ORIGINAL RESEARCH PAPER

Nursing

A STUDY TO FIND OUT THE PREVALENCE OF ANEMIA AMONG SCHOOL GOING ADOLESCENT GIRLS IN A SELECTED RURAL COMMUNITY OF GUWAHATI, ASSAM.

KEY WORDS: Prevalence, Anaemia, Adolescent girls, Hb% level.

Ms. Susmita Sinha	M.Sc Nursing , Child Health Nursing, Sankar Madhab College of Nursing, Panikhaiti, Guwahati.
Mrs. Nirmali Gogoi	Associate Professor, Department of Child Health Nursing, Sankar Madhab College of Nursing, Panikhaiti, Guwahati.
Mrs. Anamika Bhuayan	Assistant professor, Department of Community Health Nursing, Sankar Madhab College of Nursing, Panikhaiti, Guwahati.

ABSTRACT

Adolescence is a transitional age of physical and psychological human development generally between puberty and legal adulthood. Approximately twenty percent of the world's population is adolescents and majority of them live in developing countries. In India the prevalence of anaemia among adolescent girls is 90%. So the present study aimed to find out the prevalence of anaemia among adolescent girls through hemoglobin testing.

Methods: A descriptive survey design was adopted for the study. In this study 110 adolescent girls (11-19 years) studying in Swahid Kushal Konwar High School, Panikhaiti, Guwahati, Assam were selected by using probability simple random sampling technique. The tool used for the research study was demographic Performa and Hemoglobin test by using Cyanmeth hemoglobin test method.

Results: The result showed that 89.1 % adolescent girls were anaemic .Out of which majority 50% of them were having moderate anaemia, 39.80 % were having mild anaemia and 10.20% were having severe anaemia. The mean value of hemoglobin was 9.75± ±1.99. Chi- square result showed that prevalence of anaemia was significant with source of health related information and duration of menstrual bleeding at (P< 0.05).

Conclusion: On the basis of the findings the researcher concluded that prevalence of anaemia is high among adolescent girls and anaemia is associated with source of health related information and duration of menstrual bleeding.

INTRODUCTION

Adolescence is a transitional age of physical and psychological human development generally between puberty and legal adulthood, from 10 to 19 years of age. Adolescence is a second phase of life. It is the "coming of age" as children grow into adult both physically, mentally and socially.[1] Approximately twenty percent of the world's population are adolescents and majority of them live in developing countries. There are about 1.2 billion adolescents in the world, which is equal to 1/5th of the world's population and their number is increasing.[2] India has the largest population of adolescents (243 million), followed by China (207 million) and United States (44 million). Among adolescents, girls constitute a vulnerable group, particularly in developing countries where they are traditionally married at an early age and exposed to a greater risk of reproductive morbidity and mortality.[3]

Anaemia is the most prevalent nutritional problem worldwide and it is mainly cause due to iron deficiency. [4] The prevalence of anaemia is disproportionately high in developing countries like India. [5]

WHO have done a study on global prevalence of anaemia in 2011, it is estimated that roughly 43% of children, 38% of pregnant women, and 29% of non-pregnant women and 29% of all women of reproductive age have anaemia globally.[6]

In India the prevalence of anaemia among adolescent girls is 90%. Variations in prevalence rate of anaemia are seen within the country with the lowest prevalence of 33% being reported from Andhra Pradesh to highest of 98 % in Rajasthan. [7] Another similar study by Toteja GS et.al reported 90.1% of anaemia among adolescent girls in 16 districts of India.[8]

Regional Medical Research Centre (2012) conducted a study with the aim to reveal that anaemia is a major public health problem among adolescent girl student of Assam in four districts of Assam viz. Barpeta, Bongaigaon, Kamrup and Dibrugarh involving 4457 school going adolescent girls. The study found that the overall prevalence of anaemia was 71.5 % and the mean hemoglobin level was 11.02±1.79.[9]

A high prevalence of anaemia in adolescent girls is a matter of

great concern as they enter reproductive life soon after menarche. Anaemic girls are at a risk of compromised physical and mental functions and they may also be at increased obstetric risk, once pregnant.[9]

Accelerated development, hormonal changes, malnutrition, and starting of menstrual periods in girls are the major causes of anaemia during adolescence, which may also lead to impaired perception and learning difficulties.[9] So keeping this in mind the researcher was undertaken the present study aimed to find out the prevalence of anaemia among adolescent girls through hemoglobin testing.

