



## A study on Socio-demographic determinants causing anemia in adolescent girls

Authors

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### Abstract

**Background:** Prevalence of anemia is higher in girls in low socioeconomic status; In addition it gets precipitated by blood loss during menstruation. 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.

**Methods:** This was cross-sectional study. All the adolescent girls studying in standards 9th - 12<sup>th</sup> class who were given consent to hemoglobin estimation were included in the study. The girls  $\geq 20$  years, and those suffering from any chronic disease were not included in the study. A total of 1000 girls were interviewed and were investigated for their Hemoglobin concentration. A predesigned and pretested schedule was used to collect the information about the participants.

**Results:** Most of the girls i.e.970 (97%) belonged to the socioeconomic class II, III, IV. The association between SES and anemia was found statistically significant. The association between mother education and anemia was also found statistically significant but association between type of family and anemia was also found statistically Insignificant.

**Conclusion:** Nutrition education along with nutritional supplementation and iron folic acid tablets should be provided to all girls.

**Keywords:** Adolescent Girls, Anaemia, Socio-Demographic Characteristics, Education.

### Introduction

World Health Organization has defined 'adolescence' as a period between 10 and 19 years<sup>1</sup>. Adolescence in girls has been recognized a special period of transition from girlhood to womanhood. Adolescent girls constitute one fifth of the female population in the world.

Overall health status of a person is judged on level of hemoglobin of a person. Prevalence of anemia is higher in girls in low socioeconomic status; In

addition it gets precipitated by blood loss during menstruation. 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.

In developing countries, girls are most vulnerable group among adolescents. At an early age, they get married and possibility of higher risk of morbidity and mortality gets established at the reproductive age. Health status is the image of

increase in physical growth, beginning of the menstruation and rise in fat and muscle mass which meet additional requirement of nutrition among adolescent girls. Physical growth is mainly dependent upon adequate intake of diet which is measured by the food availability in terms of quality, quantity and their ability to ingest, digest and absorb the food<sup>2</sup>.

It is most crucial period for the development of dietary behaviours and later affects the risks of chronic diseases in life. The nutritional status of adolescents mainly depends upon food intake which delivers sufficient energy and other micronutrients for optimal physical, social and cognitive development<sup>2</sup>.

Poor nutritional status during adolescence is an important determinant of health outcomes. Short stature in adolescents resulting from chronic undernutrition is associated with reduced lean body mass and deficiencies in muscular strength and working capacity<sup>3</sup>. So, the present study was carried out to study the prevalence of anaemia and its association with socio-demographic factors among the adolescent girls.

**Material and Methods**

This was cross-sectional study. All the adolescent girls studying in standards 9th - 12<sup>th</sup> class who were given consent to hemoglobin estimation were included in the study. The girls  $\geq 20$  years, and those suffering from any chronic disease were not included in the study. A total of 1000 girls were interviewed and were investigated for their Hemoglobin concentration. A predesigned and pretested schedule was used to collect the information about the participants.

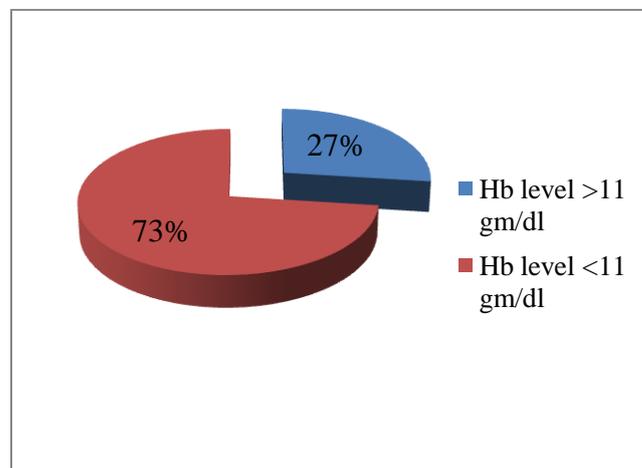
Haemoglobin was estimated by the Cyanmethaemoglobin method. It is measured in terms of g/dl. Capillary blood was drawn by finger prick method. Cuvette tube was pre-filled manually with Cyanmethemoglobin reagent. It was incubated for 5 minutes and finally readings were noted. For every sample a blank tube was placed in the machine to avoid the error or check the accuracy.

