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# Prevalence of anemia and socio-demographic factors associated with anemia among pregnant women attending antenatal Hospital in Jaipur City, India.

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***Abstract*: *Objective:*** To study the prevalence of anemia and socio-demographic factors associated with anemia among pregnant women attending antenatal hospital.
***Material and methods:*** Total 100 pregnant women were selected for the study and the study was carried out from Sep 2011 to Jan 2012. Pretested and prestructured questionnaire was used to collect general information. Blood samples were collected by qualified technician for hemoglobin estimation. Socio-economic classification by B.G. Prasad was adopted. Classification of anemia by WHO was used. Chi-square test was used for statistical analysis.
***Results***: Overall prevalence of anemia among the pregnant women was found to be 63%. Factors such as level of education and socio-economic status were found to be significantly associated with prevalence of anemia.
***Conclusion***: There is a need for realization that health system should focus on various factors that contribute to the occurrence of anemia and include them as important mediators in the National Health Policy.
***Key words:*** - Anemia, Socio-economic classification, Hemoglobin.

## I. Introduction

Anemia during pregnancy is a major public health problem throughout the world, particularly in developing countries. Nutritional anemia was defined as a condition in which the hemoglobin content of the blood is lower than normal as a result of deficiency of one or more essential nutrients.[1]

In India anemia is the second most common cause of maternal deaths accounting for 20% of total maternal deaths. It also significantly increases the maternal morbidity, foetal and neonatal mortality and morbidity including premature delivery and low birth weight.[2]

A healthy diet is associated with a successful pregnancy. Malnourished mothers are at increased risk of complications and death during pregnancy and child birth. In addition, their children are prone to having low birth weight, fail to grow at a normal rate and have higher rates of diseases and early death.[3] Various maternal behaviors and experiences before, during and after pregnancy are associated with adverse health outcomes for both the mother and the infant.[4]

Current knowledge indicates that iron deficiency anemia in pregnancy is a risk factor for preterm delivery and subsequent low birth weight and possibly inferior neonatal health. In world health organization/world bank ranking, iron deficiency anemia is the third leading cause of disability- adjusted life years for females aged 15-44 years.[5] According to WHO report, the global prevalence of anemia in pregnant women is 55.9%. In India, this prevalence has been reported to be in the range of 33.0% - 89.0%.[6]

The etiology of anemia in India is not well established and the information available is limited in representativeness of the whole country. Various researchers have come up with different conclusions despite the problems because large proportion of population is from poor economic strata which results in shortage of minerals and vitamins implying that bioavailability of much of the iron in the average Indian diet is restricted, presumably affecting the iron status of the community.[7]

Anemia can be due to inability to buy adequate and good quality food or due to poor eating habits.[8] Pregnancy related complications affects many women and infants but they are most likely to affect those women and infants with unfavorable health conditions and lower socio economic status.[9]

High prevalence of anemia among pregnant women persists in India despite the availability of effective and low cost interventions for prevention and treatment. A knowledge of the socio demographic factors associated with anemia will help to formulate strategies to attack this important public health problem in pregnancy. Therefore the study was aimed to determine the prevalence of anemia and socio demographic factors associated with anemia in pregnancy.

## II. MATERIALS AND METHODS

The present study was carried out at antenatal hospital in Jaipur city, India, to determine the prevalence of anemia and the various socio demographic factors associated with anemia in pregnant women.

Antenatal hospital is situated in an over-crowded area of the city and provides medical care. The study was carried out from Sept 2011 to Jan 2012. A total hundred pregnant women visiting the health centre for the first time were included by random sampling. Informed consent was obtained and explanation as to the purpose of the study was offered. Prior permission from ethical committee was taken before starting the study. Pregnant women were interviewed with the predesigned, pretested proforma and clinical examination was done. A detailed demographic profile of the women, that is age, age at first pregnancy, religion, type of family, family size, educational level of women and family income was collected. Socio economic classification suggested by B.G. Prasad 2008 was adopted.[10] Hemoglobin was estimated by autoanalyzer. According to World Health Organization (WHO)[11], hemoglobin level below 11g/dL is labelled as anemia during pregnancy and classified as mild (10.0- 10.9g/dL), moderate (7.0-9.9/dL) and severe (<7.0g/dL) anemia. The same criteria were used for diagnosing anemia in pregnancy. Chi-square test was applied for statistical analysis.

