

# Prevalence of Anemia Among Pregnant Women of Tribal Community in Kashmir: A Prospective Observational Study

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## ABSTRACT

**Background:** A lack of nutrition is one of the most frequent causes of anaemia. Anemia is a significant but preventable public health issue that affects pregnant women all over the world. The present study has been objectively conducted to ascertain the prevalence of anaemia among tribal pregnant women of J & K.

**Methods:** The study was a prospective observational study conducted over a period of one and a half year. Around 200 admitted antenatal Gujjar and Bakarwal women were included in this study.

**Results:** We observed that the overall prevalence of anemic patients among the studied subjects was 35.5%. Of them 53.5% had mild anemia, 26.8% had moderate anemia and 19.7% had severe anemia. The prevalence of anemic rates increased significantly with age and parity.

**Conclusion:** The present study revealed that the prevalence of anemia among pregnant women of tribal community increases significantly with age and parity of patient. The relative prevalence of mild, moderate and severe anemia was observed as 53.5%, 26.8% and 19.7% respectively. The reason for high anemic rates among such patients is multifaceted which includes low family income, illiteracy, high parity, poor dietary habits and irregular intake of iron and folic acid supplements.

**Keywords:** Anaemia, tribal population, Pregnant Women, Prevalence

## INTRODUCTION

Hemoglobin levels that are below normal and insufficient to meet physiologic requirements are known as anaemia.<sup>1</sup> According to the World Health Organization (WHO), anaemia affects about 2 billion people, making it a serious public health issue.<sup>2</sup> Lack of nutrition is one of the most frequent causes of anaemia.<sup>3</sup> Iron deficiency anaemia is a significant indicator of poor health status and is largely caused by poor eating habits.<sup>3</sup> Due to their increased need for iron throughout growth and puberty, children and adolescents are more likely to acquire iron deficiency anaemia.<sup>4</sup> India is still among the nations with a very high incidence. According to the third National Family Health Survey (NFHS-3), 55.3% of people have anaemia.<sup>5</sup> Generally speaking, the term "tribe" refers to a "socially coherent unit, associated with a region, the members of which see themselves as politically autonomous".<sup>6</sup> Due to illiteracy and ignorance, tribal women in India are greatly disadvantaged (Kupputhail and Mallika 1993).<sup>7, 8</sup> Actually, the issue of tribal people having poorer health is a worldwide one. In most of the countries, tribal people fared worse than the general population in terms of health and social results, according to a recent international analysis that looked at 9 factors. The tribal women execute a variety of productive tasks in addition to caring for children and cleaning the home. Women are pressured to

go back to work before they are fully recovered from giving birth (Bharadwaj and Tungdim, 2010).<sup>9</sup> Low birth weight infants are more likely to be delivered by tribal women who are ill or undernourished (Roy and Rath 1991 & Kapoor Kshatriya 2000).<sup>10,11</sup> Information on the state of various native populations' health is likewise almost entirely lacking. Without a complete picture of tribal health in the nation, policy decisions and government initiatives are frequently haphazard.<sup>12-14</sup> The tribal population of J&K mostly lives in scattered clusters across hilly, inaccessible terrains due to which, they have remained beyond the realm of the general development process, lacking the basic facilities like access to healthcare, pure drinking water, and education resulting in extremely poor socio-economic conditions.

## MATERIAL AND METHODS

The study was a prospective observational study conducted over a period of one and a half year. Around 200 antenatal admitted Gujjar and Bakarwal women were included in this study. In order to estimate the proportion of an outcome with an expected value of 10%, within 5% absolute error and 95% confidence, a minimum of 144 eligible tribal women were needed. This was calculated using the formula:  $n = 4p(1-p)/d^2 = 4 \times 10 \times 90 / 5 \times 5 = 144$ . Thus, a minimum total of 150 eligible cases were required for the study. However, our study included 200 cases.

### Inclusion criteria:

Women belonging to Gujjar and Bakarwal tribe and who were living within the tribe, were included in the study.

### Exclusion criteria:

Gujjar and Bakarwal women who have migrated to urban areas were not included in our study.

## STATISTICAL METHODS

The recorded data was compiled and entered in a spreadsheet (Microsoft Excel) and then

exported to data editor of SPSS Version 20.0 (SPSS Inc., Chicago, Illinois, USA). Continuous variables were expressed as Mean $\pm$ SD and categorical variables were summarized as frequencies and percentages. Graphically the data was presented by bar and pie diagrams. Chi-square test was employed for comparing of categorical variables. A P-value of less than 0.05 was considered statistically significant.

