

A Descriptive Study to Assess the Prevalence of Anemia and Identify Dietary Practices among Adolescent Girls in Selected School of Moradabad, Uttar Pradesh

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Abstract

Introduction: Anemia is one of the major public-health problems that affects the world's total population widely. Anemia is known to affect people belonging to all age-groups, particularly women of child bearing age and children. Hence, the researcher felt the need to conduct a descriptive study to assess the prevalence of anemia and identify dietary practices among adolescent girls in selected school of Moradabad, Uttar Pradesh.

Materials and Methods: Quantitative approach with descriptive survey design was used to achieve the objectives of the study. The sample consisted of 100 adolescent girls (11-17 years) from selected school of Moradabad. Convenient sampling technique was used to select the sample. A structured questionnaire was developed to identify dietary practices and to obtain demographic profile of adolescent girls and a recording sheet was used to collect data regarding their haemoglobin level.

Results: The data collected was analysed and interpreted using both descriptive and inferential statistics. The study showed that 66% of the adolescents were anemic; out of which 31% were mild anemic, 25% moderate and 10% were severely anemic. There was a significant relationship between anemic statuses of the sample with their frequency of eating junk food. A pamphlet on prevention and management of anemia among adolescent was developed and disseminated to the adolescent girls.

Conclusion: The point prevalence of anemia among adolescent girls was found to be 66%. The high prevalence of anaemia among adolescents demands due emphasis on iron and folic acid supplementation, iron rich food intake, health education regarding personal hygiene and periodical deworming to reduce the burden of anaemia among adolescent girls.

Keywords: Adolescent girls, Anemia, Descriptive

Introduction

Adolescence is considered as a bridging period from childhood to adulthood. As per a WHO report, paediatricians are the first contact point for various health problems of

children and adolescent till 19 years of age. It has also been noted that most of the problems are related to dietary habits from initial age of a child. These habits lead to micro and macro nutritional anemia and various other health issues. Nurturing a girl child from her infancy to

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childhood to adolescence is of paramount importance and by intervening at adolescent age of a girl we could stop the vicious cycle of ill health and contribute towards a healthier nature and society.¹

Anemia is one of the major public-health problems that affects the world's total population widely. Anemia is known to affect people belonging to all age-groups, particularly women of child bearing age and children. According to World Health Organization (WHO) anemia, in children from 6 months to 5 years, is defined as, Hb level <11g/dl, and in children between 5-11 years as Hb <11.5g/dl.²

Adolescents are considered to be a nutritionally vulnerable segment of the population. Due to enhanced growth during adolescence, the requirement of some minerals is of paramount importance. A rapid growth rate combined with a marginal nutrient intake increases the risk of nutritional deficiencies in this population. Micronutrients such as iron and zinc are essential trace elements involved in the high growth rates of adolescents.³

A study was conducted to assess the Dietary pattern, nutritional status, anaemia and anaemia-related knowledge in urban adolescent college girls of Bangladesh. The objective of the study was to examine dietary pattern and nutritional status of adolescent college girls of Dhaka, Bangladesh with a particular focus on the prevalence of anaemia and appropriate knowledge about it among them. Sixty-five adolescent girls aged 15-19 years were selected randomly from Home Economics college of Dhaka. A 7-day food frequency questionnaire was used to investigate the dietary pattern. Nutrient intake of the participants was assessed by 24h recall method. Anthropometric data indicated that 63% of the girls were stunted (height-for-age <95% of NCHS reference values) and 45% were underweight (weight-for-age <75% of NCHS reference values). The prevalence of anaemia (Hb <12 g/dl) among the participants was 23%. About 17% had low serum iron (<40 µg/dl), 23% showed evidence of iron-deficient erythropoiesis (Transferrin Saturation <15%) and only 8% had vitamin C deficiency (<0.29 mg/dl). About 65% of the participants had correct knowledge about the causes of anaemia; while 72.3% and 80% respectively, knew about the prevention and treatment of anaemia. Surprisingly, 73.8% of the participants were not aware about the sources of iron-rich foods.³