## III. OBSERVATION AND RESULTS

The demographic characteristics of the subject are summarized in Table-I

**Table - I:**

Demographic Characteristic of pregnant women (n=100)

| Variables (n=(100) | Number | Percentage |
|---|---|---|
| Age : | | |
| <20 | 7 | 7% |
| 20-25 | 63 | 63% |
| >25 | 30 | 30% |
| Religion: | | |
| Hindu | 62 | 62% |
| Muslim | 38 | 38% |
| Type of Family : | | |
| Nuclear | 35 | 35% |
| Joint | 63 | 63% |
| Extended | 2 | 2% |
| Socio-economic class : | | |
| Class I | 3 | 3% |
| Class II | 40 | 40% |
| Class III | 55 | 55% |
| Class IV | 2 | 2% |
| Class V | - | - |

**Table-II**

Distribution of anemia in pregnant women according to age (n=100)

| **Age** | **Mild** | **Moderate** | **Severe** | **Normal** | **Total** |
|---|---|---|---|---|---|
| <20 | 3 (5.6) | 3 (2.3) | - | 1 (2.6) | 7 |
| 20-25 | 16 (17.0) | 19 (20.7) | 3 (1.89) | 25 (23.3) | 63 |
| >25 | 8 (8.1) | 11 (9.9) | - | 11 (11.1) | 30 |
| Total | 27 | 33 | 3 | 37 | 100 |

Chi-square test = 3.49, $P < 0.01$

**Table- III**

Distribution of anemia according to socio-economic class

| **Socio-economic class** | **Anemia** | | | **Total** | **Normal** | **Total** |
|---|---|---|---|---|---|---|
| | **Mild** | **Moderate** | **Severe** | | | |
| Class I | - | 3 (0.9) | - | 3 | - | 3 |
| Class II | 7 (10.8) | 13 (13.2) | - | 20 | 20 (14.8) | 40 |
| Class III | 19 (14.85) | 17 (18.15) | 2 (1.65) | 38 | 17 (20.33) | 55 |
| Class IV | 1 (0.54) | - | 1 (0.65) | 2 | - | 2 |
| Class V | - | - | - | - | - | - |
| Total | 27 | 33 | 3 | 63 | 37 | 100 |

