

# The Severity of Anaemia in Primigravida in Rural Area of Krishna District

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## Abstract

**Introduction:** Anaemia in pregnancy remains one of the most intractable public health problems in the developing countries. World Health Organization has estimated that more than half of the pregnant women in the world are anemic. Anaemia during pregnancy is associated with adverse infant outcomes, including low birth weight, preterm delivery and perinatal mortality, and it may also be associated with childhood intellectual disability. **Objective:** To estimate the prevalence of anaemia in primigravida, classify the severity of anaemia in different age groups. **Material & Methods:** It is a cross sectional study. Haemoglobin of 187 primigravida subjects in a tertiary hospital was estimated. The subjects were divided into age groups, below 20 years, 20- 25 years and more than 25 years. The mean and standard deviations of haemoglobin in different age groups were calculated. **Observation & Results:** Out of 187 primigravida pregnant women 91.1% below 20 years, 77.77% from 20-25 years and 36.58 % of more than 25 years were anaemic. Their mean Hb was 9.89gms /100 ml, 9.9gms / 100 ml and 11.1gms / 100ml respectively.

**Keywords:** Anaemia, haemoglobin, primigravida, pregnancy, rural area, Krishna district.

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## INTRODUCTION

Anaemia in pregnancy remains one of the most intractable public health problems in the developing countries [1]. The World Health Organization (WHO) has estimated that more than half of the pregnant women in the world have a haemoglobin level (<11.0 g/dl) which is indicative of anaemia. The prevalence may however be more as seen in the developing countries [2]. Anaemia during pregnancy is associated with adverse infant outcomes, including low birth weight, preterm delivery and perinatal mortality, and it may also be associated with childhood intellectual disability. Women with even mild anaemia may experience fatigue and they may have a reduced work capacity. Severe anaemia is associated with maternal and child mortality [3]. Data from DLHS showed that prevalence of moderate and severe anaemia was high even among educated and higher income groups [4]. In India the National Nutritional Anaemia Control Programme (NNACP) was initiated in 1970 to provide

free iron folic acid supplementation to pregnant women commencing from second trimester to three months postpartum. In a study, the Healthcare and Research Association for Adolescents and Nutrition Foundation of India, New Delhi, studied and concluded that prevalence and severity of anemia in rural pregnant women was 84%, of which 9.2% were severe anaemia. The Indian Council Medical Research (ICMR)'s data also shows 84.2% anaemia prevalence in rural pregnant women, of which 13.1% were severe anaemia [5]. Successful management of anaemia in pregnancy depends on accurate and acceptable methods of detecting anaemia, assessing its severity and monitoring response to treatment [6]. Iron Deficiency Anaemia - About 1000 mg of iron is required during pregnancy, 500-600 mg for RBC expansion & 300 mg for foetus and placenta and the rest for the growing uterus. As a result of amenorrhea there is a saving of about 150 mg of iron. As such 850 mg of extra iron is required during pregnancy [7]. Diet alone cannot provide the extra iron

and the stores which have around 500 mg of iron get depleted. But if iron stores are already deficient, iron deficiency anaemia manifests. Iron deficiency anaemia (IDA) is the commonest type of anaemia in pregnancy [8] Because of physiological changes that occur during pregnancy, some of the haematological parameters, such as mean corpuscular volume (MCV), mean corpuscular haemoglobin (MCH), and mean corpuscular haemoglobin concentration (MCHC), are not sensitive indicators for diagnosing anaemia / IDA because they are reduced only when anaemia is severe or well established [9]. Despite the fact that most of the anaemia's seen in pregnancy is largely preventable and easily treatable if detected in time, anaemia still continues to be a common cause of mortality and morbidity in India. Diminished intake and increased demands of iron, disturbed metabolism, pre pregnant health status and excess iron demands as in multiple pregnancies, women with rapidly recurring pregnancies, blood loss during labour, heavy menstrual blood flow, inflammation and infectious diseases are important factors which lead to development of anaemia during pregnancy [10, 11]

