Assessment of Prevalence and Awareness Regarding Anaemia Among Urban and Rural Adolescent School Girls in Bilaspur District, Chhattisgarh-A Comparative Study

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Abstract

Background: Anaemia is a serious global public health problem with 42% of children less than 5 years of age and 40% of pregnant women worldwide being anaemic.[1] In India 58.6% children in age group 6-59 months, 53.2% non-pregnant women between 15-49 years suffer from anaemia.[2] Adolescents girls are at a greater vulnerability in developing countries exposed to dangers of greater reproductive morbidity and mortality during adulthood if not taken care at appropriate time.[7] This study was undertaken to estimate the prevalence of anaemia and levels of awareness regarding anaemiaamong rural and urban adolescent school girls and to find any significant differences therein.

Methodology: Aschool based cross sectional study was conducted involving two schools selected by purposive sampling. 300 adolescent school going girls in 12 – 19 years age group participated in the study, 150 participants were from urban area and 150 from rural area. A pre designed, semi-structured questionnaire was used to know the awareness on anaemia among girls. Haemo-check kit was used to detect cases of anaemia and thereafter for grading into mild/moderate/severe. Data collected was processed through MS Excel and SPSS20 .

Results: Prevalence of anaemia was higher amongst rural adolescent school girls 54.7% compared to urban adolescent school girls 39.4% and this difference was significant (p<0.05). Prevalence of moderate & severe anaemia was found more in rural adolescent school girls as compared to urban school girls and this difference was found significant (p<0.05). Awareness regarding anaemia, was higher among urban adolescent girls compared to the rural school girls and this difference was significant (p<0.05).

Keywords: Anaemia, Adolescent girls, Prevalence.

Introduction

Anaemia is a serious global public health problem that particularly affects young children and pregnant women. WHO estimates that 42% of children less than 5 years of age and 40% of pregnant women worldwide are anaemic.[1] According to NFHS4 data in India there was found a high prevalence of anaemia in vulnerable groups of population. 58.6% children in age group 6-59 months, 53.2% non-pregnant women between 15-49 years, 50.4% pregnant women in age group 15-49 years, 53.1% of all women in their reproductive years and 22.7% of men between 15-49 years were found to have anaemia.[2]

In India anaemia is a significant public health problem that affects women and children all through their life. Anaemia in children & adolescents limits their growth and development, learning ability, reduces concentration, increases

susceptibility to infection, increases school dropout rates, and work productivity. Anaemia during pregnancy is associated with premature births, low birth weight, and peri-natal and maternal mortality which makes it imperative to intervene during adolescence. Missing out on nutrition education and IFA supplementation during adolescence may push young boys and girls more into the cycle of iron deficiency and anaemia.[3]

Adolescent is defined by World Health Organization as a person between 10 and 19 years of age.[4] Around 1.2 billion adolescents aged 10-19 years make up 16 per cent of the world's population.More than half of all adolescents globally live in Asia. South Asia is home to nearly 350 million adolescents.[5] In India adolescents (10 to 19 years) make up 18.28% (252,201,518) of the total population.[6]

Among adolescents girls are particularly at a greater vulnerability, more so in developing countries where they are married at an early age by tradition and exposed to dangers of greater reproductive morbidity and mortality.[7] In developing countries in adolescents, infectious diseases and parasitic infections further add to the iron loss.[8]

In Chhattisgarh as reported in NFHS4data 41.6% children age 6-59 months, 47.3% nNon-pregnant women in reproductive age group, 41.5% pregnant women between 15-49 years, 47% of all women between 15 to 49 years of age and 22.2% of men age 15-49 years were found to be anaemic.[9]

To fight iron deficiency anemia in India especially among adolescents, the Ministry of Health and Family Welfare (MoHFW), Government of India (GoI), has launched Weekly Iron and Folic Acid Supplementation (WIFS) Programme with the objectives to reduce the prevalence and severity of nutritional anemia in adolescent population.[10]

There are few studies done to assess the distribution of anemia focussed on adolescent girls in Chhattisgarh. This study was thus undertaken to assess the prevalence of anaemia and levels of awareness regarding anaemiaamong rural and urban adolescent school girls and to find any significant differences therein.

Methodology

Aschool based cross sectional study was conducted between 1st July to 30th November 2019. Two schools were selected by purposive sampling one Urban Government Higher Secondary School and one rural Government Higher Secondary School, in Bilaspur. School going adolescent girls of age group 12-19 years were included as participants representing classes 9-12th. Girls who were absent on the day of data collection and who did not give consent to participate were excluded.

