

**A CROSS-SECTIONAL STUDY OF ANEMIA IN THE THIRD TRIMESTER OF
PREGNANT WOMEN IN GOVT GENERAL HOSPITAL & COLLEGE,
NIZAMABAD**

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ABSTRACT

Background: In pregnancy, anemia is a common disorder and is associated with an increased risk of maternal, fetal, and neonatal morbidity and mortality. The present study was conducted to determine the prevalence and risk factors of anemia among III Trimester pregnant women attending OBG department, Government medical college & general hospital, Nizamabad.

Methods: A hospital based cross sectional study was conducted on 392 III Trimester pregnant women attending antenatal care at Government medical college & general hospital, Nizamabad from October 2020 to March 2021. Data on socio-demographic and clinical characteristics of the study participants were collected using a questionnaire and medical records. The haemoglobin was measured using an automated cell counter method and those with hemoglobin level less than 11 g/dl were considered as anaemic.

Results: The overall prevalence of anemia in our study was found to be 192 (48.9%). The age of the patients ranged from 18 to 35 years. Out of all anaemic pregnant women about 100 were mildly anemic, 82 were moderate anaemic & 10 were severe anaemic. Iron folic acid supplementation, antenatal care visit were significantly associated with the prevalence of anemia.

Conclusion: There is a high prevalence of anemia in III trimester pregnant woman attending tertiary care hospital in Nizamabad. Iron supplementation and health education to create awareness about the importance of antenatal care are recommended to reduce anemia.

Keywords: Anemia, Haemoglobin, Pregnant women, Prevalence

Introduction:

Anemia is defined as a decrease in the oxygen carrying capacity of the blood which is caused by the decrease in the haemoglobin (Hb) concentration of the red blood cells (RBCs) or the packed cell volume of RBCs (PCV)^[1, 2]. In Pregnancy, it is observed that the total volume of blood increases by about 1.5 liter^[3]. In comparison to red cell mass, plasma volume rises leading to hemodilution and reduced haemoglobin concentration which is termed as physiological anemia of pregnancy [4]. The World Health Organization (WHO) stated that anaemia is confirmed in pregnancy if Hb level is <11g/dl and also classified Anaemia in pregnancy as mild (10.0-10.9 g/dl), moderate (7.0-9.9 g/dl), and severe (lower than 7.0 g/dl) based on the level of hemoglobin concentration^[5].

Anemia is considered as a major cause of maternal and fetal morbidity and mortality in developing countries^[6] which leads to premature birth, low birth weight, fetal cognitive impairment, and fetal death^[7]

Among several factors, iron deficiency was considered as an important contributing factor for anemia. Anemia is also accompanied by a deficiency of other nutrients^[8, 9]. Around 40% of women begin their pregnancy with decreased iron stores, which becomes insufficient to meet the increased iron needs during pregnancy^[10, 11].

The present study was done to determine the prevalence and risk factors of Anaemia among III Trimester pregnant woman attending antenatal care at Government Medical College & Hospital, Nizamabad.

Methods:

Study Setting and Design. Hospital-based cross-sectional study was conducted from October 2020 to March 2021 at the OBG department, Government medical college, and general hospital, Nizamabad.

Study Population. All III Trimester pregnant women aged between 18 to 35 years attending antenatal care during the study period were considered as study participants. Pregnant women with Hepatitis B Virus infection, with human immunodeficiency virus, and less than 18 years and more than 35 years of age were excluded from the study.

Ethical consideration: Ethical clearance was obtained from the Institutional ethics committee of the Govt. Medical College, Nizamabad and informed consent was taken from all the participants.

Sampling Procedure. The required sample size for this study was calculated using the following formula

$$N = \frac{4PQ}{D^2}$$

N= Estimated minimum sample size

P= P is proportion (prevalence of Anaemia during pregnancy 42.8%)

D= precision at 95% CI as 5%

Q=100-P

The minimum sample size required for this study was 392 III Trimester pregnant women attending the antenatal care clinic of obstetrics and Gynecology department of GMCGH, Nizamabad. A systematic random sampling technique was used to recruit the study participants from their sequence of ANC visits during the study period.

Data Collection: Information from the study participants about the socio demographic, obstetric and gynecological characteristics was collected by using a structured questionnaire and from medical records. The haemoglobin was measured using the automated cell counter method and those with a hemoglobin level less than 11gm/dl were labeled as Anemic.

