

# Study of Various Demographical Factors of Anemia and its Prevalence amongst Antenatal OPD Patients Visiting a Private Medical College in Saharanpur, Uttar Pradesh

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**Abstract:** Introduction: Anaemia is just one manifestation of overall under nutrition and calorie and micronutrient deficiency in pregnant women. So supplementary feeding programs should aim at balanced nutrition of the pregnant women to improve the overall outcome. The study aims to find out the prevalence of anemia among pregnant women attending antenatal clinic. Methods: A community based study was conducted in July-August 2023 at Glocal Institute of Unani medical research centre, Glocal University, Saharanpur district, Uttar Pradesh, India. It consisted of 50 pregnant women attending antenatal Out Patient Department in the College Hospital. A pre-tested questionnaire was used by face to face interview to know about the demographic factors like age, occupation, education, caste, obstetric factors like age at marriage, age at first child, gravidity, parity, and dietary factors. Results: The mean age of women who attended antenatal clinic at the community health centre was 22 years $\pm$ 3.006 years. Most of the women were in the active reproductive age group of 18-25 years. Most of the women were literate in this population, and were from lower socioeconomic status. Two thirds (66%) of the women were found to be anaemic in this population. Conclusion: Early detection and effective management of anaemia in pregnancy can contribute substantially to reduction in maternal morbidity/mortality and improve the perinatal outcome.

**Keywords:** Anemia, women, pregnancy, iron, prevalence

## 1. Introduction

Anaemia during pregnancy is a global public health challenge facing the world today, especially in developing countries.<sup>1</sup> It is an important factor in maternal morbidity and mortality. Maternal anaemia is associated with poor intrauterine growth and increased risk of preterm births and low birth weight rates. Most of the studies have reported this problem to be of high magnitude especially in developing countries.<sup>2</sup>

WHO has estimated that prevalence of anaemia in pregnant women is 14% in developed and 51% in the developing countries and 65 – 75% in India.<sup>3</sup> Prevalence of anaemia in South Asian countries is among the highest in the world. India contributes to about 80% of the maternal deaths due to anaemia in South Asia. The prevalence rates are dependent of the food habits, life style and socio economic conditions prevailing.<sup>4</sup>

The definition of anaemia is based on hemoglobin value. According to the World Health Organization (WHO), anaemia in pregnancy is defined as hemoglobin concentration of less than 110g/L.<sup>5</sup> Anaemia ranges from mild (10.0-10.9g/dl), moderate (7-9.9g/dl) to severe (<7g/dl).<sup>6</sup> There is 8 to 10 fold increase in maternal mortality rate (MMR) when hemoglobin falls below 5g/dl.<sup>7</sup>

The main causes of anemia in developing countries include: inadequate intake and poor absorption of iron, malaria, hookworm infestation, diarrhea, HIV/AIDS, genetic disorders

(e.g., sickle cell anaemia and thalassemia), blood loss during labor and closely spaced pregnancies.<sup>8</sup> The pregnant women suffering from Iron deficiency anemia are with associated risk, born babies with low birth weight, preterm delivery, increased peri-natal and neonatal mortality.<sup>9</sup> In another analysis, iron deficiency anemia (IDA) was an underlying risk factor for maternal and perinatal mortality and morbidity.<sup>10</sup>

The ministry of Health, Government of India has recommended intake of 100mg of elemental iron with 500 mcg folic acid tablets in second half of the pregnancy for a period of at least 100 days. In the World Health Organization (WHO) / World Bank rankings, IDA is the third leading cause of disability-adjusted life years lost for females aged 15–44years.<sup>8</sup> In 1993, the World Health Organization instituted its Safe Motherhood Initiative with a goal of reducing the number of maternal deaths by half before the year 2000.<sup>11</sup> In India, anemia is the second most common cause and accounting for 20% of total maternal deaths.<sup>12</sup> 1970 National Nutritional Anemia Prophylaxis Programme (NNAPP) was initiated in India, with the aim to reduce the prevalence of anemia to 25 percent. Since 1992, the daily dosage of elemental iron for prophylaxis and therapy has been increased to 100 mg and 200 mg, respectively under Child Survival and Safe Motherhood (CSSM) Programme.<sup>13</sup>

Early detection and effective management of anaemia in pregnancy can contribute substantially to reduction in maternal morbidity/mortality and improve the perinatal outcome. Successful management of anaemia in pregnancy

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depends on accurate and acceptable methods of detecting anemia, assessing its severity and monitoring response to treatment.

