

Research Article

PREVALENCE OF ANAEMIA AND ITS EPIDEMIOLOGICAL CORRELATES AMONG WOMEN OF REPRODUCTIVE AGE IN A RURAL SETTING

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ABSTRACT

Background: Anaemia is a major factor which affects the health of women not only at present but in future also and is associated with various complications. Statistics says that nearly 50% of women in reproductive age group are anaemic in rural areas. Hence a study was undertaken to know prevalence of anaemia and its epidemiological correlates among women of reproductive age group in rural Maharashtra.

Material and Methods: A cross-sectional study was conducted in rural areas of Maharashtra for a period of 6 months. Sample size was calculated and was found to be 416. Sample was taken by systemic random sampling method. Women in reproductive age group were included in the study. Pregnant and lactating women and those having chronic illness, infection; mental disorder and chronic alcoholism were excluded from study.

Results: Nearly half of women were anaemic (51.92%). Various parameters like type of House, education, socio-economic Class, hand washing before meal, awareness regarding anaemia, intake of Iron rich food, intake of sprouted food, amount of blood loss in menses, duration of menstrual bleeding (days), h/o worms in stools were significantly associated with anaemia.

Keywords: *Anaemia, Women, Reproductive Age Group, Rural Area*

INTRODUCTION

Nutritional anaemia is a major public health problem worldwide particularly in developing countries among women of reproductive age. National Family health Survey III (2005-2006) data shows that the prevalence of anaemia among women of reproductive age in India in rural area is 57.4% where as in Maharashtra it is 48.4%. WHO defines anaemia as a condition in which the Hb content of blood is lower than normal as a result of deficiency of one or more essential nutrients regardless of the cause of such deficiencies. Anaemia is established if the Hb is below the cutoff point recommended by WHO (1989).

The consequences of anemia for women include increased risk of low birth weight or prematurity, perinatal and neonatal mortality, inadequate iron stores for the newborn, increased risk of maternal morbidity and mortality, and lowered physical activity, mental concentration, and productivity (Allen, 1997; Gillespie and Johnston, 1998). Women with even mild anaemia may experience fatigue and have reduced work capacity (Gillespie, 1998). A woman's nutritional status has important implications for her health as well as the health of her children (National Family health Survey III, 2005-2006).

Keeping above facts in mind the present study was undertaken in rural setting to find out the burden of anaemia and study its epidemiological correlates.

MATERIALS AND METHODS

A cross sectional study was conducted at the O.P.D. of primary health centre, Uttur. The period of study was 6 months from March to August 2012. Considering the prevalence of anemia in women of reproductive age as 48%, allowable error 10% at 95% level of significance the estimated sample size was calculated as 416. Women attending the OPD and who were between age of 15-49 years were included in

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study after taking informed consent. Using systematic random sampling every 5th women of reproductive age was selected for study purpose. Pregnant and lactating women and those having chronic illness, infection, mental disorder and chronic alcoholism were excluded from study.

The data was collected by personal interview from women using a predesigned and pretested questionnaire which included socio-demographic characteristics, clinical examination, and dietary factors significant for anemia by oral questionnaires method. On an average 20 minutes time was given for interview of each patient. Haemoglobin estimation was done by using Sahli's method. Anemia status of the study population was graded according to cut-off points for diagnosis of anaemia as given by WHO i.e. mild (10-12 gm %), moderate (7-10 gm %) and severe (<7gm %).

All information collected was compiled and analyzed using standard statistical analysis comparing proportions and continuous variables by the use of Epi Info version-11 software.

RESULTS

Table 1: Grading of anaemia among women of reproductive age group

Grades of anemia	HB(gm%)Range	No of patients (%)
Mild	10-12	137(63.43%)
Moderate	7-10	74(34.26%)
Severe	<7	5(2.31%)
Total		216(100)
Average Hb(Gm%)	11.29+1.88	

Total 416 women of reproductive age group were included in the study. Out of them 216(51.92%) were diagnosed as anaemic. Majority of them were having mild anaemia (63.43%) and only 2.31% had severe anaemia. Average haemoglobin level was 11.29 gm% (Table-1)

Table 2: Distribution of Age, Religion, Type of family & house in women of reproductive age group in relation to anaemia

