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## Original Research Article

# A study on prevalence of anemia in pregnancy in South India

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### ABSTRACT

**Background:** Anemia in pregnancy is a major health problem worldwide, especially in developing countries like India. Maternal and fetal outcomes are poor in pregnant patients with anemia. The most important cause of anemia is iron deficiency anemia which can be prevented by early oral iron supplementation.

**Methods:** This cross-sectional study was conducted in the department of obstetrics and gynecology of our tertiary care teaching institution for a period of one year. 1290 pregnant women coming to the antenatal OPD were screened for anemia and 490 women. Patients who were not anemic were excluded. 800 patients were enrolled in the study. Each patient was interviewed using a structured interview schedule and the data obtained was analyzed.

**Results:** The percentage of anemia in pregnant women was 62% in our study of which 40% were mildly anemic, 55% were moderately anemic and 5% were severely anemic. Maximum number of anemic women -mild, moderate and severe was seen in the age group 20-24 years. Mild and severe anemia was seen more in the secondary educated women. Maximum percentage of anemia was seen in the lower socio-economic status followed by middle and was lowest in the higher socio-economic status group. Prevalence of anemia was almost equal in primigravida and multigravidas (around 50%) but 80% of severely anemic patients were multigravida. Almost 68% took iron and folic acid tablets regularly.

**Conclusions:** Treating anemia in pregnant women will go a long way in improving maternal and fetal outcome. Hence a future healthy younger generation can be produced. Iron tablets can be distributed at school to young girls to prevent anemia in future women.

**Keywords:** Anemia, Hemoglobin, Iron supplementation, Maternal mortality

### INTRODUCTION

Anemia during pregnancy is a major health problem in South Asian countries and developing countries.<sup>1</sup> It is still more prevalent in India. Sowmya G et al, in their study found the prevalence of anemia in pregnancy as 64.5%.<sup>2</sup> Maternal deaths are more in antenatal patients suffering from anemia than healthy mothers. The fetal outcome is also poor with increased perinatal morbidity and mortality.<sup>3</sup> Anemia is the most common medical disorder during pregnancy. The oxygen carrying capacity of the

blood is reduced in anemic patients. The most important cause of anemia is nutritional. More than 70% of pregnant women suffer from nutritional anemia in South East Asia.<sup>4</sup> This can be overcome by early oral iron therapy because the most common type of anemia is iron deficiency anemia (75%).<sup>5,6</sup> This is mainly due to lack of knowledge regarding the importance of nutrition on maternal health, and poverty inhibits them from buying healthy nutritious food.<sup>7,8</sup> The aim of the present study is to find out the prevalence of anemia and analyze the distribution of the age, education, socio economic status

and parity in pregnant anemic women and their acceptance of oral iron therapy.

## METHODS

This cross-sectional study was conducted in the department of obstetrics and gynecology of our tertiary care teaching institution for a period of one year between January 2018 to December 2018. A total 1290 pregnant women coming to our antenatal OPD were screened for anemia using laboratory tests and 490 women who were not anemic were excluded. A total 800 patients were enrolled in the study.

### Inclusion criteria

- Pregnant women
- Hb% less than 11 gm%.

### Exclusion criteria

- Non pregnant women
- HB above 11 gm%.

### Study population

Pregnant women attending the antenatal OPD of our tertiary teaching institution between the ages of 18 to 50 years from nearby villages in Kancheepuram district were considered.

- Total no. of AN Women - 1290
- No. of anemic patient - 800
- Percent of anemic patient - 62%.

Approval was obtained from the Institutional Ethics Committee prior to the commencement of the study. Each participant was explained in detail about the study and written informed consent was obtained prior to the data collection. Each patient was interviewed using a

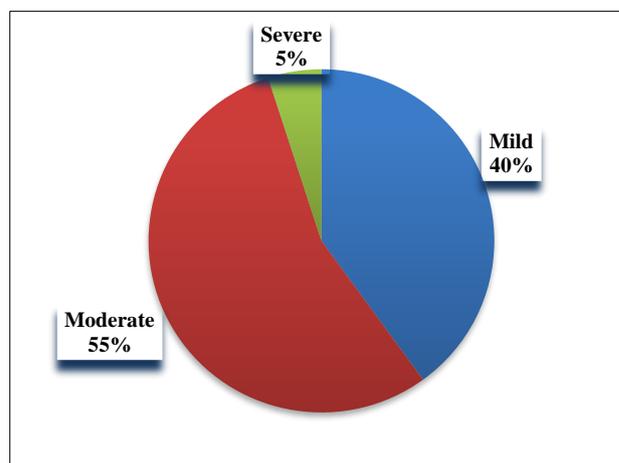
structured interview schedule to obtain information regarding the age, parity, educational and socio-economic status. The severity of anemia was estimated and the intake of iron supplementation by the pregnant patient was also studied.

### Statistical analysis

The data obtained was organized according to the severity of anemia Data was entered and analyzed using Microsoft Excel spreadsheet, and the various degrees of anemia were expressed in percentage.

## RESULTS

Out of 1290 OPD pregnant women 490 had Hb% above 11 gm/dl. So, the prevalence of anemia was 62% of which 40% were mildly anemic (Hb-9-11 gm%), 55% were moderately anemic (Hb-7-9 gm%) and 5% were severely anemic (Hb-less than 7 gm%) according to WHO classification (Figure 1).



