Original Research Article

Prevalence of anemia among pregnant women attending antenatal clinics in rural field practice area of Jawaharlal Nehru Medical College, Belagavi, Karnataka, India

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ABSTRACT

Background: Anaemia in pregnancy accounts for one fifth of maternal deaths worldwide and is a major factor responsible for low birth weight. In India, 16% of maternal deaths are attributed to anaemia. Prevalence of anaemia is higher among pregnant women and it persists in India despite of the availability of effective, low-cost interventions for prevention and treatment. The objective was to study the prevalence of anaemia among rural pregnant women and also to study various socio-demographic factors associated with anaemia in pregnancy.
Methods: A cross-sectional study was carried out between February to July 2016 amongst 400 pregnant women residing in PHC Handignur were interviewed using pre-tested pre-designed questionnaire. Hb percentage was estimated by using Sahli's method.
Results: Total of 291 pregnant women were found out to have Hb levels less than 11 gm%. 9 pregnant women were found to have severe anaemia, 149 had moderate anaemia, 133 had mild anaemia. Factors such as literacy status, open air defecation were found to be significantly associated with the prevalence of anaemia in pregnancy.
Conclusions: Prevalence of anaemia among the pregnant women was found to be 72.75%. Early detection and effective management of anaemia in pregnancy can contribute substantially to reduction in maternal mortality.

Keywords: Anaemia, Antenatal clinics, Pregnant woman, Prevalence

INTRODUCTION

Anaemia is the most common nutritional deficiency disorder in the world. Itis a major healthproblem that affects 25-50% of the population of the world and approximately 50% of pregnant women.[1] WHO has estimated that prevalence of anaemia in pregnant women is 14% in developed and 51% in developing countries and 65-75% in India.[2] India contributes to about 80% of the maternal deaths due to anaemia in South Asia. Anaemia in pregnancy accounts for one fifth of maternal deaths worldwide and is a major factor responsible for low birth weight. Prevalence of anaemia is higher among pregnant women and it persists in India despite of the availability of effective, low-cost interventions for prevention and treatment. India became the first developing country to take up a National Nutritional Anaemia Prophylaxis Program (NNAP) to prevent anaemia among pregnant women. NNAPP was initiated in 1970 during the fourth 5-year health plan with the aim of reducing the prevalence of anaemia to 25%.[3] Hence the present study was carried out with an objectives to study the prevalence of anaemia among rural pregnant

women and also to study various socio-demographic factors associated with anaemia in pregnancy.

METHODS

Study design

A community based cross sectional study was carried out in rural area under PHC Handiganur, field practice area of Dept. of Community Medicine, JNMC Belagavi between February to July 2016.

Taking the prevalence of maternal anaemia was taken at 50% as various studies have given a different prevalence.Sample size calculated using the formula $4pq/d^2$. (Where p = prevalence of maternal anaemia, q= $100 - p$, d = the relative error). N = 4 x 50 x 50/5x5 = 400.

Pregnant women residing in rural area of Handignur and attending ANC clinics were interviewed using pre-tested pre-designed questionnaire.Haemoglobin percentage was estimated by using Sahli'smethod. Written informed consent was obtained from the study participants prior to the enrolment in the study. Ethical clearance was obtained from the Institutional Ethics committee.

Inclusion criteria

All pregnant women attending the ANC clinic residing in the rural area of Handiganur PHC.

Exclusion criteria

Pregnant women detected to have GDM and any other chronic diseases were excluded from the study.

Statistical analysis was done by using Microsoft Excel sheet 2013 and SPSS version- 20.0

RESULTS

Total of 400 pregnant women participated in the study. Socio demographic profile of the pregnant women were as follows, 348 (87%) pregnant women were in the age group of 20-29 years, followed by 33 (8.25%) and 19 (4.75%) of the pregnant women in the age group of less than 19 years and more than 30 years respectively. Majority of the study participants belonged to Hindu religion (346) Muslims, Christians and other religions constituted 32, 12 and 10 participants respectively. 312 (78%) of the study participants resided in nuclear family, 68 (17%), 20(5%) of the study participants resided in joint and three generation family respectively. 142 (35.5%) of the study participants belonged to Class IV socioeconomic status (Table 1).

The mean age and standard deviation of menarche was 13.7±1.27 years, for Marriage it was 19.71±2.073 years

and for first pregnancy it was 21.17±2.479 years as shown in Table 2.

Table 1: Socio-demographic profile of the study participants.