A pre designed,pre-tested semi-structured questionnaire was used to know the awareness on anaemia among girls. The questions were provided in both English and Hindi for the better understanding of participants. Haemo-check kit was used to detect cases of anaemia and thereafter for grading into mild/moderate/severe. The grading of anaemia was recorded with age & name of participants after taking the written informed consent. "Prick Test Method"was followed to detect anaemia by strip haemo-check kit. Socio-economic status was assessed using the modified BG Prasad's classification. Health education was provided to the participants regarding prevention of anaemia. Data collected was processed through MS Excel and IBMSPSS20.

Results

A total of 300 adolescent girls participated in the study, 150 from urban area and 150 from rural area. 48.6% girls in urban area school and 39.3% in rural school were in the 12 to 14 years age group. While 51.3% participants in urban area and 60.7% in rural area were 15 years of age and above.

Table 1: Socio-demographic characteristics of participants.

	Urban	Rural
Age in years		
12-14 years	73 (48.6%)	59 (39.3%)
≥ 15 years	77 (51.3%)	90 (60.7%)
Class in school		
9th	32 (21.4%)	52 (34.8%)
10th	46 (30.6%)	30 (20%)
11th	33 (22%)	28 (18.6%)
12th	39 (26%)	40 (26.6%)
Mother's Educational status		
Literate	147 (98.6%)	134 (89.3%)
Illiterate	3 (1.4%)	16 (10.7%)
Socio-economic status		
Class I	0	0
Class II	4 (2.7%)	2 (1.3%)
Class III	12 (8%)	9 (6%)
Class IV	72 (48%)	66 (44%)
Class V	62 (41.3%)	73 (48.7%)
Total	150	150

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Table 1 shows that out of all urban adolescent school girls 21.4% were studying in class 9ths, 30.6% were from class 10th, 22% were from class 11th, 26% were from class 12th . While amongst rural adolescent school girls 34.8% were from 9th standard, 20% were from 10th standard, 18.6% were from 11th standard, and 26.6% were from 12th standard.

We found that the proportion of mothers with no education was higher 16 (10.7%) in rural area as compared to urban area (1.4%). A greater proportion 48% adolescent girls in urban area & 44% girls of rural area were from lower middle class.41.3% adolescent girls in urban area & 48.7% girls of rural area were from low socioeconomic status.

Table 2: Distribution based on status and severity of Anaemia.

	Urban	Rural	Total	P Value
Anaemia Status				
Anaemic	59 (39.4%)	82 (54.7%)	141 (47%)	0.008*
Non-anaemic	91 (60.6%)	68 (45.3%)	159 (53%)	
Severity of Anaemia				
Non- anaemic	91 (61%)	68 (45.3%)	159 (53%)	0.0004*
Mild	32 (21%)	22 (14.7%)	54 (18%)	
Moderate	24 (16%)	52 (34.7%)	76 (25.3%)	
Severe	3 (2%)	8 (5.3%)	11 (3.7%)	
Total	150	150	300	

(* indicates p< 0.05)

Table 2. shows that the distribution of anaemia is higher in rural adolescent school girls 82 (54.7%) as compared to urban adolescent school girls 59 (39.4%) and this difference was found significant (p<0.05). It also shows that the prevalence of moderate and severe anaemia is recorded higher in rural adolescent school girls as compared to urban school girls and this difference was also found significant (p<0.05).
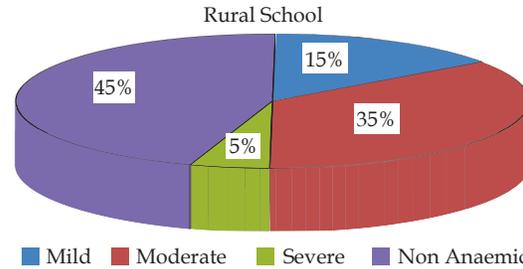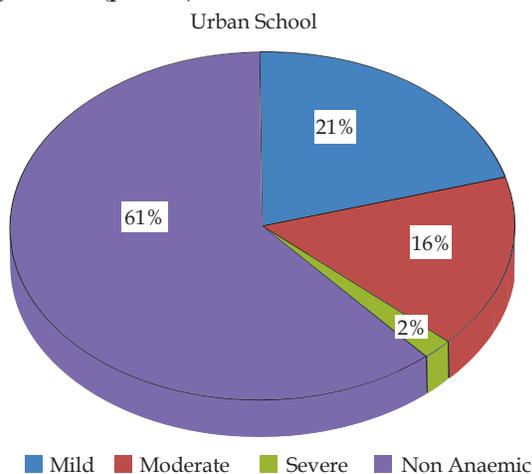