Variable	Anaemic Group(216)	Non-Anaemic Group (200)	P value
Age group(in years)			
Below 30	105(53%)	93(47%)	0.6666
Above 30	111(50.9%)	107(49.1%)	
Religion			
Hindu	150(53.96%)	128(46.04%)	0.4992
Muslim	46(47.92%)	50(52.08%)	
Other	20(47.62)	22(52.38%)	
Type of house			
Katcha	142(59.41%)	97(40.59%)	0.0003801
Pucca	74(41.81%)	103(58.19%)	
Type of family			
Joint	100(52.08%)	92(47.92%)	0.9517
Nuclear	116(51.79%)	108(48.21%)	

Among 17 socio demographic factors examined 10 were significantly associated with anaemia. These are Type of House, Education, Socio economic Class, Hand washing before meal, Awareness regarding Anaemia, Intake of Iron rich food, Intake of sprouted Food, Amount of blood loss in menses, Duration of menstrual bleeding (days), H/O worms in stools.

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Table 3: Distribution of other Socio-demographic & Nutritional factors in women of reproductive age group in relation to anaemia

Variable	Anaemic Group(216)	Non-Anaemic Group (200)	P value
Occupation of head of family			
Service	66(56.9%)	50(43.1%)	0.2181
Laborer	150(50%)	150(50%)	
Education			
Literate	32(20.25%)	126(79.75%)	<0.0000001
Illiterate	184(71.32%)	74(28.68%)	
Socio-economic class (Modified B.G.Prasad scale)			
I, II & III	95(43.38%)	124(56.62%)	0.0002355
IV & V	121(61.42%)	76(38.58%)	
Excreta disposal			
Latrine	156(51.15%)	149(48.85%)	0.5997
Open field	60(54.05%)	51(45.95%)	
Hand washing before Meal			
Yes	28(32.56%)	58(67.44%)	0.00007678
No	188(56.97%)	142(43.03%)	
Type of Diet			
Veg	130(55.08%)	106(44.92%)	0.1395
Mixed	86(47.78%)	94(52.22%)	
Awareness regarding anemia			
No	93(60%)	62(40%)	0.01106
Yes	123(47.13%)	138(52.87%)	
Intake of Iron rich food			
No	167(60.07%)	111(39.93%)	0.000002341
Yes	49(35.51%)	89(64.49%)	
Intake of sprouted food			
No	163(57.19%)	122(42.81%)	0.001508
Yes	53(40.46%)	78(59.54%)	

Table 4: Menstrual History, History of worm infestation in Women of reproductive age group in relation to anaemia

Variable	Anaemic Group(216)	Non-Anaemic Group (200)	P value
Amount of blood loss in menses			
Excess	158(72.15%)	61(27.85%)	<0.0000001
Normal	58(29.44%)	139(70.56%)	
Duration of menstrual bleeding(days)			
1-3	33(32.35%)	69(67.65%)	0.00001361
3-5	101(55.19%)	82(44.81%)	
5+	82(62.60%)	49(37.4%)	
H/o worms in stools			
Yes	14(77.78%)	4(22.22%)	0.02480
No	202(50.75%)	196(49.25%)	

DISCUSSION

Anemia is found to be one of the important public health problem and its more prevalent in developing countries (Isah *et al.*, 1985). The study was conducted to know the Prevalence of Anaemia and its Epidemiological Correlates Among Women of Reproductive Age in a Rural Setting. The prevalence of

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anemia in present study was 51.92%. This was similar to the prevalence rate of anemia among women of reproductive age in India and Maharashtra which was 57.4% and 48.4% respectively (National Family health Survey III, 2005-2006). In rural areas, most of the women in reproductive age group were suffering from mild anaemia (137 i.e. 63.43%), 74 women i.e. 34.26% were suffering from moderate anemia and only 5 women i.e. 2.31% were suffering from severe anaemia. The findings were similar to the study conducted by Vankudre *et al.*, (2011). This was in contrast to the study conducted by Gautam *et al.*, (2002) where 22.8% women were suffering from mild anemia, 50.9% were suffering from moderate anemia and 22.8% were suffering from severe anemia. The mean Hb concentration in present study is 11.29+1.88 (Table 1).

An attempt was made to compare the socio-demographic profile, Epidemiological parameters and diet pattern among women of reproductive age group in rural area in relation to anaemia (Table 2 and 3)

The mean age of women in reproductive age group in present study is 31.7 years with 2 S.D. of 8.78. The number of females anaemic in age group of <30 were more (53%) than that of >30 yrs (50.9%). However, test of significance was applied and was found to be non-significant. Similarly, religion does not have any significant association with that of anaemia among women of reproductive age group. Whereas, there was significant association found between types of house with that of anemia. There were more number of females suffering from anemia who resides at Katcha house (59.41%). Test of significance was applied and was found to be significantly associated ($p < 0.01$). The findings were similar in the study conducted by Vankudre *et al.*, (2011) where there was no significant association found between religion and anemia ($p = 0.10$) and there was significant association found between type of house and presence of anemia. ($p = 0.04$).

