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A Study On Prevalence Of Anemia In Pregnant Women

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Abstract: Anemia is the most prevalent hematological disorder during pregnancy, particularly in low- and middle-income countries, and poses serious risks to both maternal and fetal health. Characterized by a decrease in hemoglobin levels, anemia during pregnancy can lead to complications such as preterm birth, low birth weight, and increased maternal morbidity and mortality. The primary cause of anemia in pregnancy is iron deficiency, but other nutritional deficits, including folic acid and vitamin B12, also plays role. The leading cause of anemia is iron deficiency, which can be prevented through early oral iron supplementation. The objective is to assess the prevalence of anemia and the use of iron supplements among pregnant women. A cross-sectional study was conducted to collect information on the prevalence of anemia and iron supplement use among 400 antenatal women at SSL Hospital, BHU, Varanasi. The prevalence of anemia was found to be 71.3% according to WHO criteria Out of the 71.3% anemic women, approximately 47% experienced mild anemia, 23.8% had moderate anemia, and 0.5% suffered from severe anemia. Out of the total pregnant women, 54.5% were in their second trimester, while 45.5% were in their third trimester. Among pregnant women, 95.3% reported daily consumption of iron supplements. The study highlights a high prevalence of anemia (71.3%) among pregnant women, with nearly half of the anemic women experiencing mild anemia. Despite the fact that 95.3% of pregnant women reported daily iron supplement intake, anemia remains a significant public health issue. The presence of moderate and severe anemia in a considerable portion of the population suggests that iron supplementation alone may not be sufficient to address the problem, pointing to the need for a more comprehensive approach. These findings highlight the need for continuous monitoring, improved nutritional education, and enhanced prenatal care to mitigate anemia-related risks to maternal and fetal health.

Keywords: Anemia, pregnancy, iron supplements, prevalence.

I. INTRODUCTION

Anemia is a widespread hematological disorder, particularly prevalent among pregnant women in low- and middle-income countries. According to the World Health Organization (WHO), approximately 25% of expectant mothers in high-income countries and 50% in low- and middle-income nations are affected by anemia. India exhibits a higher prevalence of anemia compared to other developing nations. The World Bank identified anemia as the ninth most common health condition among girls and pregnant women in low-income countries as early as 1993 [1].

Iron deficiency is recognized as the primary cause of anemia, accounting for 75% to 95% of cases worldwide and affecting over two billion individuals, including more than 40 million pregnant women [2]. Anemia is highly prevalent in India due to insufficient iron and folic acid intake, dietary practices that impede iron absorption, and low iron bioavailability [3].

According to the WHO guidelines on nutritional anemia, "Tools for Effective Prevention and Control, 2017," hemoglobin (Hb) levels used to diagnose anemia in pregnant women are classified as:- Mild (10.0–10.9 g/dl), Moderate (7.0–9.9 g/dl) and Severe (below 7.0 g/dl). [4]

II. OBJECTIVE

- To determine the prevalence and severity of anemia among pregnant women in relation to demographic and educational factors.
- To investigate the association between regular iron supplementation and the severity of anemia.
- To evaluate the distribution of anemia severity among pregnant women by trimester.

III. RESEARCH METHODOLOGY

The present cross-sectional study was conducted among pregnant women attending the antenatal clinic of the Department of Prasuti Tantra, Sir Sunder Lal Hospital, BHU, Varanasi. A total of 400 pregnant women participated in the study. Ethical approval was obtained from the ethical committee of the Faculty of Ayurveda, IMS, BHU. The study was conducted from January to October 2023. A structured questionnaire was used to gather information on the socio-demographic characteristics and other necessary details. Informed consent was obtained from all participants after explaining the purpose of the study. Women who did not provide consent were excluded from the study.

Data were computerized in columns and row to facilitate extracting the relevant descriptive statistics for each parameter corresponding to each question. Data were also analyzed by using chi square method ($\chi 2$) at a significant level of P=0.05 by using the software Program Statistical package for the Social Sciences (SPSS version 22) to examine the influences of socio-economic factors on the prevalence of anemia.

