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Prevalence of anaemia among females in reproductive age group attending a health center in the urban area of Kancheepuram district: a cross sectional study

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ABSTRACT

Background: Anaemia, which is defined as a low oxygen carrying capacity of blood, is a major public health problem. It is a condition in which there is a decrease in the total number of red blood cells in the blood, either due to decreased production or increased destruction or both. Anaemia, one of the most prevailing nutritional disorders, has a worldwide prevalence of approximately 52%. The burden of anaemia is high especially among females of reproductive age group where India ranks the top. The study is aimed to establish the prevalence of anaemia among female patients of reproductive age group (15-49 years).

Methods: A cross sectional study was conducted among 254 females of reproductive age group, attending Anakaputhur, an urban field practice area of Sree Balaji Medical College. Convenient sampling method was used. Data was collected by discussion using a pretested semi-structured questionnare and haemoglobin estimation was done by venous sampling method.

Results: The mean age of the study participants were 34.6±12.4 years with 9.05% uneducated and 8.6% graduate females. 26% gave history of symptoms of anaemia and prevalence of anaemia was reported to be 42.12% with 24.4%, 12.2% and 5.5% of mild, moderate and severe anaemia, respectively.

Conclusions: Prevention and its treatment in women is much essential at this point, hence programmes and policies should be implemented based on the needs of the community, and health education should be imparted with respect to measures that can prevent and help in early diagnosis of anaemia.

Keywords: Adolescent girls, Hemoglobin level, Iron supplementation, Nutrition, Pregnant women

INTRODUCTION

Anaemia is one of the significantly preventable public health problems in India. There are various causes of anemia like blood loss, decreased red blood cells production and increased red blood cells break down. Since iron deficiency anaemia is more common, it can be very well prevented by providing required nutrition (iron) to the vulnerable population. Certain group of individuals such as pregnant woman are given iron pills during their pregnancy to prevent anaemia. The

burden of anaemia include reduced work capacity, increased morbidity from infections, and greater risk of death associated with pregnancy and childbirth. It not only increases mortality and morbidities but also adds economic burden to the individual and also to the country. Anaemia is characterized by a low hemoglobin level in blood. Hemoglobin is essential for transporting oxygen to tissues and organs in the body. Iron is one of the vital nutritional elements for human body. The human body contains 3 - 4 grams of iron of which about 60-70% is in the blood as circulating iron and the rest

1 - 1.5 grams as storage iron. Anaemia in non-pregnant women of reproductive age group is regarded severe when hemoglobin concentration is lower than 8.0 g/dl, moderate when hemoglobin falls between 8.0 - 10.9 g/dl, and mild when hemoglobin level is 11.0-11.9 g/dl and thus hemoglobin value less than 12 g/dl in non - pregnant women is considered as anaemia.

Globally, 2 billion people were found to be anaemic, which includes 315 million in the South-East Asia Region. Also in India, according to the WHO report in 2011, the prevalence of anaemia was reported as 48% with confidence interval of 29 to 63%. ¹⁻⁴

Iron deficiency anaemia is the most widespread nutritional disorder globally. Other nutritional deficiencies like folate deficiency and vitamin B12 deficiency also cause anaemia. Certain parasitic infections like malaria also cause anaemia. Inherited disorders such as hemoglobinopathies also contribute to anaemia. ^{1,5}

The World Health Assembly Resolution 65.6 in 2012 approved a comprehensive implementation plan on maternal, infant and young child nutrition (CIP), with 6 Global Nutrition Targets for 2025.⁶ Among the 6 targets, the second target is to reduce anaemia in women of reproductive age group by 50%. Although several programmes have been implemented globally, as well as in India, anaemia still remains a major burden in all parts of the country. Thus the study was planned to find the exact prevalence of anaemia among the reproductive age group females attending an urban health care center.

The objective of the study was to find the prevalence of anemia among females in reproductive age group (15 - 49 years) attending an urban health center in Tamil Nadu.

METHODS

A hospital based, cross sectional study was done to assess the prevalence of anaemia among reproductive age group females, attending Urban Health Training Center (UHTC) of a private Medical College and Hospital belonging to Anakaputhur block in Kancheepuram district, Tamil Nadu. The study was performed in the outpatient department (OPD) of UHTC, from January 2019 to March 2019. All female patients in the age group of 15 to 49 years, who attended the OPD, were included in the study. Pregnant females were excluded. 254 patients agreed to participate in the study and they were included.

Prior to the commencement of the study, the principal investigator explained in detail, the purpose of the study to each one of the participants and obtained a written informed consent from them. They were also informed that their participation in the study was purely voluntary and that they may refuse to participate or withdraw from the study at any time. Every effort was made, to be sure

that all information collected from the participants, remain confidential.

The study was conducted using a self-structured questionnaire in the language English, which was translated to Tamil for better understanding of the participants and then their responds were again translated to English. Questionnaire includes details regarding demographic and clinical information about the participant and also following which the venous blood sample was taken and the same was analyzed. Data entry and analysis was done using Statistical Package for Social Sciences (SPSS) version 23.

RESULTS

The study was conducted among reproductive age group females (15 - 49 years). The mean age of the study participants were 34.6 ± 12.4 years.

Table 1: Background characteristics of the participants (n=254).

