



## Comparative study of prevalence of anemia in muslim and non-muslim pregnant women of western rajasthan

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### Abstract

This study was undertaken in the Department of Physiology in collaboration with Department of Pathology, Dr.S.N.Medical College and Umaid Hospital, Jodhpur (Western Rajasthan), India during 2005 to 2006 to compare the severity and distribution of anemia among 500 Pregnant Women aged 18 to 35 years in urban and rural sectors of Western Rajasthan & its association with certain economic factors and religion. A multistage random sample design was used for the purpose of detailed study and World Health Organization (W.H.O) classification was used to define anemia. All the women consulting for the first time excluding those with prior pathology or regular use of medicines were included in the study. In this study anemia was highly prevalent 84% (n=500) in Pregnant women. 30-35 years age group women were most affected by anemia. The prevalence of anemia was much more in women belonging to Muslim community (92.3%) as compared to Non-muslim (81.1%) because of less health awareness, extreme poverty, large family size & over crowding leading to recurrent infection in this caste resulting into anemia. Multiparous pregnant women were found 100% anemic. We conclude that anemia is a significant problem of women. It needs new programme strategies, particularly those that control the large family size and improve the overall nutrition status of Pregnant women. This will require tailored programs across the socio-economic groups and within both rural and urban areas, particularly among the urban and rural muslim. Problem of anemia is not difficult to treat but effort must be made to educate women and enhance their level of economic status and management of anemia must be dependant on the identification of the cause of anemia. All these measures would ensure safe motherhood.

**Key words:** Anemia, Economic Status, Muslim, Nutrition, Prevalence, Pregnant Women

### Introduction

Anemia is an important health issue throughout the world with the highest prevalence rate being seen in developing countries. Severe anemia is a risk and reduces productivity [1]. There is a paucity of data on anemia in women (pregnant, adult non pregnant & adolescent) living in developing countries in the complex ecologic context of poverty, parasitism and malnutrition [2]. In India, 19 % of maternal deaths are related to anemia [3]. Maternal anemia increases intrauterine growth retardation and pre-term delivery [4]. World wide an estimated 51% of pregnant women suffer

from anemia almost twice as many as non pregnant women [5].

In India, anemia affects an estimated 50% of the population [6]. Hospital and community based studies conducted by Indian Council of Medical Research (ICMR) and other research agencies have shown that prevalence of anemia is highest among pregnant women-estimated prevalence range between 50-90% [7]. The high prevalence of anemia among women in India is a serious health hazards for them, for their families, and for the economic development and productivity of the country [8,9]. The problem of anemia is much more in rural than the urban areas [10].

the most frequent maternal complication of pregnancy, antenatal care should therefore be concerned with its early detection and management [12]. Therefore, the objective of this study was to determine the prevalence of anemia among pregnant women in Jodhpur Region, Rajasthan, India .

## Material and Methods

The present study was conducted in the department of Physiology, Dr.S.N.Medical College & Associated Umaid Hospital, Jodhpur, India during the period from June 2005 to March 2006, after taking ethical approval from Institutional Ethical Committee. In this study 500 pregnant women were taken from Gynae ANC (Ante-natal checkup)OPD of Umaid hospital, Jodhpur, Rajasthan state(India).Approach to a subject begins with history taking including age, religion, income per month, dietary history, environmental status, educational status, gravidas status & trimester status. The information were noted into a specially designed proforma followed by laboratory investigations like Hb.,TRBC, PCV, MCV, MCH & MCHC, all laboratory investigations were done by automated hematology analyzer standardized in Umaid Hospital, Jodhpur. All the subjects were assessed for status of anemia and it was considered to exist when hemoglobin value was below the lower range for respective groups.

The World Health Organization (W.H.O) classification was used to define anemia. In pregnant women anemia according to grades were mild (Hb. 8.9 to <11 gm/dl), moderate (Hb.=6.7 to 8.8gm/dl) or severe (Hb.=<6.6gm/dl).Types of Anemia were recognized on the basis of the Morphological classification of anemia in present study. After all investigations the subjects were divided into many groups according the proforma. Comparison & correlation of significant parameters were done among all pregnant women.