## RESULTS

Out of 200 patients included in our study, majority of patients accounting for (29%) were belonging to District Anantnag, followed by (13.5%) patients belonging to District Ganderbal, (12.5%) from to District Kupwara, (11%) patients belonging to District Bandipora, (10%) patients from to District Baramula, 6% patients belonging to District Budgam, (6%) patients belonging to District Shopian, (4%) patients from to District Shopian and (3.5%) belonging to District Srinagar.

Anemia	Number	Percentage
Yes	71	35.5
No	129	64.5
Total	200	100

In the present study; we observe that the average age of patients was (28.5 $\pm$ 3.5) years, with majority of patients accounting for 45.5% were belonging to (26-35) years, followed by (35%) patients belonging to age interval group of (36-40) years. Evidently, out of 200 studied patients, 71 patients were anemic thus placing the prevalence of anemic patients as (35.5%)

Severity of anemia	Number	Percentage
Mild anemia	38	53.5
Moderate anemia	19	26.8
Severe anemia	14	19.7
Total	71	100

Out of 71 anemic patients; majority of patients accounting for (3.5%) had mild anemia, followed by 2.8% with moderate anemic status and (19.7%) had severe anemia

**Table 3: Prevalence of anemia according to age in study population**

Age (Years)	Total subjects	Anemia	
		N	Prevalence (%)
18-25	39	6	15.4
26-35	91	31	34.1
36-40	70	34	48.6
Total	200	71	35.5

Chi-square=12.19; P-value=0.002 (Statistically Significant)

We evaluated the prevalence of anemic patients with respect to age distribution of patients; evidently, out of 70 women patients with age (36-40) years, 34 patients were anemic, thus placing the prevalence of anemic patients as 35.5% in the age group of 36-40 years. Out of 91 patients with age group of (26-35) years, 31 patients were anemic, thus placing the prevalence of

anemic patients as (34.1%) in the age group of (26-35) years. Out of 39 patients belonging to age group of (18-25) years, 6 patients were anemic, thus placing the prevalence of anemic patients as 15.4% in the age group of (18-25) years. Evidently, there was a significant association between the prevalence of anemia and the age of patients with a p-value of 0.002\*

**Table 4: Prevalence of anemia according to parity in study population**

Parity	Total subjects	Anemia	
		N	Prevalence (%)
Grand Multigravida	78	40	51.3
Primi/2nd/3rd gravida	90	27	30.0
Teenage Pregnancies	32	4	12.5
Total	200	71	35.5

Chi-square=17.06; P-value=<0.001 (Statistically Significant)

We evaluated the prevalence of anemic patients as per the parity of patients and found that out of 78 patients with multigravida status, 40 patients were anemic, thus placing the prevalence of anemic patients among multigravida patients as 51.3%. Out of 90 patients with primi/2<sup>nd</sup>/3<sup>rd</sup> gravida status, 27 patients were anemic with a prevalence of (30%) and out of 32 teenage pregnancies, 4 patients were anemic with a prevalence of (12.5%). Clearly, there was a significant association between anemia and parity status of patients with a p-value of <0.001\*.

## DISCUSSION

This study's objective was to evaluate the prevalence of anemia among tribal women from Kashmir utilizing a variety of variables to aid in the analysis. The study sample consisted of tribal women who were hospitalized to the Government Lalla Ded hospital (a tertiary care facility in the Kashmir division of Jammu & Kashmir) over a period of one and half years from June 2020 to December 2021. A total of 200 tribal Kashmiri women of various ages and

from various parts of the Kashmiri division were included in the study. We observed that the average age of patients was (28.5±3.5) years, with majority of patients accounting for 45.5% were belonging to (26-35) years, followed by 35% patients belonging to age interval group of (36-40) years. Evidently, out of 200 studied patients, 71 patients were anemic thus placing the overall prevalence of anemic patients as (35.5%). According to this study, tribal women who are of childbearing age experience a high rate of anaemia. Similar findings across various demographics in other developing nations, including India, have also been documented. These anaemia statistics are remarkably similar to those for women in the same age range (55%), as reported in the NFHS-3 for the years 2005–2006. The prevalence rates reported in the state of Karnataka by the same NFHS survey was reported as (51.5%).<sup>5</sup> The prevalence of anemia among tribal population of likewise patients in Assam, Arunachal Pradesh and Tripura was respectively reported as (59.82%), 53.77%, and (57.45%).<sup>15</sup> In a sample of tribal