IV. RESULTS

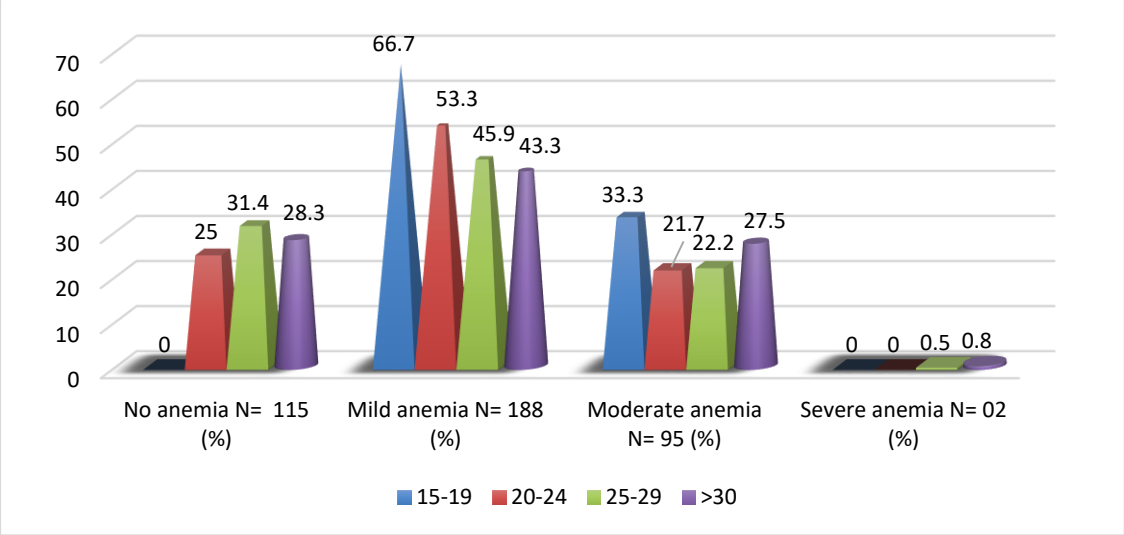

Fig. 1 distribution of anemia severity by age group among the pregnant women

The bar chart depicts the distribution of anemia severity among pregnant women across age groups, showing mild anemia as most common in younger women (15-19 years, 66.7%) and moderate anemia more prevalent in the same group (33.3%). Severe anemia is rare, occurring in only 0.8% of women aged over 30, indicating a need for focused interventions in younger age groups.