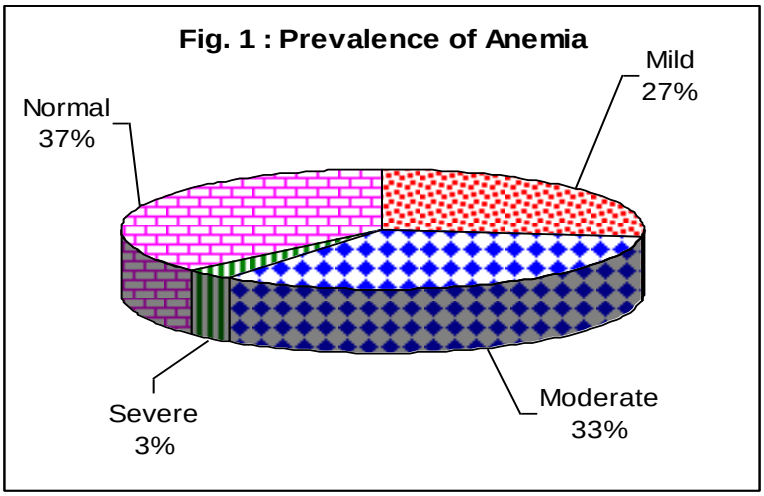
Chi-square test = 9.73, $P < 0.01$

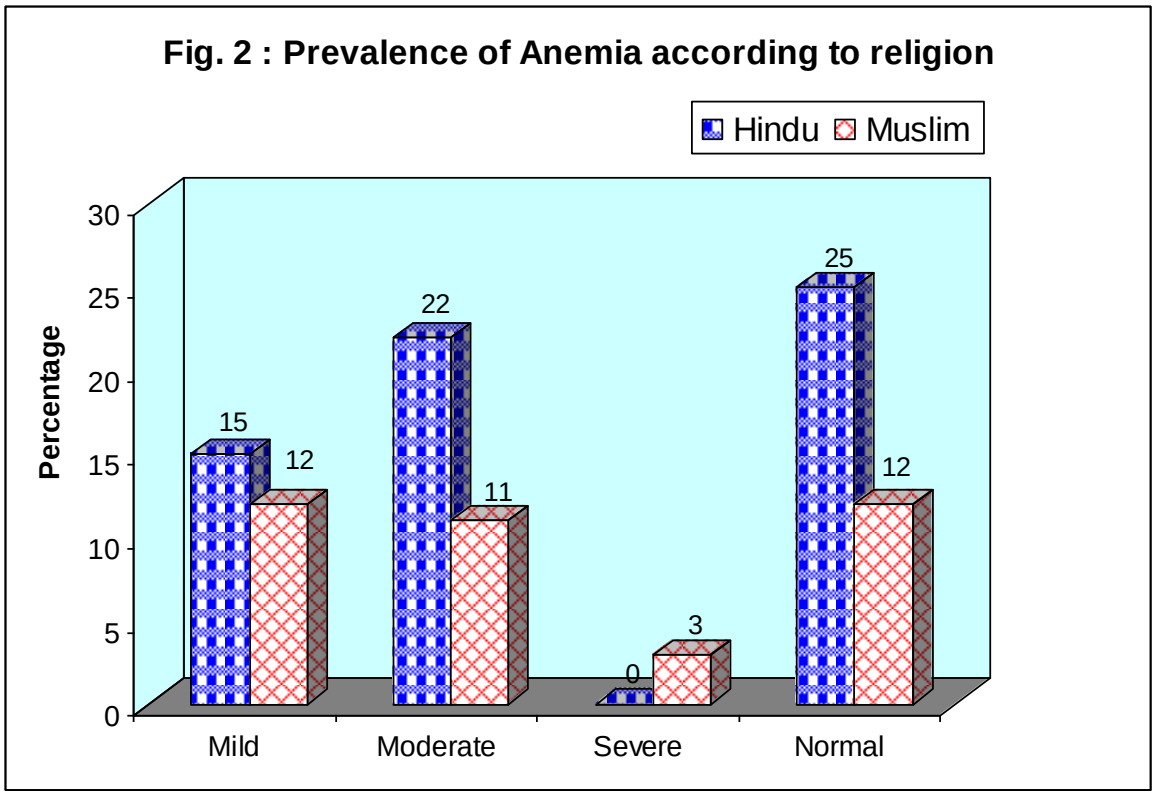
**Table- 4**

Distribution of anemia among pregnant women according to their educational status

| Educational status | Anemia | | | Total | Normal | Total |
|---|---|---|---|---|---|---|
| | Mild | Moderate | Severe | | | |
| Illiterate | 4 (7.2) | 10 (9.4) | 2 (0.8) | 16 | 7 (5.7) | 23 |
| Primary School | 3 (2.3) | 2 (3.1) | 1 (0.7) | 6 | 3 (3.2) | 9 |
| Middle School | 13 (8.8) | 11 (11.9) | - | 24 | 10(12.2) | 34 |
| High School | 3 (4.1) | 6 (5.6) | - | 9 | 7(5.7) | 16 |
| Intermediate | 2 (1.3) | 2 (1.7) | - | 4 | 1(1.8) | 5 |
| Graduate | 1 (2.0) | 3 (2.8) | - | 4 | 4(0.4) | 8 |
| Post Graduate | - | 1 (0.35) | - | 1 | 4(0.36) | 5 |
| Total | 26 | 35 | 3 | 64 | 36 | 100 |

Chi square 13.27 $p < 0.01$



- Table-I : The majority of the subject were between age 20-25 years. About 7% of pregnant women were from the age <20 years, 63% were from the age 20-25 years and 30% of pregnant women from above 25 years . It was observed that 62% of the subjects were Hindu and 38% were Muslim. The subjects who belonged to Joint family were 63% and 35% belonged to Nuclear family . Maximum number of women were from social class II and III (40% and 55%) respectively.

- Table- II shows the degree of anemia in different age groups. It was observed that 38% of women in the age group of 20-25 years were suffering from anemia. The observed difference between age was not statistically significant ($P < 0.01$)

- Table III shows that the proportion of pregnant women suffering from anemia in class I and Class II were less (3% and 20% respectively) as compared to the lower socio-economic class (38% and 2% in Class III and IV). Risk of anemia in Class III was higher as compared to Class I. This association was found to be statistically significant ($P < 0.01$)

- Table IV shows that in pregnant women who were illiterate, the percentage of anemia was found to be 16%. The proportion of pregnant women suffering from anemia was found to be on the lower side amongst women who were Highly Educated. Association between educational status and anemia in pregnant women was found statistically significant.

- As shown is figure 1, the overall prevalence of anemia among pregnant women was found to be 63%. The prevalence of mild, moderate, severe anemia were observed as 27%, 33% and 3% respectively. Thus the prevalence of moderate anemia was high in comparison to the other degrees of anemia.

