



PREVALENCE OF ANAEMIA AND ITS SOCIO-DEMOGRAPHIC VARIABLES IN PREGNANT WOMEN AMONG RURAL POPULATION IN CENTRAL INDIA.

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ABSTRACT

Background: Anaemia in pregnancy is a major contributor in morbidity seen in pregnancy and childbirth. According to World Health Organization, prevalence of anaemia among pregnant women in developed countries is about 14%, whereas it is still as high as 51% in the developing world. Prevalence of anaemia among pregnant women in India is 45.7% in urban areas and 52.1% in rural areas. **Aim:** To study the health profile of patient and estimate the prevalence of anaemia and its socio demographic variables in rural population of central India. **Methods:** This was a prospective, longitudinal cross-sectional study conducted in Department of Obstetrics and Gynaecology of a tertiary care hospital located in the rural central India for a period of 1 years. Total 2564 women who visited ANC clinic were screened for anaemia of which 1717 women were found to be anaemic (Hb < 11 gm /dl in accordance to ICMR classification), and were enrolled for study. They were interviewed through a pre-designed and structured questionnaire and the data obtained was analysed. **Results:** Prevalence of anaemia was found to be 67.1% in the study. Out of these 57.4% had mild anaemia, 40.1% had moderate anaemia, 2.2% severe anaemia and 0.4% had very severe anaemia. Maximum women were in the age group 20-24 years (46.9%). 64% of the total women were from lower socioeconomic strata. Most of the anaemic women (44%) had received only primary education, 18% were illiterate and 38% had received more than primary education. Prevalence of anaemia was much higher in multigravida (64%). Regular iron intake was seen in 45% women, 31% were taking tablets irregularly and 24% had not taken any supplements. **Conclusions:** Anaemia is still highly prevalent among pregnant women in rural India. Our study has also enlisted a few socio-demographic factors that contribute to such high prevalence of this disease. There is a need for effective implementation of the existing programmes and participation of locals for prevention and treatment of anaemia.

KEYWORDS : Anaemia, Pregnancy, Maternal Morbidity, Demographic Profile

INTRODUCTION:

Anaemia is a public health problem affecting both developed and developing countries having major consequences on human health as well as socio-economic development. It can occur at all stages of life but is more prevalent in pregnant women and young children. Anaemia is responsible for significant maternal morbidity and mortality globally. Apart from decreasing the women's reserve to tolerate blood loss during delivery, it increases Intensive Care Unit (ICU) admissions, and long-term morbidity. Beside mother, fetus can have low birth weight, premature delivery, intra-uterine growth retardation, increased risk of birth asphyxia and low Apgar score at birth and thus increased perinatal mortality. According to World Health Organization (WHO) prevalence of anaemia among pregnant women is 14 % in developed and 51 % in developing countries. Its prevalence in India is 65-75 %.¹ India contributes to about 80% of the maternal deaths due to anaemia in South Asia.²

In India, according to the National Family Health Survey 5 (2019-21), 59.1% adolescent girls, and 52.2% pregnant women (15-49 years), suffer from anaemia.^{3,4} Government of India (GoI) is closely working with WHO in eradicating anaemia. In 2018, GoI launched 'Anaemia Mukta Bharat programme' using 6×6×6 strategy which have 6 target beneficiaries, 6 interventions and 6 institutional mechanisms to reduce anaemia in vulnerable groups like women, children and adolescents.⁴ However, high prevalence of anaemia among pregnant women persists in India despite the availability of effective, low-cost interventions for prevention and treatment. A knowledge of the socio-demographic factors associated with anaemia will help to formulate multifaceted strategies to tackle this important public health problem in pregnancy. Iron deficiency is the major cause of anaemia in pregnancy. Global efforts to reduce this burden is therefore largely been directed towards increasing intake of iron through supplementation, food fortification and diversification.⁵

India is one of the first developing country to take up the National Nutritional Anaemia Control Programme to prevent anaemia among pregnant women. The Government of India recommends 100 mg of elemental iron+500 ug of folic acid for prophylactic supplementation for minimum of 100 days starting in the second trimester and double this dose for the treatment of anaemia i.e. 200 mg of elemental iron+1000 ug of folic acid.⁶ WHO recommends prophylactic dose of using single dose albendazole (400 mg) or mebendazole (500 mg), as a public health intervention for pregnant women. Despite these efforts,

the prevalence of anaemia is 65–75% in India.

A recent meta-analysis showed that the risk of maternal mortality decreases by 20% for every 1g/dl increase in the haemoglobin concentration. This decline is continuous between Hb levels 5 and 12mg/dl.⁷ Thus, treating anaemia has major health implications in pregnancy and would go a long way in improving maternal and foetal outcome.

Aim of the present study is to estimate the prevalence of anaemia, magnitude of severity and its demographic characteristics in pregnant women in rural population of central India.

