Int J Biol Med Res. 2011; 2(4): 922 – 924

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International Journal of Biological & Medical Research

Journal homepage: www.biomedscidirect.com

Original Article

A Study of Anemia Among Adolescent Girls in Rural Area of Hassan district, Karnataka, South India.

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ARTICLE INFO

Keywords:
Adolescent girls
Anemia
Rural area.

ABSTRACT

To estimate the prevalence of anemia among adolescent girls and to study the socio-demographic factors associated with anemia. Materials and methods: A cross sectional survey was conducted in selected Anganwadi centres of rural area of Hassan district. Three and Fourteen adolescent's girls (10-19 yrs old) were included in the study. The study was conducted from February to April 2011 (3 moths).Data analysis was done by using proportions and Chi-square test. Results: Prevalence of anemia was found to be 45.2%. A statically significant association was found with iron deficiency anemia, weight loss and anemia, pallor and anemia. In the present study it was seen that among the 45.2% of anaemic adolescent girls 40.1% had mild anaemia, 54.92% had moderate anaemia and 4.92% had severe anaemia. Conclusion: A high prevalence of anemia among adolescent girls was found, which was higher in low economic strata. It was seen that anemia affects overall nutritional status of adolescent girls.

1. Introduction

In India, adolescent girls, who constitute a sizable segment of its population form a vulnerable group and are at a greater risk of morbidity and mortality. Adolescence has been defined by WHO as the period of life spanning the ages between 10-19 [1]. It is the formative period of life when maximum amount of physical, psychological and behavioral changes take place [2]. This is a vulnerable period in the human life cycle for the development of nutritional anaemia [2]. Anemia is widely prevalent in India, a developing country and affects both sexes and all age groups. Among adolescents, girls constitute a vulnerable group particularly in developing countries. In a family with limited resources, the female child is more likely to be neglected [2]. The added burden of menstrual blood loss (normal/abnormal) precipitates the crisis too often. This study was planned to assess the magnitude of problem of anemia in adolescent females and its association with other socio - demographic factors.

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2. Materials and Methods

A cross sectional, Community based, Descriptive study was undertaken at different Anganwadi centres (AWCs) in rural area of Hassan District, Karnataka, South India. Hassan taluk has 385 Anganwadi centres out of these 12 AWCs were selected by Simple Random sampling using a Random Number Table and the girls at AWCs were selected by convenient sampling. These AWCs were widespread with minimum distance 4 km and maximum distance 30 km and mean distance (SD=7.5) of 13.1km. The study was carried out for 3 months (February to April 2011). All the adolescent girls were involved in the study. The estimated prevalence of anemia among adolescent girls as per National Family Health Suyvey-3 data is 56%. Considering this, by using formula n=4pq/d2 sample size for our study was estimated, and allowable error 10%, the estimated sample size was 314. A data was collected by using pre-designed, pretested questionnaires followed by clinical examination of participants which includes height, weight and Body Mass Index. Socioeconomic status (SES) was estimated according to modified B.G. Prasad classification.

For hemoglobin estimation, after taking written consent from participants 10 micro liter of capillary blood was taken in a hemoglobin micropipette and transferred to pre numbered test tubes containing 2.5 ml of Drabkin's reagent. Hemoglobin (Hb)

estimation was done by Cyanmethaemoglobin method using a photoelectric calorimeter with green filter (520nm wavelength). Results of Hb investigation were conveyed to the participants and advice regarding appropriate diet was given.

2.1.Criteria for anemia: Hb < 12gm% for nonpregnant adolescent girls3

2.2.Inclusion criteria:

1. Adolescent girls of the age group 10-19 years.
2. Adolescent girls who were residing in the study area for a minimum period of 6 months.
3. Adolescent girls who were willing for their blood testing.

2.3.Exclusion criteria

1. Adolescent girls who were terminally ill.
2. Adolescent girls who were pregnant.
3. Adolescent girls who did not give consent to get their blood tested.

2.4.Data Analysis: The Data analysis was done by using proportions and chi-square test.

3.Results

Out of 314 subjects, 142 (45.2%) were found to be anemic, of which 57 (40.14%) had mild anemia (Hb 10.9-11gm %), 78 (54.92%) had moderate anemia (Hb 10.9-8gm% %), and 7 (4.92%) had severe anemia (Hb < 8gm %)4.(Table No.1). Among socioeconomic class higher percentage of anemia found in class four was (33%) and class five (32.4%). None of the subject belongs to upper (class I) in present study. A statistically significant association of anemia was found with iron deficiency, weight loss and presence of pallor (Table No.2). Other factors like socioeconomic status, attainment of menarche, age group were not significantly associated with anemia. Among anemic subjects correlating with Body Mass Index (BMI) it was found that 80(60%) were underweight, 54(38%) were normal weight and 2 (2%) were overweight. The prevalence of anemia was 233(71%) in postmenerchal girls as compared to 91(29%) in premenarchal girls. In present study among anemic subjects 121(85%) were anemics had iron deficiency, 82(57.7%) presented with pallor and 75 (52.8%) had normal weight.

