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**A Study on Prevalence of Anaemia among Pregnant Women Attending the Referral Centre
Ulsoor in Bangalore**

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ABSTRACT

BACKGROUND: WHO has estimated that prevalence of anemia in pregnant women is 14% in developed and 51% in developing countries while it is 65-75% in India. WHO has recommended a cut off value of 11.0 g/dl for hemoglobin to define anemia at any time during pregnancy. This Study will help to motivate the care provide for early detection and proper management of anemia in pregnancy. **METHODS:** A cross-sectional study to find out the proportion of anaemic status among pregnant women attending the referral center Ulsoor in Bangalore. A total of 264 pregnant women attending the antenatal clinic at referral center for their first antenatal checkup during the May- July 2013 were study subjects. Hemoglobin estimation was done by using Sahli's Hemoglobinometer method. The data was collected using a predesigned structured questionnaire after taking verbal consent. The data was analyzed statistically using descriptive statistic like frequency and percentage. **RESULTS:** 264 pregnant women were studied. Out of which 200 were anaemic. Out of 200 subjects, 156 subjects (59.1%) were mild anaemic, 44 subjects (16.7%) were moderately anaemic. **CONCLUSION:** A very high prevalence of anaemia (75.8%) was seen early in pregnancy. Factors such as religion, level of education of women and their husbands and socioeconomic status, parity, joint family were found to be significantly associated with the prevalence of anemia in pregnancy (P < 0.05).

Key Words: Anaemia, pregnant women, hemoglobin, pregnancy

INTRODUCTION

Anemia is defined as the condition in which there is decreased level of hemoglobin than the normal or there is decreased number of RBC's than the normal value. World Health Organization (WHO) has recommended a cut off value of 11.0 g/dl for hemoglobin to define anemia at any time during pregnancy. Anaemia in pregnancy is a special issue. Here anaemia has deleterious effects both on mother as well as on growing fetus. It may lead to premature delivery, low birth weight and fetal death¹. This study will help to motivate the care provider for early detection and proper management of anemia in pregnancy. WHO has estimated that prevalence of anemia in pregnant women is 14% in developed and 51% in developing countries while it is 65-75% in India². National Nutritional Anemia prophylaxis programme (NNAPP) was initiated in 1970 during fourth five-year plan with the aim to reduce the prevalence of anemia to 25%. In India, the prevalence of anemia in pregnant women has been reported to be in the range of 33% to 89%³. Anemia results from nutrition-related causes and from inflammatory or infectious diseases, as well as from blood loss. Iron- deficiency anemia resulting from inadequate intake and low absorption of dietary iron is the most common form of anemia in India³. Since 1992, the daily dosage of elemental iron for prophylaxis and therapy has been

increased to 100 mg and 200 mg, respectively under child survival and safe motherhood programme⁴

Objectives: To find out the prevalence of anemia among pregnant women; To find out the socio-demographic profile among pregnant women.

MATERIAL AND METHODS

Source of data: All pregnant women attending the antenatal clinic for the first time in one of the health center and willing to participate in the study.

Inclusion criteria: All pregnant women attending the antenatal clinic for the first time and willing to participate in the study.

Exclusion criteria: The pregnant women who are not willing to participate in the study.

Study Design: A cross-sectional descriptive study.

Study area: Pregnant women attending the referral center Ulsoor in Bangalore.

Duration of the study: Two months, May- July 2013

Study Population: All Pregnant women attending the referral center Ulsoor in Bangalore.

Sample size: The sample size is estimated based on WHO estimation of prevalence of anemia among pregnant women in India is 65-75%. It was calculated that the sample size of 215 pregnant women is required for this study².

Method of Data Collection: The study was carried out among the pregnant women attending one of the referral center Ulsoor in Bangalore. Hemoglobin estimation was done by using Sahli's Hemoglobinometer. Anemic status was classified as per WHO criteria. The study was carried among the pregnant women attending the antenatal clinic for the first time in one of the health center. The data was collected from the pregnant women were willing to participate in the study using a predesigned and structured questionnaire after taking verbal consent.

Statistical analysis

Data collected is compiled in MS excel sheet; subsequently it was analyzed using SPSS (Statistical Package for Social Sciences) version 20. Microsoft word and Excel have been used to generate graphs and tables.

The Descriptive statistics comprising of frequency, percentage and Standard deviation for continuous and discontinuous variables like age and class was used. Chi-square test and fisher exact test was used for statistical analysis. P<0.05 was considered as statistically significant N.