MATERIAL AND METHOD

In this study the investigator used descriptive evaluative research approach and descriptive survey research design to find out the prevalence of anaemia among school going adolescent girls by doing hemoglobin test. The sample size of 110 was selected from total population by using probability simple random sampling technique. Adolescent girls at the age of (10-19) years studying in 6th -10th standard in Swahid Kushal Konwar High School, Panikhaiti, Guwahati and whose were giving consent for their blood testing were included as inclusive criteria. Adolescent girls who have not had menstruation were excluded in this study. Prior to the data collection, the researcher obtained the Ethical Clearance Certificate from the Ethical Clearance Committee of Assam down town University, Panikhaiti, Assam.

The study was conducted in Swahid Kushal Konwar High School, Panikhaiti, Guwahati, Assam. The tool used for the research study was demographic performa and Hemoglobin test by using Cyanmeth hemoglobin test method. The data collected was analyzed by using descriptive and inferential statistics.

RESULTS AND DISCUSSION

The data presented in the **Table-1** shows the frequency and percentage distribution of demographic variables of the adolescent girls. With regard to number of children in the family, majority(42.82%) of them have three children in the family, 31.82%, 20%, 6.36% respectively have more than three, two, one children in the family. With regard to type of family, majority (48.18%) of them belong to nuclear family, 41.82%, 10%

respectively belong to joint and extended family. With regard to source of health related information, majority (61.82%) of them get health related information from family members, 24.55%, 9.09%, 3.64%, 0.90% respectively get health related information from health personnel, peer group, media, others. With regard to socio-economic status, majority (59.09%) of them belonged to upper lower class, 29.09%, 9.09%, 1.82%, 0.90% respectively belonged to lower middle, upper middle, lower, upper class. With regard to dietary habit, majority (81.82%) of them are non-vegetarian, 15.45%, 2.73% respectively are vegetarian and vegan. With regard to nature of menstrual cycle, majority (81.82%) of them has regular menstrual cycle and 18.18% of them have irregular menstrual cycle. With regard to duration of menstrual bleeding, majority (41.82%) of them have less than 5 days menstrual bleeding, 40% and 18.18% respectively have 5days and more than 5 days menstrual bleeding. With regard to chronic illness, majority (98.18%) of them does not have any chronic illness only 2% of them have chronic illness. With regards to bleeding disorder, majority (96.36%) of them does not have any bleeding disorders and 3.64% of them have bleeding disorders. With regard to consumption of green leafy vegetable, majority (50.90%) of them consume green leafy vegetable daily, 44.55% and 4.55% respectively consume green leafy vegetable weekly and monthly.

Hence the study can be supported by a study which was conducted by Pattnaik S, Patnaik L, Kumar A, Sahu T (2012) in Odisha involving 151 adolescent girls. The study found that 60. 93 % of girl's belonged to nuclear family, 74.2% of girls belonged to lower class and 25.8% of girls belonged to middle class. [10]

Similar study conducted by Dutt R, Patil S, Joshi S, Mhatre R, Ramdev (2009) in Maharastra involving 100 adolescent girls. The study found that 72 % of girls belonged to nuclear family, 64 % of them are non vegetarian and 21% of them have excessive menstrual bleeding. [11]

To categories of anaemia, it was classified by using WHO classification of anaemia, ie. No Anaemia ≥ 12 gm/dl; Mild Anaemia (10-11.99) gm/dl; Moderate Anaemia (7-9.99) gm/dl; Severe Anaemia <7gm/dl. In the present study, the overall prevalence of anaemia among school going adolescent girls. It shows that 89.1 % were anaemic. The mean value of hemoglobin was 9.75±1. 99 (**Table-2**)

The analysis presented in **Fig-2** showed the prevalence of anaemia in different categories according to WHO classification among school going adolescent girls. It shows that majority 50% of them were having moderate anaemia, 39.80 % were having mild anaemia and 10.20% were having severe anaemia. It is supported by a study which was conducted by Chetri N, Saikia K, Das K (2013) in Guwahati, Assam involving 120 adolescent girls. The study found that the prevalence of anaemia was 81.67% out of which 41.67% had mild anaemia, 34.17% were moderately anaemic and 5.83 % were severely anaemic. [12]

Another study conducted by Deka AC, Vida S, Nath AD, Sharma PC (2013) in Guwahati, Assam involving 262 college going girls. The study found that the prevalence of anaemia was 54.11% where 34.35% had mild anaemia, 19% were moderately anaemic and 0.76 % were severely anemic. [13]

The result of chi-square analysis presented in **Table-3** indicated that there was significant association between prevalence of anaemia with source of health related information and duration of menstrual bleeding at 0.05 level of significance.

