

# Awareness of Anemia among Pregnant Women and Impact of Demographic Factors on their Hemoglobin Status

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## Abstract

**Background:** The objective of this study is to find out the awareness of anemia in a different demographic group of pregnant women and its influence on their hemoglobin (Hb) level.

**Materials and Methods:** This is a cross-sectional study conducted in Obstetrics and Gynecology Department at Government Theni Medical College and Hospital, Theni, Tamil Nadu, India. It is carried out on 600 pregnant women who were randomly selected in the antenatal clinic over a period of 6-month from June 2015 to December 2015. Women attending antenatal clinic were obtained a verbal consent and requested to fill up the questionnaire, and 1 ml of blood was collected to assess their Hb level.

**Results:** Majority of the subjects were multigravida 76% and primi accounts to 24%. In our study, the literacy rate was 68%, and illiteracy rate was 32%. The majority of the women (72%) were in the mean age of 20-29 years, teenage pregnancies (<20 years) were 18%, and elderly (>30 years) were 10%. The majority of the patients registered were in the 1<sup>st</sup> trimester. Hb level less than 11 g is taken as anemia. Out of 600 women, 459 (76.5%) are aware of anemia and 47% knows anemia is more common in pregnant women. 53.5% of the women know about its complications and role of iron therapy (75.5%) sociodemographic factors, such as literacy rate, socioeconomic status, and iron consumption, are highly significant factors, which affect the Hb status of the study group.

**Conclusion:** Creating awareness among pregnant women regarding diet rich in iron, importance of regular intake of iron tablets, and complications of anemia will prevent the incidence of anemia and thereby the maternal mortality. Routine iron and folic acid supplementation significantly improve the Hb status among the pregnant women.

**Key words:** Anemia, Antenatal women, Hemoglobin, Iron tablet

## INTRODUCTION

Maternal mortality is the prime health indicator in any society. Anemia accounts for the majority of maternal death. Health service in a country should lower the incidence of anemia to improve the health status. As per NFHS 3, the incidence of anemia in India between age group 15-49 years in 55.3% and a survey in pregnant women revealed 87% of women were anemic. In India, anemia is directly or indirectly responsible for 40% of maternal deaths. There is 8-10 fold increase in maternal

mortality ratio when the hemoglobin (Hb) falls below 5 g/dl. Maternal anemia is associated with poor intrauterine growth and risk of preterm and low birth weight babies. The only way to prevent maternal death arising from anemia is by early detection and effective management in addition to creating awareness and health education.

This study focuses on the prevalence of awareness of anemia among antenatal women and association of knowledge and practice of taking iron rich food and iron supplementation with the Hb level. This study also assesses the relationship between selected demographic variables and Hb level.

## MATERIALS AND METHODS

This is a cross-sectional study conducted at the Department of Obstetrics and Gynecology at Government Theni

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Medical College and Hospital, Theni, Tamil Nadu, India during the period of 6-month from June 2015 to December 2016 with sample size 600 to study the awareness of anemia among pregnant women, to analyze the impact of demographic variables on anemia and to know the role of routine Fe and folic acid supplements in reducing the incidence of anemia. The Institutional Ethical Committee Approval was obtained. Patients were randomly selected and were asked to fill a questionnaire in the local language to test their knowledge, attitude, and practice regarding anemia. 1 ml of blood was collected, and Hb level was assessed by calorimeter in a central lab. The Hb level of 11 g% is taken as cut off. Patient with Hb <11 g% were considered as anemia.

## RESULTS

About 600 antenatal women belonging to different gestational age were interviewed about their awareness regarding anemia, out of it 76.5% are aware of anemia. Only 47% of our study population knows anemia is more common in pregnant women. The majority of the women knows about its complication (53.5%) and the role of iron therapy (75.5%) (Table 1). In our study group (Figure 1), 51% had a regular intake of iron tablets, 32% had irregular intake, and 17% had not taken iron supplementation. Figure 2 depicts the distribution of study population based on literacy.

Among 600 patients, 72% belongs to 20-29 years age group. On studying the possible determinants using Chi-square test, it was found that age ( $P = 0.5087$ ) and parity ( $P = 0.1320$ ) does not decide the degree of anemia. The significant determinants are literacy ( $P < 0.0000001$ ), socioeconomic status ( $P < 0.0000001$ ), and gestational age ( $P < 0.0000001$ ) (Table 2).

On statistical analysis, we have come to a conclusion that literacy rate, socioeconomic status, and iron consumption are highly significant factors which are directly affecting the severity of anemia as compared to parity and age.