RESULTS

A total of 264 pregnant women were studied. Out of these 264 subjects ,200 (75.8%) were anaemic and 64 (24.2) had normal Hb% level. Out of these 200 pregnant women with anaemia 44 (16.7%) were Moderately anaemic and 156 (59.1%) were Mildly anaemic. (Table 1) (Fig -1)

Table -1 Prevalence of Anaemia among pregnant women (n=264)

Classification	Cut off Hb%	Frequency	Percent
Normal	11+	64	24.20%
Mild Anaemia	10.0- 10.9999	156	59.10%
Moderate Anaemia	7.0 – 9.9999	44	16.70%
Total		264	100

Most of the pregnant women were between 22-26 years' age 98 (79.0%) followed by <22 years 76 (80.8%). The observed difference was statistically significant. (Table 2)

The maximum numbers of women were from social classes III – IV [22 (57.9%) and 171 (80.3%) respectively]. (Table 3)

Majority of pregnant women were Hindu 157 (75.1%), followed by 24(82.8%) Christian and Muslim 19 (7.2%). (Table 4)

Figure -1 Prevalence of Anaemia among pregnant women (n=264)

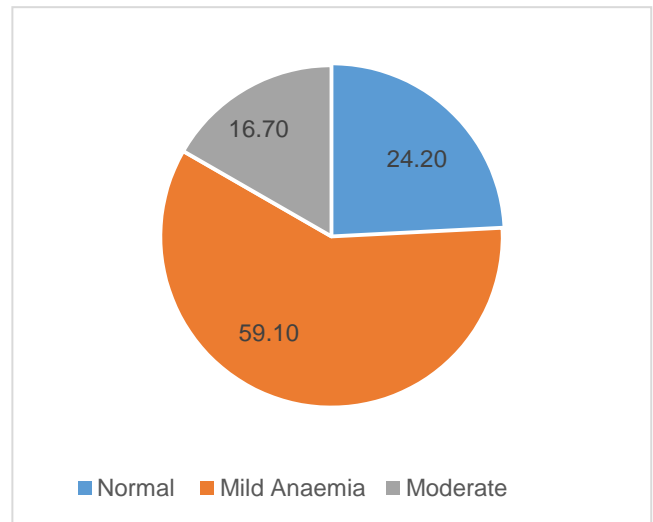


Table 2: Distribution of anaemia in pregnant women according to age. (n=264)

Age (Yrs)	Anaemia Grade			Normal	Total
	Moderate	Mild	Total		
<22	21 (22.3%)	55 (58.5%)	76 (80.8%)	18 (19.1%)	94 (100.0%)
22 - 26	17 (13.7%)	81 (65.3%)	98(79.0%)	26(21.0%)	124 (100.0%)
27+	6 (13.0%)	20 (43.5%)	26 (56.5%)	20(43.5%)	46 (100.0%)
Total	44 (16.7%)	156 (59.1%)	200 (75.5%)	64(24.2%)	264 (100.0%)

$\chi^2 = 14.122$ df (4) p<0.007

Table 3: Distribution of pregnant women according to socio economic status (n=264)

SES	Moderate Anaemia	Mild Anaemia	Total	Normal	Total
Upper middle-II	0 (0.0%)	6 (50.0%)	6 (50.0%)	6 (50.0%)	12 (100.0%)
Lower middle-III	2 (5.3%)	20 (52.6%)	22 (57.9%)	16 (42.1%)	38 (100.0%)
Upper Lower-IV	42 (19.7%)	129 (60.0%)	171(79.7%)	42 (19.7%)	213 (100.0%)
Lower-V	0 (0.0%)	1 (100.0%)	1 (100.0%)	0 (0.0%)	1 (100.0%)
Total	44 (16.7%)	156 (59.1%)	200 (75.8%)	64 (24.2%)	264 (100.0%)

$\chi^2 = 17.446$,df (6),p<0.05 significant

In our study majority 141of the subjects were educated below high school, 31 were above high school level. (Table 5)

Majority of the study subjects belonged to joint family 103(75.8%) followed by nuclear family were 97 (75.7%). (Table 6)

In the present study 35 (79.6%) of third and above gravida followed by 98 (77.7%) of primi gravida and 67 (71.3%) of second gravida were anaemic. (Table 7)

Table 4: Distribution of pregnant women according to Religion (n=264)

