

# Socioeconomic–demographic Factors in Varying Degrees of Anemia in Pregnancy

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## ABSTRACT

**Aim:** The prevalence of anemia in pregnancy varies considerably because of differences in socioeconomic conditions. The aim was to study association of sociodemographic factors with varying degrees of anemia.

**Materials and methods:** The study done at SMS Medical College, Jaipur, included four groups of normal, mild, moderate, and severely anemic women with 35 women in each group. Data on sociodemographic details of the women were collected and analyzed.

**Results:** Women from rural area, lower socioeconomic background, and with poor education had more number of cases with severe anemia. The average duration at antenatal booking was 14 weeks in nonanemic and 28.2 weeks in severe anemia.

**Conclusion:** Poor literacy levels, rural background, and lower socioeconomic background influence the degree of anemia. Early antenatal booking should be enforced.

**Clinical significance:** Educational and economic upliftment of the women would help to reduce the overall prevalence of anemia in pregnancy.

**Keywords:** Anemia, Demographic, Literacy, Socioeconomic.

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## INTRODUCTION

Anemia in pregnancy is an important reproductive health problem associated with increased maternal and perinatal morbidity and mortality.<sup>1</sup> The prevalence of anemia in pregnancy varies considerably because of differences in socioeconomic conditions, lifestyles, and health-seeking behaviors across different cultures.<sup>2</sup> Unfavorable socioeconomic-demographic factors can influence the gestational outcome.<sup>3</sup> The aim of the study was to identify association of sociodemographic factors with varying degrees of anemia.

## MATERIALS AND METHODS

An observational study involving primigravida, term pregnant women seeking antenatal care at SMS Medical College, Jaipur, was conducted between September and December 2019. The study includes four groups of normal, mild, moderate, and severely anemic women with 35 women in each group. The study involved the collection of data on sociodemographic variables and consumption of iron supplements using a structured questionnaire. The statistical analysis was done to determine factors associated with anemia.

## RESULTS

In the study, women mainly belonged to semiurban areas. Since the study was done in a tertiary care center, most of the women who belonged to the rural areas were referred from the periphery for management of anemia or any other complication. About 38.5% of the women with severe anemia were from the rural areas.

In our study, 61.42% of the women belonged to middle socioeconomic class; however, 51% of the women from lower socioeconomic background had severe anemia.

In our study, most of the anemic and nonanemic women had completed their primary education and there were only very few

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women who were illiterate in all the groups. Yet, the knowledge and attitude of most of the women toward improving their nutritional status was lacking in all groups. Among the illiterate, 42.85% women had severe anemia.

Most of the women had an antenatal card of the primary healthcare center or higher center. The average duration at antenatal booking was 14 weeks in nonanemic, 22.4 weeks in mild, 24.1 weeks in moderate, and 28.2 weeks in severe anemic.

Majority of the women had taken more than 100 iron-folic acid (IFA) tablets during their antenatal period. Few women, who had taken less than 100 IFA tablets, were those with moderate and severe anemia. Although 77.85% of women took more than 100 IFA tablets, 52.85% of the women were still anemic. Further questioning revealed that in most primary healthcare centers, IFA was given in a fixed dose of one tablet daily and not based on their baseline hemoglobin or period of gestation (Tables 1 to 4).

All anemic women were given tablet albendazole at the time of inclusion in the study if had not been given before in their antenatal period.

**Table 1:** Association of anemia and demographic status

Degree of anemia	Semiurban		
	Rural (n = 26)	(n = 86)	Urban (n = 28)
Nonanemic	3	22	10
Mild	5	24	6
Moderate	8	20	7
Severe	10	20	5

**Table 2:** Association of anemia and socioeconomic status

Degree of anemia	Socioeconomic status		
	Upper (n = 25)	Middle (n = 86)	Lower (n = 29)
Nonanemic	11	21	3
Mild	8	22	5
Moderate	5	24	6
Severe	1	19	15