Table No. 1: Severity of anemia among adolescent girls (n=142)

Grading of anemia	No.of girls
Mild	57 (40.14%)
Moderate	78 (54.92%)
Severe	07 (4.92%)

4.Discussion

The overall prevalence of anemia was found to be 45.2%, of which 5% were severe anemia, 55% moderate anemia and 40%mild anemia. Similar prevalence is reported by J Rajaratnam etal [5] in Tamil Nadu. Toteja etal [6], found 90% prevalence of anemia among adolescent girls from 16 districts of India, with 7.1% having severe anemia. Bulliyy etal [7] found that 96.5% prevalence among non-school going adolescent girls in three districts of Orissa, of which 45.2%, 46.9% and 4.4% had mild, moderate and severe anemia. Rana etal [8]. and Seshadri etal [9], reported the prevalence of anemia of 60% and 63% respectively. In the present study, age, socio-economic status and BMI was not significantly related with anemia. Mehta et al. [10] and Kotecha et al [11, 12]. also reported that age is not a significant correlate of anemia. Educational and socioeconomic status alone may not have any significant effect. In our study prevalence of anemia was higher in postmenerchal girls (71%) compared to premenarchal (29%). J Rajaratnam et al. [5] had documented that the prevalence of anemia was 45.2% in postmenerchal girls and 40.7% in premenarchal girls. Agrwal12 had reported that 48.4% in postmenerchal girls and 46.4% in premenarchal girls.

Table No.2 Sociodemographic correlates of anemia in adolescent girls (n=314)

Varibles Socio-economic status	Anemia Present	Anemia Absent	x2	degree of freedom	p
Class II	12(8.4%)	16(9.3%)			
Class III	37(26%)	31(18%)			
Class IV	47(33%)	62(36%)			
Class V	46(32.4%)	63(36.6%)			
Iron deficiency					
Present	121(85%)	85(49.5%)	44.165	1	o.ooo
Absent	21(15%)	87(50.5%			
Weight loss					
1-3kg	29(20.4%)	51(29.6%)	13.76	2	o.oo1
>3kg	38(26.7%)	19(11%)			
No loss	75(52.8%)	102(59.3%)			
Pallor					
Present	82(57.7%)	21(12.2%)	73.17	1	o.ooo
Absent	60(42.3%)	151(87.7%)			
Menarche					
Not attained	41(28.8%)	50(29%)			
Attainded	101(71.1%)	122(71%)			
Body Mass Index					
Under weight(<18.5)	41(28.8%)	50(29%)			
Normal range	101(71.1%)	122(71%)			
(18.5-24.99)					
Overweight(>25)					

5. Conclusion and recommendation

The overall prevalence of anemia among adolescent girls was found to be 45.2%. A statistical association was found with iron deficiency, weight loss and presence of pallor. Emphasizes is needed for corrective measures of anemia and iron deficiency in girls before they enter into adolescent age group. There is need for regular supply of iron and folic acid tablets at AWCs and to increase the compliance regarding consuming tablets among adolescent girls. Improve nutritional status of adolescent girls through counseling and health education.

Acknowledgment:

The authors would like to thanks MBBS final year students for their role in data collection in this study.

6. References

[1] World Health Organization. Programming for adolescent health and development. WHO Tech Rep Ser No. 886.

[2] Sanjeev M Chaudhary, Vasant R Dhage. A study of anemia among adolescent females in the urban area of Nagpur.

[3] ICMR Bulletin. A reappraisal of the iron status indicators. Vol. 27.1997. p.1

[4] Tanuja Rastogi, Collin Mathers: Global burden of anemia of iron deficiency anemia in the year 2000, 2002, p.g; 1,2

[5] Rajaratnam J, Abel R, Asokan JS, Jonathan P. Prevalence of anemia among adolescent girls of rural Tamil Nadu. Indian Pediatr. 2000; 532-6.

[6] Toteja GS, Singh P, Dhillion BS, Saxena BN, Ahmed FU, Singh RP: Prevalence of anemia among pregnant women and adolescent girls in 16 districts of India. Food Nutr Bull 2006; 27: 311-5

[7] Bulliyy G, Mallick G, Seth GS, Kar SK. Hemoglobin status of non school going girls in 3 districts of Orissa, India. Int J Adolescent Med Health; 19: 395-406

[8] Rana T. Age at menarche; Nutritional status and other associated factors in urban Hyderbad girls. Ph.D. Thesis submitted to National Institute of Nutrition, Hyderbad-1983.

[9] Seshadri: a data base iron deficiency anemia in India. Prevalence, etiology, consequences and strategies for control, task force for micronutrients malnutrition control, Department of Women and Child Development, Ministry of Human Resource, Development, New Delhi-1996.

[10] Mehta M. Effectiveness of daily/weekly iron and folic acid supplements in anemic adolescent girls. UNICEF funded final report of research project, Bombay urban ICDS Project 1998:21-25.

[11] Kotecha P.V; Patel R.Z and Nirupam S. Prevalence of anemia among adolescent school girls, Vadodara, August -2000.

[12] Agrwal K.N. Assessment of prevalence of anemia and iron stores in response to daily/weekly iron folate supplements in adolescent girls(10-18) from urban slums of East Delhi. UNICEF Contract No. 95/0075, 1998; ppi- 9