**Figure 1: Prevalence of anaemia among pregnant women.**

**Table 1: Age distribution.**

Age	Mild anemia	Moderate anemia	Severe anemia	Total
< 20 years	35 (10.9%)	63 (14.3%)	6 (15%)	104 (13%)
20-24	150 (47%)	320 (72.73%)	24 (60%)	494 (61.75%)
25-29	125 (39%)	44 (10%)	8 (20%)	177 (22.12%)
> 30	10 (3.1%)	13 (2.95%)	2 (5%)	25 (3.72%)
<b>Total</b>	<b>320</b>	<b>440</b>	<b>40</b>	<b>800</b>

The 800 anemic women were included in the study. Mean age of the participants was 22.6%. Maximum numbers of anemic women were in the age group 20-24 years (61.75%) followed by 22.1% in 25-29 years and 13% in less than 20 years group. The least anemia was seen in the age group more than 30 years (3.72%) (Table 1). Of

the antenatal women 11.5% were illiterate, primary and secondary educated 36.5% and 44.75% respectively and 7.25% were graduate and above. Anemia was seen more in the secondary educated women (44.75%) followed by primary educated women (36.5%) and illiterate (11.5%). Least percentage of anemias was seen in the graduate

women (7.25%) (Table 2). On analyzing socio-economic status as expected maximum percentage of anemia was seen in the lower socio-economic status (63.75%) followed by middle (32.625%) and was lowest in the higher socio-economic status group (3.625%) (Table 3).

Prevalence of anemia in primigravida (49.25%) and multigravida (50.75%) were almost equal but 80% of severely anemic patients were multigravida. (Table 4). Almost 68% took iron and folic acid tablets regularly (Table 5).

**Table 2: Educational status.**

Education	Mild anemia	Moderate anemia	Severe anemia	Total
Illiterate	48 (15%)	40 (9%)	4 (10%)	92 (11.5%)
Primary	64 (20%)	218 (49.5%)	10 (25%)	292 (36.5%)
Secondary	176 (55%)	160 (36.36%)	22 (55%)	358 (44.75%)
Graduate / PG	32 (10%)	22 (5%)	4 (10%)	58 (7.25%)
<b>Total</b>	<b>320</b>	<b>440</b>	<b>40</b>	<b>800 (100%)</b>

**Table 3: Socio economic status.**

Status	Mild anemia	Moderate anemia	Severe anemia	Total
Low	192 (60%)	286 (65%)	32 (80%)	510 (63.75%)
Middle	106 (33.1%)	149 (33.86%)	6 (15%)	261 (32.625%)
High	22 (69%)	5 (1.14%)	3 (5%)	29 (3.625%)
<b>Total</b>	<b>320</b>	<b>440</b>	<b>40</b>	<b>800 (100%)</b>

**Table 4: Parity.**

Parity	Mild anemia	Moderate anemia	Severe anemia	Total
Primi Para	162 (50.6%)	224 (50.9%)	8 (20%)	394 (49.25%)
Multi Para	158 (49.4%)	216 (49%)	32 (80%)	406 (50.75%)
<b>Total</b>	<b>320</b>	<b>440</b>	<b>40</b>	<b>800 (100%)</b>

**Table 5: Iron supplementation.**

Iron tab consumption	Mild	Moderate	Severe	Total
Yes	256 (80%)	264 (60%)	24 (60%)	544 (68%)
No	64 (20%)	176 (40%)	16 (40%)	256 (32%)
<b>Total</b>	<b>320</b>	<b>440</b>	<b>40</b>	<b>800 (100%)</b>

## DISCUSSION

In this present study, the percentage and severity of anemia in pregnant women was analyzed. The prevalence of anemia in pregnancy in our study was 62%. The severity of anemia was graded as per WHO classification of anemia. 40% of the women were mildly anemic, 55% were moderately anemic and 5% severely anemic. Similar, results were obtained by Singh P et al.<sup>1</sup> As per our study, anemia was most prevalent in age 20-24 years old (61.75%). This finding is almost the same as Gaurah et al (77.9%) and Shwetha et al (70%).<sup>9,10</sup> Regarding educational qualification anemia was more prevalent in primary and secondary educational level, 36.5% and 44.75% respectively. In our study of socio-economic status, anemia was more common in lower strata of women (63.75%). This finding correlates with that of Ahmad N et al.<sup>11</sup> Comparing primigravida with

multigravida women, anemia is almost equally distributed among both (50.75%). In studies by Bison et al and Sowmya et al, they have also reported the same distribution (50%).<sup>2,12</sup> All anemic patients were given iron supplements oral or parenteral. Only 68% took the treatment continuously (Table 5). Rest of them discontinued at different periods.

## CONCLUSION

Treating anemia in pregnant women will go a long way in improving maternal and fetal outcome. Hence a future healthy younger generation can be produced. Iron tablets can be distributed at school to young girls to prevent anemia in future women. Educating young girls regarding hygiene, nutritious diet, iron supplement even in pre pregnancy stage will prevent anemia to a great extent during pregnancy.

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