NUTRITIONAL STATUS OF ADOLESCENT GIRLS OF URBAN FIELD PRACTISE AREA OF S.C.B MEDICAL COLLEGE, CUTTACK

Original Research Article

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Abstract

Background: Adequate nutrition in adolescence is important for growth and sexual maturation. Inadequate nutrition in adolescence can enhance the risk of chronic diseases, particularly if combined with other adverse lifestyle behaviours. India, which is typically known for a high prevalence of undernutrition, now has increasing numbers of overweight and obese children and adolescents, posing a dual challenge for the country. The nutritional status of adolescent girls and young women is inextricably linked to the birth weight of their children and subsequently to child survival. There is evidence to show that adolescent mothers are vulnerable to problems related to pregnancy and childbearing. Of all mothers, adolescent mothers are more likely to have preterm births. **Materials and Methods:** This was a community based cross sectional study, conducted among adolescent girls residing in urban slums situated under the urban field training area of department of the Community Medicine, S.C.B. Medical College, Cuttack, Odisha. The study was conducted during the year 2013. There were ten Anganwadi Centers(AWCs) under this field training area catering to the needs of 12163 populations. Study subjects includes all the adolescent girlsof 10 to 19 years of age. Considering prevalence of anaemia in adolescent girls to be 56% according to NFHS III data and utilizing the formula Sample size (N)= $(1.96)^2 pq/L^2$, taking p=0.56, q=0.44, L=10% of p=0.056 , N=301.84 & Considering 10% as non-response rate N= 302+30=332 so a total of 332 adolescent girls were studied. **Result:** The mean BMI of the study subjects was 18.5±3.1 Kg/m2 with the range between 12.3Kg/m2 to 28.8Kg/m2. The mean haemoglobin level among the adolescent girls was 11.65 gm/dl with SD 1.3 gm/dl. The minimum haemoglobin level was 8.3gm/dl and maximum of 15gm/dl. Age wise distribution of anaemia found that in early adolescent girls, 71(53.8%) were not anaemic and the rest 61(46.2%) were anaemic. 29(22%) of early adolescent girls were mild anaemic and 32(24.2%) were moderately anaemic. In the late adolescent phase, 73(36.5%) girls were not anaemic and rest 127(63.5%) were anaemic. 71(35.5%) of late adolescent girls were mild anaemic and 56(28%) were moderately anaemic. **Conclusion:** The present study shows that more than three fourth were nutritionally normal, 18(5.4%) were overweight, 3(0.9%) were obese, 47(14.2%) were thin and 10(3%) were severely thin. This study also found that more than half of adolescent slum girls (56.6%) were anaemic, from them 100(30.1%) girls had mild anaemia and 88 (26.5%) had moderate degree of anaemia. Mild and moderate degree of anaemia was present in significantly higher proportion of late adolescent girls as compared to early adolescent girls(P<0.005).

INTRODUCTION

Adolescence is an opportunity period for interventions to address malnutrition. Nutrition is required not only for growth and preparation for pregnancy, but also needed for physical and academic excellence.[1] Today's healthy adolescent girls are tomorrow's healthy women, future of every

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society and a great resource of the nation.[2] Globally, adolescent health and nutrition has gained importance in the last decade only.[3]

Although, in India adolescent health has gained grounds since 1997 as a component of RCH programme, it did not receive the attention it deserved.[4] However, in the recently launched RMNCH plus A strategy (2013) emphasis is given on nutritional status of adolescent girls to improve maternal health and child survival.[5] Continued assessment of nutritional status in adolescent girls is the need of the hour.[6] World Health Organization (WHO) recommends various anthropometric indices to evaluate nutritional status in children. BMI is the most appropriate tool for epidemiological studies on assessment of nutritional status among adolescents especially at the community level.

