

Original Research Article

## **A Cross-Sectional Study to Find out Prevalence of Anaemia among Adolescent Girls in an Urban Slum Area of South India**

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### **ABSTRACT**

**Introduction:** Iron deficiency anemia is the most prevalent nutritional problem in the world to-day affecting more than 700 million persons. In India, anemia affects an estimated 50% of the population. The consequences of anemia in infants and children are impaired motor development and co-ordination, impaired language development and scholastic achievement, psychological and behavioral effects as well as decreased physical activity. Adolescent girls are highly susceptible to anemia which is responsible for unwanted happening following delivery. So the present study was undertaken with the objective of identification of factors responsible for anemia in adolescent girls.

**Materials and methods:** The present cross sectional study was conducted in one randomly selected urban slum area Shrinivasrao Thota which is urban field practice area of Dept of Community Medicine, Katuri Medical College, Guntur, Andhra Pradesh. The study group was formed of 234 adolescent girls who were from this area.

**Results:** Out of the total 234 adolescent girls, 141(60.26%) were in the age group of 10-14 yrs followed by 93(39.74%) in the 15-19 yrs. 19 (8.12%) adolescent girls were married, who were in the age group of 15 – 19 yrs.. Out of 234 adolescent girls, 81(34.62%) were anaemic. Association between anaemia and menstrual cycle, history of menorrhagia and B.M.I. was found to be statistically significant

**Conclusion:** Improvement of literacy status is needed to reduce the prevalence of anemia. All post menarcheal girls should be supplemented with Iron and Folic acid tablets. Annual examination of blood for haemoglobin percentage and stool for helminthes infestation should be undertaken to rule out these problems in high risk group, with periodic deworming.

**Key words:** Adolescent girls, anaemia, urban slum.

### **INTRODUCTION**

Iron deficiency anemia is the most prevalent nutritional problem in the world to-day affecting more than 700 million persons. <sup>[1]</sup> In India, anemia affects an estimated 50% of the population. <sup>[2]</sup> In Andhra Pradesh, overall 50% of women have some degree of anemia. Thirty three

percent of women are mildly anaemic, 15% are moderately anaemic and 2% are severely anaemic. <sup>[3]</sup>

Prevalence of anemia is slightly higher for younger women less than age 25 years than for older women. <sup>[3]</sup> Infants, pre-school children, adolescents and women of child bearing age particularly pregnant

women are at greater risk of developing iron deficiency anemia. [4] It is slightly higher for rural women (51%) than for urban women (47%) in India. It is observed that the prevalence of anemia was 27% and 22% in the rural and urban premenarcheal girls and 24.2% and 27.8% in the rural and urban postmenarcheal girls in the age group 11-16 years respectively in Hyderabad. [5] The consequences of anemia in infants and children are impaired motor development and co-ordination, impaired language development and scholastic achievement, psychological and behavioral effects as well as decreased physical activity. In adults it leads to decreased physical work and earning capacity and decreased resistance to fatigue. In pregnant women it leads to increased material mortality and morbidity, increased fetal morbidity and mortality and increased risk of low birth weight. When the iron balance is precarious, repeated episodes of infection may result in the development of anemia, particularly in young children. This explains the high prevalence of anemia among infants and preschool children. Adolescent girls are highly susceptible to anemia which is responsible for unwanted happening following delivery. So the present study was undertaken with the objective of identification of factors responsible for anemia in adolescent girls.

## MATERIALS AND METHODS

The present cross sectional study was conducted in one randomly selected urban slum area Shrinivas Rao Thota which is urban field practice area of Dept of

Community Medicine, Katuri Medical College, Guntur, Andhra Pradesh. Convenient sampling method was used. The study group was formed of 234 adolescent girls who were from this area. The study period was from February 2012 to July 2012.

**Statistical Analysis:** The data obtained was entered on MS Excel and was analyzed using SPSS for windows (version 6.5). Chi square test was used to find out association of anaemia with various sociodemographic factors.