Hence the study can be supported by, a study which was conducted by Arun V. Panat, Sambhji A. Pathare.Shaikh Asrar, Gangadhar y, Rohokale(2013) in Maharashtra, India involving 273 adolescent girls. The study found that there is significant association between the prevalence of anaemia and duration of menstrual bleeding. [14]

Table no-1: Frequency and percentage distribution of the demographic characteristics

n=110

Demographic characteristics	Frequency	Percentage(%)
Number of children in the family		
One	07	6.36
Two	22	20.00
Three	46	41.82
More than three	35	31.82
Type of family		
Nuclear	53	48.18
Joint	46	41.82
Extended	11	10.00
Source of health related information		
Media	04	03.64
Peer group	10	09.09
Family member	68	61.82
Health personal	27	24.55
others	01	00. 90
Socio-economic status		
Upper	01	00. 90
Upper middle	10	09.09
Lower middle	32	29.09
Upper lower	65	59.09
Lower	02	01.82
Dietary habit		
Vegetarian	17	15.45
Non-vegetarian	90	81.82
Vegan	03	02.73
Nature of menstrual cycle		
Regular	90	81.82
Irregular	20	18.18
Duration of menstrual bleeding		
Less than 5 days	46	41.82
5days	44	40.00
More than 5 days	20	18.18
Chronic illness		
Yes	002	01.82
No	108	98.18
Bleeding disorders		
Yes	004	3.64
No	106	96.36
Consumption of green leafy vegetable		
Daily	56	50. 90
Weekly	49	44.55
Monthly	05	04.55

Table -2: Showing the Overall prevalence of anaemia among school going adolescent girls.

n= 110

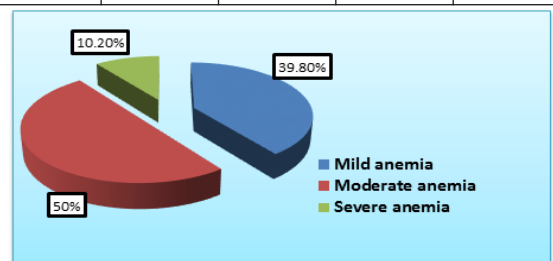| Status of anemia	Total no	Overall prevalence	Mean Hemoglobin	Standard deviation
Anemic	98	89.10%	9.75	1. 99
Non anemic	12	10. 90 %		

FIG-1: Pie diagram showing prevalence of anaemia among school going adolescent girls.

Table- 3: Association between prevalence of anaemia with demographic variables.

n=110

Demographic variables	Degree of anemia				Chi-square value	P <0.05	df	Inference
	Mild	Moderate	Severe	Normal				
No of children in the family					13. 937	16. 92	9	NS
One	0 2	03	0	2				
Two	08	10	1	3				
Three	19	20	7	0				
More than three	10	16	2	7				
Type of family					3.425	12.59	6	NS
Nuclear	18	22	6	7				
Joint	18	20	4	4				
Extended	03	07	0	1				
Source of health related information					**27.65**	21.03	12	**S**
Media	00	03	0	1				
Peer group	06	04	0	0				
Family member	21	27	10	10				
Health personal	12	14	0	1				
others	00	01	0	0				
Socio-economic status					7.343	21.03	12	NS
Upper	00	01	0	0				
Upper middle	03	05	1	1				
Lower middle	10	18	1	3				
Upper lower	25	24	8	8				
Lower	01	01	0	0				
Dietary habit					4.6117	12.59	6	NS
Vegetarian	05	09	1	2				
Non-vegetarian	32	40	9	9				
Vegan	02	00	0	1				
Nature of menstrual cycle					1.541	7.82	3	NS
Regular	30	41	8	11				
Irregular	09	08	2	1				
Duration of menstrual bleeding					**15.286**	12.59	6	**S**
Less than 5 days	15	22	2	7				
5days	16	23	3	2				
More than 5 days	08	04	5	3				
Chronic illness					2.53	7.82	3	NS
Yes	00	02	0	0				
No	39	47	10	12				
Bleeding disorders					2.576	7.82	3	NS
Yes	01	01	1	1				
No	38	48	9	11				
Consumption of green leafy vegetable					7.45	12.59	6	NS
Daily	17	16	5	8				
Weekly	22	19	5	3				
Monthly	00	04	0	1				