METHODS:

This longitudinal prospective cross-sectional study was conducted in the department of Obstetrics and Gynaecology of our tertiary care hospital from July 2018 to June 2019, for a period of one year. A total of 2564 pregnant women attending antenatal care (ANC) outpatient department (OPD) were screened for anaemia using blood tests and 1717 women between the age of 18-45 years who were found anaemic (Hb <11 gm/dl) were included. Non-pregnant women, patients with Hb >11 gm/dl, patients not willing to give consent for enrolment in study were excluded. Study was initiated after approval from institute ethics committee. Informed consent was obtained from all participants after explaining the purpose of the study and scope of interview. Each woman was given a predesigned structured questionnaire to obtain information about demographic factors like age, education, socioeconomic status, parity and iron folic acid intake. Severity of anaemia was estimated using the ICMR classification-mild: 10-10.9 gm/dl, moderate: 7-9.9 gm/dl, severe: 4-6.9 gm/dl, and very severe: <4 gm/dl.

Statistical analysis: Data obtained was tabulated according to severity of anaemia and socio-demographic factors. Data was entered and analysed using Microsoft excel spread sheet and were expressed in percentage.

RESULT:

Total number of patients attending ANC OPD were 2564, of which 1717 patients had haemoglobin less than 11 gm/dl and were enrolled in study. Prevalence of anaemia thus found to be 67%. Of these, 57.4% had mild anaemia, 40.1% had moderate anaemia, 2.2% severe anaemia and 0.4% had very severe anaemia. (Fig 1 a and 1b)

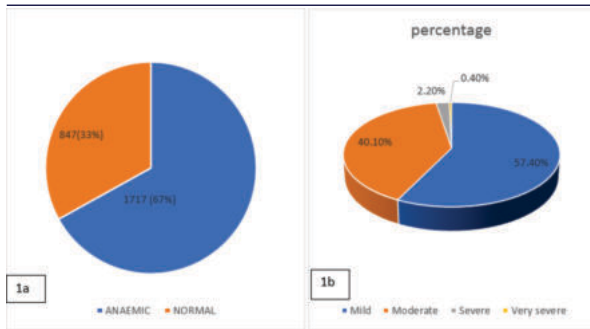


Figure 1a: showing Prevalence of anaemia among pregnant women
Figure 1b: Prevalence of severity of anaemia

Most of the women (50%) were in the age group 20-24 years (Figure 2). A large proportion of women (64%) were from lower socioeconomic strata. Prevalence of anaemia was much higher in multigravida (64%) compared to primigravida (36%). This was most likely associated with short interconception interval between the pregnancy. Most of the anaemic women (44%) had received only primary education, 18% were illiterate and 38% had received more than primary education.

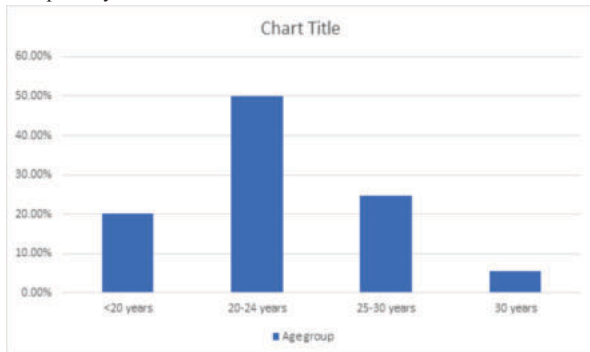


Figure 2: Showing Distribution Of Study Population According To Age Group

A large proportion of women (64%) were from lower socioeconomic strata, 26% from middle strata and only 10% from higher stratum. 45% women were taking iron tablets regularly, 31.1% women were taking iron tablets irregularly and 23.9% were not taking any supplements. 54.2% of the anaemic patient had an association with comorbid conditions such as hypothyroidism, hypertension, and diabetes mellitus (Table 1).

Table 1: Socio- Demographic Factors Of Study Population

Socio-demographic factors	All pregnant anaemic women N=1717 (67%)	Mild anaemia N=985 (57.4%)	Moderate anaemia N=687 (40.1%)	Severe anaemia N=38 (2.2%)	Very severe anaemia N = 7 (0.4%)
Age (years)					
<20	302 (17.5%)	188 (19.1%)	108 (15.7%)	6 (15.7%)	0 (0%)
20 – 24	806 (46.94%)	472 (47.9%)	319 (46.4%)	12 (31.5%)	3(42.8%)
25 – 30	544 (31.6%)	301 (30.5%)	226 (32.8%)	14 (36.8%)	3(42.8%)
>30	65 (3.8%)	30 (2.4%)	28 (4%)	6 (15.7%)	1(14.3%)
Education status					
Uneducated	652 (38 %)	301 (46.1%)	328 (50.3%)	16 (2.4%)	7 (1.07%)
Primary	755 (44%)	492 (65.1%)	249 (32.98%)	14 (1.85%)	0 (0%)
>Primary	310 (18%)	192 (61.9%)	110 (35.8%)	8 (2.58%)	0 (0%)
Socio-economic status					
Low	1099 (64%)	764 (69.5%)	305 (27.7%)	23 (2.09%)	7 (0.6%)