## RESULTS

Out of the total 234 adolescent girls, 141(60.26%) were in the age group of 10-14 yrs followed by 93(39.74%) in the 15-19 yrs. 19 (8.12%) adolescent girls were married, who were in the age group of 15-19 yrs. None of the girls in the age group of 10-14 yrs were married which suggests that child marriages are not prevalent. Out of 234 adolescent girls, 81 (34.62%) were anaemic. Prevalence of anaemia was 79.01% in the age group 10-14 yrs. Prevalence of anaemia was 66.67% in girls having irregularly irregular menstrual cycle. Association between anaemia and menstrual cycle, history of menorrhagia and B.M.I. was found to be statistically significant.

**Table1: Distribution of adolescent girls according to age and marital status**

Age(in years)	Marital status		Total
	Married	Unmarried	
10-14	0	141(65.58%)	141
15-19	19(100%)	74(34.42%)	93
Total	19	215	234

**Table 2: Association between types of menstrual cycle and anaemia**

Type of menstrual cycle	Anaemic	Non anaemic	Total	Chi –square test X <sup>2</sup> =45.35 P<0.0001
Regular	11(13.58%)	71(46.41%)	82	
Regularly Irregular	16(19.75%)	47(30.72%)	63	
Irregularly Irregular	54(66.67%)	35(22.87%)	89	
Total	81	153	234	

**Table 3: Association between history of menorrhagia and anaemia**

Menorrhagia	Anaemic	Non anaemic	Total	Chi –square test
Present	37(45.68%)	11(7.19%)	48	X <sup>2</sup> =48.11 P<0.00001
Absent	44(54.32%)	142(92.81%)	186	
Total	81	153	234	

**Table 4: Association between BMI of adolescent girls and anaemia**

BMI	Anaemic	Non anaemic	Total	Chi –square test
< 18.5 kg/m <sup>2</sup>	38(46.91%)	33(21.57%)	71	X <sup>2</sup> =16.09 P<0.05
>18.5 kg/m <sup>2</sup>	43(53.09%)	120(78.43%)	163	
Total	81	153	234	

## DISCUSSION

In the present study, the prevalence of anemia in adolescent girls of urban slum of south India was found to be 34.62%. Sharma A [6] observed a prevalence of 85.4% in rural area, whereas the finding in the urban area is 61.9% which is more than present study. Mehta MN [7] study showed that in urban slums of Bombay, the prevalence of anemia in adolescent girls of 10-18 yrs was 63.8%. According to Chaturvedi [8] the prevalence of anemia in adolescent girls of rural Rajasthan was 61.9%.

In the present study the prevalence of anemia is 57.78% and 21.45% respectively among the girls of illiterate and literate fathers. The percentage of anaemic girls among literate mothers was 20.67% whereas in illiterate mothers it was 58.67%. The percentage of anemia among literate girls was 77.30% and among illiterate girls it was 90%. It shows that literacy levels plays a role in reducing anemia by creating awareness in nutritional as well hygiene practices.

The present study findings are tallying with the observation of Rajaratnam J [9] who stated that there was a significant association between hemoglobin concentration and the girl's educational status. In the present study, association between anaemia and types of menstrual cycle was found to be statistically significant. This was similar to study done in Nagpur. [10]

For control of anaemia, women should start consuming iron tablets one per day from the beginning of the fourth month until delivery.

In the present study the prevalence of anemia was high among worm passers. The prevalence of worm infestation was 40 %. According to Narayan A, [11] the prevalence of Ascariasis and Hook worm infection is 50-60% and 20-30% respectively. The low prevalence in the present study might be due to improved sanitary facility than before.

## CONCLUSION

Improvement of literacy status is needed to reduce the prevalence of anaemia. All post menarcheal girls should be supplemented with Iron and Folic acid tablets. Annual examination of blood for haemoglobin percentage and stool for helminthes infestation should be undertaken to rule out these problems in high risk group, with periodic deworming. Health education on the causation and prevention of anemia should be given to the community through existing health infrastructure.

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