S= Significant. NS= Not significant at P<0.05

CONCLUSION

Anaemia is the most prevalent nutritional problem worldwide. The findings of the study concluded that prevalence of anaemia among school going adolescent girls was found to be very high, 89.1 % were anemic. The mean value of hemoglobin was 9.75±1.99. There was a higher prevalence of moderate anaemia as compared to mild and severe anaemia. There was significant association between prevalence of anaemia with source of health related information and duration of menstrual bleeding at 0.05 level of significance.

REFERENCES:
1. World Health Organization Programming for adolescent health and development. WHO Tech Report [serial online] Published on 1992. Available from:www.who.int Accessed on:2017 May 8.`
2. Mathur. JSS. Preventive and social medicine. A comprehensive text book. 1st ed. New Delhi: CBS Publisher and Distributors; 2007; p 382-389.
3. Brabin L, Brabin BJ. The cost of successful adolescent growth and development in girls in relation to iron and vitamin A status. Am J clin Nutr [online] Published on 1992. Available from:.https://www.ncbi.nlm.nih.gov.55. Accessed on:2017 May 8
4. Shah BK, Gupta P. weekly vs daily iron and falic acid supplementation in adolescent Nepalese girls. Arch Paediatr Adolese Med 2002;156:131-35.
5. Kaur S, Deshmukh PR, Garg BS. Epidemiology correlates of nutritiounal anaemia in adolescent girls of rural wardha, Indian J Coomunity Med 2006;31:255-58.
6. WHO. The global prevalence of anaemia in 2011. Geneva: World Health Organization; 2015. Available from: www.who.int/nutrition. Accessed on: 2017 May 8.
7. WHO. Nutrition in adolescent-issues and challenges for health sector. Issues in adolescent health and development, 2005
8. Toteja GS, Singh P, Dhillan BS, Saxena BN, Ahmed FU, Singh RP et.al. Prevalence of anemia among pregnant women and adolescent girls in 16 districts of India, Food Nutr Bull Food and Nutrition Bulletin,vol. 27, no. 4 © 2006.
9. Regional Medical Research Centre. Haemoglobinopathies-major associating determinants of prevalence of anemia among adolescent girl student of assam, India.WHO South –East Journal of Public Health 2012: (3): 299-308.
10. Pattnaik S, Patnaik L, Kumar A, Sahu T. Prevalence of anemia among adolescent girls in a rural area of Odisha and its epidemiological correlates . Indian J of Maternal and child Health. Jan-MAR; 15(1). Available from: https://www.researchgate.net/publication/237844677. Accessed on: 2017 May 25.
11. Dutt R, Patil S, Joshi S, Mhatre R, Ramdev. Prevalence of anaemia among adolescent girls in rural area of Raigad district, Maharashtra. Indian J.Prev.Soc. Med..Vol.40 No. 3 & 4, 2009 Available from: .medline.nic.in>ibl. Accessed on: 2017 May 25.
12. Chetri N, Saikia K, Das K. A study to assess the prevalence of anemia and its influencing factors among the adolescent girls (13-16 ears) in selected high schools of Udalguri district, Assam. Journal of Nursing Research Society of India Vol. 9. No.1. January –June. 2016
13. Deka AC, Vida S, Nath AD, Sharma PC. Prevalence of anemia among undergraduate girls students of a university of Assam. European journal of pharmaceutical and medical research.2016, 3(12).401-404.
14. Arun V, Panat, Sambhji A, Pathare, Shaikh Asrar, Gangadhar Y, Rohakale. Iron deficiency among rural college girls: a result of poor nutrition and prolong menstruation. Journal of community nutrition health.vol 2, issues2, 2013