Patimah S et al. conducted a study to assess the association of balanced diet behavior and microcytic-hypochromic anemia among adolescent girls.⁴ A cross-sectional study has been conducted among 200 adolescent girls in five senior high schools in Maros regency on March to April 2015. Assessment of anemia was performed by Flow Cytometry and SLS-haemoglobin method, data of balanced diet behavior was collected using structured questionnaire. Data was analysed by using chi-square test with SPSS software for windows. The prevalence of microcytic-hypochromic anemia was 19.5%. There were 41% subjects had low knowledge about balanced diet, more than a half (55.5%) had negative attitude to balanced diet, and 46.5% had a poor practice of balanced diet. Knowledge and attitude about balanced diet had no association with microcytic-hypochromic anemia. In contrast, the practices of balanced diet had a significant association with microcytic-hypochromic anemia (p=0.048). It is suggested to conduct an intervention for balanced diet education among adolescent schoolgirls to improve their balanced diet behavior.

The facts show that anemia exhibits as one of the most prevalent disease and perilous threat to health care sector, so it becomes a potential subject to be dealt with, to increase the quality and life expectancy. Hence this study was taken up to study the prevalence and create awareness about the measures to prevent it in order to reduce the prevalence of the disease.

Materials and Methods

The research approach and research design selected for the study was quantitative approach with descriptive survey research design. Convenient sampling technique was used for the selection of 100 students from Little Angel Girls Senior Secondary School, Moradabad, Uttar Pradesh to assess the prevalence of anemia and identify dietary practices among adolescent girls. Observational recording sheet was used for assessment of Hb level and questionnaire for collection of data regarding dietary practices and demographic data. The reliability of the questionnaires was calculated using Cronbach alpha formula and the reliability was found to be 0.86, hence the tool was reliable. Ethical permission was sought from Institutional Review Board of Jamia Hamdard.

Results

Table 1. Frequency and percentage distribution of adolescents by their demographic characteristics

(n =100)

S. No.	Sample characteristics	Frequency	Percentage
1.	Age	11 to 12 years	26
		13 to 14 years	63
		> 15 years	11
2.	Family monthly income	Up to Rs. 5000	31
		Rs. 5001 to 10000	39
		Rs. 10001 to 20000	14
		>Rs. 20000	16
3.	No. of family members	Less than 4 persons	18
		5 to 7 persons	56
		More than 7 persons	26
4.	Place of residence	Urban	74
		Rural	26
5.	Education status of mother's	Illiterate	14
		Primary education	15
		Secondary education	38
		Intermediate	25
		Graduation and above	8
6.	Any history of worm infestation	Yes	54
		No	46
7.	Family history of anemia	Yes	31
		No	69
8.	Onset of menarche	Not yet started	13
		11-12 years	21
		13-14 years	58
		15 years or later	8
9.	Duration of blood flow during mensuration	Not applicable	13
		1-3 days	18
		4-5 days	28
		6-7 days	38
		More than 7 days	3
10.	Consumption of Tablets under WIFS program	Yes	25
		No	75

Table 2. Frequency and percentage distribution of adolescents by their anemia status

(n =100)

Category	Hb (level)	Frequency	Percentage
Non-anemic	12 g/dl	34	34.0
Mild anemic	between 10 g/dl -11.9 g/dl	31	31.0
Moderate anemic	between 7 - 9.9 gm/dl	25	25.0
Severe anemic	Below7 g/dl.	10	10.0

The data in Table 2 reveals that maximum number of the adolescents i.e. 66% were anemic out of which, 31% were mild anemic, 25% were moderate anemic and 10% were found to have severe anemia 0.34% of adolescents were non anemic. Hence the point prevalence of anemia was found to be 66%.