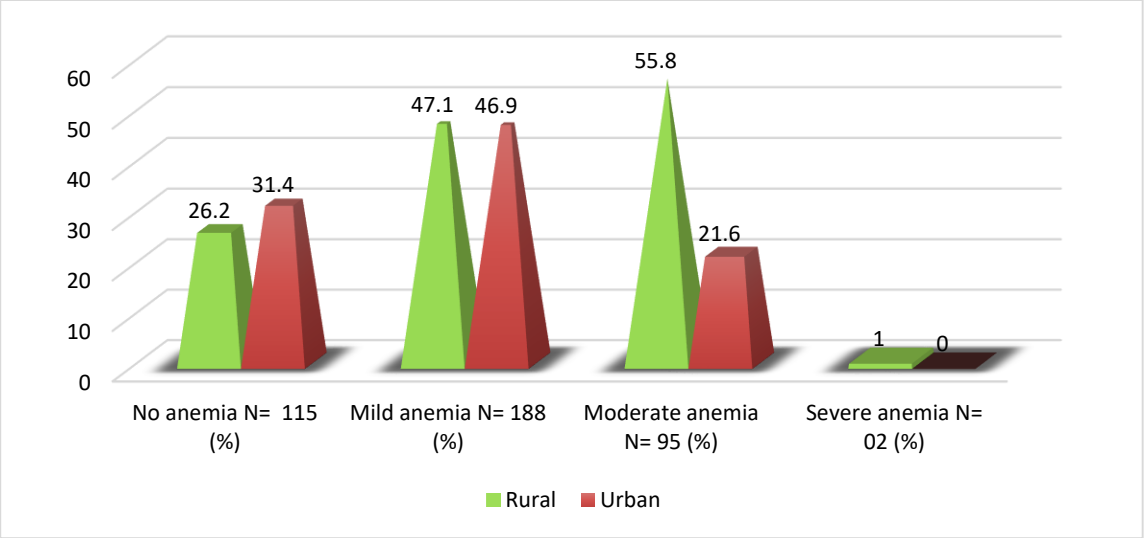

Fig. 2 Distribution of Anemia Severity Among Pregnant Women by Residential Area

The chart shows that while mild anemia is nearly equal in rural (47.1%) and urban (46.9%) areas, moderate anemia is more prevalent in rural areas (55.8%) than in urban areas (21.6%). Highlighting the need for focused interventions.

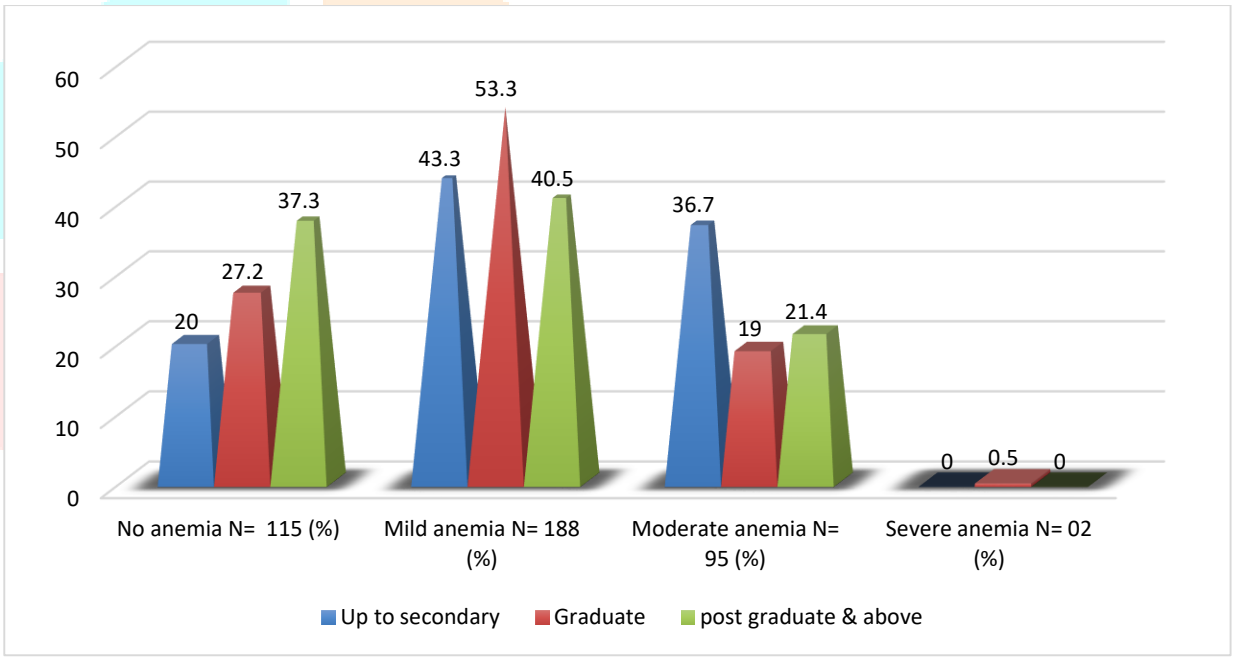

Fig. 3 Distribution of Anemia Severity Among Pregnant Women by Education Level

The chart depicts anemia severity by education level among pregnant women, with mild anemia highest among graduates (53.3%) and moderate anemia more prevalent in those with up to secondary education (36.7%), highlighting the need for targeted health strategies.