Parameters (n= 400)	Participants	Percentage
Age distribution		
<19 years	33	8.25%
20 – 29 years	348	87%
>30 years	19	4.75%
Religion		
Hindu	346	86.5%
Muslim	32	8%
Christian	12	3%
Others	10	2.5%
Type of family[5]		
Nuclear	312	78%
Joint	68	17%
Three generation	20	5%
Socio economic Class[6]		
Class I	24	6%
Class II	43	10.75%
Class III	135	33.75%
Class IV	142	35.5%
Class V	56	14%
Total	400	100%

Table 2: Mean age of the menarche, marriage and first pregnancy.

Age of:	Mean	Standard deviation
Menarche	13.7 years	± 1.27 years
Marriage	19.71 years	± 2.073 years
First pregnancy	21.17 years	± 2.479 years

In our study, 175 (43.75%) of the pregnant women were in second trimester, 172 (43%) were in third trimester and 53 (13.25%) were in first trimester (Figure 1).
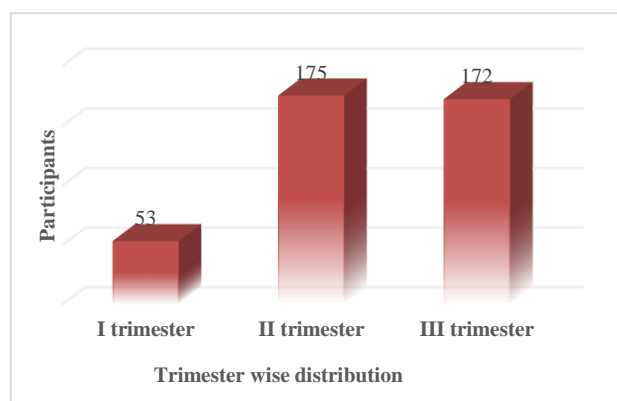

Figure 1: Trimester wise distribution of the pregnant women.

The prevalence of anaemia in pregnancy was found out to be 72.75%. 291 pregnant women had their Hb% less than 11gm% and 109 pregnant women were those who had Hb level of more than 11 gm% (Table 3) according to RCH guidelines. Distribution of the pregnant women according to severity of anaemia we see that 37% of the women had a moderate anaemia with Hb 7-9.9, 33% of the women had mild anaemia with Hb 10-10.9 gm%, 28% of the pregnant women were those who did not have anaemia their Hb was more than 11 gm% and 2% of the women were those who had severe form of anaemia Hb less than 7 gm% (Figure 2).

Table 3: Distribution of pregnant women according to anaemic state.

Anaemic status	Number of women	Percentage
Hb< 11 gm%	291	72.75%
Hb> 11 gm%	109	27.25%
Total	400	100%

In our study, when the prevalence of anaemia was compared with various socio demographic variables

significant association was noted with literacy status, trimester of pregnancy and open air defecation (p <0.05). Whereas variables like age (p =0.175), occupation (p=0.472), parity (p=0.524) and intake of iron supplements (p=0.25) did not show any positive association as shown in the Table 4.
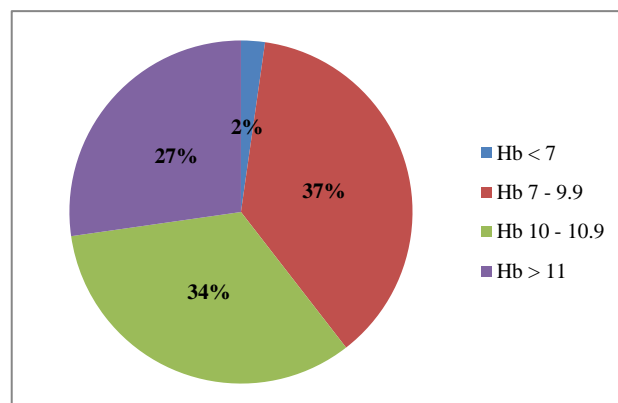

Figure 2: Distribution of pregnant women according to severity of anaemia.

Table 4: Association prevalence of anaemia with various socio demographic variables.

Variables	Anaemia present	No anaemia	χ^2 -value	p -value
Age				
<19 years	27 (81.81%)	6 (18.18%)		
20-29 years	253 (72.07%)	95 (27.29%)	3.482	0.175
>30 years	11 (57.89%)	8 (42.10%)		
Literacy status				
Literate	35 (89.74%)	4 (10.25%)		
Illiterate	256 (70.91%)	105 (29.08%)	6.291	0.012
Occupation				
Housewife	254 (72.15%)	98 (27.85%)		
Employed	37 (77.08%)	11 (22.92%)	0.522	0.472
Parity				
Primi	131 (70.05%)	56 (29.95%)		
Secondary	93 (75%)	31 (25%)	1.290	0.524
Multi	67 (75.02%)	22 (24.98%)		
Iron supplements				
Taking	258 (73.71%)	92 (26.28%)		
Not Taking	33 (66%)	17 (34%)	1.315	0.25
Open air defecation				
Practicing	43 (86%)	07 (14%)		
Non Practicing	248 (70.85%)	102 (29.15%)	5.065	0.024

