



Study of Socioeconomic Determinants of Anemia in Pregnancy

KEYWORDS

Anemia, Chi-square test, Socio-economic determinants.

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ABSTRACT *Objectives: To study the socioeconomic factors affecting the anemia in pregnancy. Methodology: Institution based descriptive cross-sectional study in which socioeconomic profiles of 1376 antenatal cases were recorded in predesigned and pretested schedules. Statistical analysis was done using chi-square test and multiple linear regression analysis. Results: Prevalence of anemia among study population was 89.4%. Out of which 63.9% of mothers were suffering from the moderate degree of anemia. Significant association ($p < 0.05$) was found between the education, occupation, socioeconomic class, residential area, type of family, IFA consumption during pregnancy, ANC visits with anemia in pregnancy. Multiple Linear Regression analysis revealed that the socioeconomic class of mother was the most significant factor affecting anemia in pregnancy. Conclusions: Socioeconomic factors are significant contributory factors for high prevalence of anemia among antenatal cases in this region.*

INTRODUCTION

In India anemia is the second most common cause of maternal deaths account for 20% of total maternal deaths. It also significantly increases the maternal morbidity, fetal and neonatal mortality and morbidity including premature delivery and low birth weight¹

According to WHO, in developing countries anemia affects nearly two thirds of pregnant and one half of non-pregnant women.² Among South Asian countries, India has the highest prevalence (87%) of anemia in antenatal cases and contributes about 80 per cent of the maternal deaths due to anemia in South Asia.^{3, 4, 5}

Nutritionally related iron deficiency is main cause of anemia throughout the world.⁶ In view of the low dietary intake of iron and its adverse health consequences, the Government of India recommends a minimum dose of total 100 iron and folic acid tablets to be prescribed during pregnancy. However, high prevalence of anemia among pregnant women persists despite the availability of this effective, low-cost intervention for prevention and treatment.⁷

Besides poor nutrition, socioeconomic factors like low educational status, occupation, poor socioeconomic status, frequent child birth with close birth spacing, abortions etc have been described as factors contributing to anemia in pregnancy in various studies.^{8,9,10}

Unfavorable socio-economic factors are seems to be responsible for the high prevalence of anemia in developing countries as well as they are major barriers to the efforts put in place for the prevention of anemia during pregnancy. Knowledge of the socio-economic factors which affect anemia in pregnancy can be used for prevention of anemia during pregnancy and to formulate a multipronged strategy to attack this important public health problem. So, the present study aims to find out the association of various socioeconomic factors which affect anemia in pregnancy.

OBJECTIVES

- To study the socioeconomic profile of mothers attending CIMS hospital Bilaspur (C.G.).

- To find out the magnitude of problem of anemia in pregnancy among study population.
- To explore the association of socioeconomic factors and anemia in pregnancy.

MATERIAL AND METHOD

The study was descriptive cross-sectional study, conducted in Chhattisgarh Institute of Medical Sciences, Bilaspur, Chhattisgarh from 30 July 2012 to 31 March 2013. Socio-economic profiles of 1376 antenatal cases were recorded using predesigned and pretested questionnaire. Statistical analysis with Chi-square test and multiple linear regression analysis were done using SPSS for Windows.

RESULTS

In this study, 1376 antenatal cases were studied among which 1230 were affected by anemia. So, prevalence of anemia was 89.4% among study population. Out of which 63.9% of mothers were suffering from the moderate degree of anemia while, 15.1% by mild, 8.5% by severe and 1.9% were affected by very severe degree of anemia.

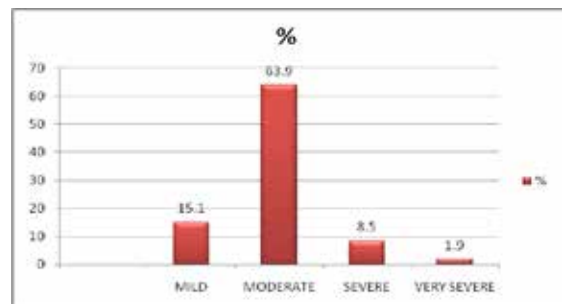


FIGURE 1- Prevalence of Anemia among study population.