**Results**

The mean age of adolescent girls were  $12.8 \pm 2.3$  years and mean Hb level was  $10.6 \pm 1.98$  gm/dl.

**Table 1** Base line data

Hb level(gm/dl)	10.6±1.98 gm/dl
Age (years)	12.8±2.3 years



**Table 2.** Association between socio-demographic profile and anemia

Socio-demographic variable	Anemia present (n=730)	Anemia absent (n=270)	Statistics
Socio-demographic class			
I	9	21	P- Value =0.000
II	92	86	
III	270	112	
IV	359	51	
Type of family			
Joint	64	32	P-Value= 0.141
Nuclear	664	238	
Mother education			
Illiterate	340	40	P-Value= 0.000
Primary	229	82	
Secondary	201	72	
Graduate	100	76	

Most of the girls i.e.970 (97%) belonged to the socioeconomic class II, III, IV. The association between SES and anemia was found statistically significant. The association between mother education and anemia was also found statistically significant but association between type of family and anemia was also found statistically Insignificant.

### Discussion

The National Pilot Programme on Control of Micronutrient Malnutrition launched in 1995 by the Ministry of Health and Family Welfare (2000)<sup>4</sup> reported point prevalence of anaemia in various age groups and found to be high in both sexes. In adolescents, the prevalence rate of mild and moderate anaemia was also very-high i.e., 65.8 per cent in boys and 81.3 per cent in girls with severe anaemia of boys 3.8 per cent and girls 6.0 %.

In the present study, the overall prevalence of anaemia was 73.00 per cent in adolescent girls, which is higher than the prevalence (34.5%) reported by Rawat et al (2000)<sup>5</sup> among adolescent girls in rural area of Meerut. But it is reported to be low as compared to 73.7 per cent reported by Misra et al<sup>6</sup> and multicentric study in 3 regions of India (Mumbai, Gujarat and Delhi)<sup>7</sup> which showed anaemia prevalence as 62-65 per cent, 57-65 per cent and 48-50 per cent respectively in adolescent girls.

Reverse association was seen between socio-economic status and prevalence of anaemia in adolescent girls; lower the socio-economic status, and higher the prevalence of anaemia in our study. Thavraj and Reddy (1985)<sup>8</sup> noted iron deficiency among 20 per cent of healthy non-anaemic high income group children. Hence it is evident that a significant proportion of the apparently healthy children belonging to the higher socio-economic class suffers from overt anaemia and may have latent iron deficiency anaemia if not anaemic. The possible reason for this could be the poor bio-availability of iron in Indian diet. Kapoor and Aneja (1991)<sup>9</sup> noted prevalence of anaemia in 47 per cent of adolescent girls belonging to high socioeconomic group and 56 per cent in lower middle class. In a study by Vasanthi et al (1994)<sup>10</sup>, it was found that mean Hb showed a rising trend with improved socioeconomic status and most of the children belonging to lower socio-economic status were anaemic. This may be because of better availability of high quality of food for children with better socio-economic status.

The association between mother education and anemia was also found statistically significant in our study. Rawat et al<sup>5</sup> also reported that the prevalence of anaemia was more in adolescent girls who are illiterate (42.2%) and just literate (40.3%) mothers as compared to educated mothers. It shows a significant correlation between the level of parental education and girl's education. Particularly, the education of mothers is a significant factor for girl's education.

### Conclusion

Nutrition education along with nutritional supplementation and iron folic acid tablets should be provided to all girls.

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