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IMPACT OF SOCIODEMOGRAPHIC FACTORS ON PREVALENCE OF ANAEMIA AMONG ADOLESCENTS GIRLS OF BILASPUR (CHHATTISGARH)

Physiology

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ABSTRACT

Introduction- Anaemia is one of the most important health problems throughout the world. Adolescent children are one of the major risk groups for anaemia.

Aims- To find out the influence of different sociodemographic factors in prevalence of anaemia among adolescent girls.

Materials and Methods- Adolescents girls were taken for the study and were interviewed for sociodemographic ,dietary habits' and defecation practices . Haemoglobin estimation was done by HemoCue and anaemia was considered as per WHO standard.

Results- statistical significant prevalence of anaemia was observed among adolescent girls belonging to low socioeconomic group, those between age group of 10-14yrs, having more members in their family , having vegetarian diet , low parental education and practicing open defecation.

Conclusion- Our results suggest that the socioeconomic status of the family and traditional eating habits , low education of parents ,defecating in open are all contributory factors of anaemia among adolescent girls .

KEYWORDS

Anaemia, adolescent girls, sociodemographic factors.

Introduction

Adolescence proves to be the most vulnerable phase in the path of human life cycle after infancy, characterised by rapid growth and development with a transition from childhood to adulthood. During this period they gain 50% of their adult weight and skeletal mass and more than 20 per cent of their adult height, where, nutrition plays a vital role in determining the growth, development and survival of any individual. Adolescents, especially adolescent girls, at this stage need protein, iron and other micronutrients to support the adolescent growth spurt and meet the body's increased demand for iron during menstruation. Adolescents often receive few health care resources and scant attention as they are been typically considered as low risk group for poor health.The main nutritional problems identified in adolescents are micronutrient deficiencies in general and iron deficiency anaemia in particular. WHO estimates that 27 percent of adolescents in developing countries are anaemic.[1] It is also vivid from the studies that the prevalence of severe anaemia is much higher among adolescent girls than in children. World Health Organization has defined adolescence as the age between 10-19 years. The term 'Adolescence' means to emerge or achieve identity. According to census 2001, adolescents constitute 22.8 percent or about 230 million of total Indian population in the age group of 10 to 19 years. Anaemia affects about 43 per cent of women of reproductive age in less developed countries [2]. In India alone, depending on age and sex, Iron Deficiency Anaemia (IDA) has been reported to range between 38-72 per cent while majority of them are being women and children [3].According to NFHS-3 the prevalence of anaemia among married women in the age group of 15-19 years has risen from 51.8 percent in 1998-99(NFHS-2) to 56.1 percent in 2005-06 and no less than 57.9 percent of pregnant women suffer from anaemia [4]. This again raised anaemia among children in the age group of 6-36 months from 74.2 percent in 1998-99 to 79 percent in 2005-06.In India 50 percent of first births are taking place in those below 19 years of age. It is also evident from the studies that there is high prevalence of nutritional anaemia among adolescent girls [5]. A WHO study shows that in developing countries 52 per cent of pregnant women and about 35 to 40 percent of non-pregnant women suffer from iron deficiency anaemia [6].

Anaemia is defined as having haemoglobin below a specific level i.e. less than 12 grams of haemoglobin per decilitre of blood [g/dl] in non-pregnant women and less than 10 g/dl in pregnant women. The body uses iron to produce haemoglobin, a protein that transports oxygen from the lungs to other tissues in the body via blood stream. When the haemoglobin levels in the blood fall, it leads to weakness, exhaustion, breathlessness and low immunity, making person more susceptible to infections .The pre-pregnancy anaemic status of adolescent girls is crucial and has long-term intergenerational consequences as the anaemic adolescent mother is at high risk of miscarriages, maternal mortality and giving birth to still born and low birth weight babies with low iron reserves. Evidence also supports that bodies of the still growing adolescent mother and her baby may compete for nutrients, raising the infant's risk of low birth weight [7]. This iron deficiency anaemia is also associated with impaired cognitive functioning, lower school achievement, and more susceptible to infections and lowers physical work capacity [8].