women, Joshi's 2011 study discovered 95.3% prevalence of anaemia.<sup>16</sup> Even the research done in 2009 by Jai Prabhakar and Gangadhar revealed a prevalence of 77.1% in the study sample.<sup>17</sup> The frequency of anaemia in the Bhuyan and Kharia tribes of the state of Odisha have been evaluated by Balgir et al.<sup>18</sup> Both tribes were affected by anaemia, with Bhuyan tribe having a higher prevalence (89.9%) than Kharia tribe (73.8%).<sup>18</sup> These rates are higher than what we observed, the reason might be due to heterogeneity in the causal factors like parity, nutrition and different age pattern between the populations. In the present study, out of 71 anemic patients; majority of patients accounting for (53.5%) had mild anemia (Hb 10-11) g/dl, followed by 26.8% with moderate anemic status (Hb 8-10) g/dl and (19.7%) had severe anemia (Hb<7) g/dl. Patients with anaemia received blood transfusions. The most common type of anaemia discovered in the research group was nutritional anaemia brought on by a lack of iron and folic acid. The severity of nutritional anaemia is exacerbated by early pregnancy bleeding (abortions), antepartum haemorrhage, and postpartum haemorrhage. Ten premature patients were admitted with severe anaemia. These patients received blood transfusions and were released from the hospital with iron and folic acid tablets along with recommendations for a balanced diet and iron-rich foods.

The results of our study corroborate to those of a descriptive study that was conducted in the Sampla block of Haryana to determine the prevalence of anaemia among women of reproductive age. That study discovered that 48.9% of these women were anaemic, and of those, 27.6% were moderately anaemic (Verma et al., 2014).<sup>19,20</sup> However; contrary to this, Wayanad did a cross sectional likewise study in district of Kerala to determine the incidence of anaemia among tribal women in the reproductive age group (15-45 years).<sup>21</sup> The majority of the samples (96.5%) were found anaemic, and of those, 55.9% were moderately anaemic.<sup>21</sup> Most of the studies examined prevalence

and factors associated with anaemia among adolescents aged 10-14 years or 15-19 years, thus missing out on a comprehensive analysis on the prevalence of anemic with respect to different age intervals in the reproductive age group among tribal pregnant patients. We looked at the age distribution of the patients while evaluating the prevalence of anaemic patients. It was clear that 34 of the 70 female patients in the 36-40 age range were anaemic, making the prevalence of anaemic patients in this age range 35.5% higher. There were 31 anaemic patients out of 91 patients in the age range of (26-35) years, making the prevalence of anaemic patients in this age range to be (34.1%). Six patients out of 39 in the 18 to 25 age group were anaemic, making the prevalence of anaemic patients in this age group 15.4%. Evidently, there was a significant association between anemia and age of patients with a p-value of 0.002\*. This infers that the prevalence of anemia among such patients' increases with increasing age. In the present study, 40 out of 78 patients with a multigravida status were anaemic, according to our evaluation of the prevalence of anaemic patients in relation to patient parity. This puts the prevalence of anaemic patients among multigravida patients at 51.3%. In 32 teenage pregnancies, 4 patients had anaemia, with prevalence of 12.5%, and out of 90 patients with primi/2nd/3rd gravida status, 27 patients had anaemia with a prevalence of 30%. With a p-value of 0.001, it is obvious that anaemia and patients' parity status are significantly associated. The current study found a significant association between parity and the onset of anaemia. Contemporary to this, Ponny et al and Farsi et al in a retrospective cohort study reported that a high parity is a significant risk factor for the development of anaemia which is inconsonance with our findings.<sup>22,23</sup> This might be as a result of the increased risk of haemorrhage and maternal nutritional depletion syndrome brought on by numerous deliveries.<sup>23</sup>

## CONCLUSION

The present study revealed that the prevalence of anemia among pregnant women of tribal community increases significantly with age and parity of patient. The relative prevalence of mild, moderate and severe anemia was observed as 53.5%, 26.8% and 19.7% respectively. The reason for high anemic rates among such patients is multifaceted which includes low family income, illiteracy, high parity, poor dietary habits and irregular intake of iron and folic acid supplements etc. The results of present study will be useful for policy makers and health administrators in implementing new strategies and strengthening existing services.

**Conflict of Interest:** None

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