



**STUDY OF ANAEMIC STATUS IN GIRL STUDENTS OF SIDDESHWAR VIDHYALAYA,
KHASGI (MS)**

Shivakumar S. Ladde^{1*}, Dinesh S. Gujrathi², Dharashive V. M.³, Nagoba S. N.¹

¹Shivlingeshwar College of Pharmacy, Almala-413520, Dist-Latur (Maharashtra)

²Gandhi Natha Rangaji College of D. Pharmacy, Solapur-413001(Maharashtra)

³Dagadojirao Deshmukh D. Pharmacy College, Almala-413520, Dist-Latur (Maharashtra)

Abstract: Aim: To examine the prevalence of anaemia in Girl Students at Siddeshwar Vidhyalaya, Khasgi Tq-Omerga, Dist Osmanabad, Maharashtra. **Material and Methods:** The present study included 637 adolescent girls selected from Siddeshwar Vidhyalaya, Khasgi Tq-Omerga, Dist Osmanabad, Maharashtra and the study included the all adolescent girls are categorised into two groups i.e. Age Between 10-13yrs (5-8th Class) and Age Between 14-18yrs (9-12th Class). The Haemoglobin is estimated by Sahli's/acid hematin Method. The severity of anaemia was categorized as severe (<7 g/dl), moderate (7-9.9 g/dl) and mild (10-11.9 g/ dl). **Result:** Present research findings revealed that out of 637 studied subjects, only 55.88 per cent adolescent girls were having normal haemoglobin value whereas 44.12 per cent were affected with various grades of anaemia i.e. 17.26per cent moderately anaemic and 26.84 per cent mildly anaemic. **Conclusion:** In the present study it conclude that anaemia in girls dueto malnutrition hence we advised to school health authority should impart nutrition education among school adolescents girls to prevent the nutrition anemia.

Keywords: Anaemia, Haemoglobin, Adolescents, Khasgi.

Introduction: Anaemia is a condition in which the number and size of red blood cells(<4.2 millions/ μ l), or the haemoglobin concentration(<12 g/ml), falls below an established cut-off value, consequently

impairing the capacity of the blood to transport oxygen around the body. Anaemia is an indicator of both poor nutrition and poor health¹. According to the World Health Organization (WHO), there are two billion people with anemia in the world and half of the anemia is due to iron deficiency².

The word adolescence is derived from the Latin word, *adolescere*; which means "to grow, to mature". Adolescence is a vulnerable period in the human life cycle for the development of nutritional anemia. Anemia has a negative effect

For Correspondence:

shivkumarladde@gmail.com.

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on cognitive performance in adolescents. Adolescent girls are at a high risk for anaemia and malnutrition. Inadequate nutrition during adolescence can have serious consequences throughout the reproductive years of life and beyond³.

In girls, adolescence is a distinctive period of transition from girlhood to womanhood. Adolescents constitutes one fifth of the world's population and in India, 22.8 per cent of the total population is adolescents. Nutritionally, adolescent period is the most vulnerable period because of increased demand and requirement for rapid growth and development. In India, due to deficient nutrition, poor socio-economic conditions and gender discernment, adolescent girls face serious health problems. In developing countries, nutritional anaemia is the greatest nutritional problem among adolescents. Anaemia is an indicator of both poor health and poor nutrition⁴.

WHO further subclassified anemia into mild anemia (10-11.9gram/dl), moderate anemia (7-9.9gram/dl) and severe anemia (<7 gram/dl)⁵. Etiologically anemia can be classified into 3 major groups i.e nutritional, marrow disease and hemolytic disease. Iron deficiency anemia is the most prevalent form (76%) followed by folate deficiency (20%) and combined iron-folate deficiency (20%)⁶.

Considering the significance of adolescent phase in human life and paucity of published data on anaemia prevalence among school going rural adolescent girls belonging to low socioeconomic group, an effort has been made in the present research, to study the haemoglobin content in rural adolescent girls of low socio-economic group in OSMANABAD district.

Material and methods:

Methodology Study area: Siddeshwar Vidhyalaya, Khasgi Tq-Omerga, Dist Osmanabad, Maharashtra

Study subjects:The study subjects were adolescent girls of 5th and 12th class are selected from Siddeshwar Vidhyalaya, Khasgi Tq-Omerga, Dist Osmanabad, Maharashtra

Sample size and Sampling techniques: The present study included 637 adolescent girls selected from Siddeshwar Vidhyalaya, Khasgi Tq-Omerga, Dist Osmanabad, Maharashtra and the study included the all adolescent girls are categorised into two groups i.e. Age Between 10-13yrs (5-8th Class) and Age Between 14-18yrs (9-12th Class).

Estimation of Heamoglobin by Sahli's/acid hematin Method^{4,7}:

Reagents required: N/10 HCl, Distilled water

Procedure:

1. Add N/10 HCl into the tube upto mark 2g%
2. Mix the EDTA sample by gentle inversion and fill the pipette with 0.02ml blood. Wipe the external surface of the pipette to remove any excess blood.
3. Add the blood into the tube containing HCl. Wash out the contents of the pipette by drawing in and blowing out the acid two to three times. Mix the blood with the acid thoroughly.
4. Allow to stand undisturbed for 10min.
5. Place the hemoglobinometer tube in the comparator and add distilled water to the solution drop by drop stirring with the glass rod till it's color matches with that of the comparator glass. While matching the color, the glass rod must be removed from the solution and held vertically in the tube.
6. Remove the stirrer and take the reading directly by noting the height of the diluted acid hematin and express in g%.

