

# A STUDY ON PREVALENCE OF ANAEMIA IN PREGNANCY AMONG THE WOMEN REPORTING FOR ANTENATAL CARE IN COMBINED MILITARY HOSPITAL, DHAKA CANTONMENT

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## Abstract

**Background:** Anemia is regarded as a major risk factor for unfavorable outcome of pregnancy both for the mother and the fetus. Maternal anaemia is a common problem in pregnancy, particularly in developing countries.

**Aims:** To determine the prevalence of anaemia in pregnancy and to find out the haemoglobin level of pregnant women reporting for antenatal checkup among the women reporting for antenatal care in Combined Military Hospital Dhaka.

**Method:** This is a descriptive cross sectional study was done in the antenatal clinic at CMH Dhaka. One eighty four (184) pregnant women attending antenatal clinic at CMH Dhaka including CWC under CMH Dhaka were included for the study. The data were collected from 1<sup>st</sup> May 2001 to 31<sup>st</sup> May 2001 at the antenatal clinic, combined Military Hospital, Dhaka where pregnant women reported for antenatal check up. The data were collected by interviewing respondents in different dates & day of the week at different CWC and CMI-I Dhaka. Prior to the interview the respondents were explained clearly the objective of the study and sought their co-operation. The authority of CMH Dhaka was given prior information through issuing letter from AFMI. The respondent was assured on ethical point of view that strict secrecy would be maintained. Data were collected by the following methods: Interview Method; Laboratory Investigation for Hb estimation and Scrutinization of antenatal check up card.

**Results:** A total of 184 pregnant women of them 70 were primi gravida and 114 were multigravida. The prevalence of anaemia as per WHO cutoff points was 56.52% (<11.0 g/dl). The mean age was 24.96 ± 4.49 years. The age groups 20-24 was the maximum. Out of 184 women 104 women was anaemic. 15-24 age group was more anaemic (57.42%) than the 25-39 age group (55.42%) but the difference was not statistically significant, P>0.05. The prevalence of anaemia was higher in Illiterate (100%), lowest in degree and above level education group (48.48%). The maximum women (64.13%) belong to lowest income group. (Tk 2500-5000) Anaemia was the most common in the lowest income group (60.50%). The prevalence of anaemia was the highest among the family size 6 and above group (75%) and lowest in 2-3 family size group. Anaemia was more prevalent among high parity group (75%) and lowest in '0' parity group (52.28%) but the difference was not statistically significant (P > 0.05). Multigravida were found more anaemic (62.28%) contrast to primigravida (47.14%) which was statistically significant (P<0.05). The prevalence of anaemia was less in higher birth interval group but the difference was not statistically significant (P>0.05). About the cultural belief only 33 women were found having cultural belief of avoiding food during pregnancy (17.93%) and anaemia was more prevalent among them (57.57%) but the difference was statistically significant (P>.05). In this study 14.13% women had concomitant illness during pregnancy. In this study 15 women had caesarian section of which 10 were anaemic (75%) and there was one Forcep delivery (non-anaemic).

**Conclusion:** In this study anaemia is more prevalent among younger age group women (15-24), with less educated group low income group, large family size group, high parity and high gravida, less birth spacing and also in women having concomitant illness. Anaemia is more prevalent among women having cultural belief on avoiding food during pregnancy. The findings of this study may not reflect the overall picture of the country. It does not differ much from the results of similar studies at national level. However, this study can be a base for further studies in a broader perspective.

**Key words:** Pregnant women, haemoglobin level, associated factors, maternal anaemia

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## **Introduction**

Pregnancy is probably the greatest physiological challenge to the human body. There is no doubt that haemoglobin values are reduced in pregnancy the so called physiological anaemia of pregnancy and that not only low but high haemoglobin values are associated with poor outcome of pregnancy. Iron requirements are very high in pregnancy especially in the last trimester, it is several times higher than other periods.<sup>1</sup> Mother along with children constitute large group and also “vulnerable” special risk group. The risk is connected with childbearing in case of women and question of survival in case of foetus.<sup>2</sup>

World wide anaemia is a major cause of morbidity and mortality, mainly due to malnutrition & infection in the developing countries. Correction of this continues to pose an apparently insurmountable challenge, but for the economic & social reasons rather than back of medical knowledge.<sup>3</sup> Total prevalence of anaemia in the world is 30% of estimated world population of 5000 (1985) million people. Young children & pregnancy women are mostly affected globally. Regions with higher prevalence of anaemia are South Asia & Africa.<sup>4</sup>

