

Prevalence and correlates of anaemia among adolescent girls

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Abstract

Adolescence is a vulnerable period in the human life cycle for the development of nutritional anaemia. Most of the health care services in India are for mother and child group. The main objectives of the study were to assess the prevalence of anaemia and to identify the correlates of anaemia among adolescent girls. This study was conducted in selected higher secondary schools in Thiruvananthapuram Corporation. The sample size was 560 and cluster sampling was used as the sampling technique. An interview with the students were done to identify its correlates and hemoglobin estimation was done by using WHO hemoglobin colour scale to identify the prevalence of anaemia. It is evident from the study that prevalence of anaemia in adolescent girls was 48.9% and correlates like socio demographic factors, menstrual pattern and intake of iron and folic acid tablets had significant association with the prevalence of anaemia.

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Introduction

Nutritional anemia is one of India's major public health problems. Anemia in adolescent girls contributes to maternal and foetal mortality and morbidity in future. ¹Among 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. Adolescence represents a real opportunity to make a difference in lifelong patterns. ²The prevalence of anemia is disproportionately high in developing countries, due to poverty, inadequate diet, certain diseases, pregnancy/lactation and poor access to health services.

Overall health status of a person is judged on level of hemoglobin of a person. Anemia in adolescent girls in future attributes to high maternal mortality rate, high incidence of low birth weight babies, high perinatal mortality and fetal wastage. More than half of the country's population is under twenty years of age and more than one third is under fifteen years with the highest adolescent population in India, the real challenge for the nation is to provide nutrition, health and education for them. ³

Need and significance

Adolescence in girls has been recognized as special period of transition from girlhood to womanhood. Adolescent girls constitute one fifth of the female population in the world. Nutritional anemia is a global problem of immense health significance affecting persons of all age and economic group.

During young age iron plays a vital role for growth and development. A daily diet supplying one milligram of iron is required as same amount of loss occurs every day. Hence the children have the greater risk of developing anemia. ⁴

Adolescent girls form a crucial segment of the population and constitute, as it were, the vital "bridge"

between the present generation and the next. Anemia not only affects the present health status, but also has deleterious effects in the future. Learning, cognitive function, and scholastic performance are also severely affected. The rates of low birth weight, pre maturity, neonatal and infant mortality among children born to undernourished girls is high. Later on these undernourished girls become anemic and produce low birth weight babies. ⁵

Statement of the problem

Study to assess prevalence and correlates of anemia among adolescent girls in higher secondary schools of Thiruvananthapuram Corporation.

Objectives of the study

1. Assess the prevalence of anemia among adolescent girls.
2. Identify the correlates of anemia among adolescent girls.

Assumptions

1. Anemia is common among adolescent girls.
2. Significant association exists between socio demographic factors, dietary habits, menstrual pattern and prevalence of anemia.

Methodology

1. Study approach: Quantitative approach
2. Study design: Cross sectional Design
3. Study Setting: Higher secondary schools in Thiruvananthapuram Corporation
4. Study population: All the students studying in 11th and 12th standard in the higher secondary schools of Thiruvananthapuram Corporation

5. Study Sample: Adolescent girls of 16-18 years from higher secondary schools in Thiruvananthapuram Corporation.
6. Sample size: 560
7. Sampling technique: Cluster sampling
8. Inclusion criteria- Adolescent girls who were present on the day of collecting data.
9. Exclusion Criteria- Adolescent girls with hematologic disorders, and who are not willing to participate in the study.

Tools and Technique

Technique: Interview and biophysiological measurements

Tool

1. Interview schedule to assess sociodemographic data and correlates of anemia.

It consists of four sections;

Section A: Sociodemographic data

Section B: Dietary habits of the student

Section C: Menstrual pattern of the student

a. Section D: Clinical data of the student

2. Standardized analysis of hemoglobin in the blood by using WHO Hemoglobin colour scale to identify the prevalence of anemia among adolescent girls

Place of residence		
Urban	344	61.4
Rural	216	38.6
Type of family		
Nuclear family	417	74.5
Joint family	74	13.2
Extended Nuclear family	69	12.3
Education of father		
Illiterate	21	3.8
Below SSLC	85	15.2
High school	303	54.1
Higher secondary	129	23.0
Graduate or Post graduate	22	3.9
Occupation of mother		
Unemployed	298	53.2
Daily wages	81	14.5
Self employed	85	15.2
Office work	87	15.6
Professional	9	1.6
Monthly income		
RS.5000/-&below	248	44.3
Rs.5001-10000	149	26.6
Rs.10001 to 15000	71	12.7
Above Rs.15000	92	16.4

