

# Prevalence of Anaemia in Pregnancy at the First Antenatal Visit

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**Abstract:** ***Aim** (1): To Identify the prevalence of Anemia in pregnancy at the first antenatal visit, (2)To identify various socio-demographic factors associated with anaemia in primi and multi gravid mothers. **Methodology:** It is a descriptive study under taken at SBMCH Chennai on 50 pregnant women attending their 1<sup>st</sup> ANC. **Results:** Among 50 study population 83% were anemic out of which 32% were primi & 68% were multi gravida. Pregnant mothers whose birth interval was < 2 yrs were 1.7 time more likely to develop anemia. Pregnant mother who had heavy menstrual blood flow before index pregnancy were 2.7 time more likely to have risk of developing anemia. **Conclusion:** Among the studied factors short birth interval, previous heavy menstrual blood flow, teenage pregnancy, low socio-economic class, multigravida and the people living in rural areas are the factors which was associated with anemia during pregnancy.*

**Keywords:** Anemia, Primi, Multi gravida, Pregnant Mothers, 1st antenatal visit, birth interval

## 1. Introduction

Anemia is defined as a decreased blood cell hemoglobin concentration. It is one of the most common nutritional deficiency diseases observed globally and affects more than 1.62 billion (25%) people of the world's population, of which 56 million are pregnant women.

Anaemia in pregnancy is now considered as a major health problem. This commonest haematological problem in pregnancy, caused by iron deficiency, is seen in 90% of cases. According to WHO estimation, the prevalence of anaemia in pregnant women is 14% in developed countries, it is 51% in developing countries and it is 65-75% in India. India contributes to about 80% of the maternal deaths caused by anaemia in South Asia. Most of the reported anaemia mothers are in third trimester of pregnancy, since the iron demand reaches 6.6 mg/day in this period.

Anemia during pregnancy is considered severe according to WHO when hemoglobin concentration is <7 g/dL, moderate when it is between 7 and 9.9 g/dL, and mild when it is 10–11 g/dL. Anemia during pregnancy is a major cause of morbidity and mortality of pregnant women in developing countries and has both maternal and fetal consequences. It is estimated that anemia causes >115,000 maternal and 591,000 perinatal deaths globally per year.

The relative contribution of each of these factors to anemia during pregnancy varies greatly by geographical location, season, and dietary practice.

Anemia has a variety of contributing factors, including nutritional, genetic, and infectious disease factors; however, iron deficiency causes 75% of anemia cases. Iron deficiency anemia affects the development of a country by decreasing

the cognitive development of children and the productivity of adults.

Although the antenatal mothers were attending the antenatal clinics and regularly taking iron and folic acid tablets, the prevalence of anaemia was still in higher in this groups. So, the cause of anaemia should be attributed to mainly nutritional deficiency, poor intake of iron rich food stuff, worm infestations, repeated pregnancies in a short interval of time, absence of replenishing of the iron stores lost due to menstrual loss, etc. .

## Aim

- 1) To identify the prevalence of Anaemia in Pregnancy at the first Antenatal visit.
- 2) To identify the various socio-demographic factors associated with anaemia in primi and multi

## 2. Material and Methods

This Descriptive study was carried out in the Department of Obstetrics and Gynaecology at SreeBalaji Medical College and Hospital. Written informed consents were obtained from each patient for their participation, after the nature of the study was explained to them in their language.

### Inclusion Criteria

- All pregnant women attending their 1st antenatal visit irrespective of trimester.
- Age between 19-35 years.

### Exclusion Criteria

- Pregnant women refused to give consent
- HIV Positive women

Volume 9 Issue 12, December 2020

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- Age < 19 years > 35 years
- Pregnant women with symptomatic infection.

A structured questionnaire was administered to all the study individuals. The information on age, age at marriage, average per capita income, educational status, their residence, age at first pregnancy, parity, gestational age, interval between previous and index pregnancies, number of abortions, iron-folic acid tablets supplementation, heavy menstrual blood loss in previous menstrual cycles, etc was collected.

After clinical examination, blood samples were collected in Ethylene Diamine Tetraacetic Acid (EDTA) tubes in the clinicopathology lab. Haemoglobin estimation was done by Sahli's Haemoglobinometer method.<sup>1</sup>

Typing of anaemia was done as per standard peripheral blood smear examination method. The World Health Organization criteria for typing anaemia in pregnancy were adopted in this study.

Based on their education, occupation status and family income per month, antenatal mothers were categorized as class 1-upper class, class 2- upper middle class, class 3 - lower middle class, class 4-upper lower class, class 5-lower class according to Kuppaswamy's socio-economic status scale, 2012 . Educational status of these mothers was classified as illiterate, upto 5<sup>th</sup>, upto 10<sup>th</sup>, upto 12<sup>th</sup> and graduates.

### 3. Results

Only 9 cases (17%) showed Hb levels of more than 11g%. Age wise A total of fifty pregnant women attending the first Antenatal visit constituted the study population. All the pregnant women in the study group were in the age of group of 19- 35 years. It was found that out of 50 mothers studied, 41 cases (83%) showed Hb level distribution of anaemia among the study population.