- Figure 2 shows the prevalence of anemia with respect to religion. It was observed that 37% of Hindu women were suffering from Anemia as against 26% amongst muslim women.

## IV. DISCUSSION

Antenatal care is one of the key strategies in maintaining safe motherhood. In the present study it is seen that despite being poor, most women did receive irregular antenatal care. The present study showed poor educational, nutritional and other health indicators during pregnancy in women of lower socio-economic status as compared to those with upper socio-economic status.

Prevalence of anemia in current study was 63% which was similar to the study done by Singh et.al 2009 (65.5%).[12] Higher prevalence was observed in the study conducted by V.P.Gautam et.al 2010(96.5%).[13]

Severity of anemia was inversely related to educational status and socio-economic class which is similar to study conducted by Singh et.al 2009.[12]

In the present study significant association was found between Income and Anemia. Socio economic status is found to be a major explanation for the women having anemia. Sharma *etal*. 2007[14] in their study comprising of various social status groups, categorized on the basis of family income, found that the most females from low income category were more iron deficient. Present study clearly shows that Unfavorable socio demographic factors are the major barriers to the efforts in place for the prevention of anemia during pregnancy.

Bilenko *etal* (2004)[15] also worked on women education and their diet status. He estimated that women education and socio-economic status were significantly related to the prevalence of nutritional deficiency and sickness. The women who were under peak child bearing age as well as low income group have more chances to experience by anemia.

## V. CONCLUSION

Socio economic status, literacy of women are the major determinates that contribute to the problem of anemia. Education is the basic factor for change. Government should design strategies and policies to enhance women education to make them independent in socio-economic and cultural decision, which directly and indirectly affect women health status.

## REFERENCES

[1]. World Health Organization, Technical Report series; 1968.
[2]. Dr. Madhu Ahuja, Senior Consultant; Max Health Care, Caring for you for life; A max Indian Institution , 2002 , Anemia in pregnancy.
[3]. Tinker A. Women's health : The unfinished agenda. Int J. Gynecology obstet 2000 ; 70 : 14 9 - 158 .
[4]. US Department of Health and Human services women and smoking : a report of surgeon general. Rochville, MD : US Department of Health and Human Services, Public Health Service, Office of the Surgeon General, 2001.

[5]. Tolentino K, Friedman JF. An Update on Anaemia in less developed countries. Am J Trop Med Hygiene & 2007; 77(1) : 44-51.
[6]. Toteja GS, Singh P., Dhillon BS et al. Prevalence of anemia among pregnant women and adolescent girls in 16 distrcts of India. Food and Nutrition Bulletin 2006; 27(4) : 311-315.
[7]. Prema Rama Chandran Nutrition in Pregnancy. Women and Nutrition in India, Nutrition Foundation of India (1989) 153-193.
[8]. Saleem S, McClure EM. Pregnancy behaviour of Pakistani Women over their Reproductive life span. Al Ameen J Med Sci 2010; 3 : 228-236.
[9]. Shen and Wei. Adverse Maternal Outcomes for Women with Different Health Insurance Status in Nevada. J Nevada Public Health Assoc 2008; 5.
[10]. AK Agarwal. Social Classification : The need to update in the present scenario. Indian Journal of Community Medicine. Vol. 33, No. 1, January 2008.
[11]. Toteja GS, Singh P. Micronutrient profile of Indian population. New Delhi : Indian Council of Medical Research; 2004.
[12]. A.B.singh,S.D.kandpal,R.chandra,V.K.srivastava,K.S.negi Anemia amongst pregnant and lactating women in district Deharadun.Indian J.Pre.Soc.Med.,Vol40,No1,2009.
[13]. Gautam VP,BansalY,Taneja DK,SahaR. Prevalence of Anemia Amongst Pregnant women and its Socio-demographic associates In rural areas of Delhi Indian J Comm. Med 2010;xxvii(4):157-160.
[14]. Sharma, S., R. Tani and M. Samkaria, Prevalence of Anemia and Malnutrition among Gaddi Gilt Cahmba and Kangra District of Himachal Pradesh. Stud. Tribes Tribals, 2007, 5 : 139-142.
[15]. Bilenko, N., R. Dagan, D. Fraser, C. Coles, O. Zamir and I. Belmaker, Association between anemia, vitamin A, vitamin E and Zn deficiency and growth in young Bdouin children. Israeli Association of Public Health Physicians Scientific Conference, 21-23 October 2004, Zichron Yaakov, Israel.