The Principles of antenatal care are the same whether the mother is poor, illiterate person, living in an urban slum or rural area or rich and educated and living within easy reach of modern medical care. The aim should always be that the mother is seen as early as possible in pregnancy so that pre-existing maternal disease can be diagnosed, monitored and treated.<sup>5</sup>

The “Safe motherhood initiative was launched by the WHO in 1988 to fund scheme to reduce maternal mortality in developing countries. The health of the women from conception to middle age can be represented.<sup>5</sup>

Bangladesh have high maternal Mortality rate as in other developing countries. The majority of the death take place from one of the five preventable causes e.g. Hemorrhage (26%) abortion (2 1%) eclampsia (16%), puperal sepsis (11%). obstructed labour 8% & other obstetrical causes (18%).<sup>6</sup>

WHO estimates that more than half of the pregnant women in the world have a hemoglobin

level indicative of anaemia over one third of all women in the world suffer from anaemia. in some areas of Indian sub continent. 7% of women are affected by severe anaemia which is associated with five fold increase in maternal mortality. Iron folate supplement of pregnant women prevent a deterioration of the anaemic condition during the increased physiological burden of pregnancy.<sup>7</sup>

In any community, mothers & children constitute priority group. They comprise approximately 70% of the population of developing world. By virtue of their number mother & children are the major consumers of health services.<sup>7</sup>

We know that mortality & morbidity among mothers & children are largely preventable, therefore by improving the health of the mother, health of children can be improved from outset which will again contribute to the health of general population in order to build sound & healthy nation.

## **Method:**

This is a descriptive cross sectional study was done in the antenatal clinic at CMH Dhaka. One eighty four (184) pregnant women attending antenatal clinic at CMH Dhaka including CWC under CMH Dhaka were included for the study. The data were collected from 1<sup>st</sup> May 2001 to 31<sup>st</sup> May 2001 at the antenatal clinic, combined Military Hospital. Dhaka where pregnant women reported for antenatal check up. The data were collected by interviewing respondents in different dates & day of the week at different CWC and CMI-I Dhaka. Prior to the interview the respondents were explained clearly the objective of the study and sought their cooperation. The authority of CMH Dhaka was given prior information through issuing letter from AFMI. The respondent was assured on ethical point of view that strict secrecy would be maintained. Data were collected by the following methods: Interview Method; Laboratory Investigation for Hb estimation and Scrutinization of antenatal check up card.

## **Results:**

There is a good evidence that the prevalence of anaemia in pregnant women in developing world is high. WHO has given a general comment that

there is a general lack of accurate data on its prevalence throughout the world. Most of the available information is incomplete and in many investigation the population samples have been small and ill-defined or limited to special groups. 'WHO' has sponsored studies in different countries in 1963 in India, Israel, Mexico, Poland, South Africa, United Kingdom, the USA and in 1992 2000 14 in developing countries.

The variables which have got known effect on prevalence of anaemia but not considered in this study are gestational age, contraceptive use, intestinal parasite, Malaria, food intake etc. Due to time constraint most of the study sample size was limited between 70 and 164 but in this study to increase precision of result total 184 pregnant women were interviewed.

Haemoglobin profile was used in this study to determine anaemic and non anaemic condition of pregnant women. According to 'WHO' Technical report series No: 405-1968 cutoff points of anaemia was 11 g/dl, so less than 11 g/dl haemoglobin level was considered as anaemia.

**Table-I**

*Distribution of anaemia among the respondents (n=184)*

Type of respondents	Frequency	Percentage
Anaemic	104	56.52
Non Anaemic	80	43.48
Total	184	100.0

Table I shows that out of 184 pregnant women 104 are anaemic (56.52%) and 80 are non anaemic (43.48%). So the prevalence of anaemia is 56.52%.

**Table-II**

*Distribution of haemoglobin level by age (n=184)*

Age group	n	Haemoglobin level	Haemoglobin level >	P value
		<11.00 g/dl (anaemic) (n=104) No. (%)	11.00 g/dl (Non anaemic) (n=80) No. (%)	
15 – 24	101	58(57.42%)	43(42.58%)	0.784
25 – 39	83	46(55.42%)	37(44.58%)	
Total	184	104(56.52%)	80(43.48%)	

Mean Age = 24.96±SD= ±4.49

Table II shows the distribution of haemoglobin level according to age of the study subjects. The 15-24 age group of women are found more anaemic (57.42%) and 25-39 age group are less anaemic (55.42%). But the difference is not statistically significant (P > 0.05)

**Table-III**

*Distribution anaemia by educational status of women (n=184)*

Educational status	n	Haemoglobin level	Haemoglobin level > 11.0	P value
		<11.0 g/dl (anaemic) (n=104) No. (%)	g/dl (Non anaemic) (n=80) No. (%)	
Illiterate	01	1(100.0%)	0(0.0%)	0.717ns
Below SSC	44	27(61.36%)	17(38.64%)	
SSC	68	39(57.35%)	29(42.65%)	
HSC	38	21(55.26%)	17(44.74%)	
Degree & above	33	16(48.48%)	17(51.52%)	
Total	180	104(56.52%)	80(43.48%)	

Table III shows that distribution of anaemia according to educational status of the women. Highest level of anaemia found in illiterate and lowest in Degree educational level group.