Variables	No of participants	Percentage		
Age in years				
15 - 20	33	12.9		
21 - 30	87	34.2		
31 - 40	96	37.7		
41 - 49	38	14.9		
Education				
Uneducated	23	9.05		
Primary school	46	18.1		
Middle school	49	19.2		
High school	75	29.5		
Higher				
secondary/	39	15.3		
Diploma				
Graduate	22	8.6		
Occupation				
Employed	26	10.2		
Unemployed	228	89.7		
Marital Status				
Married	218	85.9		
Unmarried	36	14.1		
No of child	226	88.9		
Total family members				
≤4	135	53.1		
05-Sep	104	40.9		
>9	15	5.9		
Per capita income (modified BG Prasad's classification 2017)				
Class I	37	14.5		
Class II	97	38.1		
Class III	62	24.4		
Class IV	35	13.7		
Class V	23	9		

Majority of the study participants (37.7%) belonged to the age group 31-40 years. Among all participants, (9%) were uneducated, (8.6%) were graduates and majority of them (30%) had finished their high school education. Also, (89.7%) were unemployed and only (10.2%) were employed. (86%) were married and (53.1%) were living in the family with less than or equal to four members and (5.9%) were living in the family with more than 9 members. Based on Modified Prasad's socio economic classification, only (14.5%) belonged to class 1 and majority (38.1%) belonged to class 2 and (9%) were in the class 5 (Table 1).

Among the 254 study participants, 76 (29.9%) gave history of symptoms of anaemia. Only 7.8% were vegetarians and 85.8% were consuming mixed diet that includes both vegetarian and non-vegetarian foods. 47.6% gave history of consumption of iron rich food in the past two weeks and 7.08% gave history of passing worms and itching in the anal region in the past two weeks.

Table 2: Variables related to anaemia (n=254).

Variables	No of participants	0/0
Participants with symptoms of anaemia	76	29.9
Diet pattern		
Vegetarian	20	7.8
Mixed diet	218	85.8
History of iron rich food consumption	121	47.6
History of passing worms in stools	18	7.08
History of taking deworming tablet	186	73.2
Deworming tablet taken in the past 6 month	26	10.2
Known case of anaemia	37	14.5
Ever taken iron tablets	218	85.8
Taking iron supplements at present	31	12.2
Ever undergone blood transfusion	2	0.78

Regarding consumption of de-worming tablets 73.2% and 10.2% gave history of consumption of de-worming tablet in their life time and in the past six months, respectively. Also based on the history, 14.5% were already a known case of anaemia. 85.8% of the participants had taken iron supplement tablets at some point in their life time. Only 12.2% were taking iron supplements at present and 0.78 had undergone blood transfusion during their life time (Table 2).

In this study, prevalence of anaemia was reported to be 42.12% with 24.4%, 12.2% and 5.5% of mild anaemia,

moderate anaemia and severe anaemia, respectively (Table 3).

Table 3: prevalence of anaemia (n=254).

Variables	No. of participants	%	95% CI
Prevalence of anaemia	107	42.12	36.4-48
Mild anaemia	62	24.4	19.5-29.7
Moderate anaemia	31	12.2	8.8-16.7

DISCUSSION

In this study the prevalence of anaemia among reproductive age group females was reported as 42.12% and the prevalence of mild, moderate and severe anaemia being 24.4%, 12.2% and 5.5%, respectively. A study done by Raghuram et al in Karnataka reported that 34.8% of the females of reproductive age group were anaemic, which is almost similar to the prevalence reported by this study. In another study done by Malhotra et al in urban Haryana reported prevalence of anaemia as 50% among the females of reproductive age group with mild anaemia among 30.1% of females, moderate anaemia among 19.15% of females and severe anaemia among 0.7% of females in the reproductive age group.

In a study done by Siva et al in Kerala, the prevalence of anaemia was reported as 21% with prevalence of mild and moderate anaemia in 19.1% and 1.9% of females, respectively.⁹

According to World Health Organization, if the prevalence of anemia at community levels is >40%, it is considered as problem of high magnitude. The problem of anaemia is related to wider population than the traditionally considered vulnerable groups like pregnant and lactating females and children. In adolescent girls, with the onset of menstruation, there is a further rise in prevalence and severity of anaemia because of the associated blood loss and this rise in prevalence continues throughout the fertile period, which is from 15 - 45 years of age. Hence there is a need to improve overall nutritional status of adolescents through nutrition education, community awareness and supplementation programmes.

The need for regular blood tests to check hemoglobin levels is emphasized. Nutrition component needs to be added in the school curriculum. It is emphasised to correct anemia and iron deficiency in girls before they become adolescents. The key to reduce anaemia is to screen and treat anaemic women. Now a days, with the availability of food fortification methods, it is possible to build long term iron stores in the body. Even cooking in cast iron utensils improves iron content in diet.

CONCLUSION

Anaemia continues to be a major public health problem for many years, with a high global prevalence. Anemia is one of the causes for low birth weight, peri-natal mortality and maternal mortality. It is therefore in the interests of policy makers to carry out necessary investments in the prevention of anaemia as a means to promote human capital development, economic growth and long-term health. Hence WHO and UNICEF stress the importance of developing effective control programmes to curb anaemia.

Recommendations

Food-based approaches like improving complementary feeding and fortification of food needs to be stream lined in order to reduce the burden of anaemia. Also health education should be encouraged with respect to measures that can prevent anaemia.

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