Brief Research Article

Is Maternal Anemia among Tribal Women being Neglected? A Study from Southern Rajasthan

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Summary

Poor birth outcomes have been linked to maternal anemia. Tribal women are at higher risk of malnutrition and disease due to sociocultural barriers and poor educational status. The data on the prevalence of maternal anemia and its associated factors among pregnant tribal women are limited. A community-based cross-sectional study was conducted among 429 pregnant tribal women for maternal anemia from August 2021 to June 2022. A structured questionnaire was employed to collect sociodemographic data. The prevalence of anemia was 85.7%, with a mean hemoglobin level of 9.21 ± 1.3 g/dL. On applying WHO 2011 anemia criteria for pregnant women, 25.0% had mild anemia, 73.4% had moderate anemia, and 1.6% had severe anemia. The significant factors associated with anemic condition were household condition, monthly income, and husband's occupation. The higher prevalence of anemia among pregnant tribal women is alarming that necessitates a rethinking of health infrastructure and outreach in tribal dominant areas.

Key words: Anemia, iron deficiency, pregnancy, prevalence, tribal women

Anemia is characterized by a low level of hemoglobin in the blood. It occurs in all age groups but is more prevalent in pregnant women and children.[1] Iron deficiency is the most common cause of anemia in pregnancy.[1] Anemia among pregnant women may lead to premature delivery and low birth weight. Tribals are the most marginalized social group in India, and the actual prevalence and distribution of ailments among them are poorly documented.[2] District Sirohi is one of the aspirational districts in the state of Rajasthan having a 28.2% tribal population.[3] Due to the low literacy rate among women, cultural barriers, difficult terrain, and limitation of health resources, maternal and child health status is poor in this area. In 2018, the Government of India launched the Anemia Mukt Bharat (AMB) strategy with the target to reduce anemia in women, children, and adolescents and multiple interventions for pregnant women under AMB are being practiced.[4] However, these programs will be successful if the burden of anemia and associated factors are correctly identified in tribal regions of India. The objective of the study is to identify the prevalence of anemia among pregnant tribal women of district Sirohi and its associated factors.

The study was conducted in three tribal-dominated blocks Pindwara, Abu Road, and Sheoganj of district Sirohi, Rajasthan, from August 2021 to June 2022. The study employed a descriptive survey design and a quantitative survey methodology. Cutoff values of hemoglobin (Hb) were taken according to WHO criteria for pregnant women.[5] Anemia among pregnant women was defined as any hemoglobin (Hb) value <11 g/deciliter (gm/dl). Anemia was further subclassified as mild (Hb = 10–10.9 g/dl), moderate (Hb = 7–9.9 g/dl), and severe (Hb <7 g/dl) in pregnant women. The study was carried out in accordance with the ethical standards of the institutional guidelines. The Hb was measured using HemoCue Analyzer.

A total of 429 pregnant tribal women participated in the study. Table 1 recorded sociodemographic data, which included variables such as age, age at marriage, education, husband occupation, income, housing condition, and

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hemoglobin (Hb) level. The mean age was 25.7 ± 4.5 years, out of which 80.65% (n = 346) were in the age group of 20–30 years while 7.45% (n = 32) were below the age of 20 years. The education level among women was poor in our study as 48.71% (n = 209) were uneducated. About 67.35% (n = 289) of families have a monthly income in the range of INR 5000–10,000, whereas 18.41% (n = 79) have a monthly income <INR 5000. Most of the participant's husbands were daily wage earners 57.80% (n = 248) and stayed in kutcha houses 56.17% (n = 241). The anemia was highly prevalent at 85.70% (n = 368) among pregnant tribal women. About 73.36% (n = 270) were moderate anemic, followed by 25% (n = 92) mild anemic and 1.63% (n = 6) were severe anemic. On comparison with National Family Health Survey (NFHS-5) data, it was observed that the prevalence of anemia among pregnant tribal women (85.7%) was higher than the national prevalence (52.2%) as well as the prevalence of anemia in Rajasthan (46.3%). On categorizing trimester-wise severity of anemia, it was observed that 42.11% (n = 155) of pregnant women were moderately anemic during third trimester, followed by 18.75% (n = 69) in second trimester and 12.5% in first trimester. Only 1.63% (n = 6) of pregnant women were severe anemic, and all of them were in their third trimester. Similarly, a higher prevalence of mild anemia was also observed in third trimester (13.31%, n = 49). In our study, lower monthly family income, kutcha house condition, and occupation of husband (laborer) were found to be significantly contributing higher prevalence of anemia among tribal pregnant women [Table 2].