**Table-IV***Distribution of anaemia by economic status (n=184)*

Monthly income (Tk)	n	Haemoglobin level <11.0 g/dl (anaemic) (n=104) No. (%)	Haemoglobin level > 11.0 g/dl (Non anaemic) (n=80) No. (%)	P value
< 10000	145	94(64.8%)	51(35.2%)	<0.001*
> 10000	39	10(25.6%)	29(74.4%)	
Total	184	104(56.52%)	80(43.48%)	

It was found that the lowest monthly income was less than 10,000/-. It is observed anemia was significantly higher in less than 10000 Tk. income group.

**Table-V***Distribution of anaemia by family size (n=184)*

Family size	n	Haemoglobin level <11.0 g/dl (anaemic) (n=104) No. (%)	Haemoglobin level > 11.0 g/dl (Non anaemic) (n=80) No. (%)	P value
2 – 3	148	77 (52.0%)	71(48.0%)	0.012*
4 & above	38	27(71.1%)	9(23.7%)	
Total	184	104(56.52%)	80(43.48%)	

Table V showed that anemia was significantly higher in 4 & above family size group (71.1%).

**Table-VI***Distribution of anaemia by parity parity (n=184)*

Parity	n	Haemoglobin level <11.0 g/dl (anaemic) (n=104) No. (%)	Haemoglobin level > 11.0 g/dl (Non anaemic) (n=80) No. (%)	P value
0	87	47 (54.0%)	40(46.0%)	0.508*
1-2	89	51 (57.3%)	38(42.7%)	
3-4	8	6 (75.0%)	2(25.0%)	
Total	184	104(56.52%)	80(43.48%)	

Table VI shows parity and status of anaemia among the women. Highest level anaemia is found in 3-4 parity group (75%) and lowest in parity '0' group. There is evidence of difference of occurrence of anaemia between nullipara and multipara but the difference is not statistically significant.

**Table-VII***Distribution of anaemia by gravida (n=184)*

Gravida	n	Haemoglobin level <11.0 g/dl (anaemic) (n=104) No. (%)	Haemoglobin level > 11.0 g/dl (Non anaemic) (n=80) No. (%)	P value
Primi	87	36 (41.4%)	51 (58.6%)	<0.001*
Multi	97	68 (70.1%)	29 (29.9%)	
Total	184	104(56.52%)	80(43.48%)	

Table VII shows that anaemia is more prevalent among the multigravida group than the primigravida. So, we can say that there is evidence of difference of occurrence of anaemia in two groups i.e. primi versus multigravida which is statistically significant (P<0.05).

**Table-VIII***Pregnant women according to birth spacing (n=97)*

Birth spacing	n	Haemoglobin level <11.0 g/dl (anaemic) (n=68) No. (%)	Haemoglobin level > 11.0 g/dl (Non anaemic) (n=29) No. (%)	P value
= 2 yrs	54	37 (68.5%)	17 (31.5%)	0.702ns
> 2 yrs	43	31 (72.1%)	12 (27.9%)	
Total	97	68(70.1%)	29(29.9%)	

Table VIII shows that women with 2 years and above birth spacing is more anaemic than those with more than 2 years birth spacing but the result is not statistically significant.

**Table-IX***Pregnant women according to cultural belief on avoiding some food during pregnancy along with percentage of anaemia among them (n=184).*

Cultural belief	n	Haemoglobin level <11.0 g/dl (anaemic) (n=104) No. (%)	Haemoglobin level > 11.0 g/dl (Non anaemic) (n=80) No. (%)	P value
Yes	33	16 (48.5%)	17 (51.5%)	0.303ns
No	151	88 (58.3%)	63 (41.7%)	
Total	184	104(56.52%)	80(43.48%)	

Table IX shows distribution of pregnant women having cultural belief on avoiding food during pregnancy with a fear that particular food may cause abortion or may increase the size of the baby by taking more food. Out of total 184, 33 women having belief on avoiding food during pregnancy (17.93%) and percentage of anaemia is high among them but the difference is not statistically significant.