DISCUSSION

Our study was conducted in a rural setup PHC Handignur which is the field practice area of Dept. of Community Medicine, Jawaharlal Nehru Medical College, KLE University Belagavi. The present study was a cross sectional study with an attempt to find out the prevalence

of anaemia in rural pregnant women and to study the various socio demographic variables associated with it. In our study, total 400 pregnant women participated among them, 87% of the study participants were in the age group of 20 – 29 years, 86.5% of the study participants were Hindu by religion and 8% were Muslims, 78% of the study participants resided in a nuclear family, 35.5%

belonged to Class IV socioeconomic status. In a similar study carried out in Aurangabad, Maharashtra, 71% of the study participants were in the age group of 20-29 years, 51.7% were Muslim by religion, 45.4% of the study participants resided in a joint family and 31% belonged to Class IV socio-economic status.[7] In comparison to our study Muslim participants were more may be because Aurangabad was a Muslim dominated city as compared to our study place which was a Hindu dominated area.

The mean age and standard deviation for menarche, marriage and first pregnancy was 13.7±1.27 years, 19.71± 2.073 years, 21.17± 2.479 years respectively. In a similar study carried out in Aurangabad, Maharashtra, and mean age for menarche was 13.2 years which was almost similar in comparison to our study.[7] In the present study 43.75% of the pregnant women were in second trimester, in a similar study carried out in Andhra Pradesh it was seen that 63.69% of the study participants belonged to the second trimester the results are in comparison expect that their percentage was high may be because of a larger sample size in comparison to our study.[8]

In the present study, the prevalence of anaemia was found to be 72.75%. The prevalence of mild, moderate, severe anaemia was 33%, 37% and 2% respectively. In a similar study carried out in Aurangabad, Maharashtra the overall prevalence of anaemia among pregnant women was found to be 87.2%.[7] The prevalence of mild, moderate, severe anaemia were observed as 24.7%, 54.5%, and 7.9%, respectively. In both the studies we observed that prevalence of anaemia was high and the prevalence of moderate anaemia was high as compared to mild and severe forms. In another study, carried out in Andhra Pradesh, 52.73% subjects demonstrated mild degree of anaemia, 40.97% subjects has moderate anaemia and 6.2% subjects had severe anaemia.[8] In comparison to our study, Andhra Pradesh study showed more prevalence of anaemia in mild group, the overall prevalence of anaemia in their study was noted to be 100% which was high in comparison to our study the reason being that they had carried out the study in most backward area of the state and with limited health care facilities available. In another study, carried out in South Eastern Nigeria, 40.4% of the study population were anemic (Hb < 11gm%) at the time of booking, out of which 90.7% were mildly anemic and 9.3% were moderately anemic.[9] No case of severe anaemia was noted the results are high in comparison to our study may be because the study setup was in a under developed country like Nigeria.

Significant association of prevalence of anaemia was noted with literacy status, trimester of pregnancy and open air defecation (p<0.05). In a similar study carried out in Aurangabad Maharashtra significant association was noted with religion, socio economic status, literacy status the findings match our study only in literacy status association.[7,10]

CONCLUSION

Total of 400 pregnant women participated in the study. A total of 291 women were detected to be anaemic (Hb<11 gm%) which was around 72.75% in that9 pregnant women were found to have severe anaemia (Hb <7 gm%), 149 had moderate anaemia (Hb between 7 to 9.9 gm%), 133 had mild anaemia (Hb between 10 to 10.9 gm%). Open air defecation, literacy status and trimester of pregnancy were found to be significantly associated with the prevalence of anaemia. The programme for anaemia control should be executed more resourcefully in this area. Efforts should be aimed towards the early detection and treatment of anaemia before delivery. Medical staff managing the ante natal women should attempt to investigate anemic pregnant women so that the etiology can be investigated whenever possible.

Recommendations

Prevention of anaemia in pregnancy will go a long way to help in preventing maternal complications in post-partum state like mortality and also will ensure a healthy baby and a healthy mother as an outcome.Social stigma associated with dietary and iron and folic acid consumption should be removed and all pregnant women should be educated to realise the importance of good dietary habits and regular intake of iron and folic acid tablets during pregnancy. All these efforts would help to ensure safe motherhood and achieve the relevant targets of Millennium development goals.

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