The severity of anaemia was categorized as severe (<7 g/dl), moderate (7-9.9 g/dl) and mild (10-11.9 g/ dl)⁸.

Results:**Table No-01: Prevalence of different anaemic Status in girls students between 10-13yrs of age, as observed in Siddeshwar Vidhyalaya, Khasgi Tq-Omerga, Dist Osmanabad, Maharashtra along with their percentage values**

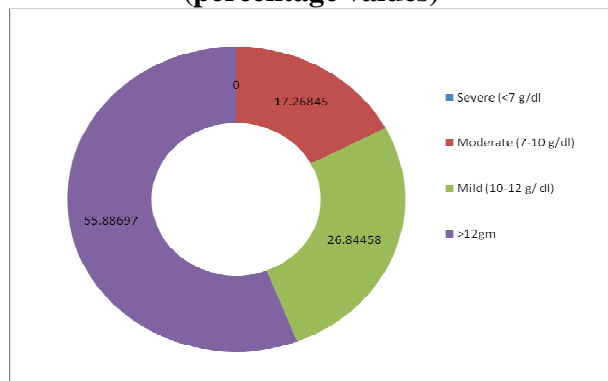
S No	Anaemia Status	No. of Girls Age Between 10-13yrs (5-8 th Class)	Percentage
01	Severe (<7 g/dl)	0	0
02	Moderate (7-9.9 g/dl)	60	15.83113456
03	Mild (10-11.9 g/ dl)	103	27.176781
04	>12gm	216	56.99208443
05	Total	379	100

The anemia was graded according to WHO standards. It showed that 27.17 % of girls were mildly anemic, 15.83% were moderately anemic and there were no severely anemic children diagnosed.

Table No-02: Prevalence of different anaemic Status in girls students between 14-18yrs of age, as observed in Siddeshwar Vidhyalaya, Khasgi Tq-Omerga, Dist Osmanabad, Maharashtra along with their percentage values

S.No	Anaemia Status	No. of Girls Age Between 14-18yrs(9 th - 12 th Class)	Percentage
01	Severe (<7 g/dl)	0	0
02	Moderate (7-10 g/dl)	50	19.37984496
03	Mild (10-12 g/ dl)	68	26.35658915
04	>12gm	140	54.26356589
05	Total	258	100

From above result, it showed that 26.35% of girls were mildly anemic, 19.37% were moderately anemic and there were no severely anemic children diagnosed.

Figure 01: Anaemic Status in Girls Students at Siddeshwar Vidhyalaya, Khasgi Tq-Omerga, Dist Osmanabad, Maharashtra (percentage values)

Present research findings revealed that out of 637 studied subjects, only 55.88 per cent adolescent girls were having normal haemoglobin value whereas 44.12 per cent were affected with various grades of anaemia i.e. 17.26per cent moderately anaemic and 26.84 per cent mildly anaemic.

Discussion: Iron deficiency anemia is diminished red blood cell production due to low iron stores in the body. It is the most common nutritional disorder worldwide and accounts for approximately one half of anemia cases. Anemia is the most prevalent nutritional deficiency affecting about the quarter of the world population.^{9, 10} Prevalence of anaemia among adolescent girls is a matter of great concern, as these girls enter the reproductive life soon after the attainment of their menarche.

The main cause of the dietary anaemia is inadequate food intake as well as poor availability of dietary iron in the habitual cereal based diets. Compared to the vast amount of work done on pregnant women and young children, there are relatively few studies on the prevalence of anaemia in adolescent girls.¹¹ Biological factors that contribute to anemia in Indian girls are inadequate dietary intake of bioavailable iron, being heavily plantbased diet, it relies on the less bioavailable nonhaem form of iron, Higher levels of Polyphenol and phytates (Phytic acid), Lower ascorbic acid (Vitamin C) to iron ratio which impedes iron absorption and Possible average gastric acidity levels that are suboptimal for iron absorption.¹²⁻¹⁹

To increase women's awareness of anemia and demand for iron supplements during pregnancy, training must expand health service providers' own knowledge and appreciation of the importance of anemia prevention and control efforts, with specific attention to iron supplementation during this period in a woman's life. In addition, providers must be trained to effectively counsel women about anemia and iron supplementation during pregnancy. The use of counseling cards, posters and other media, based on findings from formative research can reinforce messages if health workers are trained to use them. Women require accurate information about their need for iron supplements to meet the physiological demands for iron during pregnancy. They need counseling to help them manage side effects that sometimes occur when taking iron supplements, support for consistent adherence to the daily regimen throughout pregnancy, and advice on changing basic dietary practices (e.g., avoid tea and coffee consumption with meals and iron tablets) to enhance bioavailability of the iron.

Conclusion and Recommendations: The school health authority should impart nutrition education among school adolescents girls to prevent the nutrition anemia. The school teacher

should provide health education like provision of safe drinking water, improvement in environmental sanitation, healthy eating habits especially consumption of iron rich foods (green leafy vegetables) and vitamin C rich foods and discouraging intake of tea after meals. There is need to strengthen the national iron and initiative programme in the schools.

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