**Table-X***Distribution of women according concomitant illness during pregnancy (n=26)*

Name of the illness	n	Haemoglobin level <11.0 g/dl (anaemic) (n=16) No. (%)	Haemoglobin level > 11.0 g/dl (Non anaemic) (n=10) No. (%)	P value
Diabetes mellitus	2	2 (100.0%)	0 (0.0%)	0.244
Hypertension	7	5 (71.4%)	2 (28.6%)	0.403
Bronchial Asthma	8	6 (75.0%)	2 (25.0%)	0.346
Heart problem	2	1 (50.0%)	1 (50.0%)	0.727
Ovarian tumor	1	0 (0.0%)	1 (100.0%)	0.197
Fibroid uterus	1	1 (100.0%)	0(0.0%)	0.420
Other problems	5	1 (20.0%)	4 (80.0%)	0.106
Total	26	16 (61.5%)	10(38.5%)	

Table X shows that out of 184 respondent 26(14.1%) women had concomitant illness. Among all the problem Bronchial Asthma is the commonest (4.34%) and next common problem is Hypertension (3.80%). Other problems were Beta thalassemia minor, Thyroid carcinoma, Thyrotoxicosis, pulmonary tuberculosis.

**Table-XI***Distribution of pregnant women by bad obstetrical history (n=16)*

Name of the event	N	Haemoglobin level	Haemoglobin level > 11.0	P value
		<11.0 g/dl (anaemic) (n=16) No. (%)	g/dl (Non anaemic) (n=10) No. (%)	
Caesarean section	15	12 (80.0%)	3 (20.0%)	0.437ns
Forcep delivery	1	0 (0.0%)	1 (100.0%)	
<b>Total</b>	<b>16</b>	<b>12 (75.0%)</b>	<b>4(25.0%)</b>	

Table II shows how many of the respondents are having previous histories of caesarian section or forcep delivery. Caesarian section is common among 15(8.15%) women and only one women undergone forcep delivery though very uncommon now-a-days.

### Discussion

The purpose of this study was to find out the prevalence of anaemia in pregnancy among the women reporting for antenatal care in Combined Military Hospital, Dhaka. To determine the prevalence of anaemia blood for haemoglobin profile was advised by the concerned CWC doctor or by the investigator and reports were collected in due time.

In this study the prevalence of anaemia irrespective of age and parity was 56.52%. The 15-24 age group of women are found more anaemic (57.42%) and 25-39 age group are less anaemic (55.42%). But the difference is not statistically significant ( $P > 0.05$ ) In a study in developing countries by WHO in April 2000 almost similar figure found (56%).<sup>8</sup> In a study done by Chowdhury M. R. et al. in period of 1975-76 the rural pregnant women were 70% anaemic.<sup>9</sup> A study done by Talukder M H A in 1994 at Gonosaystha Kendra found 58.33% anaemic out of 109 pregnant women.<sup>10</sup> In a similar study done in developing countries shows the higher prevalence among the too younger women and in higher age group (> 33).<sup>15</sup> So the result is consistent with present study.

In present study showed that out of 184 pregnant women 104 are anaemic (56.52%) and 80 are non anaemic (43.48%). So the prevalence of anaemia is 56.52%. In a study done in Ethiopia showed that rural pregnant women are more anaemic (56.80%). In a study done in rural

community of Manikgonj and Mymensingh showed 54% anaemia in pregnancy.<sup>11</sup> In a study conducted by 'WHO' in 1992 in developing and developed countries, it was found that the prevalence of anaemia in pregnancy was 40-60 and 18% respectively.<sup>40</sup> The results of 'WHO' study in 1992 and 2000 are found consistent with the result of my study but the prevalence of anaemia was found more in study done by Talukder M H A was due to fact that the study was done in rural area where peoples socioeconomic condition is poor. in contrast my study population are from better socioeconomic condition and they have better health care facilities.

In this study majority of the respondent were secondary school qualified (S.S.C level) (57.35%) and illiterate was almost nil (only one out of 184 respondent). Anaemia was found more prevalent in "Below SSC" group. The prevalence of anaemia was related with educational level. In an epidemiological study among women in Asia region by Ahmed Al Mahafuz et al observed high prevalence of anaemia among illiterate and less educated women.<sup>12</sup> A study conducted in Pakistan by Mahamood M U H concluded that highly educated women have reduced risk of anaemia than those with low education or no education.<sup>3</sup> A study done in Kathmondu showed that higher education is associated with low prevalence of anaemia.<sup>13</sup>

A study conducted by verhoheoff F H showed that illiterate women were more anaemic.<sup>14</sup> In

1995 Talukder M H A done a study at gonosastra Kendra, Savar showed that out of 112 pregnant women most of the illiterate women were serverly anaemic (6 out of 7).<sup>10</sup> A study done in Ethiopia also showed those illiterate women are more anaemic than literate women.<sup>15</sup> My study result is consistent with the results found in above mention studies.