Data collection process

Data collection process started after getting permission from Director of Higher Secondary Education, State Mission Director of NRHM (National Rural Health Mission) and concerned school authorities. Consent was obtained from participants before data collection. The investigator conducted a face to face interview to obtain information regarding socio demographic data, dietary habits, menstrual pattern, and other associated factors of anemia. Hemoglobin analysis was done by using WHO Hemoglobin colour scale. The data collected were analyzed by means of descriptive and inferential statistics.

Results

Table 1: Distribution of students according to socio-demographic factors (N=560)

Demographic data	Number	Percentage
Age in years		
16	244	43.6
17	253	45.2
18	63	11.3
Religion		
Hindu	319	57.0
Muslim	83	14.8
Christian	158	28.2

Table 1 shows majority of the students were 17 years (45.2%), from Hindu religion (57%), urban (61.4%), nuclear family (74.5%), education of father at high school level (54.1%), unemployed mothers (53.2%), with the monthly income of Rs.5000/- & below (44.3%). (N=560)

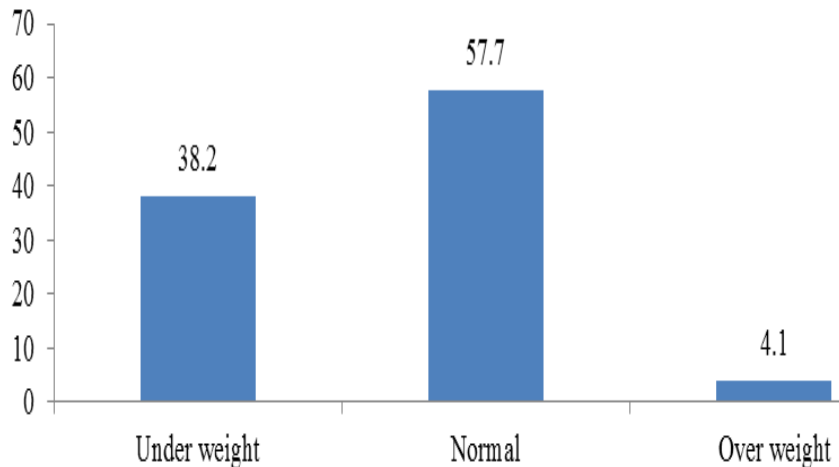


Fig 1: Distribution of students according to Body Mass Index

Figure 1 indicates that 38.2 % of students were under weight, and 4.1% of students were overweight.

Table 2: Distribution of students according to clinical data (N=560)

Clinical data	Number	Percentage
Fatigue		
Yes	351	62.7
No	209	37.3
Intake of Iron/ Folic acid		
Yes	436	77.9
No	124	22.1
Regular deworming		
Yes	110	19.6
No	450	80.4

Table 2 shows 62.7% students feel fatigue during activities, 77.9% take Iron/Folic acid tablets and majority were not doing regular deworming (80.4%)

Table 3: Overall prevalence of anemia among students (N=560)

Anemia	Frequency	Percent
Present	274	48.9
Absent	286	51.1
Total	560	100.0

Table 3 illustrates that prevalence of anemia was 48.9% with 95% CI (44.76-53.04) (N=560)