The aim of this study is to find out the prevalence of anemia among pregnant women attending antenatal clinic and to examine the knowledge level regarding prevention of anemia among pregnant women.

## 2. Methodology

A community-based study was conducted in July-August 2023 at Glocal Institute of Unani medical research centre, Glocal University, Saharanpur. The study population consisted of 50 pregnant women attending antenatal opd in the Glocal Unani College Hospital. A pre-tested questionnaire was used by face to face interview to know about the demographic factors like age, occupation, education, caste, obstetric factors like age at

marriage, age at first child, gravidity, parity, and dietary factors. Knowledge about anemia, practices regarding its prevention and utilization of antenatal care services were also sought. Hemoglobin was estimated using Sahli's method (as a part of hospital investigation, it was already done for the patients). Anaemia was defined as hemoglobin less than 11g/dl. Patients who were anemic were appropriately treated according to the aforementioned hospital management. The results were tabulated and analyzed.

## 3. Results

In this cross sectional study of 50 pregnant women, the following were the results.

The mean age of women who attended antenatal clinic at the community health centre was 22 years±3.006 years.

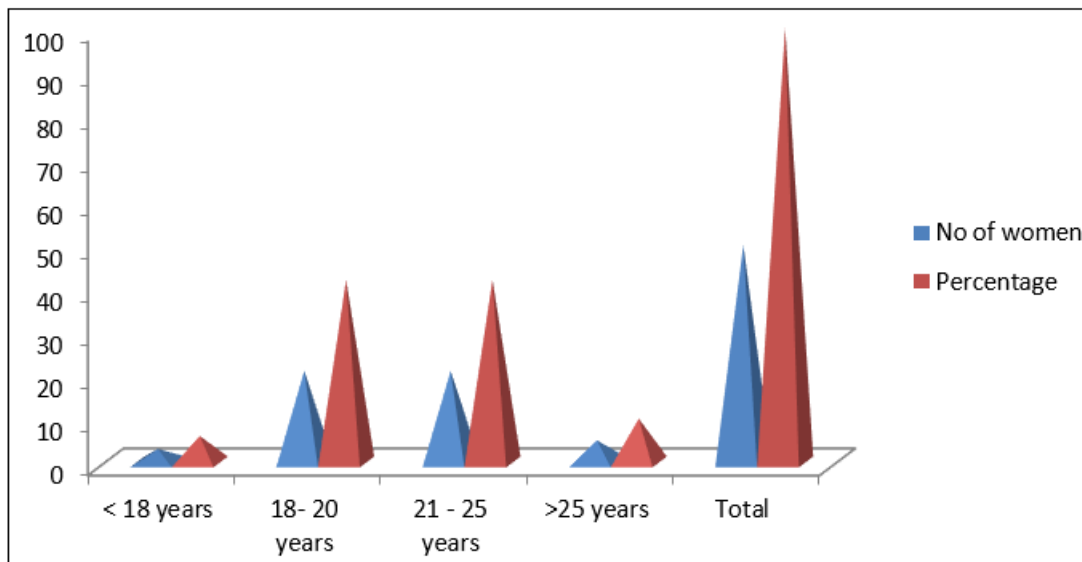


Figure 1: Age group of women.

Most of the women were in the active reproductive age group of 18-25 years.

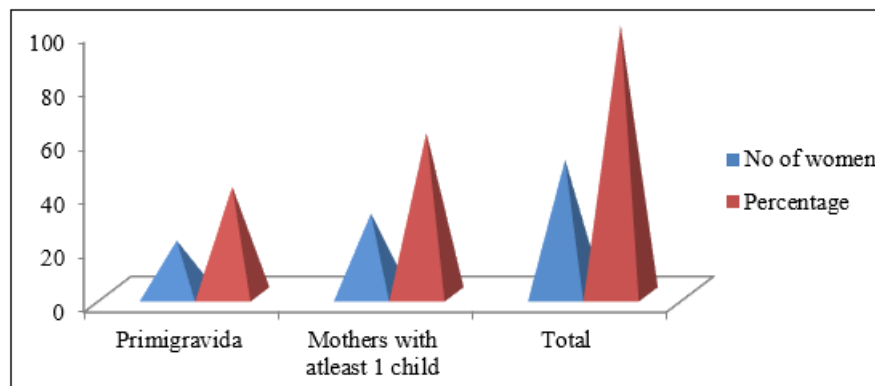


Figure 2: Gravidity status of pregnant mothers.

Majority of the women in this study had atleast one child.