**Table 1: Awareness of anemia and knowledge regarding anemia and its complications and iron therapy (n=600)**

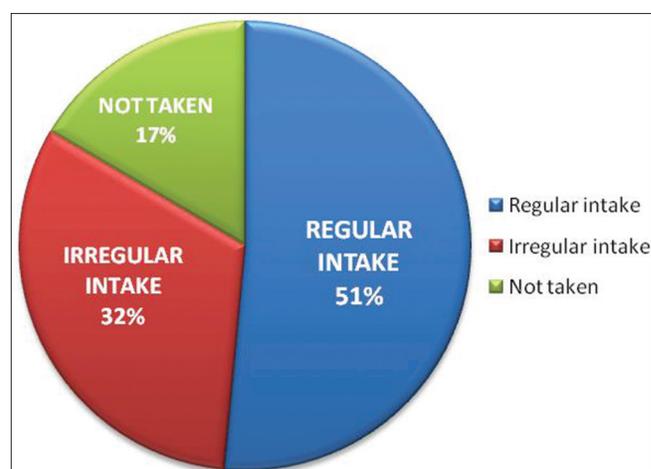
Knowledge	Correct responders (%)	Wrong responders (%)	Ignorant (%)
Anemia	459 (76.5)	96 (16)	45 (7.5)
Anemia in pregnancy	282 (47)	225 (37.5)	93 (15.5)
Complications of anemia	321 (53.5)	234 (39)	45 (7.5)
Iron therapy	453 (75.5)	45 (7.5)	102 (17)

## DISCUSSION

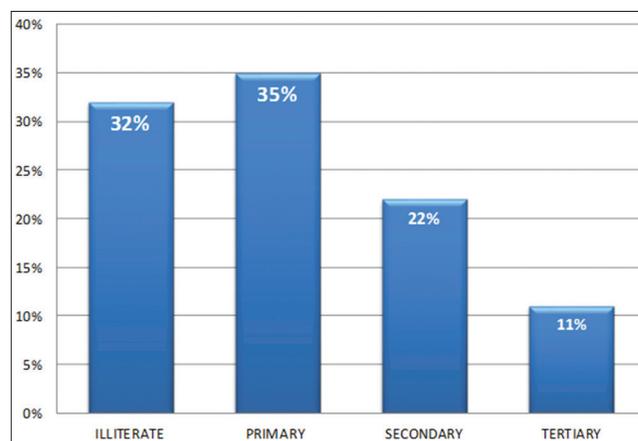
The present study reveals overall 76.5% of the participants had good knowledge regarding anemia which is comparable to a study conducted in Karnataka by Yadav and Banjade<sup>1</sup> and study conducted by Maj Sivapriya and Parida, Pune.<sup>2</sup>

A study by Gautam *et al.*,<sup>3</sup> shows even though 66% of pregnant women were aware of anemia, 21% their participants attributed iron supplementation is essential in pregnancy. In our study population, 75.5% were aware of iron therapy which is comparable to study conducted by Dorairajan *et al.*<sup>4</sup> An association between regular intake and Hb level which is statistically significant in NFHS 3 survey<sup>5</sup> reports shows only 23.1% of pregnant women consumed iron and folic acid for 90 days, whereas in our study 51% had regular intake of iron and folic tablets.

In a similar study conducted in Pondicherry private institution by Neveditha and Shanthini<sup>6</sup> various demographic factors are compared to the degree of anemia which showed none



**Figure 1: Distribution of study population based on iron intake**



**Figure 2: Literacy rate among study population and association with anemia**

**Table 2: Impact of demographic variables on anemic status**

Variables	Numbers (%)	Anemic (%)	Non-anemic (%)	Chi-square, degree of freedom, P value
<b>Age</b>				
Teenage (<20)	108 (18)	72 (67)	36 (33)	0.44, df=1
Middle (20-29)	432 (72)	254 (59)	178 (41)	P=0.5087
Elderly (>30)	60 (10)	25 (42)	35 (58)	Not significant
<b>Parity</b>				
Primigravida	144 (24)	89 (62)	55 (38)	1.253, df=1,
Multigravida	456 (76)	305 (67)	151 (33)	P≤0.1320 Not significant
<b>Education status</b>				
Illiterate	192 (32)	169 (88)	23 (22)	70.71, df=1
Primary	210 (35)	147 (70)	63 (30)	P≤0.0000001
Secondary	132 (22)	53 (40)	79 (60)	Highly significant
Tertiary	66 (11)	15 (22)	51 (88)	
<b>Socioeconomic status</b>				
Grade 2	12	3 (25)	9 (75)	153.8, df=2
Grade 3	360	234 (65)	126 (35)	P≤0.0000001
Grade 4	228	167(73)	61(27)	
<b>Gestational age</b>				
1 <sup>st</sup> trimester	438 (73)	136 (31)	302 (69)	8.17, df=1
2 <sup>nd</sup> trimester	114 (19)	66 (58)	48 (42)	P≤0.0000001
3 <sup>rd</sup> trimester	48 (8)	31 (64)	17 (36)	Highly significant

of the demographic factors influenced the Hb level. In contrast to this, our present study reveals the statistically significant association of literacy, socioeconomic status, intake of iron with Hb level by assessing *P* value and Chi-square test, degree of freedom by open Epi Software Version 3.03 a method. Similar results were obtained in studies conducted by Maskey *et al.*,<sup>7</sup> Mohammad *et al.*,<sup>8</sup> and Kelsey.<sup>9</sup> Two factors are not significant, namely, age and parity in our study population which were proved statistically by Chi-square test.

## CONCLUSION

Our present study shows the lack of knowledge among antenatal mothers regarding anemia and its complications. Sociodemographic factors such as literacy, socioeconomic status influence Hb level directly which is statistically proven in this study. Regular intake of iron and folate improves Hb level. Hence, creating awareness about iron supplementation and health education can grossly reduce the incidence of anemia in antenatal population and thereby prevents anemia related mortality and morbidity.

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