Middle	447 (26%)	140 (31.3%)	300 (67.1%)	7 (1.56%)	0 (0%)
High	171 (10%)	82 (47.9%)	82 (47.9%)	7 (4.1%)	0 (0%)
Parity					
Primi	618 (36%)	215 (34.7%)	380 (61.4%)	21 (3.3%)	2 (0.3%)
Multi	1099 (64%)	770 (70.0%)	307 (27.9%)	17 (1.54%)	5 (0.4%)
IFA intake					
No	412 (24%)	200 (48.5%)	186 (45.1%)	20 (4.8%)	6 (1.4%)
Irregular	532 (31%)	269 (50.5%)	247 (46.4%)	15 (3.2%)	1 (0.1%)
Regular	773 (45%)	516 (66.7%)	255 (33.0%)	2 (0.3%)	0 (0%)
Associated co-morbidity					
Present	931 (54.2%)	406 (43.4%)	487 (52.3%)	33 (3.5%)	5 (0.53%)
Absent	786 (45.8%)	579 (73.6%)	200 (25.4%)	5 (0.63%)	2 (0.25%)

DISCUSSION:

Prevalence of anaemia in our study was 67%. Out of this mild anaemia was seen in maximum number of pregnant females (57.4%), followed by moderate anaemia seen in 40.1% females. Similar findings were seen in the study by Bisoi et al⁸. Study by Mehrotra et al⁹ and Ponny et al¹⁰ showed prevalence rate of anaemia in pregnancy to be 50.9% and 53.33% respectively. However, study by Kapil et al¹¹ conducted in Delhi slum area, and Toteja et al¹² found higher prevalence rate anaemia which was 78.8% and 84.9% respectively (Table-2). The probable reason for higher burden of anaemia in the rural and population may be related to inaccessibility to health-care centres. However, lack of awareness about the factors causing anaemia and possible strategies to prevent the risk factors of anaemia plays a major role.

Table -2 Prevalence Of Anaemia In Various Studies

Study	Year	Prevalence of anaemia
Bisoi et al ⁸	2016	67.3%
Mehrotra et al ⁹	2018	50.9%
Ponny et al ¹⁰	2021	53.33%
Kapil et al ¹¹	1999	78.8 %
Toteja et al ¹²	2006	84.9 %
Our study		67 %

In our study most of the women (44%) were illiterate. However, in study by Mangla et al,¹³ maximum prevalence was seen in graduates and post-graduates. However, severe anaemia was seen in uneducated or primary educated women in both the studies.^{13,14} In our study maximum number of women were from age group of 20-24 (46.9%) similar to study by Sarla et al¹⁵ in which it was 47%.

In our study, maximum prevalence of anaemia was seen in women with lower socioeconomic status women (64%). Sarla et al¹⁵ and Lokare et al¹⁶ also found higher association of anaemia among pregnant females of low socioeconomic status. Gautam et al¹⁷ found decreasing trend of severity of anaemia with higher per capita income. Low socioeconomic status are more likely to be less educated and having some financial constraints (low income), and hence more likely to consume diets low in micronutrients, proteins and vitamins, leading to increased prevalence of anaemia.

Our study observed that there is significant association between multiparity and anaemia. Similarly, Mehrotra et al¹¹ and Bansal et al¹⁸ also found high prevalence of anaemia in multiparous women. This may be attributed to recurrent pregnancies demanding more nutrient intake, increased susceptibility to haemorrhage and poor birth spacing. Majority of women (56%) in our study were taking Iron folic-acid tablets regularly. In study by Bansal et al,¹⁸ 74.8% women were taking Iron Folic-acid regularly, although their prevalence of anaemia was much higher (81.8%) than our study.

Reason for high prevalence of anaemia in women of rural India may be due to patriarchal nature of society, lack of financial independence, less educated women alongwith lack of accessibility to the health centres. They have less awareness about nutritional needs during pregnancy and are many a times unable to afford proper food.

Limitations:

It was a hospital-based study, and that too in referral hospital. It could not be generalized to the whole community. Furthermore, the study was conducted in a single centre in rural India, so it was not a true representation of whole country which has both rural as well as urban population.

CONCLUSION:

Several programmes for eradicating anaemia are running under Government of India, but still the goals are unmet. From our study, we can conclude that unfavourable socio-demographic factors are one of the major barriers for the prevention of anaemia during pregnancy.

Anaemia control program needs to be executed more resourcefully and efforts should be made towards early diagnosis and management of anaemia well before the time of delivery. Measures to prevent anaemia such as screening programs for anaemia, health awareness campaigns, frequent visits by Anganwadi workers to pregnant women, nutritional education, cooking food in iron utensils, food fortification, and iron folic acid supplements should be implemented/strengthened and monitored. All these efforts would help to ensure safe motherhood and achieve the development goals of the millennium.

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