Table 1: Socio demographic profile.

Education status	No of women	Percentage
Illiterate	14	28
Primary school	10	20
High school	17	34
Pre university	07	14
University degree	02	4
Occupation	No of women	Percentage
House wife	35	70
Coolie/ labourer	12	24
Office work/ clerk	03	6
Socio economic status	No of women	Percentage
Higher middle class	4	8
Middle class	3	6
Lower middle class	12	24
Lower class	11	22
Below poverty line	20	40
Caste	No of women	Percentage
Schedule caste	24	48
Schedule tribe	12	24
Others	14	28

Most of the women were literate in this population, and were from lower socioeconomic status. 14% of women were teenage pregnant, a significant figure.

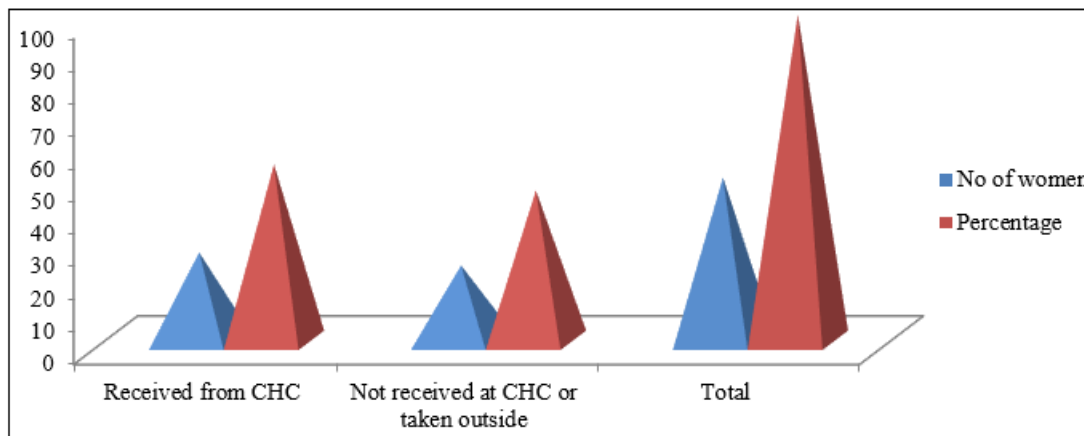


Figure 3: Utilization of services provided in antenatal care: IFA supplements.

Majority of women had registered the pregnancy in early trimester, received and consumed iron supplementation. Only 48% of the women had knowledge of consuming iron rich foods in their diet.

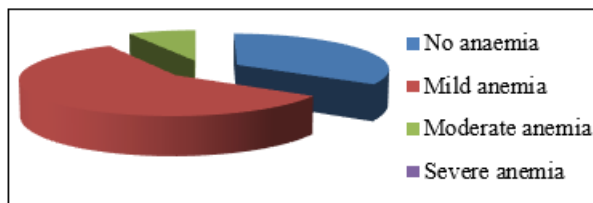


Figure 4: Grading of anaemia.

Two thirds (66%) of the women were found to be anaemic in this population and 28 women (56%) of the women were pale on examination.

#### 4. Discussion

Anaemia in pregnancy continues to be a major public health problem all over the world. It has become an invisible pandemic similar to chronic illness like tuberculosis and HIV. In developing countries, reproductive age starts at a young age. Women get married earlier than 18 years and become pregnant within a year of marriage. There is no awareness on population control and women bear children without proper gap. As a result many women are anaemic before they become pregnant. Pregnancy increases the effects of anaemia and leads to more risks and consequences. As pregnancy goes on for nine months, the onset of anaemia and its effects are difficult to see in its initial stages. Anaemia does affect patients at all age groups. Pregnant women are at more risk for anaemia due to various causes.

A substantial proportion of women become anaemic during their pregnancy in both developing and developed countries. Estimates from the World Health Organization report that

from 35% to 75% (56% on average) of pregnant women in developing countries, and 18% of women from industrialized countries is anemic.<sup>21</sup> The highest proportions of individuals affected are in Africa and in Southeast Asia.