Religion	Moderate Anaemia	Mild Anaemia	Total	Normal	Total
Hindu	37 (17.7%)	120 (57.4%)	157 (75.1%)	52 (24.9%)	209 (100.0%)
Muslim	5 (19.2%)	14 (53.8%)	19 (7.2%)	7 (26.9%)	26 (100.0%)
Christian	2 (6.9%)	22 (75.9%)	24 (82.8%)	5 (17.2%)	29 (100.0%)
Total	44 (16.7%)	156 (59.1%)	200 (75.8%)	64 (24.2%)	264 (100.0%)

Table 5: Distribution of pregnant women according to education (n=264)

Education	Normal	Mild Anemia	Moderate Anemia	Total
Illiterate	2	16	12	30
SSLC and Below	39	110	31	180
Above SSLC	23	30	1	54
Total	64	156	44	264

Table 6: Distribution of pregnant women according to type of Family (n= 264)

Type of the Family	Moderate anaemia	Mild anaemia	Total	Normal	Total
Nuclear family	19 (14.8%)	78 (60.9%)	97 (75.7%)	31 (24.2%)	128 (100.0%)
Joint family	25 (18.4%)	78 (57.4%)	103 (75.8%)*	33 (24.3%)	136 (100.0%)
Total	44 (16.7%)	156 (59.1%)	200 (75.8%)	64 (24.2%)	264 (100.0%)

$X^2 = 0.63$ df= 2 p< 0.05 significant

Table 7: Distribution of pregnant women according to Parity (n= 264)

Parity	Anaemia Grade			Normal	Total
	Moderate Anaemia	Mild Anaemia	Total		
Primi Gravida	26 (20.6%)	72 (57.1%)	98 (77.7%)	28 (22.2%)	126 (100.0%)
Second Gravida	6 (6.4%)	61(64.9%)	67 (71.3%)	27 (28.7%)	94 (100.0%)
Third & above Gravida	12 (27.3%)	23(52.3%)	35 (69.0%)	9 (20.5%)	44 (100.0%)
Total	44 (16.7%)	156(59.1%)	200 (75.8%)	64 (24.2%)	264 (100.0%)

$X^2 = 12.339$, df =4, p< 0.05 significant

DISCUSSION

In our study out of 264 subjects, 200 (75.8%) were anaemic and 64 (24.2) had normal Hb% level. Out of these 200 pregnant women with anaemia 44 (16.7%) were Moderately anaemic and 156 (59.1%) were Mildly anaemic.

In the study by Dr.Ijaz-ul-haque taseer, et al¹ on "Anemia in pregnancy", says that out of 250 pregnant women, 55.2% were anemic and 44.8% were having Hb level within 39.55% had mild anemia In the study by Virendra p-Gautam et al⁴, anemia was significantly higher in those aged ≥ 25 yrs, from nuclear family, educated till high school or less. In present study anaemia was more in the age 22-26 yrs, from nuclear family, educated till high school or less.

In the study by Pushpa O.Lokare et al⁵, 94.3% of Hindu were suffering from Anemia when compared with 84.9% and 82.2% of Muslim and Buddhist women. And also the lower socio economic status is associated with the increase in the risk of development of anemia in pregnancy (I.e. 93.5%, 94.49%, and 94.11% in classes III –V, respectively)⁵. In present study 75.1% of Hindu were suffering from Anaemia when compared with 73.3% and 74.1% of Muslim and Christian women's. The socio economic status is associated with the increase in the risk of development of anaemia in pregnancy is 57.9% in class III, 80.3% in class IV.

CONCLUSION

A very high prevalence of anaemia (75.8%) was seen early in pregnancy. Factors such as religion, level of education of women and their husbands and socioeconomic status, parity, joint family were found to be significantly associated with the prevalence of anemia in pregnancy (P < 0.05).

RECOMMENDATIONS

Suggest that the health – care system should not miss the opportunities afforded during the precious years of adolescence before marriage and childbearing. Hence adolescent girls should be supplied with iron-folic acid supplements so that they enter pregnancy with no serious iron- deficiency handicaps.

Educating the women only will not produce any desirable change but increasing the degree of literacy of the family will definitely help to solve this problem.

Therefore, there is a need for dietary counseling and nutritional education in antenatal clinics to tackle the issue of anemia in pregnancy with missionary zeal, innovative approach, and evidence-based interventions.

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Ethical approval: The study was approved by the Institutional Ethics Committee

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