**Table 1:** Table representing prevalence of anaemia in Primi and Multi Gravida

S. No.	Factor	No. of Cases	%
1.	Primi	13	32%
2.	Multi	28	68%

**Table 2:** Table representing factors in Primi Gravida contributing to Anaemia

S. No.	Factor	Mild	Moderate	Severe
1.	Age:-19-22yrs.	2(67%)	1(33%)	0
	23-27yrs	6(67%)	2(22%)	1(11%)
	28-35yrs	1(100%)	0	0
2.	Rural residence	5(63%)	2(25%)	1(12%)
3.	Urban residence	3(60%)	1(20%)	1(20%)
4.	HMB in previous menstrual cycle	6(55%)	3(27%)	2(18%)
5.	Normal flow in previous menstrual cycle	1(50%)	1(50%)	0
6.	Socio-economic class-I	-	-	-
	II	2(100%)	0	0
	III	2(67%)	1(33%)	0
	IV & V	4(50%)	3(38%)	1(12%)

**Table 3:** Table representing factors in Multi Gravida contributing to Anaemia

S. No.	Factor	Mild	Moderate	Severe
1.	Age:-19-22yrs.	4(80%)	1(20%)	0
	23-27yrs	7(54%)	4(31%)	2(15%)
	28-35yrs	7(70%)	2(20%)	1(10%)
2.	Birth Interval <2yrs	10(56%)	7(39%)	1(5%)
3.	Birth Interval >2yrs	8(80%)	2(20%)	0
4.	Rural residence	10(63%)	4(25%)	2(12%)
5.	Urban residence	9(75%)	2(17%)	1(8%)
6.	HMB in previous menstrual cycle	11(58%)	6(32%)	2(10%)
7.	Normal flow in previous menstrual cycle	7(78%)	2(22%)	0
8.	Socio-Economic class-I	-	-	-
	II	4(80%)	1(20%)	0
	III	6(67%)	2(22%)	1(11%)
	IV & V	7(50%)	4(29%)	3(21%)

Among the 41 anaemic cases around with 13 cases (32%) primi-gravida who were reported to have anaemia compared with 28 cases (68%) multi-gravid mothers reported anaemia in which 18 cases (64%) were found to have their birth interval to be less than 2 years and the remaining 10 cases (36%) were found to have their birth interval more than 2 years.

The Peripheral Blood Smear (PBS) identified microcytic hypochromic and dimorphic blood picture to be most common morphological variant of anaemia. Smears showed microcytic hypochromic anaemia in 37% cases and dimorphic anaemia in 19% cases. Remaining 27% cases showed normal blood smear report on RBC morphology.

### 4. Discussion

In order to effectively prevent anemia during pregnancy, it's important to identify the factors which contribute to the development of anemia. In this study, pregnant women who had heavy menstrual blood flow before the index pregnancy were 2.7 times more likely to have a risk of developing anemia [Primi:- (Mild-55%; Moderate:-27%; Severe:-18%) Multi:- (Mild-58%; Moderate-32%; Severe-10%)] than who did not have history of heavy menstrual blood flow [Primi:- (Mild-50%; Moderate-50%) Multi:- (Mild-78%; Moderate-22%)]. This finding showed that having heavy menstrual flow was more likely to develop anemia. The possible reason may be that heavy menstrual blood flow leads a woman to heavy blood loss, which in turn leads to anemia.

In this study, birth interval was found to be a significant determinant of anemia. Those pregnant mother whose birth interval was less than two years were 1.7 times more likely to develop anemia (Mild-56%; Moderate-39%; Severe-5%) than whose birth interval reported to be greater than two years (Mild-80%; Moderate-20%). This is due to the fact that short intervals between births may not provide women with enough time to replenish lost nutrient stores before another reproductive cycle begins.

Maternal anaemia is considered as a risk factor for poor pregnancy outcomes and it threatens the life of the foetus also. Even more presently, it has been found that more than

half of the world's population will experience some form of anaemia in their lifetime.

The daily requirement of iron in early pregnancy is about 2.5 mg/day and in late pregnancy, it is about 6 mg/day. Iron deficiency may be caused by menstrual loss, inadequate diet, or a previous recent pregnancy. Among 83% of anaemic cases, microcytic hypochromic anaemia was presented in 37% cases, indicating iron deficiency anaemia. Another 19% showed dimorphic anaemia, indicating that there was marrow response to iron treatment or impending deficiency for iron. So, around 60% cases had any one type of anaemia. Moreover, 68% multi-gravid mothers showed anaemia in comparison with 32% primi-gravida who showed anaemia. The aspects of birth spacing and avoidance of teenage pregnancy allow the deposition of iron and normalization of iron stores.

Literacy and socio-economic status also importantly contribute to maternal anaemia. There was a strong association of illiteracy, low socio-economic status with maternal anaemia in the above conducted study. 68% cases with reported anaemia were of very low socio-economic status. Most of them did not have any permanent income in their families. The socio-economic developments, higher standard of living, better utilization of health care facilities, along with increasing literacy rate, are associated with the low prevalence of anaemia in developed countries. Moreover, in the present study, it was found that anaemia increases steadily with decrease in the level of education.

Poverty, ignorance, non-availability and/or failure in utilizing available medical facilities have been shown to be associated with maternal anaemia on one hand and with maternal and perinatal morbidity and mortality on the other, though the association is not causal. The 10<sup>th</sup> five year plan emphasized the need of universal screening for anaemia in pregnant mothers and early detection and management for the same. Health education given to improve the utilization of available facilities and improvement in the health care delivery system to cater to the needy, right at their doorsteps, may thus go a long way in reducing adverse obstetric outcomes associated with maternal anaemia.

## 5. Conclusion

This study identified important factors that determine anemia among pregnant women in the study area. Among the studied factors short birth interval, previous heavy menstrual blood flow, teenage pregnancy, low socio-economic class, multigravida and the people living in rural areas are the factors which was associated with anemia during pregnancy. Regular patient education given by imparting proper knowledge regarding iron rich foods, food fortification, regular deworming in adolescent girls, menstrual awareness in adolescent girls and adequate birth spacing between two pregnancies play a vital role in managing maternal anaemia effectively.

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