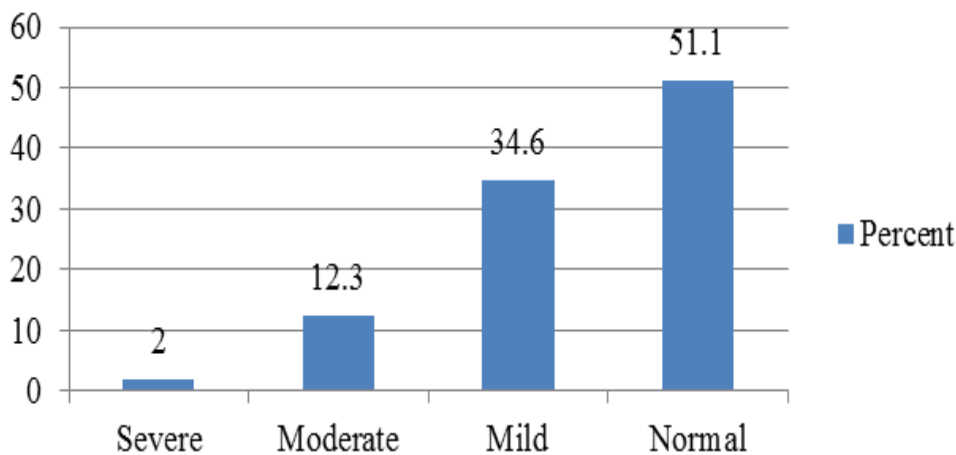


Fig. 2: Distribution of students according to severity of anemia

Figure 3 illustrates that 34.6% of the students were having mild anemia, 12.3% had moderate anemia, only 2% had severe anemia.

Table 4: Association of anemia with variable

		Anemia				Total		χ^2	df	p
		Present		Absent						
		N	%				%			
Father's education	Illiterate	11	52.4	10	47.6	21	100	11.624	4	0.020*
	Below SSLC	49	57.6	36	42.4	85	100			
	High school	155	51.2	148	48.8	303	100			
	Higher secondary	47	36.4	82	63.6	129	100			
	Graduate or Post graduate	12	54.5	10	45.5	22	100			
	Total	274	48.9	286	51.1	560	100			
Monthly income	RS.5000/-&below	148	59.7	100	40.3	248	100	48.706	3	0.001*
	Rs.5001-10000	72	48.3	77	51.7	149	100			
	Rs. 10001 to 15000	38	53.5	33	46.5	71	100			
	Above Rs. 15000	16	17.4	76	82.6	92	100			
	Total	274	48.9	286	51.1	560	100			
Age of menarche	8-10 Years	75	41.4	106	58.6	181	100	32.604	2	0.001*
	11-13 Years	139	45.9	164	54.1	303	100			
	14-16 Years	60	78.8	16	21.1	76	100			
	Total	274	48.9	286	51.1	560	100			
Duration of menstruation	<4days	75	41.4	106	58.6	181	100	32.604	2	0.001*
	5-7 days	139	45.9	164	54.1	303	100			
	> 7 days	60	78.8	16	21.1	76	100			
	Total	274	48.9	286	51.1	560	100			
Number of heavy bleeding days	< 3 days	72	48.3	77	51.7	149	100	48.706	3	0.001*
	3-4 days	148	59.7	100	40.3	248	100			
	4-7 days	38	53.5	33	46.5	71	100			
	> 7 days	16	17.4	76	82.6	92	100			
	Total	274	48.9	286	51.1	560	100			
Weekly Intake of Fe/ Folic acid tablets	Yes	197	45.2	239	54.8	436	100	11.052	1	0.001*
	No	77	62.1	47	37.9	124	100			
	Total	274	48.9	286	51.1	560	100			

Table 4 envisages that based on the statistical analysis, education of father, monthly income, age of menarche, duration of menstruation, number of heavy bleeding days, intake of Iron/Folic acid tablets are found to be significantly associated ($P < 0.05$) with prevalence of anaemia.

Conclusion

The prevalence of anaemia was 48.9% among adolescent girls in higher secondary schools of Thiruvananthapuram Corporation. Few sociodemographic variables had relationship with anaemia such as education of father and monthly income of family. There was significant relation between anaemia and menstrual pattern like age of menarche, duration of menstruation and number of heavy bleeding days. There was significant relationship between intake of iron/folic acid tablets and prevalence of anaemia.

There was no relationship between dietary pattern and prevalence of anaemia.

Recommendations

1. In the pathway of above study the following recommendations are put forward:

2. More studies can be conducted to find out correlates like importance of Iron & Folic acid supplementation as a part of school health programme.
3. Studies can be conducted in another setting to identify new correlates.
4. It can be conducted in other age group of children.
5. Same study can be conducted in a large group.
6. Same study can be conducted in adult population.

Conflict of interest: None.

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Ethical consideration: Ethical clearance was obtained from Institutional Human Ethics Committee of Govt. College of Nursing, Thiruvananthapuram.

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