Urban School

Mild 21% · Moderate 16% · Severe 2% · Non Anaemic 61%

Rural School

Mild 15% · Moderate 35% · Severe 5% · Non Anaemic 45%

Fig. 1: Urban School, Rural School

Table 3: Distribution based on awareness regarding anaemia among adolescent school girls of urban and rural area

	Urban	Rural	Total	P vaue
Grading of Awareness				
Adequate	20 (13%)	5 (3%)	25 (8.3%)	0.0001*
Fair	45 (30%)	18 (12%)	63 (21%)	
Poor	85 (57%)	127 (85%)	212 (70.7%)	
Total	150	150	300	

(* indicates p< 0.05)

Table 3 shows that the awareness regarding anaemia, was higher among urban adolescent girls as compared to the rural school girls and this difference was found statistically significant (p<0.05).

Discussion

Adolescents constitute more than 18.3% of our population in India and more than 50% suffer from anaemia. Looking at the poor health status of adolescent girls, we conducted study to estimate the prevalence and awareness regarding anaemia among adolescent girls in the government schools of urban and rural areas of Bilaspur.

In our study the overall prevalence of anaemia was 47%, whereas in a study conducted by Ayushi et al in coastal Karnataka the prevalence of anaemia among adolescent females was some what lesser 38.6%.[11] While Kaur et al found a higher prevalence of 59.8% in rural Wardha.[7] Verma et al., had also found a very high prevalence of anaemia 81.8% among school going girls (6 to 18 years) from slums of Ahmadabad city.[12] Chatterjee et al., had reported an alarming prevalence of 92.6% among adolescent girls.[13] Though there was no severe anaemia cases in study done by Chatterjee et al.[13] The prevalence of severe anaemia in present study was 3.7%. mild, moderate and severe anaemia in our study was 18%, 25.3% and 3.7% respectively whereas in study conducted by Bulliyy G et al., the prevalence

of severe anaemia 4.4% similar to our finding but overall 96.5% adolescent girls were suffering from anaemia.[14] In our study among adolescent girls the prevalence of anaemia was 39.4% in urban adolescent girls and 54.7% in rural adolescent girls. In rural adolescent school going girls prevalence of mild, moderate and severe anaemia was 14.7%, 34.7%, and 5.3% respectively Whereas in study conducted by Rajaratnam et al in rural Tamil Naidu the prevalence of mild, moderate, and severe anaemia was 36.5%, 6.3%, and 2% respectively.[15]

However, amongst urban adolescent school going girls the prevalence of mild, moderate and severe anaemia was 21%, 16% and 2% respectively. In a study conducted by Verma A et alin slums of Ahmadabad city prevalence of mild moderate and severe anaemia was 55.2%, 44.9%, 0.6% respectively.[12]

The proportion of mothers with no education was 1.4% in the urban areas which is lower as compared to that in rural areas 10.7%. Overall this is lower than that found by Goyal et al in Haldwani where 36.10% mothers had no formal education.[16]

In present study proportion of educated mothers in urban area was higher 98.6% as compared to that in rural area 89.3%.

In present study greater proportion of participants belonged to SES class IV & V, 48% from Class IV strata, 41.3% from Class V strata in urban areas, while in rural areas, 44% were from Class IV strata and 48.7% were from Class V strata. Kaur et al had found in their study that 36.3% belonged to SES Class III and 43.2% belonged to SES Class IV.[7]

In present study awarenesss regarding anaemia among adolescent school going girls in Urban area 43% had fair to adequate awareness and 57% had poor awareness e while in rural adolescent school going girls 15% had fair to adequate awareness and 85% had poor awareness in rural area.

Thus, the results of various studies which have been mentioned above shows prevalence of anaemia amongst adolescent girls is high and awareness regarding anaemia is low specially in rural areas. This indicates the importance of including adolescent girls in the risk group to improve their iron status and the need for strengthening the interventional programmes.

The results cannot be generalized to all school going adolescent girls as only two schools of Bilaspur were chosen by convenience sampling.

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