Data analysis:

The data was presented in the form of tables, graphs using Microsoft Excel 2007. SPSS version 19 was the software used for the analysis of data. Descriptive statistics were used to summarize the data. Proportions were used for categorical variables. Chi-square test was used to analyze the association of risk factors with the prevalence of Anemia. P-value of below 0.05 ($p < 0.05$) was considered to be significant.

Results:

Characteristics of the study participants:

A total of 392 III Trimester pregnant women were included in the study. Age of the women ranged from 18 to 35 years. Majority, 237 (47.4%) of the study participants were in the age group of 25–29 years, 200 (51.0%) had primary education, 150 (38.3%) had first pregnancy, 140 (35.7%) had intra pregnancy interval of ≥ 24 months, 250 (63.8%) had antenatal care visits of 2-3 and 281 (71.6%) had not received iron supplementation. Table 1

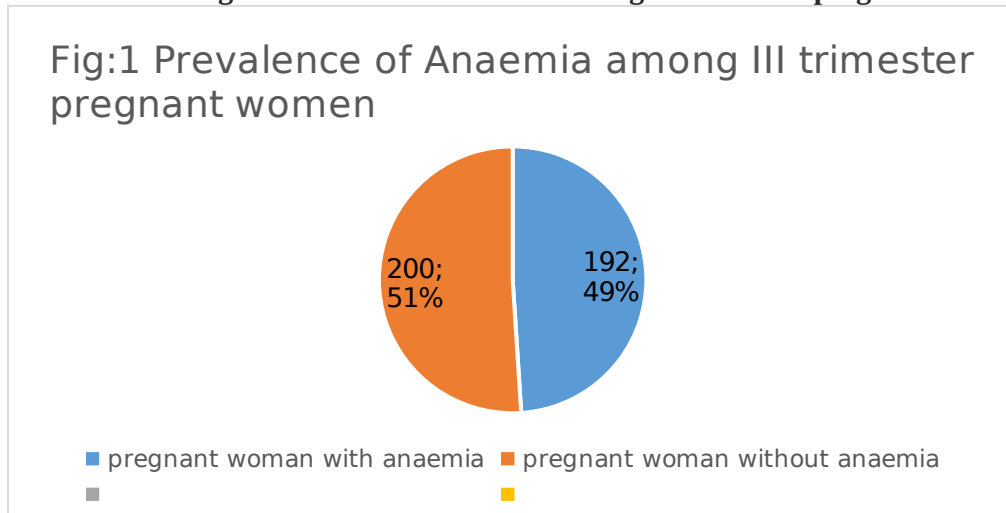
Table 1: Socio demographic and reproductive characteristics of the pregnant women

Variable		Frequency (n)	Percentage (%)
Age group	18-24 years	168	42.9
	25-29	218	55.6
	30-35	6	1.5
Level of education	none	19	4.8
	primary	200	51.0
	Secondary or higher	173	44.2
Gravida	First Pregnancy	150	38.3
	Second pregnancy	115	29.3
	Third Pregnancy & above	127	32.4
Interpregnancy Interval	Primigravida	150	38.3
	<24 Months	102	26.0
	≥ 24 months	140	35.7
Antenatal care visit	1 visit	50	12.8
	2-3 visits	250	63.8
	≥ 4 visits	92	23.4
Have received iron supplementation at current pregnancy	No	281	71.6
	Yes	111	28.4

Prevalence of Anaemia among III Trimester Pregnant Women:

The prevalence of anemia among III trimester Pregnant women in our study was 48.9% (192/392) Fig.1