Hence the present study was conducted with the objective to study the prevalence of anaemia in adolescent girls in relation to their sociodemographic, diet and defecation practice, in a government run school in Bilaspur district of state Chhattisgarh (C.G).

Material and Methods

The present study which is a cross sectional one was conducted on adolescent girls studying in a government school in Bilaspur (C.G.) A total of 400 girls belonging to age group 10yrs -19 yrs were present in the school out of which 387 girls gave consent for this study while the rest did not cooperate for reasons unknown.

The girls were interviewed by pre tested predesigned questionnaire. The information was collected on sociodemographic characteristics, like age, caste, socio economic status (Modified O.P Agrawal method) [9], parental education, open or use of latrine for defecation vegetarian or non vegetarian diet. Anaemia was diagnosed by HemoCue 303 (Sweden) instrument. Anaemia was assessed by WHO criteria of anaemia. Data were analyzed with SPSS 23. Chi-square test was applied to analyse data.

Necessary ethical clearance was taken for this study and prior informed consent were obtained from the participants.

Results

As observed from table 1the prevalence of anaemia was significantly higher in adolescents in age group of 15-19 years (51.9%) as compare to 10-14 years age group (41.0%) . χ^2 (1) =4.59 ,p=0.021 ,($p<0.05$). Overall prevalence of anaemia was highest among adolescent girls coming from families having family members upto ten or more members in their families ,estimated prevalence of 56.2% anaemia among them and was statistically significant $\chi^2(3)$ =11.38,p=0.01 ($p<0.05$). While in other adolescent it was 48.3% among girls having upto eight members in their families ,38.5.% of adolescent girls were found to be anaemic coming from families having upto six members and 30,8% of the adolescent girls were found anaemic who were coming from families having upto four members in their families .

The prevalence of anaemia was highest among adolescents' girls coming from low income group families (64.0%) and significantly decreased with the rise in socio-economic status. The prevalence of anaemia being minimum among adolescent girls belonging to affluent families (16.7%) $\chi^2(3)$ =37.29,p=0.000 ($p < 0.05$) as observed from table 1.

Association between anaemia and parental education was found

statistically significant ($p<0.05$) as observed from Table 2. The prevalence of anaemia was maximum in adolescent girls whose fathers and mothers were educated only up to primary level 58.9%, $\chi^2(1) =21.61, p=0.000$; and 73.3% $\chi^2(1) =99.27$,$p=0.000$ respectively and the prevalence progressively decreased with an increase in educational status of parents.

Prevalence of anaemia was significantly high among adolescents' girls having vegetarian diet 74.3% than those having non-vegetarian diet 40.1% as observed from table 3. $\chi^2(1) =27.01, p=0.000, (p<0.05)$.

Prevalence of anaemia was significantly high among adolescents' girls practicing open defecation 58.2% than those using latrine for defecation 35.5%as observed from table 4.

$\chi^2(1) =19.97, p=0.000, (p<0.05)$.

Discussions

The Government of India has made the adolescent health as part of Reproductive and Child Health (RCH) Package since 1997. The anaemia in this age group has been identified as an important health problem by DeMaeyer & Adiels Tegman followed by further reinforcement at the 1994 International Conference on Population and Development held at Cairo [10-11].

The National Pilot Programme on Control of Micronutrient Malnutrition launched in 1995 by the Ministry of Health and Family Welfare (2000) reported point prevalence of anaemia in various age groups and found to be high in both sexes [12]. In adolescents, the prevalence rate of mild and moderate anaemia was also very-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 46.3% in adolescent girls.

In the current study, the prevalence of anaemia was higher in adolescents' girls in age group 15-14 years (51.9%) as compared to 10-14 years age group (41.0%) which is consistence with study of other researchers [13].