In South Asia, India being most populous nation, population more than 1.25 billion, contributes highest to the prevalence of anaemia in pregnancy. Prevalence of anaemia in pregnant Indian women is 49.7%, against the global prevalence of 41.8%. India contributes to about 80% of the maternal deaths due to anaemia in South Asia and anaemia is an important cause of maternal mortality.<sup>11</sup> In India, anaemia is directly or indirectly responsible for 40 percent of maternal deaths. There is 8 to 10-fold increase in MMR when the hemoglobin falls below 5 g/dl.<sup>22</sup> Anaemia begins in childhood, worsens during adolescence in girls and gets aggravated during pregnancy.<sup>22</sup>

In India, the prevalence of anaemia is high because of fewer intake of iron, folic acid and food sources that prevent iron absorption, coupled with poor bioavailability of iron is the major factor responsible for prevalence of anemia.<sup>23</sup> Assuming that at least 10% of oral iron is absorbed, due to deficient intake it only makes up to less than 50% of daily requirement needed. At least 5mg/day in early months of pregnancy and up to 10mg/day in last months of pregnancy is required. Total of about 1500mg of iron in antenatal period is required to be absorbed to avoid the effects of anemia.

The effects of anaemia on the mother are more pronounced during the third trimester of pregnancy. Mothers are prone for infections, sepsis, poor weight gain, postpartum hemorrhage and shock, preterm labour and heart failure. The immunosuppression caused by anaemia is mostly the cause for increased risk of infections and adverse effects on the pregnancy and its outcome. Early identification and treatment of infections in pregnancy improve the outcome for both mother and child. The major consequences of anaemia in pregnancy are maternal mortality and morbidity as well as low birth weight leading to increased infant mortality.<sup>23,24</sup>

Women with mild anaemia during pregnancy are able to continue their routine work as they are well compensated by increased blood volume. Moderate anaemia patients have restricted capacity regarding their routine activities and are more prone for the adverse effects on the outcome of pregnancy. Patients with severe anaemia are often decompensated and have increased cardiac output, tachycardia, breathlessness and palpitations. Unless these patients are admitted and treated immediately, they go into cardiac failure, pulmonary edema and ultimately die of minimal blood loss during delivery. These cases directly increase the maternal mortality. Along with this any obstetric complications like twins, pregnancy induced hypertension, diabetes, and antepartum hemorrhage will contribute to the adverse outcome along with anemia. Therefore all anemic women are to be treated as high risk group. Neonates of anemic mothers are born with suboptimal iron stores and are at high risk of developing iron deficiency anemia.<sup>24</sup>

It is well accepted that early detection and effective management of anaemia in pregnancy can substantially reduce maternal mortality and improve perinatal outcomes. All pregnant women are offered anaemia screening in the form of hemoglobin estimation at the start of pregnancy. All women who are anemic in the first trimester are screened for other contributory causes for anaemia and treated for the same. Several studies have showed that iron supplementation started in second trimester of pregnancy have shown increase in hemoglobin even up to 6 months postpartum period. This is important in women who become pregnant again soon after without any spacing or family planning.<sup>25</sup>

## 5. Conclusion

Improving the maternal and reproductive health of women is a major challenge in developing countries like India. India was the first developing country to take up the national nutritional prophylaxis program among the South Asian countries of iron and folic acid supplementation to prevent anaemia among pregnant women and children.1 Distribution of iron and folic acid tablets to all pregnant women irrespective of hemoglobin status in any trimester was started under national anaemia prophylaxis program in 1972. They received elemental iron of 60mg and folic acid of 500mcg for 100 days during antenatal period. The patient compliance was poor and outcome marginally improved after two decades. It was later changed to national anaemia control program (NACP) in 1989 where women received 100mg of elemental iron. Women who were already anemic received two tablets daily.

Pregnant women with moderate to severe anemia, who present for anaemia control have benefitted by parenteral iron therapy in the form of iron sorbitol citrate injections given intramuscularly during the antenatal period. Oral supplementation in these women also continues at the same sitting. In this dual approach, it is possible for these women to become near normal during the time of delivery. The birth weight of child also improves with good perinatal outcome.

In spite of these measures, our country still faces a big hurdle in effective management of this problem and in reducing the incidence and prevalence of anaemia in pregnancy. The reasons are at various levels. Starting with planning, lack of resources, poor utilization of services and ineffective implementation of the plan. Along with this illiteracy, poverty, unemployment, ignorance, malnutrition, remote areas, underutilization of medical services and population explosion makes this problem more difficult to manage.

## 6. Future Recommendations

Literature search in the last few years have shown little progress in the control of anaemia in pregnancy. Much more needs to be done to improve the accessibility of iron supplements, compliance of the pregnant women, screening and assessment, treatment of anemia, health education and empowerment of women to achieve our goals. A comprehensive plan with multiple interventions has to take

effect on ground level to overcome this big hurdle in women health.

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### Author Profile



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