Table 3. Frequency and percentage distribution of adolescents by their dietary practices

(n=100)

S. No.	Dietary Practices	Frequency	Percentage	
1.	Type of diet	Vegetarian	28	28
		Non-Vegetarian	72	72
2.	Frequency of eating fish	More than 5 times per month	3	3
		2-3 times per month	14	14
		Less than 2 times /month	28	28
		Not applicable /Do not eat fish	55	55
3.	Frequency of eating meat	More than 5 times per month	40	40
		2-3 times per month	18	18
		Less than 2 times /month	10	10
		Not applicable /Do not eat meat	32	32
4.	Frequency of eating egg	Daily	13	13
		Weekly	31	31
		Fortnightly	6	6
		Monthly	22	22
		Not applicable /Do not eat egg	28	28
5.	Meals taken per day	Twice	40	40
		Thrice	53	53
		More than 3 meals	7	7
6.	Frequency of eating Green leafy vegetables	Daily	15	15
		Weekly	63	63
		Monthly	18	18
		Never	4	4
7.	Frequency of consuming fruits	Daily	76	76
		Weekly	22	22
		Monthly	2	2
8.	Frequency of consuming pulses	Daily	30	30
		Weekly	55	55
		Monthly	10	10
		Never	5	5
9.	Consumption of lemon, amla, orange along with meals	Frequently	16	16
		Occasionally	44	44
		Never	40	40
10.	Consumption of tea or coffee after meals	Yes	48	48
		No	52	52
11.	Frequency of eating junk food	Daily	16	16
		2-3 times in a week	36	36
		Once in a week	17	17
		Monthly	20	20
		Never	11	11

12.	Practice of consuming milk or milks products along with meals	Yes	31	31
		No	69	69
13.	Consuming Bajra, Poha, Til, Jaggery frequently in your diet	Yes	36	36
		No	64	64
14.	Habit of eating pica	Yes	12	12
		No	88	88

Table 4 (a). The relationship between anaemic status of adolescent girls and selected dietary practices viz. type of diet, frequency of eating fish, frequency of eating meat, frequency of eating egg and meals taken per day

(n=100)

S. No.	Dietary practices		Severe anemic	Moderate anemic	Mild anemic	Non-anemic	Fisher's exact	p value
1.	Type of diet	Vegetarian	1	9	7	11	3.172	0.366
		Non-Vegetarian	9	16	24	23		
2.	frequency of eating fish	More than 5 times per month	0	0	2	1	12.71	0.176
		2-3 times per month	0	5	8	1		
		Less than 2 times / month	4	6	8	10		
		Not applicable /Do not eat fish	6	14	13	22		
3.	Frequency of eating meat	More than 5 times per month	6	8	15	11	7.877	0.547
		2-3 times per month	2	6	6	4		
		Less than 2 times / month	1	2	2	5		
		Not applicable /Do not eat fish	1	9	8	14		
4.	Frequency of consuming egg	Daily	2	3	4	4	11.27	0.564
		Weekly	1	9	10	11		
		Fortnightly	1	0	3	2		
		Monthly	5	5	7	5		
		Not applicable /Do not eat egg	1	8	7	12		
5.	Meals take per day	Twice	4	8	13	15	2.44	0.875
		Thrice	6	14	16	17		
		More than 3 meals	0	3	2	2		

Significance at <0.05 p value significant.

Table 4 (b).The relationship between anemic status of adolescent girls and selected dietary practices viz. frequency of taking green leafy vegetables, fruits, frequency pulses, lemon, Amla, orange with meals, junk food, tea or coffee after meals, milk or milk products along with meals, of bajra, poha, Til, jaggery and pica

(n=100)

S. No.	Dietary practices	Severe anemic	Moderate anemic	Mild anemic	Non-anemic	Fisher's exact	P value
1.	Green leafy vegetables in diet	Daily	0	5	2	12	0.213
		Weekly	6	15	24		
		Monthly	4	3	4		
		Never	0	2	1		
2.	Frequency of fruits consumption	Daily	7	16	25	4.6	0.595
		Weekly	3	8	6		
		Monthly	0	1	0		
3.	Frequency of consuming pulses	Daily	1	7	9	10.71	0.296
		Weekly	8	15	20		
		Monthly	1	2	2		
		Never	0	1	0		
4.	Do you take lemon, Amla, orange with meals	Frequently	2	3	7	3.57	0.734
		Occasionally	3	13	11		
		Never	5	9	13		
5.	Do you take tea or coffee after meals	Yes	6	10	12	3.88	0.274
		No	4	15	19		
6.	Frequently do you eat junk food	Daily	2	4	5	13.42	0.04*
		2-3 times in a week	1	11	14		
		Once in a week	2	3	4		
		Monthly	5	4	6		
		Never	0	3	2		
7.	Consume milk or products along with meals	Yes	2	12	9	4.88	0.18
		No	8	13	22		
8.	Do you include any of these food items frequently in your diet	Yes	2	13	11	4.53	0.209
		No	8	12	20		
9.	Habit of eating pica	Yes	1	1	5	2.28	0.515
		No	9	24	26		

*Significance at <0.05 p value.