Table.1 – Factors affecting the Anemia in Pregnancy

		ANEMIA		x ² Test
		YES	% NO	
EDUCATION	Graduate or PG	45	80.4	11 19.6
	Intermediate	39	83.0	08 17.0

	HSC	177	89.4	21	10.6	$p < 0.01$
	Middle School	322	84.3	60	15.7	
	Primary School	314	93.2	23	6.8	
	Illiterate	333	93.5	23	6.5	
	TOTAL	1230		146		
OCCUPATION	Professional	3	42.9	4	57.1	
	Semiprofessional	3	75.0	1	25.0	
	Clerical/Former	47	92.2	4	7.8	
	Skilled Worker	17	73.9	6	26.1	$p < 0.01$
	Semi-skilled Worker	90	89.1	11	10.9	
	Unskilled Worker	194	90.7	20	9.3	
	Unemployed	876	89.8	100	10.2	
	TOTAL	1230		146		
SOCIOECONOMIC CLASS	Upper	4	66.7	2	33.3	
	Upper-middle	37	69.8	16	30.2	
	Lower-middle	115	76.7	35	23.3	$p < 0.01$
	Upper-lower	1063	92.0	92	8.0	
	Lower	11	91.7	1	8.3	
	TOTAL	1230		146		
TYPE OF FAMILY	Nuclear	838	68.1	116	79.5	
	Joint	392	31.9	30	20.5	$p < 0.05$
	TOTAL	1230		146		
RESIDENCE	Rural	823	66.9	71	48.6	
	Urban	407	33.1	75	51.4	$p < 0.01$
	TOTAL	1230		146		
ANC VISITS	No visit	71	89.9	08	10.1	
	<3 visits	462	95.3	23	4.7	$p < 0.01$
	>(=)3 visits	697	85.8	115	14.2	
	TOTAL	1230		146		
IFA TAB	Nil	145	91.2	14	8.8	
	<100	530	92.7	42	7.3	$p < 0.01$
	>100	555	86.0	90	14.0	
	TOTAL	1230		146		

The study revealed that the 93.5% illiterate and 93.2% primary educated mothers were anemic. However, anemia was also prevalent among the graduate or post graduate mothers in which it affects 80.4% of mothers. Highly significant association ($p < 0.01$) was found between education of mothers and anemia.

Anemia is more prevalent among unemployed (89.8%), unskilled worker (90.7%), semiskilled (89.15) and clerical group (92.2%). It is less common among the mothers with higher profession (42.9%). Highly significant ($p < 0.01$) association was found between occupation of mothers and anemia.

Prevalence of anemia is higher among the lower (91.7%) and upper-lower (92%) socio-economic class of Kuppuswamy's classification (modified 2012) of socioeconomic class of mothers. Highly significant ($p < 0.01$) association was found between socioeconomic class and anemia among mother.

Nearly two third (68.1%) of study population affected by anemia were belong to nuclear family. Significant associa-

tion ($p < 0.05$) was observed between type of family and anemia among mothers. About two-third (66.9%) of study population suffering from the anemia were residing in rural area. So the difference in prevalence of anemia in rural and urban residents were highly significant ($p < 0.01$). Highly significant ($p < 0.01$) association was found between the ANC visit and IFA consumption by mothers and severity of anemia.

Multiple linear regression analysis of anemia with multiple variables reveals that most significant factor affecting anemia was socioeconomic class of mothers.