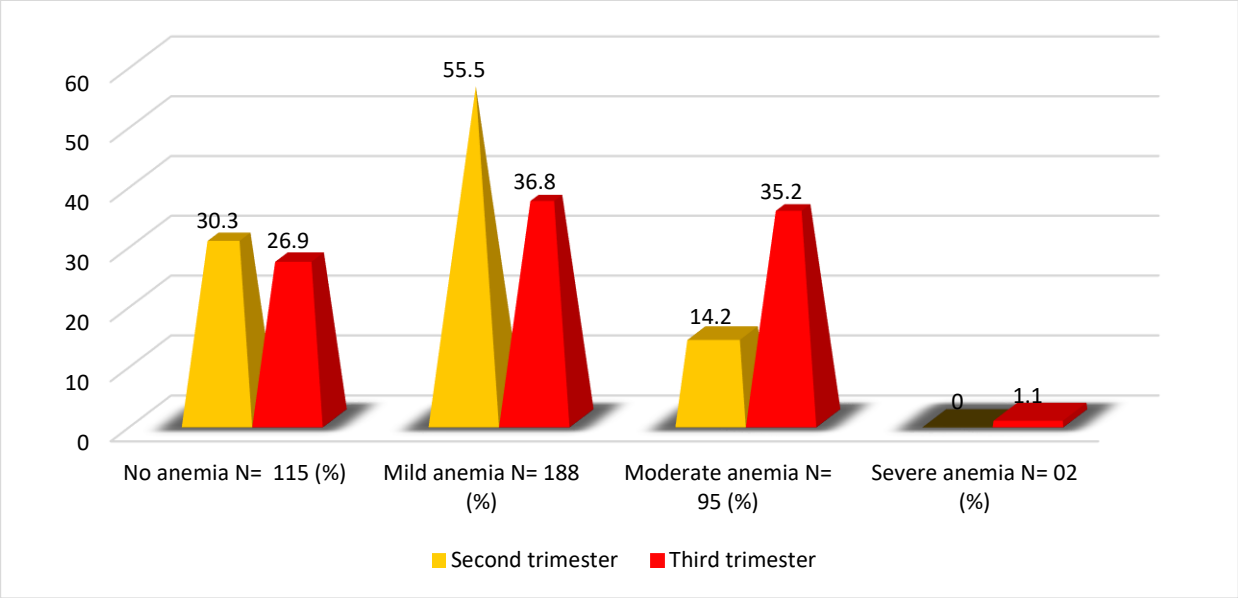

Fig. 4 Distribution of Anemia Severity Among Pregnant Women by Gestational age

The chart depicts anemia severity among pregnant women across trimesters, showing higher mild anemia (55.5%) in the second trimester, which declines to 26.9% in the third, while moderate anemia increases from 14.2% to 36.8%, and severe anemia appears only in the third trimester (0.11%).