## Results

We observed that no single cause is responsible for anemia, multifactorial aetiology was found. Out of 500, 420 Pregnant women were found to be anaemic showing anemia 84% (table 1), which represents a staggering level of anemia.The prevalence of anemia in 30-35 years age group was much high 93.3% (140/150) as compared to 18-23 years (88.9%) and 24-29 (70.6%) years age group. The prevalence of moderate anaemia was higher

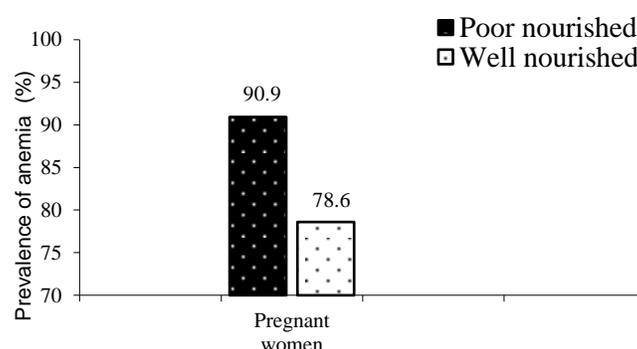
**Table 1: Prevalence of anemia in pregnant women**

Total no. of cases studied(n)	Total no. of anemic patients	Prevalence of anemic patients
500	420	84%

**Table 2: Severity of anemia in pregnant women**

Grades of anemia	Hemoglobin (gm/dl)	Total no. of anemic patients	Total % of anemic patients
Mild	8.9- <11	170	40.5
Moderate	6.7- 8.8	190	45.2
Severe	<6.7	60	14.3

**Figure 1: Nutritional status in pregnant women**



Females who were illiterate (90.6%), belonging to low socioeconomic status (95.0%), poor nourished (90.9%, 200/220) (figure 1) and having vegetarian diet (91.7%,220/240) had higher prevalence of anemia. Morphological types showed that Microcytic hypochromic (47.6%) anemia was maximum followed by Normocytic normochromic anemia (35.7%) in pregnant women (table 3).

**Table 3: Morphological type of anemia in pregnant women**

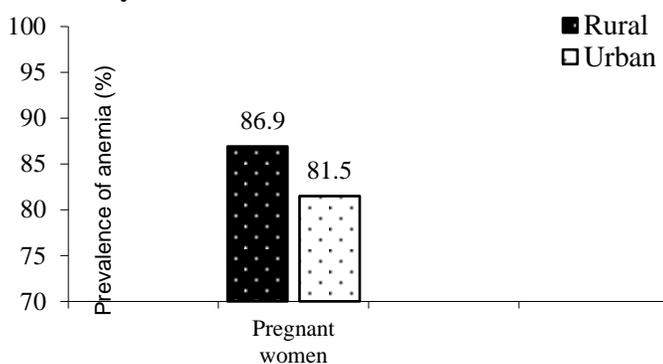
Morphological type of anemia	Total no. of anemic patients	Total % of anemic patients
Microcytic hypochromic	200	47.6
Normocytic normochromic	150	35.7
Dimorphic anemia	40	9.5
Macrocytic normochromic	20	4.8
Macrocytic hyperchromic	10	2.4
Normocytic hypochromic	0	0

**Table 4: Distribution of anemia in pregnant women by religion**

Religion	Total no. of cases studied	Total no. of anemic patients	Total % of anemic patients
Non-Muslim	370	300	81.1
Muslim	130	120	92.3

**Table 5: Gravida status of pregnant women**

Gravida status	Total no. of cases studied	Total no. of anemic patients	Total % of anemic patients
First	120	80	66.7
Second	170	150	88.2
Third	80	70	87.5
Fourth	60	50	83.3
Multiparous	70	70	100.0

**Figure 2: Distribution of anemia in pregnant women by environmental status**

The prevalence of anemia was much more in women belonging to rural areas (86.9%, 200/230) as compared to urban areas (81.5%, 220/270) (figure 2) because of less health awareness, extreme poverty less facilities like medical services etc. There is significant relationship of calories intake with educational status and social class.

In Pregnant muslim women, the prevalence of anemia was found very high (92.3%, 120/130) (table 4) as compared to Non-muslim women (81.1%). In Jodhpur region the women studied were largely from poor back grounds and probably had inadequate diets. However the problem of under nutrition generally started much earlier in life, with gender discrimination, the males and children are served food first and the lady has to satisfy herself with the remains of the poor quality food, resulting in under nutrition of girls, which was exacerbated by menstrual iron losses after menarche. Health promotion to improve the diet of girls and iron supplementation in adolescence are required to redress nutritional deficits and in the longer term to reduce anemia in older women of reproductive age.

**Table 6: Trimester wise distribution of pregnant women**

S.no	Trimester	Total no. of cases studied	Total no. of anemic patients	Total % of anemic patients
1.	First	90	50	55.5
2.	Second	160	150	93.7
3.	Third	250	220	88.0

## Discussion

In Western Rajasthan prevalence of anemia was found very high in pregnant women (84%). In support of our findings a high prevalence of anemia in pregnant women was noticed by Kapur in his study [13]. Kapoor (2002) found 85% pregnant women (9.9% having severe anemia) were anemic & the prevalence of nutritional anemia in India (commonest is iron deficiency anemia) was marginally higher [13]. The prevalence of various parasitic infestations and other chronic illnesses were not studied in our survey so it is difficult to comment upon the causes of high prevalence of anemia in females. A peripheral blood film was also not made. Types of anemia were recognized by using morphological classification of anemia on the basis of the MCV, MCH & MCHC of the red cells in present study.