Very limited data are available on the status of anemia among pregnant tribal women, also our study is probably the first one to provide such data from district Sirohi. The higher prevalence might be due to socioeconomic variations, and cultural and dietary patterns across the tribal regions within the same state.[6] Lack of awareness about mother and child health and poor health infrastructure in tribal regions also play a crucial role in the higher prevalence of anemia in the tribal region. However, tribal pregnant women are more vulnerable to anemia probably due to the early onset of childbearing, a high number of births, lack

Table 1: Sociodemographic characteristics of tribal pregnant women (n=429)

Variables	Frequency, n (%)
Age	
≤20	32 (7.45)
21-30	346 (80.65)
31-40	49 (11.42)
≥40	2 (0.46)
Education	
Uneducated	209 (48.71)
Primary education (Class 1st-5th)	63 (14.68)
Secondary education (Class 6th-12th)	144 (33.56)
Graduation and above	13 (3.03)
Occupation	
Homemaker	233 (54.31)
Working	196 (45.68)
Types of family	
Joint	159 (37.06)
Nuclear	270 (62.93)
Husband occupation	
Wage earner	248 (57.80)
Agriculture	64 (14.91)
Private job	113 (26.34)
Government job	4 (0.93)
House condition	
Kutcha	241 (56.17)
Pucca	188 (43.82)
Income (INR) range (Monthly)	
<5000	79 (18.41)
5000-10,000	289 (67.36)
10,001-15,000	50 (11.65)
>15,000	11 (2.56)

Table 2: Sociodemographic characteristics of the anemic versus nonanemic group

Variables	Anemia, count (%)		χ^2	P
	Anemic	Nonacademic		
Current age				
≤20	29 (7.9)	3 (4.9)	1.290	0.732
21-30	294 (79.9)	52 (85.2)		
31-40	43 (11.7)	6 (9.8)		
>40	2 (0.5)	0		
Education status				
Uneducated	177 (48.1)	32 (52.5)	1.509	0.680
1-5 primary	55 (14.9)	8 (13.15)		
6-12 secondary	126 (34.2)	18 (29.5)		
Graduation or above	10 (2.7)	3 (4.9)		
Occupation				
Homemaker	201 (54.6)	32 (52.5)	0.98	0.754
Working	167 (45.4)	29 (47.5)		
Husband's occupation				
Wage earner	221 (60.1)	27 (44.3)	23.68	0.001*
Agriculture	59 (16.0)	5 (8.2)		
Private job	87 (23.6)	26 (42.6)		
Government job	1 (0.3)	3 (4.9)		
Types of family				
Joint	140 (38.0)	19 (31.1)	1.067	0.302
Nuclear	228 (62.0)	42 (68.9)		
House condition				
Kutcha	214 (58.2.5)	27 (44.3)	4.101	0.043*
Pucca	154 (41.8.)	34 (18.1)		
Income (monthly)				
<5000	91 (24.7)	12 (19.7)	18.434	0.001*
5000-10,000	232 (63.0)	32 (52.5)		
10,001-15,000	40 (10.9)	11 (18.0)		
>15,000	5 (1.4)	6 (9.8)		
Enrolment time				
1st trimester	62 (16.8)	16 (26.22)	3.470	0.176
2nd trimester	96 (31.8)	12 (25.0)		
3rd trimester	210 (36.4)	33 (57.8)		

*P<0.05

of awareness about family planning and education about health care during pregnancy, and poor financial status.[7] Our results are showing a similar trend that was reported in the tribal population of other states or areas. According to a study by Sharma and Ninama, 2015 on 60 tribal women from the Banswara district, anemia affects 90% of the population, with 33.33%, 53.33%, and 3.33% of the population having mild, moderate, and severe anemia, respectively.[8] A study by Rohisha *et al*. 2019 among the tribal women of Kasaragod district, Kerala, reported an 89% prevalence of anemia, with 62% having moderate and 11% having severe anemia.[7] In India, as per NFHS-5 (2019–2021) survey, the prevalence of anemia among pregnant women living in rural areas was 54.3% as compared to 45.7% of those living in urban areas.[9] The prevalence of anemia among tribal women in various studies was much higher than the national prevalence, which supports our findings.[8,9]

Finding the prevalence of anemia within a specific tribal population will be useful for implementing various public health intervention strategies and monitoring their progress over time. The Government of India seeks to lower anemia prevalence through several national programs. One such initiative is AMB, in which the Indian Government aims to reduce the burden of anemia by half by 2025 and to achieve targets of the World Health Assembly.[4] The Iron Plus Initiative was started by the Government of India in 2013 to advise prophylactic iron and folic acid supplementation among adolescents, pregnant women, and females of reproductive age under the Prime Minister's Overarching Scheme for Holistic Nutrition Abhiyaan.[10] In our study, we have also noticed that although the implementation of various national programs and several health-care providers working in the tribal area, still a lack of awareness about the intake of balanced supplements during pregnancy. Furthermore, negligence by individuals or families is possibly one of the reasons behind the high prevalence. There should be proper awareness regarding the adverse effects of low hemoglobin levels and routine intake of iron and folic acids in the tribal areas. The local health-care workers should inform the pregnant women about the intake of a balanced diet, which includes green leafy vegetables and whole pulses, which are rich sources of iron. This challenging public health issue might be reduced with increased active participation and empowerment of ASHA workers, Anganwadi workers, through regular awareness activities of pregnant tribal women regarding maternal and child health services and practices in the tribal area.

There is a high prevalence of anemia among pregnant tribal women of district Sirohi, Rajasthan. There is a need to spread awareness toward maternal and child health services in the tribal areas, particularly among pregnant tribal women. High priority should be assigned to diagnosing and treating anemia in the tribal areas. The findings can be used by health administrators in implementing new strategies and strengthening existing services.

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Conflicts of interest

There are no conflicts of interest.

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