## AIMS & OBJECTIVES

- Estimate the prevalence of anaemia during delivery in primigravida.
- Clinically classify the severity of anaemia in different age groups.
- Comparison of prevalence with other parts of India

## MATERIAL & METHODS

The present study is a descriptive cross sectional observational study. Venous blood samples were drawn from pregnant women attending antenatal clinic for the assessment. EDTA tubes were used for adequate blood sample collection. Haemoglobin in

grams, of 187 primigravida subjects who were admitted for delivery in Obstetrics and Gynaecology department of a tertiary teaching hospital in the rural area of Krishna District Andhra Pradesh were estimated by Lablife H3D Premier automated haematology analyser. The subjects were divided into three age groups, below 20 years, 20-25 years and more than 25 years for convenience. Anaemia was classified according to WHO criteria mild (9-11 gm %), moderate (7-9 gm %) and severe (4-7 gm %). Women with twin pregnancies, bleeding disorders and multi gravida were excluded. The mean and standard deviations of haemoglobin in different age groups were calculated. The study was approved by Institutional Ethical Committee.

## Sample Size

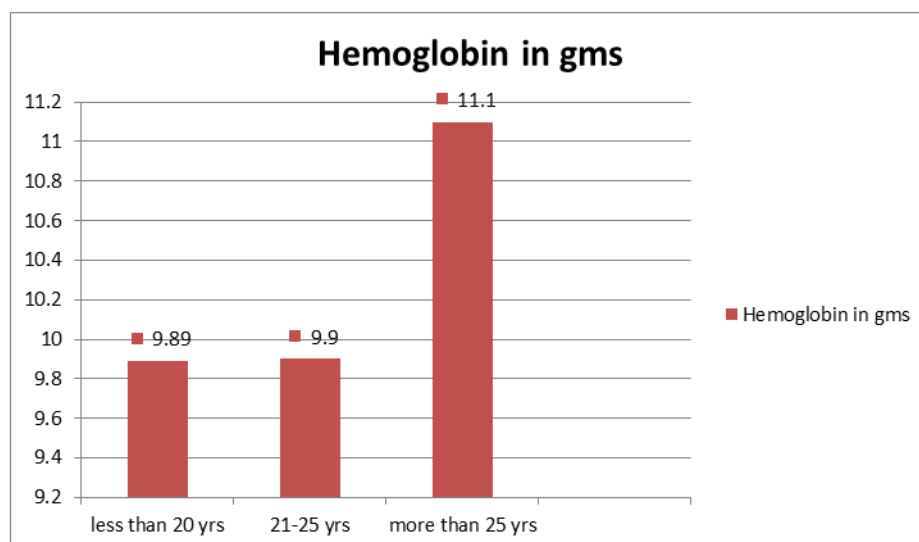
(A minimum sample size of 100 pregnant women would provide an estimate of prevalence with +10% allowable error within 95% confidence limits, based on the knowledge that about 50% of the pregnant women in the country are anaemic).

## Data Analysis

Data was entered and statistical analysis was performed using SPSS version 16, software. Descriptive statistics, including mean, and standard deviations, were calculated.

## OBSERVATIONS AND RESULTS

The present study revealed that out of 187 primigravida pregnant women 91.1% below 20 years, 77.77% from 20-25 years and 36.58 % of more than 25 years were anaemic. Their mean Hb was 9.89gms /100 ml, 9.9 gms / 100 ml and 11.1 gms / 100ml respectively. There were no cases of severe anaemia in all age groups and no cases of moderate anaemia in the age group above 25 years.