The present study has found high prevalence of anemia in 30-35 years age group of pregnant women. Reason of the high prevalence of anemia in pregnant women in this age group may be large family size (due to frequent pregnancies), poor income & probably had inadequate diet. Contrary to our study, Anju Khosla (2002) found that 20-30 years of age group of pregnant women had highest prevalence of anemia in comparison to other age groups [14]. Our study also highlights the facts that the prevalence of anemia was more in individuals belonging to low socio-economic status group (anemia:95.0%), poor nourished group (anemia:90.9%) and individuals who were illiterate (anemia:90.6%) and having vegetarian diet. Although dietary habits were not studied in detail but it is likely

that individuals in these groups take nutritionally deficient diet.

In Pregnant muslim women, the prevalence of anemia was found very much high (92.3%, 120/130) (table 4) as compare to Non-muslim women (81.1%). Contrary to our findings, Vatika Saxena (2001) found that in pregnant women Muslim population shows better intake of all nutrients (iron, proteins, calories etc.) which could be attributed to their practice of non vegetarian intake in comparison to Non-muslim population [15]. But she has not mentioned the gravida status as well as the size of the family which is mostly responsible for the anemia in muslim community as per our study.

In our study it was observed that in pregnant women, the prevalence of anemia was 66.7% in first gravida, 88.2% in second gravida, 87.5% in third gravida, 83.3% in fourth gravida & 100% in multiparous women. (table 5). Similarly, Ratten (1972) found that there was a highly significant increase in the proportion of multigravidae in the group of patients with anemia [16]. Due to frequent pregnancies, lack of spacing in between two births, so lost iron cannot be replenished. Hence chances of anemia are increased. More prevalence of anemia was found in II trimester followed by III trimester and lowest prevalence was observed in I trimester (table 6). Similar observations were seen by Rajaratnam (2001) in his study that prevalence of anemia was 56.6%, 70.2% & 69.5%, respectively among the first, second & third trimester women. Iron deficiency was more significant among the II & III trimester women than among the I. The high prevalence indicates the need for iron supplementation as early as possible starting from the fourth month of pregnancy. Serial measurements show a progressive increase in plasma volume in the second and third trimesters up to 34 weeks, beyond which there is no further change [17].

Morphological types showed that Microcytic hypochromic (47.6%) anemia was maximum followed by Normocytic normochromic anemia (35.7%) in pregnant women (table 3). The prevalence of anemia was much more in women belonging to rural areas (86.9%, 200/230) as compared to urban areas (81.5%, 220/270) because of less health awareness, extreme poverty less facilities like medical services etc. There is significant relationship of calorie intake with educational status and social class.

In support to our study Desalegn (1993) reported that the rate of anaemia was higher among the

illiterate and in those who did not practice family planning of any sort and in the second trimester, and increased with parity [18].

In India mostly females don't take any other foods other than cereal based food. It is major factor for high prevalence of anemia and this is particularly more in pregnant women of low socio-economic status & poor nourished women. In some societies, mostly in rural areas of Western Rajasthan the males and children are served food first and the lady has to satisfy herself with the remains of the poor quality food, leading serious malnutrition [19]. In Rajasthan probably the major causes of anemia were identified as poor dietary intake of iron rich foods and probably poor utilization due to any disease. Mostly women had poor knowledge about anemia. Some had basic Knowledge about anemia, most of the information was obtained from maternal and child health clinics and radio programmes. However, despite their awareness on anemia, the women were still anemic. The main reason was lack of economic access to appropriate foods.

Further it has been proved that anemia has strong relation with age, residence (urban/rural), religion, family size, social status, monthly income and dietary habits.

However more studies are needed to support or disapprove this observation. Although the present study was not designed specifically to study all the risk factors for anemia in this population, the lack of data on muslim and non muslim population and high prevalence of anemia among muslim pregnant female population prompted us to publish our findings. There is a need for a systematic study to find out the frequency as well as the causes of anemia at community level among pregnant females.

## Conclusion

We conclude that anemia is a significant problem of women. It needs new programme strategies, particularly those that control the large family size and improve the overall nutrition status of Pregnant women. This will require tailored programs across the socio-economic groups and within both rural and urban areas, particularly among the urban and rural muslim .Problem of anemia is not difficult to treat but effort must be made to educate women and enhance their level of economic status.The approach of treating anemia should be an early approach so that it should not progress to severe stage. Hence it is important to know the aetiology of anemia and treat it accordingly. These findings also

suggest that intervention for anemia should be directed at all members of the community. There is a need to give special attention to the pregnant women above 30 years of age, working and belongs to muslim community and to improve the hemoglobin status of pregnant women through dietary modification along with preventive supplementation and nutrition education. All of these efforts would help to ensure safe motherhood and to achieve the relevant targets of the Millennium Development Goals.

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