Comparison was made between type of family and anaemia. It was found that there were slightly more number of anaemic women who were staying in joint family (52.08%) than in nuclear family (51.79%). However, test of significance was applied and was found to be non-significant. The findings were similar to the study conducted by Panigrahi *et al.*, (2011) where 59.5% and 65.5 % of women were anemic from Nuclear and Joint families respectively.

The numbers of anaemic women were more in those families where the head of family was in service (56.9%). Test of significance shown no significant association between service and anaemia of women in reproductive age group.

Majority of women who were suffering from anemia were illiterates (71.32%). The test of significance was applied and was found highly significant ($p < 0.0000001$). This was similar to the study conducted by Panigrahi *et al.*, (2011) where more number of illiterate women were anemic (74.6%). The P value was found to be significant (< 0.05).

There were more number of anemic women who were in lower socio-economic class (B.G.Prasad socio-economic class IV and V) i.e. 61.42% as compared to that of non-anemic women (38.58%). There were less number of anaemic women in higher socio-economic scale i.e., class I-III than that of non-anemic women (43.38% & 56.62%) respectively. The test of significance was applied and was found to be highly significant ($p = 0.0002355$). This might be due to better availability and accessibility of food because of higher socio-economic status. The findings were similar to the study conducted by Panigrahi *et al.*, (2011) where 71.1% and 60.2% from anemic women were from socio-economic scale IV and III than that of non-anemic women who were 28.9% and 39.8% respectively. The findings were also similar in that 51.9% of anemic women and 48.1% from non-anemic women were from upper middle class. However, test of significance was non-significant in their study.

The hygienic conditions of women were assessed to find association with anemia. It was found that excreta disposal either in the form of use of latrine or open air defecation has no association with that of anemia among women of reproductive age group in rural areas. There was significant association found between washing of hands before food among anemic and non-anemic women ($p = 0.00007678$). The findings were similar to the study conducted by Vankudre *et al.*, (2011) where there was no significant association between excreta disposal and anemia but anemia was significantly associated with personal hygienic measures like washing hands before meal ($p = 0.01$) (Table-3).

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An attempt was made to know the association of diet and intake of nutrients with that of anaemia (Table 3). It was found that there was no significant association between intake of non-veg food with that of anemia ($p=0.1395$). There was significant role of intake of iron rich food and sprouted food items with that of anemia indicating its importance in reducing anemia. ($p=0.000002341$ & 0.001508 respectively). The findings were similar with the study conducted by Vankudre *et al.*, (2011) ($p=0.001$ & $p=0.094$ respectively).

Knowledge regarding anaemia was assessed among women (Table 3). It was found that more number of women were anemic who does not have any knowledge or information about anemia (60%) as compared to non-anemic group. Test of significance was applied and was found to be highly significant ($p=0.01106$). Similar results were obtained by the study conducted by Vankudre *et al.*, (2011) ($p=0.001$). The number of women who suffered from anemia were more in those having excess menstrual blood loss i.e.72.15% (Table 4). Similar findings were observed in the study conducted by Panigrahi *et al.*, (2011) where 73% of women who were anemic gave history of excessive menstrual flow. Females whose blood flow was more than five days were more anaemic (62.60%). The test of significance was applied and was found to be significantly associated with anemia. The study conducted by Vankudre *et al.*, (2011) showed similar results. The females who had history of passage of worms in stools were suffering more from anemia than that of non-anemic women (77.78% & 22.22% respectively). The test of significance was applied and was found to be highly significant. Similar results were seen in the study conducted by Vankudre *et al.*, (2011). There were more numbers of anemic women suffering from worm infestation than non-anemic women (85.7% & 14.3% respectively).

Conclusion

Prevalence of anaemia among women of reproductive age group was found to be 51.92%. Various sociodemographic factors like type of house, education, socio economic class, hand washing before meal, awareness regarding anaemia, intake of Iron rich food, intake of sprouted Food, amount of blood loss in menses, duration of menstrual bleeding (days), h/o worms in stools were significantly associated with anemia.

From this study it is recommended that the female literacy rate should be increased, living conditions and personal hygienic conditions should be improved, an intensive campaign regarding awareness and screening for anaemia must be regularly conducted among women of reproductive age group for prevention of anemia.

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