In this study majority of the respondent belongs to less than 10000 Tk. It was found that the lowest monthly income was less than 10,000. It is observed anemia was significantly higher in less than 10000 Tk. income group. Similar study in the similar place in 1990 showed that majority belongs to lower income group group.<sup>16</sup> The higher value in this study is due to following reason within the 5 years time salary has been increased by the government. Higher income group were not less in number (66 out of 184) in this particular study. The prevalence of anaemia was the highest among the low income group (60.50%) and with the increase of income the prevalence decreased to 20%.

In this study majority of the respondents belongs to family size 2-3 group and lowest group was 4 and above family size. Anemia was significantly higher in 4 & above family size group (71.1%). A study done by Talukder M H A in 1995 in Manikgonj area also shows that mean haemoglobin declines with large family size.<sup>10</sup>

In this study out of 184 respondent 87 were parity '0' group and 97 were Multipara. It was showed parity and status of anaemia among the women. Highest level anaemia is found in 3-4 parity group (75.0%) and lowest in parity '0' group. There is evidence of difference of occurrence of anaemia between nullipara and multipara but the difference is not statistically significant. Similar study done by Talukder M H A showed high prevalence of anaemia among Multipara than that of Nullipara.<sup>10</sup> A study done in Ethiopia showed that Multipara are more anaemic. So, the study result is consistent with the result of studies mentioned above.

In this study anaemia is more prevalent among the multigravida group than the primigravida. So, we can say that there is evidence of difference of occurrence of anaemia in two

groups i.e. primi versus multigravida which is statistically significant ( $P < 0.05$ ). A study done by Talukder MHA in 1994 showed the similar picture where multipara had lowest haemoglobin level.<sup>10</sup> So my study result is consistent with the study done by Talukder M H A as mentioned.

In this study birth spacing between pregnancies were recorded. It was found that women with 2 years and above birth spacing is more anaemic than those with more than 2 years birth spacing but the result is not statistically significant. A study done in Asia region by Ahmed et al observed highest prevalence of anaemia among pregnant women who had spacing less than one year.<sup>12</sup> A study done in Ethiopia showed that short birth interval between pregnancies was associated with anaemia, 100% for  $< 12$  months vs 33.3% for  $> 24$  months ( $p < 0.01$ ).<sup>15</sup> So, the study result consistent with those studies as mentioned above.

In this particular study it was tried to find out how many of the pregnant women belief on avoiding food during pregnancy. Much study has not been done on this particular issue. Out of 184 women only 33 (17.93%) respondents given positive answer and percentage of anaemia is high among them but the difference is not statistically significant.

In 1984 a study done by M N Begum and A H Bhuiyan showed very higher value (80.0%) than this study because socioeconomic condition of the respondents of this study is unlike rural area as mentioned by M N Begum.<sup>17</sup>

Much of the studies have not been done in this regard. In this study 26(14.13%) respondents had concomitant illness and out of which Bronchial Asthma (8) and Hypertension (7) were common. Diabetes Mellitus, ovarian Tumor, Fibróid uterus, Heart problem were few. Out of 8 Bronchial Asthma cases 6 were anaemic (75%). Study on this particular issue were very few and most of the study were 'follow up' study to observe the effect of diabetes and other chronic disorder on pregnancy.<sup>18</sup>

In this study an effort was made to see how many of the respondents had caesarian section and or forcep delivery in previous pregnancy.

Out of 184 respondents 15 had caesarian section (8.15%) and one had forcep delivery (0.54%).

### Conclusion

Anaemia is a wide spread public health problem throughout developing world. Adverse effects of anaemia on mother and foetus are well documented. The difference in prevalence rate of anaemia in different studies could be attributed to difference in study design methodologies, use of cutoff values, population ages, sample size and socioeconomic background. From the finding of this study it can be concluded that anaemia is more prevalent among younger age group women, with less educated group low income group, large family size group, high parity and high gravida, less birth spacing and also in women having concomitant illness. Anaemia is more prevalent among women having cultural belief on avoiding food during pregnancy. The findings of this study may not reflect the overall picture of the country. It does not differ much from the results of similar studies at national level. However, this study can be a base for further studies in a broader perspective.

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