

# Prevalence of Anaemia in Women of Reproductive Age Group in Rural Tongi Area, Bangladesh and the Underlying Associations

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## Abstract:

Anaemia is one of the common health problem of Bangladeshi women. This is more common in rural area. Anaemia has adverse effects on the every steps of reproductive life of women. Timely detection of risk factors and taking necessary steps may prevent the development of anaemia and the complications. A cross-sectional study was carried out among 740 women of reproductive age group living in Tongi area reported to Obstetrics and Gynaecology Out Patient Department (GOPD) of International Medical College & Hospital (IMCH). The aim of the study was to find out the haemoglobin levels of women of reproductive age group (15 – 49 years as per WHO) in the area and the association with age, education and occupation. Total 740 women were included as per inclusion criteria. Their mean ( $\pm$ SD) age was 24.72 $\pm$ 6.5 years and the range was 15-49 years. Haemoglobin level was estimated, average Hb level of the reproductive age group women was 10.19 $\pm$ 1.3 gm/dl. As per WHO guideline among the study reproductive women 17.6% of the women were not anaemic and 20.3% was mildly anaemic, 60.8% was moderately anaemic and 1.4% was severely anaemic women. Education was associated with haemoglobin level of reproductive age group women ( $p < 0.05$ ) whereas age and occupation was not associated with Hb ( $p > 0.05$ ). The study showed that prevalence and severity of anaemia among reproductive age group women subjects attended to GOPD, IMCH, Tongi were high. This indicates that consciousness and the health education level of reproductive age group women of the community studied was not satisfactory.

**Keyword:** Anaemia, Haemoglobin level, Women of reproductive age, Tongi area.

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## Introduction:

Anaemia is a Greek word which means “lack of blood”. It is a condition in which the number and size of red blood cells, or the haemoglobin (Hb) concentration, falls below an established cut-off value, consequently impairing the capacity of the blood to transport oxygen around the body. Anaemia is an indicator of both poor nutrition and poor health. Lower limit of normality is reduced during pregnancy of

reproductive women<sup>1</sup>. As per WHO guideline haemoglobin levels to diagnose anaemia at sea level for non-pregnant women (15 years of age and above) 12 gm/dl or higher is non-anaemia, 11-11.9 gm/dl is mild, 8-10.9 gm/dl is moderate and lower than 8 gm/dl is severe anaemia.<sup>2</sup>

In the majority of women, the anaemia is due to decreased intake or supply of nutrients needed for haemoglobin synthesis. Numerous studies from the developing countries have shown that anaemia especially the iron deficiency anaemia was highly prevalent in the pregnant women<sup>3</sup>. In Bangladesh it was observed in a study that the current level of anaemia is 53% in the rural areas which still falls within high risk level. The rate in the urban population are slightly lower compared with rural areas, but are high enough to pose a considerable problems. The data on the aetiology of anaemia reveals that iron deficiency

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is a substantial cause of anaemia in Bangladeshi population. Often dietary factors in addition to parasite infestations may also precipitate the high prevalence of anaemia<sup>4</sup>. Maternal anaemia during pregnancy is one of the underlying causes of maternal mortality<sup>5</sup> and perinatal mortality as well as complications to the fetus including increased risk of premature delivery and low birth weight<sup>6</sup>. There is evidence that iron deficiency during pregnancy reduces fetal iron stores, which may lead to iron deficiency and may adversely affect infant development<sup>7</sup>.

The aim of this study was to find out the haemoglobin levels of women of reproductive age group in Tongi area and the underlying associations.

#### Materials and Methods:

This cross-sectional study was carried out in Obs and Gynae OPD of International Medical College Hospital (IMCH), Tongi. Data were collected in semi-structured questionnaire during the period from December, 2016 to August, 2017. All women of reproductive age group was considered as study population. In the study sample size was 740 and the simple random sampling technique was followed. Collected data included age of the patients, education, occupation and haemoglobin level of the women. Pregnant women, diabetes mellitus, hypertension, any congenital haemoglobin or bleeding disorders were excluded from this study. All the collected raw data were organized into tabulated form and Statistical analysis was performed by SPSS version 17. All the continuous data were expressed as mean $\pm$ SD and categorical data in percentage (%) and frequency (f).

#### Result:

The mean ( $\pm$ SD) age of the patients was 24.72 $\pm$ 6.5 years and the range was 15-49 years. Data of total 740 women was taken by pre structured questionnaire from laboratory records as per inclusion criteria. Most of the women (70.3%) were from the age group of 15 to 25 years (Table I). 20.3% were educated

upto primary level (Table II). 52.7% women were housewife by occupation (Table III). 71.6% women took antihelminthics regularly (Fig I). Average Hb level of women was 10.19 $\pm$ 1.3 gm/dl and 17.6% of the study women were not anaemic as per WHO. Among the study reproductive women mild anaemic was 20.3%, moderate anaemic was 60.8% and severe anaemic women was 1.4% (Table IV). Table V finds that education had the association with haemoglobin level ( $p < 0.05$ ) of reproductive age group women of Tongi area whereas age and occupation had no association with haemoglobin level of the women ( $p > 0.05$ ).