Most of the anaemic adolescents were of poor socioeconomic class (64.0%) followed by low middle class (39.8), 21.8% adolescent were from middle socioeconomic class and only 16.7% were from affluent class others which collaborates with studies of other researches [14].

The present study reveals higher prevalence of anaemia among adolescents whose parents were educated less than or up to primary level. A significant association was also reported between the adolescent girl's haemoglobin concentration and her parent's educational status by Rajaratnam et al and Pattnaik et al [15-16].

The present study shows high prevalence of anaemia in adolescent girls coming from families having large family members, which could be due to lack of money, either due to poverty or more number of children in the family and lack of knowledge about child care practices which is also consistence with other researchers.

In terms of diet the present study result shows increased prevalence of anaemia among girls having vegetarian diet, probably due to the fact that vegetarian diets lead to poor use of biological iron in the body as compared to non-vegetarian diets. This finding was in consistence with findings of other researchers [17]. The present study also shows that those girls practices open defecation have more prevalence of anaemia than those who use latrine for defecation, the present study results also echo with findings of other researchers [18].

Conclusion

Higher prevalence of anaemia among adolescents was observed in present study.

Anaemia has important implication in terms of physical work capacity and adverse reproduction outcome. Ensuring adequate food consumption and regular intake of iron rich and vitamin C rich foods, de-worming periodically, food fortification, supplementary feeding and nutrition education of parents are some of the strategies that can prevent nutritional anaemia in adolescents. Association of anaemia with socio-economic status and parents education stresses the need to develop strategies for intensive adult education, nutrition education and dietary supplementation including anaemia prophylaxis. School based mid day meal programme and iron supplementation should receive priority.

A periodical and regular health check-up (including anthropometry) with concerted efforts towards their nutrition along with focused health education will improve the health and nutritional status of these school going adolescents. The school health services might provide an ideal platform to detect the health problems early and treat them. Early detection of the morbidities through regular survey helps in prompt treatment and prevention of serious health complications.

Table 1: Distribution of adolescents according to anaemia in relation to socio-demographic profile

Socio demography	Non Anaemic (n=208) (%)	Anaemic (n=179) (%)	total	χ^2 value	P-value
Age group (years)				4.59	0.021
10-14	118(59)	82(41)	200		
15-19	90(48.1)	97(51.9)	187		
No. members in family					
Up to 4 members	27(69.2)	12(30.8)	39	11.389	0.01
Up to 6 members	67(61.5)	42(38.5)	109		
Up to 8 members	61(51.7)	57(48.3)	118		
Up to 10 or more members	53(43.8)	68(56.2)	121		
Socio-economic class					
Low	54(36)	96(64)	150	37.29	0.000
Low-middle	106(60.2)	70(39.8)	176		
Middle	43(78.2)	12(21.8)	55		
Affluent	05(83.3)	01(16.7)	06		

Table 2: Distribution of adolescents according to anaemia in relation to parent's education

Characteristics	Non Anaemic (n=208) (%)	Anaemic (n=179) (%)	total	χ^2 value	P -value
Father's education					
Upto class 10	74(41.1)	106(58.9)	180	21.61	0.000
Above class 10	134(64.7)	73(35.3)	207		
Mother's education					
Upto class 10	48(26.7)	132(73.3)	180	99.27	0.000
Above class 10	160(77.3)	47(22.7)	207		

Table 3: Distribution of adolescents according to anaemia in relation vegetarian and non-vegetarian diet

Dietary pattern	Non Anaemic (n=208) (%)	Anaemic (n=179) (%)	total	χ^2 value	P value
vegetarian	18(25.7)	52(74.3)	70	27.01	0.000
Non-vegetarian	190(59.9)	127(40.1)	317		

Table 4: Distribution of adolescents according to anaemia in relation practice of defecation

Defecation pattern	Non Anaemic (n=208) (%)	Anaemic (n=179) (%)	total	χ^2 value	P value
Open defecation	77(41.8)	107(58.2)	184	19.97	0.000
Use of latrine for defecation	131(64.5)	72(35.5)	203		

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