche.

Those girls who are present on the day of data collection.

Those girls, who are cooperative.

Exclusion Criteria

Girls below 13 years and above 16 years of age. Those girls who have not attained menarche.

Those girls who are absent on the day of data collection.

Those girls with chronic illness and heavy menstrual disorders and those with a history of regular consumption of IFA (Iron and Folic acid) tablets in the past three months

Results

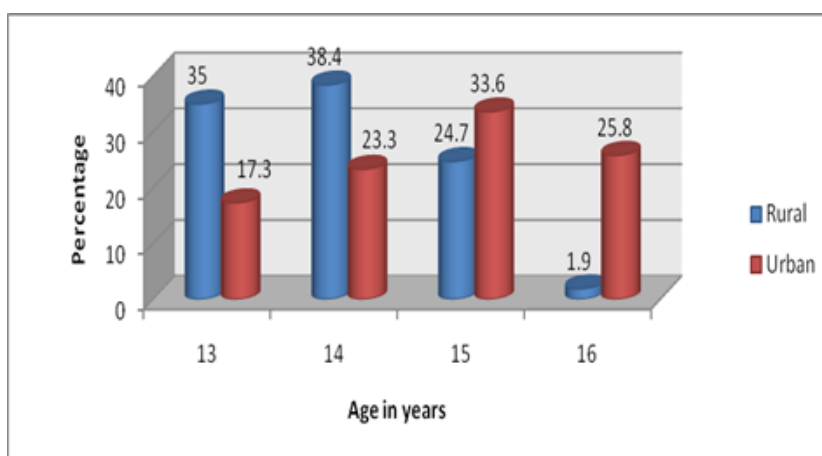
A total of 650 adolescent girls i.e. 320 from field practice area of DMCH Darbhanga Laheriasarai Bihar. & 330 from Darbhanga city who fulfilled the inclusion & exclusion criteria

Table 1: Distribution of adolescent high school girls by Age

Age (Years)	Rural		Urban		Total	
	No.	%	No.	%	No.	%
13	112	35.00	57	17.27	169	26.00
14	123	38.44	77	23.33	200	30.77
15	79	24.69	111	33.64	190	29.23
16	6	1.88	85	25.76	91	14.00
Total	320	100.00	330	100.00	650	100.00

shows that, age of students ranged from 13 to 16 years of which 112(35%); 123(38.44%); 79(24.69%)& 6(1.88%) were of 13, 14, 15 & 16 years respectively from rural area & 57(17.27%); 77(23.33%); 111(33.64%); 85(25.76%) were of 13,14,15,16 years from urban area.

Distribution of adolescent high school girls by Age



Graph 1: Percentage of Girls Who Had Heard About Anemia

Table 2:

Options	Rural		Urban		Total	
	No.	%	No.	%	No.	%
Yes	139	43.44	250	75.76	389	59.85
No	181	56.56	80	24.24	261	40.15
Total	320	100.00	330	100.00	650	100.00

The percentage of girls who had heard of anaemia was higher among urban adolescent high school girls (75.76%) compared to that of rural adolescent high school girls (43.44%) & this difference was found statistically highly significant (p value <0.005).

Discussion

Anemia is the most common form of malnutrition amongst adolescents today. [8] It is of public health significance in our country. [9] Adolescents constitute > 20% of our population in India & >50% suffer from Iron deficiency anemia. [10] Both urban & rural poor suffer from anemia, being more among girls than boys. Adolescents girls awareness & perception about this major disease is comparatively very poor, [11] In our study 650 adolescent girls in the age group of 13-16 years were involved of which 330 were from urban & 320 were from rural areas. This was similar to a study conducted by Kaur. Deshmukh P R & Garg B S in rural area which included a sample of 630 adolescent girls in the age group of 13-16 years [7], whereas only 308 adolescent girls were included in a study It was found that in our study 59.85% girls told that they were aware of anaemia, 41.56% told that anemia occurs due to iron deficiency, 71.54% were aware that anemia has an impact on growth, development & learning process in school children, whereas in a study conducted by S Khedu in Moritius 90.6% of the respondents knew what the term anemia meant, 78.3% could associate anemia with micronutrient iron found in food & 86.4% were of the opinion that being anemic will reduce concentration in class. [12-15] In our study 61.23% girls answered that green leafy vegetables are the main dietary source of iron whereas in a study conducted by Manmeet Kaur in Chandigarh 93% women were in favour of including green leafy vegetables in diet In our study 52% of the adolescents perceived that anemia occurs due to lack of knowledge about disease, 54.62% perceived that consumption of good food will help to protect against anemia & 95.69% were having the perception that they have to consult the Doctors if found anemic, whereas in a study conducted by Peggy Bentley among women of four Indian states, most of the women perceived that anemia presents as weakness, dizziness, izziness. [16,17] The prevalence of mild, moderate & severe anemia in our study was 53.69%, 17.54% & 13.23%, whereas in study conducted by Bulliyy et al the prevalence of mild, moderate & severe anemia was 45.2%, 46.9% & 4.4% respectively. [18] In our study the prevalence of anemia among rural adolescents was 96.88% & among urban