Discussion

The findings of the present study show that out of the 66% of adolescent girls who were anemic, mostly (31%) were mild anemic, 25% were moderate anemic and 10% were found to have severe anemia 0.34% of adolescents were non anemic. The study findings are similar to the study conducted by Chaudhary SM and Dhage VR⁵ to estimate the prevalence of anemia among adolescent females and to study the socio demographic factors associated with anemia. A cross-sectional survey was conducted in an urban area under Urban Health Training Center, Department of

Preventive and Social Medicine, Government Medical College and Hospital, Nagpur. A total of 296 adolescent females (10-19 years old) were included in this study. The findings showed that the prevalence of anemia was found to be 35.1%. A significant association of anemia was found with socio-economic status and literacy status of parents. Mean height and weight of subjects with anemia was significantly less than subjects without anemia.

The present study findings showed that 66% of adolescents were anemic out of which, 31% were mild anemic, 25% were moderate anemic and 10% were found to have

severe anemia 0.34% of adolescents were non anemic. The study findings are consistent with the study conducted by Melwani V et al. to assess the prevalence of anaemia amongst adolescent girls residing in selected slum of Bhopal city. A cross sectional study was conducted for a period of 3 months on adolescent girls residing in selected urban slum of Bhopal. 98 adolescent girls who were registered in Anganwadi and present at time of study were interviewed. The data regarding their socio-demographic profile, anthropometric measurements were collected using a semi-structured questionnaire. Hemoglobin level was also estimated using Hemocue (Hb 201) and participants were classified as having no, mild, moderate and severe anaemia based on WHO grading of anaemia. Anaemia was present in 57.65% girls. Out of which 34.7% had mild, 44.9% had moderate and 20.4% had severe anaemia.⁶

Conclusion

The high prevalence of anaemia among adolescents demands due emphasis on iron and folic acid supplementation, iron rich food intake, health education regarding personal hygiene and periodical deworming to reduce the burden of anaemia among adolescent girls and need for appropriate nutrition interventions to overcome the problem. Replication of the same study on a larger sample may help draw conclusions that are more definite and can be generalized to a larger population.

Conflict of Interest: None

References

1. Chaturvedi D, Chaudhuri PK, Priyanka et al. Study of correlation between dietary habits and anemia among adolescent girls in Ranchi and its surrounding area. *International Journal of Contemporary Pediatrics* 2017; 4(4): 1165-8.
2. World Health Organization. Worldwide Prevalence of Anemia 1993-2005. WHO Global Database on Anaemia, Geneva. 2005.
3. Kabir Y, Shahjalal HM, Saleh F et al. Dietary pattern, nutritional status, anaemia and anaemia-related knowledge in urban adolescent college girls of Bangladesh. *Journal of Pakistan Medical Association* 2010; 60(8): 633-8.
4. Patimah S, Royani I, Mursaha A et al. Knowledge, attitude and practice of balanced diet and correlation with hypochromic microcytic anemia among adolescent school girls in Maros District, South Sulawesi, Indonesia. *Biomedical Research* 2016; 27(1): 165-71.
5. Chaudhary SM, Dhage VR. A study of anemia among adolescent females in the urban area of Nagpur. *Indian Journal of Community Medicine* 2008; 33(4): 243-5.
6. Melwani V, Dubey M, Khan A et al. A study to assess the prevalence of anaemia amongst adolescent girls

residing in selected slum of Bhopal city. *International Journal of Community Medicine and Public Health* 2018; 5: 1096-9.

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