**Table 3:** Correlation of anemia and education status

Degree of anemia	Literacy		
	Illiterate (n = 21)	Primary (n = 85)	>Primary (n = 31)
Nonanemic	3	27	5
Mild	4	23	8
Moderate	5	25	5
Severe	9	13	13

**Table 4:** Maternal anemia and IFA tablets intake

Degree of anemia	IFA tablets	
	<100 (n = 31)	>100 (n = 109)
Nonanemic	–	35
Mild	–	35
Moderate	11	24
Severe	20	15

## DISCUSSION

According to NFHS-4 (2015–16),<sup>4</sup> 46.8% of pregnant women aged 15–49 years in Rajasthan were anemic (Hb < 11 g%). About 41.4% of these women belonged to urban areas, whereas 48% were from rural areas. In a study from Ghana too, the prevalence of anemia was 56%, with mild anemia being the highest form (31.0%).<sup>5</sup> In developing countries, the diet is poor in iron and rich in inhibitors of iron absorption with a much lower consumption of food from animal sources. The overall nutritional value of the diet is lower when compared to developed nations. Also, a high relative cost and a decreased availability of fortified products like cereal flours and ready-to-eat cereals in developing nations could explain the high prevalence of iron deficiency anemia.<sup>6</sup>

As the rural population is more exposed to parasites like hookworm, roundworm, and malaria (working in fields, etc.), the overall risk of anemia increases. Also, in rural areas, many women start pregnancy with a lower store of iron and hence have higher risks of anemia in pregnancy.

Kalaivani reported that women in the remote rural areas in India reach to the hospital only at a late decompensated stage.<sup>7</sup> Antenatal care coverage under rural primary health services was very low and there was no provision for screening pregnant women for anemia; mortality and morbidity rates were high.

Because the majority of the anemic gravidæ were in the low social class, the provision of hematinics at little or no cost goes a long way toward reducing the high prevalence of anemia in pregnancy.<sup>1</sup> Hence, after the initiation of the Janani Shishu Suraksha Karyakaram (JSSK) program in all areas, the limitation due to accessibility and affordability to health care was solved and there was little difference in the percentage of moderate to severely anemic women from rural and urban areas, as observed in our study too.

Al-Mehaisen in their study from Jordan did not find any significant association between anemia and socioeconomic levels.<sup>2</sup> This differed from earlier studies where women from lower socioeconomic class had higher risk for developing anemia in pregnancy.<sup>4</sup> However, in our study we observed that the lower socioeconomic status continued to be a risk factor for anemia possibly due to the associated poor nutrition and low level of education and the acceptability and actual utilization of various health facilities.<sup>8</sup>

Melku et al. in a study from Northwest Ethiopia stated that there was a high prevalence of anemia in those pregnant women who were illiterate.<sup>9</sup> Miglani et al. also found that the lower the education level of women, the higher the probability of suffering from anemia during pregnancy.<sup>10</sup>

The National Nutritional Anemia Control Program recommends 60 mg elemental iron + 500 µg folic acid for a minimum of 100 days starting in the second trimester. According to NFHS-4 (2015–16),<sup>4</sup> only 17.3% of the pregnant women in Rajasthan took IFA tablets for 100 days or more, though it was supplied to 64.6% of women. Of these women, 25.6% women belonged to urban area and 14.8% to rural area. All the national surveys<sup>4–8</sup> indicated that coverage under all these programs was very low and there has not been any change either in the prevalence of anemia or the adverse consequences associated with anemia.<sup>7</sup>

Factors like delay in seeking antenatal care, gender bias, and lack of knowledge about the importance of intake of balanced and iron-rich diet also contribute to anemia.

## CONCLUSION

Poor literacy levels, rural background, and lower socioeconomic background influence the degree of anemia. Early antenatal booking should be enforced. Preconceptional treatment of anemia would help prevent anemia in pregnancy. Awareness programs should be conducted to stress the importance of early antenatal initiation, consumption of balanced diet, protein- and iron-rich foods sources, and IFA tablets.

## CLINICAL SIGNIFICANCE

Educational and economic upliftment of the women would help to reduce the overall prevalence of anemia in pregnancy.

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