New growth charts are recommended since 2006.[7] More than half of the global population is urban and histories largest-ever urbanization wave will continue for many years to come. Urbanization brings enormous changes to landscapes and lifestyles. It offers many opportunities including increased access to jobs, education and essential services, but it can also see inequalities concentrated in slums and informal settlements.[8] The urban slum adolescent girl is subjected to more physical and mental challenges on a day to day basis due to pressure of modernization and she needs to work hard to cope with future demands of life.[9]

So far most of the studies have been done in schools and rural areas. The findings of studies on school children cannot be extrapolated to adolescent girls, as their school enrollment is less. It is likely that girls not attending schools belong to disadvantaged segment of society and contribute significantly in domestic and peridomestic activities, there by jeopardizing their health. Bagalkot is a city affected by backwaters of irrigation dam, has seen large scale changes in bioecosystem in this decade. The Urban field practice area where the present study was conducted is designated as a resettlement area.

MATERIALS AND METHODS

This study was a community based cross sectional study. The sampling design adopted for the study was based on probability sampling, because probability samples are more likely to be representative of the population.

The study titled "A study on health status of adolescent girls in urban field practice area of Dept.

of community medicine SCB Medical College, Cuttack" was conducted among the adolescent girls residing in Jobra area which is functioning as the field practice area under UHTC of Dept. of Community Medicine, SCB Medical College, Cuttack.

Inclusion Criteria

Includes all the adolescent girls in the age group of 10 years to 19 years who were normally residing in the study place.

Exclusion Criteria

- Migrants adolescent girls residing for less than six month in the study area
- Adolescent girls who were temporary visitors or guest to the study area.
- Those who were reluctant to participate in the study.
- Those who were absent during the visit to the area.

Statistical Analysis

The collected data was cleaned and entered into SPSS version 16.0 to facilitate easy handling and analysis.

Data thus collected were compiled and tabulated into primary tables which were further subjected to modifications and the composite tables were generated according to the study objectives.

RESULTS

Among the total study subjects, 254(76.5%) were nutritionally normal, 18(5.4%) were overweight, 3(0.9%) were obese, 47(14.2%) were thin and 10(3%) were severely thin which was determined by using BMI for age of girls -5 to 19 years(z- score) WHO Reference 20072. Among the 132 girls of 10-14 years, 89(67.4%) were nutritionally normal, 7 (5.3%) were overweight, 3(2.3%) were obese, 29(22%) were thin and 4(3%) were severely thin. Out of 200 girls of 15-19 years, 165(82.5%) were nutritionally normal, 11(5.5%) were overweight, 18(9%) were thin, 6(3%) were severely thin and no one was obese. Among 240 Hindu study subjects, 186(77.5%) were nutritionally normal, 10(4.2%) belonged to overweight and obese category and 44(18.3%) belonged to thin and severely thin category. Out of 92 Muslim adolescent girls, 68(73.9%) were nutritionally normal, 11(12%) were overweight and obese and 13(14.1%) were thin and severely thin. Significantly higher proportion of Muslim girls belonged to overweight and obese category as compared to Hindu girls.

Table 1: Nutritional status of study subjects in relation to age group.   (N=332)

Age group	Nutritional status						Chi Square value = 16.36, Degree of freedom=4, P=0.003(<0.05)
	Normal	Over weight	Obesity	thinness	Severe thinness	Total	
10-14 years	89 (67.4%)	7 (5.3%)	3(2.3%)	29(22%)	4(3%)	132	
15-19 years	165 (82.5%)	11 (5.5%)	0	18 (9%)	6(3%)	200	
Total	254 (76.5%)	18 (5.4%)	3(0.9%)	47 (14.2%)	10(3%)	332	

Haemoglobin estimation of the study subjects by Cyanmethaemoglobin method revealed as per WHO criteria3 that 144(43.4%) had no anaemia. 100 (30.1%) girls had mild anaemia and 88(26.5%) had moderate degree of anaemia. No one had suffered from severe anaemia.