**Table-I**

*Distribution of women according to age group (n=740)*

Age group (year)	Frequency	Percentage
15 – 25	520	70.3
26 – 30	110	14.9
31 – 35	50	6.8
36 – 40	40	5.4
41 – 49	20	2.7
Total	740	100%

Table I: shows that among 740 respondents, the mean age was 24.72 years with standard deviation  $\pm$  6.5 years. The highest age group was in between 15 to 25 years.

**Table-II**

*Distribution of women according to Education level (n=740)*

Education	Frequency	Percentage
Primary	150	20.3
SSC	210	28.4
HSC	200	27.0
Degree & above	180	24.3
Total	740	100 %

Table II: shows that among 740 respondents, the education level of 28.4% women was SSC and 27% was HSC.

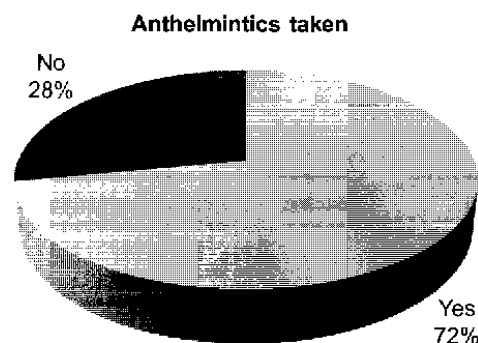
**Table-III**

*Distribution of women according to occupation  
(n=740)*

Occupation	Frequency	Percentage
Housewife	390	52.7
Job holder	270	36.5
Business	70	9.5
Others	10	1.4
Total	740	100%

Table III: shows that among 740 respondents, the majority of women (52.7%) were housewife.

Fig 1 shows that among the 740 women, most (72%) women were taking antihelminthics regularly.



**Fig.-1:** *Distribution of women by taking Antihelminthics (n=740).*

Table IV: shows that among 740 respondents, the majority women of reproductive age group (60.8%) were moderately anaemic and only 17.6% women were non-anaemic.

**Table-IV**

*Distribution of women according to Hb level (n=740)*

Types of Anaemia <sup>2</sup>	Hb Level (gm/dl)	Frequency	Percentage
Non-anaemia	> 12	130	17.6
Mild anaemia	11 – 11.9	150	20.3
Moderate anaemia	8 – 10.9	450	60.8
Severe anaemia	< 8	10	1.4
		740	100%

**Table-V**

*Showing the association among age, education, occupation and the haemoglobin level of reproductive age group women (n=740)*

SL no	Subject	p-value
1	Between age and haemoglobin level	> 0.05
2	Between education and haemoglobin level	< 0.05
3	Between occupation and haemoglobin level	> 0.05

p-value obtained from Pearson Chi-square ( $\chi^2$ ) test

**Table-VI**

*Showing the association between age and the haemoglobin level of reproductive age group women (n=740)*

Age group (year)	Non-anaemia	Mild anaemia	Moderate anaemia	Severe Anaemia	Percentage	
15 – 25	12.4	14.27	42.74	0.98	70.3	NS
26 – 30	2.62	3.03	9.06	0.21	14.9	NS
31 – 35	1.2	1.38	4.13	0.1	6.8	NS
36 – 40	0.96	1.1	3.28	0.08	5.4	NS
41 – 49	0.48	0.55	1.64	0.04	2.7	NS
Total	17.6	20.3	60.8	1.4	100%	

The chi-square statistic is 7.893. The p-value is 0.793435. The result is not significant at  $p < .01$  (NS).

**Discussion:**

Anaemia is recognized as the world's most prevalent nutritional disorder, affecting more than 2 billion people in both developed and developing countries. Pregnant women are particularly at risk of developing Iron Deficiency Anaemia (IDA) with a highest prevalence in South-East Asia<sup>8</sup>. United Nation (UN) has reported that 56% of pregnant women in low income countries were suffering from anaemia, in contrast to 18% in high-income countries<sup>9</sup>. Researchers from various developing countries have shown a prevalence of anaemia in pregnancy of 19 to 50%<sup>10,11</sup>. Compared to these reports, the average haemoglobin level in this study is 10.19±1.3 gm/dl which is moderate anaemic condition of the reproductive age group women in Tongi area according to WHO. This finding may be due to deficiency of nutrients and also lack of proper healthcare and health education in the studied community.

The present study showed that, about 18% of women were non-anaemic and 82% of women had anaemia. Among them 21% were mildly anaemic, 61% were moderately anaemic and only 1.4 % patients had severely anaemia living in the rural area. It should be emphasized that cut-off values for anaemia for Western population may not be true for Asian population<sup>12</sup>. In accordance with the definition of World Health Organization (WHO) anaemia was labeled when the pregnant women had a haemoglobin level of <11gm/dl<sup>13</sup> and non-pregnant women < 12gm/dl<sup>2,14-16</sup>.

In this study it was observed that moderate anaemia was more prevalent among the reproductive age group women of this rural community. This is probably because of most women are housewife and not well educated. Study showed there were no association of age and occupation ( $p > 0.05$ ) but education is associated with Hb level ( $p < 0.05$ ) of reproductive age group women.

**Conclusion:**

Prevalence and severity of anaemia in reproductive age group women is significantly high. Education is associated with the

haemoglobin level of women. More health education programme along with improvement of healthcare may be required in rural Bangladesh. Further wide scale research work may be done on representative sample to take necessary measures accordingly.

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