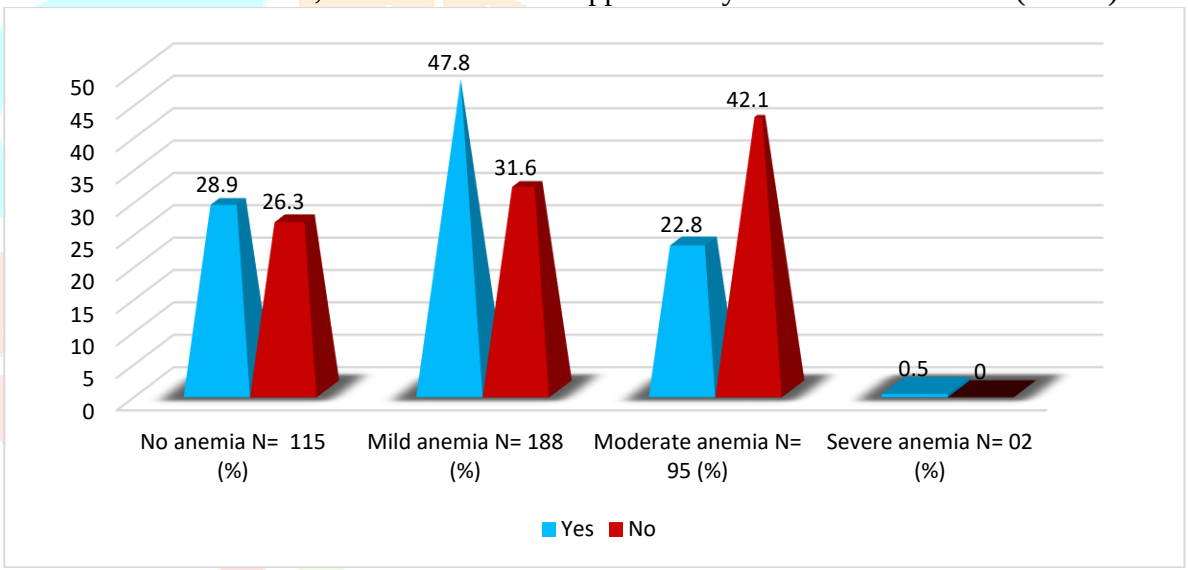

Fig. 5 Regular Iron Supplement Intake and Anemia Severity Distribution

The chart shows that regular iron supplementation is linked to higher rates of mild anemia (47.8%) and no anemia (28.9%), while non-supplement users have more moderate anemia (42.1%) and rare severe anemia (0.5%).

V. Discussion

Anemia during pregnancy remains a significant issue in developing countries, with iron deficiency anemia being recognized as a critical concern in many nations. Antenatal Care is one of the key strategies in maintaining safe motherhood. Despite the numerous efforts made by the Government of India to prevent anemia among pregnant women, the prevalence of anemia during pregnancy in the present study was found to be 71.3%, which is comparable to the 63% prevalence reported in the study by Mahashabde P. et al. (2014) [5]. A study conducted by Agarwal KN et al. reported that more than 90% of women were found to be anemic during pregnancy and lactation [6].

Our study revealed a higher prevalence of moderate anemia in rural areas (55.8%) compared to urban areas (21.6%). Similarly, a previous study by Kundap RP reported a significantly greater overall anemia prevalence among women in rural areas (81%) than in urban areas (51%) [7].

In this study, graduates show a high percentage of mild anemia (53.3%), while post-graduates have the highest proportion of women with no anemia (37.3%). A previous study in the Vellore district of India reported a higher prevalence of anemia among lower-educated women. Mangla et al. reported that illiterate patients exhibited a higher prevalence and greater severity of anemia compared to their literate counterparts [8].

In our study, regular iron supplementation was associated with higher rates of mild anemia (47.8%) and the absence of anemia (28.9%). A study by Dorairajan et al. identified a statistically significant association between regular iron and folic acid intake and hemoglobin (Hb) levels [9]. According to the NFHS-3 survey, only 23.1% of pregnant women consumed iron and folic acid for 90 days, [10] whereas Balasubramanian et al. reported that 51% of participants had a regular intake of these supplements [11].

VI. CONCLUSION

In this study, 71.3% of pregnant women were affected by anemia, with mild anemia being the most common. Moderate anemia was more prevalent in women aged 25-29 and >30 years, while severe anemia was rare. Women from rural areas had a significantly higher incidence of moderate anemia compared to urban women, likely due to differences in healthcare access and supplementation. Higher education levels were associated with a lower prevalence of anemia. Women in the third trimester had a higher incidence of moderate anemia, possibly due to increased nutritional demands. Regular iron supplementation helped reduce anemia severity, with the highest prevalence of mild anemia seen among those who took iron, while those who did not had a higher incidence of moderate anemia.

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