**Fig-1: Average haemoglobin in different age groups in Primigravida pregnancy**

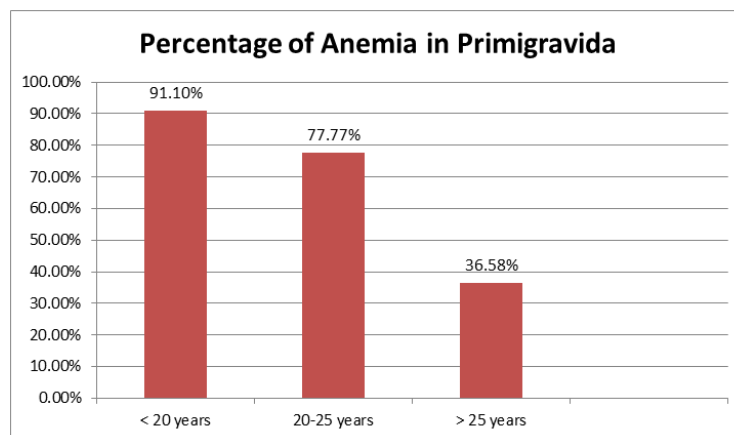
**Table-1: Haemoglobin in grams in different age groups showing normal haemoglobin, mild and moderate anaemia**

AGE IN YEARS	ANEMIA			NORMAL	Total Number(n)
	MILD	MODERATE	SEVERE		
≤ 20	9.9 ± 0.58 (40)	7.67 ± 0.5 (44)	0	12.12 ± 1.17(8)	92
20-25	10.21 ± 0.46 (12)	8.3 ± 0.19 (32)	0	11.2 ± 0.18(10)	54
≥ 25	10.4 ± 0.5(15)	0	0	11.8 ± 0.56(26)	41

## DISCUSSION

This study confirmed that anemia is more common among primigravidae as recorded by Anorlu [12] and Nagaraj [13]. In a study by Lelissa D *et al.*, in southern Ethiopia, the overall prevalence of anemia was 77/125 (61.6%). In terms of severity, mild anemia was 41(53.2%), moderate anemia was 36 (46.8%), and there was no severe anemia identified [14]. Mondal B *et al.*, in West Bengal found that mean Hb level was 9.72 g/dl ( $\pm$  1.98). The mean Hb levels were slightly increased with the advancement of age correlating with our study [15]. The present study showed a proportional decrease in anemia with increasing age, contrary to the findings from the studies done in Maharashtra [16], Aurangabad [17], and Kashmir valley [18]. The prevalence of anemia was 67.6% among women aged less than 20 years at the time of pregnancy and significantly lower (57%) for those women aged 31 and above at the time of pregnancy in a study by Jeetender Yadav [19].

Okunade K.S and Adegbesan-Omilabu found that anemia were more prevalent among primigravidae (33.9%) than the multigravidae (25.3%), although this difference was not statistically significant ( $P=0.079$ ). The prevalence of anemia in primigravida in our study was 75.4 % [20]. Viveki RG *et al.*, found a high prevalence (82.9%) of anemia (Haemoglobin < 11.0gm/dl) among 228 pregnant women. Majority (50.4%) had moderate degree of anaemia (Haemoglobin - 7.0 to 10.0 gm/dl) and 7.0% had severe anaemia (Haemoglobin - < 7.0 gm/dl) [17]. Chauhan stated primiparous group (90.4%) were more anaemic than nulliparous (87%) [21]. Haemoglobin levels were measured in 2950 pregnant women attending antenatal clinics in Kimpese, Bas Zaire. 72% were suffering from moderate anaemia (haemoglobin and 3.7% from severe anaemia at their first visit, before receiving any haematinics or anti-malarial prophylaxis [22].

**Fig-2: Age wise distribution of anemia**

## CONCLUSION

From our result we can conclude that anaemia is highly prevalent in rural area of Krishna district in primigravida. Our study revealed that the prevalence of anaemia is higher in younger age group in primigravida. The severity of anaemia decreased with age. Intervention including health education about causes of anaemia and its risk factors and regular antenatal follow-up should be given top priority.

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**Conflicts of Interest:** Nil

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