adolescents it was 72.42%, whereas in a study conducted by Baral KP prevalence of anemia in age group 10-14 years was 85.7% in the urban & 77.8% in the rural female adolescents & in the age group 15-19 years the prevalence was 83.71% among urban & 71.9% among rural adolescent females. [19,20] In our study anaemia cases were found to be higher among those adolescent girls having mothers with primary education 204(88.3%), whereas in a study from rural area of Meerut by CMS Rawat the prevalence of anemia was significantly higher among adolescent girls having illiterate mothers (42.2%) & just literate mothers (51.9%) & in a study done by Bahaa Abalkhail in Saudi Arabia found that anemia was significantly more prevalent among those born to low educated mothers [21,22,].

Conclusion

The present study revealed that rural adolescent girls were more aware about anemia compared to urban girls, whereas both urban & rural girls had same perception about anemia. The prevalence of anemia was higher among rural girls compared to urban girls & among girls whose mother had completed primary level of education. So, it is important that all adolescent girls are supposed to know about anemia and its health impacts because of the menstruation process and in the interest to safeguard the future reproductive health.

References

1. Nutritional Anaemia. WHO. Geneva; 5: WHO Tech Report Series 405.
2. Worldwide Prevalence of Anaemia. Global Data Base on Anaemia. 1993-2005.
3. Tiwary K and Sheshardri S. Prevalence of anaemia and morbidity profile among school going adolescent girls of Kathmandu, Nepal. Journal of Medical Association. Oct-Dec 2000; 39:319.
4. Nutrition and Anemia; NFHS-3. Sept 2007; 310. Report 2005-2006:1.
5. Nutrition and Anemia; NFHS-3. Karnataka. Sept 2008; 89. Report 2005-2006: 1.
6. Suneetha Mittal. 12 by 12 Initiatives. Implementation Strategies. GOI, WHO, UNICEF and FOGSI collaboration. July 2007:16.
7. Kaur S, Deshmukh P R, Garg B S. Epidemiological Correlates of Nutritional Anemia in Adolescent Girls of Rural Wardha. Indian Journal of Community Medicine. Oct- Dec 2006; 31(4): 255-257.
8. Programming for adolescent health and development. WHO; 1996; 2. WHO Tech Rep Ser No. 886.

9. Sanjeev M Chaudhary, Vasanth R Dhage. A study of Anemia among Adolescent Females in the Urban Area of Nagpur. Indian Journal of Community Medicine. 2008 October; 33(4): 243-245.
10. Bansal RD, Mehra M. Adolescent Girls An Emergency priority. Indian Journal of Public Health. 1998;22(1):1-2.
11. Adolescent. The Critical Phase, the Challenges and Potential. WHO. New Delhi:1997.
12. Land N L, Patterson DJ, Braddock M. Variation in pregnancy outcome by race among 10-14 years old mothers in United States. Public Health Report 1995;110(1):53- 58.
13. Sundar Lal, Adarsh, Pankaj. Textbook of Community Medicine. 3rd Edn. New Delhi. CBS Publishers and Distributors Pvt Ltd. Adolescent Health; 2011;154- 160.
14. Ganguli SK. Adolescent Health. Indian Journal of Public Health. 2003 Sept;37(3):6-15.
15. Adolescents in India – A profile. New delhi. India: UNFPA for UN system in India. 2000 Sept
16. Gupta P. Ghai OP. Text Book of Preventive and Social Medicine. 2nd edition.
17. Delhi. CBS publishers and distributors. 2007;1 47- 148.
18. Ramakrishnan U Nutritional anemias. CRC series in modern Nutrition press LLC. U.S. 2001; 3-5.
19. Bashir S. Anemia. Indian Journal for The Practicing Doctor. 2004;1(2):1-2.
20. Firkin F Chesterman c Penington d Rush b de Gruchy's Clinical Haematology in Medicine Practice. 5th edition. New Delhi: Blackwell Science Ltd; 1989:32-47.
21. Sundar Lal, Adarsh, Pankaj. Text Book of Community Medicine. 2nd Edn. New Delhi: CBS Publishers and Distributors Pvt Ltd; 2007; 195-196
22. Iron deficiency Anemia Assessment, Prevention and Control. A guide for Programme Managers. WHO/UNICEF/UNU. WHO, Geneva; 2001:Document WHO/NHD/01.3.