DISCUSSION

In the present study, prevalence of anemia in pregnancy was observed 89.4%, which is similar with the highest range of the national average prevalence (33.0-89.0%)¹¹ of anemia among pregnant women. The **NFHS-3 survey** found that prevalence of anemia among the pregnant women of Chhattisgarh state was 57.9% (59% rural and 54.6% urban).¹²

More than 88% of mothers affected by the severe degree of anemia had low level of education up to middle school only. Level of education among the pregnant mothers is significantly ($p < 0.01$) associated with anemia. **Nadeem Ahmad et al 13** conducted the study in the Maternity Clinic of Pravara Rural Hospital (PRH), Loni, Ahmednagar, Maharashtra found significant association between the level of education of mothers and severity of anemia. In present study, 69.2% of very severe cases, 61.5% of severe cases and 73.6% of moderate cases of anemic pregnant mothers were unemployed. Highly significant ($p < 0.01$) association was found between occupation of mothers and the severity of anemia.

Socioeconomic class of the mothers was found to be highly significantly ($p < 0.01$) associated with severity of anemia. More than 85% cases of severe and moderate cases of anemia and more than 55% cases of severe anemia among the pregnant women were belong to the upper-lower socioeconomic class (class-4 in Kuppuswamy's Socioeconomic status scale). **Sharma P et al,**¹⁴ have found that socioeconomic status is a major explanation for the women having anemia.

In the present study it was observed that the rural population was more commonly affected by anemia in pregnancy. The present study shows that 66.9% of mothers affected by anemia were residing in rural area. Mothers residing in the nuclear family were more common victim of anemia (68.1%) than joint family. Highly significant association ($p < 0.01$) found between the residential area, type of family and the severity of anemia.

Antenatal care services are the important factor for prevention of anemia. More than 85% mothers who are sufferer of anemia had less than 3 ANC visits. Mothers who had not received IFA tabs are more affected by anemia (>75%). Significant association ($p < 0.01$) was found between the number of ANC visits and IFA tab received or not received during the pregnancy among the mothers. **Sharma P et al,**¹⁴ have found that antenatal care is one of the key strategies in maintaining safe motherhood.

CONCLUSIONS

The present study revealed that the socioeconomic profile of mothers have significant association with anemia among mothers. Socioeconomic factors like education, occupation, socioeconomic class, physical environment and health

care services provided during pregnancy significantly affect anemia in pregnancy.

The prevalence of anemia among the study population was very high (89.4%) than the average national prevalence (50-70%) and prevalence in Chhattisgarh state (59% rural and 54.6% urban), this could be because the present study was carried out in tertiary care hospital where many of pregnant women are referred from peripheral centers because of high risk pregnancy and complications. Another important factor is that the majority of study population attending the CIMS Hospital Bilaspur, Chhattisgarh were belong to lower socioeconomic class (Kuppuswamy's class 4+5= 87.3%) which is itself highly significant associated factor with the anemia.

Socioeconomic factors associated with the higher prevalence of anemia were low level of education, lower socioeconomic class and occupation of the mothers. In this study it was found that the severity of anemia has inverse relationship with level of education, level of occupation, socioeconomic class and level of health care services provided during pregnancy.

Prevalence of anemia was found more among the rural population this could be because the rural population have low level of awareness and health seeking behavior. Antenatal health care like number of ANC visits and IFA tab consumption were significantly associated with the anemia in pregnancy, but in spite of this the fact is that more than 50 % of mothers did not received or received less than 100 tabs of IFA during antenatal period and, more than 40% of mothers did not provided even minimum recommended three antenatal visits. This denotes the poor level of health care services in this region of Chhattisgarh and is reason for high prevalence of anemia and other complications during pregnancy.

Multiple linear regression analysis shows that most significant factor affecting the anemia in pregnancy was socioeconomic status of the mothers, followed by the residential area and types of family.

Moreover, large number of mothers not utilizing the antenatal care services in rural area due to low level of education and lack of awareness, but even though the mothers who are seeking better health care during the pregnancy not getting even the optimum level of health care during the pregnancy even in urban area. This is a serious issue regarding the health care of mothers in the region.

This study provides baseline information from the regional tertiary care hospital in this area, which could help with possible intervention regarding maternal health in future.

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