Table 2: Prevalence of anaemia among study subjects in early vs late adolescent age group (N=332)

Age group	Anaemia status(%)				Total
	No anaemia	Mild	Moderate	severe	
10-14 years	71(53.8%)	29(22%)	32(24.2%)	0	132
15-19 years	73(36.5%)	71(35.5%)	56(28.0%)	0	200
Total	144(43.4%)	100(30.1%)	88(26.5%)	0	332

Chi square =10.736, Degree of freedom=2, P=0.005

Age wise distribution of anaemia found that in early adolescent girls, 71(53.8%) were not anaemic and the rest 61(46.2%) were anaemic. 29(22%) of early adolescent girls were mild anaemic and 32(24.2%) were moderately anaemic. In the late adolescent phase, 73(36.5%) girls were not anaemic and rest 127(63.5%) were anaemic. 71(35.5%) of late adolescent girls were mild anaemic and 56(28%) were moderately anaemic. This table shows that significantly higher proportion of late adolescent girls (63.5%) were anaemic in comparison to early adolescent girls (46.2%) and also the extent of anaemia i.e. mild and moderate degree of anaemia was present in significantly higher proportion of late adolescent girls as compared to early adolescent girls.

A total of 92 adolescent girls had consumed weekly IFA and binnually deworming tablets, among them 47% had normal hb level. But among those who never had IFA and deworming tablets in last six month of study period 58% were anaemic.

Table 3: Presence of anemia in relation to nutritional status of study subjects

	No anemia	Anaemia(mild +moderate)	Total
Normal	102 (40.2%)	152 (59.8%)	254
Overweight & Obese	12 (57.2%)	9 (42.8%)	21
Under weight	30 (52.6%)	27 (47.4%)	57
Total	144	188	332

Among the 254 study subjects having normal nutritional status 152 had anemia, from 21 overweight & obese 9 had anemia and from the rest 57 underweight adolescent girls 27 were anemic.

DISCUSSION

This study reveals 254(76.5%) were nutritionally normal, 18(5.4%) were overweight, 3(0.9%) were obese, 47(14.2%) were thin and 10(3%) were severely thin which is similar to the findings of A.S. Indupalli et al where 27.6% of adolescent girls were suffering from chronic energy malnutrition and 72.4% were nutritionally normal and no one was overweight.[4] Binod Wasnik et al found 56.4% girls were undernourished (BMI <18.5 kg/m2) according to WHO reference standards. 2.9% were found to be overweight.[5]

This study reported 144(43.4%) had no anaemia. The mean haemoglobin was 11.65 and standard deviation was 1.2 gm/dl. 100(30.1%) girls had mild anaemia and 88 (26.5%) had moderate degree of anaemia. No one had suffered from severe anaemia. Age wise distribution of anaemia found that in early adolescent girls, 71(53.8%) were not anaemic and the rest 61(46.2%) were anaemic. In the late adolescent phase, 73(36.5%) girls were not anaemic and rest 127(63.5%) were anaemic. This finding is similar to finding of a study conducted by A.S. Indupalli in an urban community(rajapur) of Gulbarga, Karnataka.[4] But in another study conducted at Bhopal by Rakesh Kakker et al, the prevalence of anaemia was higher in early adolescent as compared to middle adolescent and late adolescent.[6]

Another study by S M Siddharam et al in Rural Area of Hassan district, Karnataka, the Prevalence of anemia to be 45.2% and from among them 40.1% had mild anaemia, 54.92% had moderate anaemia and 4.92% had severe anaemia.[7] Sanjeev et al in another study at Nagpur reported the prevalence of anemia to be 35.1%.[8] Bulliyy G et al in a study in 3 Districts of Odisha found 96.5% of adolescent girls to be anaemic of which 45.2%, 46.9% and 4.4% were mild, moderate and severely anaemic respectively.[9]

CONCLUSION

The present study shows that more than three fourth were nutritionally normal, 18(5.4%) were overweight, 3(0.9%) were obese, 47(14.2%) were thin and 10(3%) were severely thin. This study also found that more than half of adolescent slum girls (56.6%) were anaemic, from them 100 (30.1%) girls had mild anaemia and 88 (26.5%) had moderate degree of anaemia. Mild and moderate degree of anaemia was present in significantly higher proportion of late adolescent girls as compared to early adolescent girls (P<0.005). IEC activities regarding proper nutrition and physical activity should be given to the adolescent girls at adolescent health clinic and regular weekly intake of IFA tablets will address this health issue and build a healthy adolescent for healthy future.

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