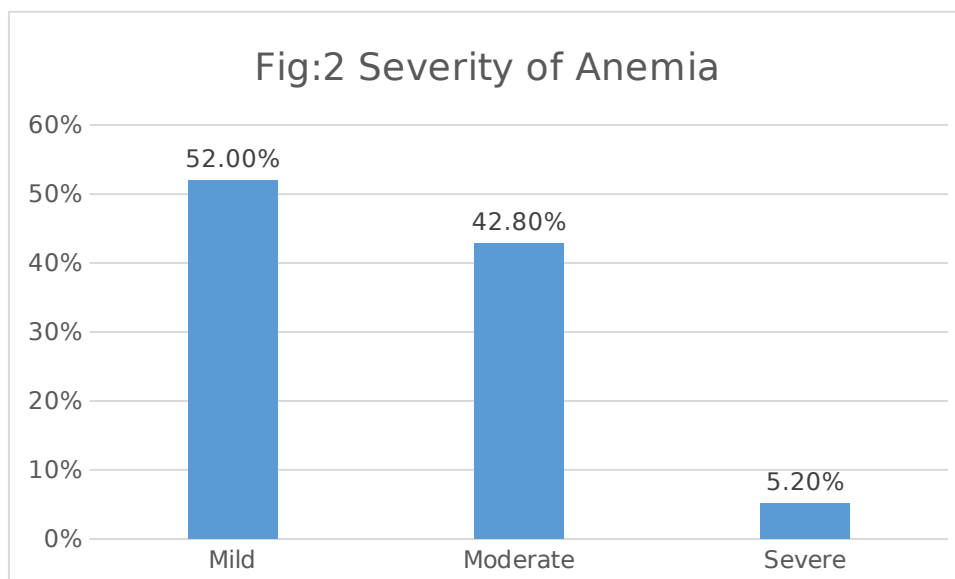
Fig:1 Prevalence of Anaemia among III trimester pregnant women



Severity of Anaemia among III trimester pregnant women who were Anaemic:

Among 192 Anemic pregnant women, 52 % (100/192) were mildly Anemic, 42.8% (82/192) were moderately Anemic & 5.2% (10/192) were severely Anemic Figure 2.

Fig:2 Severity of Anemia



The association between various risk factors and prevalence of Anemia was described in Table 2.

TABLE2: Socio demographic, nutrition, and reproductive characteristics factors associated with an aemiain pregnancy

Variable	Category	frequency	Anemic status		P-Value
			Normal (%)	Anemic (%)	
Age group	18-24 years	168	63 (37.5%)	105(62.5%)	0.35
	25-29	218	134 (61.5%)	84(38.5%)	
	30-35	6	3 (50%)	3 (50%)	
Level of education	None	19	6 (32.6%)	13 (68.4%)	0.42
	Primary	200	108 (54%)	92 (46%)	
	Secondary or higher	173	84 (49.8%)	87 (50.2%)	
Gravida	First Pregnancy	150	80 ((53.4%)	70 (46.6)	0.32
	Second pregnancy	115	58 (50.5%)	57 (49.5)	
	Third Pregnancy & above	127	62 (48.9%)	65 (51.1)	
Interpregnancy interval	<24 Months	102	34 (33.4%)	68 (66.6%)	0.65
	≥24 months	140	76 (54.3%)	64 (45.7%)	
Antenatal care visit	1 visit	50	10 (20%)	40 (80%)	0.02*
	2-3 visits	250	128 (55%)	122 (45%)	
	≥4 visits	92	62 (67.4%)	30 (32.6%)	
Havereceivedironsupple mentationatcurrentpregna ncy	No	281	111 (39.6%)	170 (60.4%)	0.01*
	Yes	111	89 (80.2%)	22 (19.8%)	

*=Significant

DISCUSSION:

In this study, the overall prevalence of Anemia among III trimester pregnant women was 48.9%. The prevalence was comparable with the studies of Marahatta (42.5%)^[12]Msuya and Colleagues (47.4%)^[13]and Kalaivani(51%)^[14]. out of all anemic pregnant women about 52%(100/192) were mildly anemic, 42.8% (82/192) were moderately anemicand the rest 5.2% (10/192) were severely anemic. These findings were more compared to the findings reported in India by Sharma P^[15]

In our study, the prevalence of Anaemia was found to be more in pregnant women who did not receive iron supplementation when compared to those who received iron supplementation which may be due to increased iron requirements to supply the expanding blood volume of the mother and the rapidly growing fetus and placenta. The same was reported by the previous studies done by K. A. Alene et al. R. Viveki et al & M. A. Mbule et al^[16, 17, 18],

The risk of developing anemia significantly increased in pregnant women who had only 1 antenatal care visit. The finding of our study found to be associated with the previous studies which reported anemia among pregnant women who had infrequent ANC visits^[19, 20, 21]

Conclusion:

The overall prevalence of Anemia in the present study was 48.9%. The high level of anemia in pregnancy needs immediate action to prevent the occurrence of adverse maternal and neonatal outcomes. Women who attended ANC only once & women who did not receive iron supplementation were contributed to the problem of anemia. Awareness on Anemia, Early booking and screening for anemia in antenatal clinics & providing iron supplements to anemic women will help in reducing the maternal and fetal complications associated with anemia. Anemia control program namely Anemia Mukta Bharat (AMB) launched by Govt. of India should be executed more resourcefully.

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