

## Effect of Anaemia in Pregnant Women

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### ABSTRACT

**Objective:** To evaluate Effect of anaemia in pregnant women.

**Methods:** A cross sectional study was conducted in Ad-din Akij Medical College Hospital, Khulna, from July 2018 to June 2019 in outdoor patient department of gynaecology and obstetrics to assess the knowledge about anaemia among pregnant women. A total 100 pregnant women were interviewed and information was collected by pre designed data collection sheet using various parameters. Interviews conducted by direct questionnaire, blood samples were collected at same setting.

**Results:** The mean age was 25.92±5.05, highest number 39.65% were age group 21-25 years, 28.79% were age group 26-30 years, 15.91% were age group 31-35 years, 11.36% were found age group <20 years. Regarding antenatal visit during pregnancy, 25.8% pregnant women visited in 1<sup>st</sup> trimester, 46.7% pregnant women visited in second trimester, and 27.5% in 3<sup>rd</sup> trimester. To find out the percentage of anaemia in different trimester, anaemia found 11.11%, in first trimester, 39.39% anemic in 2<sup>nd</sup> trimester, 14.39% pregnant women anemic in third trimester and 35.10% had normal findings. Educational status showing that 19.72% of pregnant women were illiterate 37.63 % were primary level. 52.02 %

pregnant women visited in their first pregnancy 58% were low income group had monthly income 1000-5000 taka.

**Conclusion:** From our result, we can conclude that to prevent deficiency anaemia during pregnancy, adequate iron supplementation should be given to pregnant women from the first trimester. Also further study is needed for better outcome.

**Keywords:** Anaemia, Pregnancy.

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### INTRODUCTION

In pregnancy anaemia in pregnancy is the major public health issue in worldwide now a days. WHO assessments that more than half of pregnant women in the world have haemoglobin level indicative of anaemia (<11.0 gm/dl). The prevalence of anaemia may however as high as 56% or 61% in developing countries. Causes of anaemia still high in pregnant women have low consciousness about the importance of anaemia prevention and the danger of less iron supplement.<sup>1</sup>

Pregnant women are mostly suffering from deficiency anaemia in our country Bangladesh. This is the demand for iron and other vitamins increased due to physiological burden of pregnancy. Folate deficiency is a minor component contributing to anaemia.<sup>2</sup> Folate deficiency may be marked by co-existing iron deficiency. Vitamin B12 deficiency & thalassemia major are usually associated with infertility. Detoriorus effects occur in mother as well as baby as a result of anaemia, which is multifactorial as a community like ours. Multiparity, poor socio-economical, educational status & lack of knowledge are the principal reasons for a high prevalence of anaemia in our population.<sup>3</sup>

Microcytic hypochromic anaemia resulting from iron deficiency is the most frequent from anaemia (76%), followed by folate deficiency (20%) and combined folate and iron deficiency 20%.<sup>4</sup> Globally anaemia is a major cause of morbidity and mortality, mainly in the developing countries, correction of these continues is an insurmountable challenge.<sup>5</sup> Iron folate supplement of pregnant women prevent a deterioration of the anemic condition during the increased physiological burden of pregnancy.<sup>6</sup> Current knowledge indicates that iron deficiency anaemia in pregnancy is a risk factor for preterm delivery and subsequent low birth weight, and possibly for intrauterine and neonatal death. For women who enter pregnancy with reasonable iron storage. Iron supplements improve iron status during pregnancy and for a considerable length of time post and preterm, thus providing some protection against iron deficiency in the subsequent pregnancy. Mounting evidence indicates that maternal iron deficiency in pregnancy reduce fetal iron stores, perhaps well in the first year of life.<sup>7</sup> As most pregnant women suffering from deficiency anaemia, dietetic advice should be given with due consideration to socio-economic

condition, food habits & tests of individual. Supplementary iron therapy is needed for all pregnant mothers from 16 weeks onwards. Above 10gm of Hb, 1 tab of ferrous sulfate containing 60 mg of elemental iron is enough.<sup>8,9</sup>

Oral iron is gold standard of treatment of mild to moderate iron deficiency anaemia.

Total body iron content in normal adult carries from 3-5gm Haemoglobin iron constitutes approximately 60-70% of total body iron. Storage iron occurs in two forms a) ferritin and b) hemosiderin. Patient with Hb level 9 gm or less should be subjected to full haematological investigation.<sup>10</sup>

To ascertain the type of anaemia in pregnant mother peripheral blood film estimation is also helpful. Abundant presence of small pale staining cells with variation in size (anisocytosis) and shape (poikilocytosis) suggest microcytic hypochromic anaemia, reticulocyte may be slightly raised. There is also evidence indicating that preeclampsia & eclampsia occurs more frequently in patients with iron deficiency.

In a report of over 54,000 pregnancy in the Cardiff area of south wales, the incidence of low birth weight, prematurity & perinatal mortality was found to increase when maternal Haemoglobin concentration was in anemic range <10gm/dl before 24 weeks of gestation.

There are marked physiological changes in the composition of the blood in healthy pregnancy, mainly to combat the risk of haemorrhage at delivery. Plasma volume and red blood cell mass increased by 50% and 18-25% respectively, resulting in dilutional decrease in Hb concentration called the physiological anaemia of pregnancy, maximum at 32 weeks of gestation. Pathological anaemia of pregnancy, maximum at 32 weeks of gestation. Pathological anaemia is due to iron deficiency.<sup>11</sup>

In Bangladesh, two different surveys have estimated the anaemia prevalence among pregnant women to be 50% & 59%. In these surveys blood samples are analyzed only to measure Haemoglobin concentration. It is estimated that in 1980, the global prevalence of anaemia was over 30%. 1.3 billion out of the global population of 4.4 billion lived in developing countries. About half of the pregnant women of the world are anemic. Prevalence of anaemia (Hb 10 gm/dl) is highest among pregnant women in developing countries. In South East Asian countries 75% pregnant women are anemic. In Bangladesh percentage is 53%.

Our country is a developing country, women become pregnant with preexisting anaemia because of lack of knowledge, low socio-economic condition, and they are not aware about anaemia & not frequently take prenatal care. So an anaemic woman is therefore at increase jeopardy. <sup>12</sup> So, our main goal was to evaluate the knowledge of pregnant women about anaemia in tertiary hospital.

## OBJECTIVE

### General Objective

- To evaluate the knowledge about anaemia among pregnant women for antenatal care

### Specific Objective

- To assess percentage of anaemia in pregnant women in different trimester.
- To determine types of anaemia
- To identify treatment about anaemia among pregnant women

## METHODOLOGY

**Study Type:** This was a cross sectional study.

**Study Place and Period:** This study was conducted at the outdoor department of obstetrics and gynecology of Ad-din Akij Medical College hospital, Khulna from July 2018 to June 2019, where 100 pregnant women were evaluated during the study.

### Inclusion Criteria

- Normal pregnant women in all trimester
- Pregnant mother without pregnancy complication

### Exclusion Criteria

- Patients with APH or other obstetrical emergency
- Patients with eclampsia
- Patients with medical disorder.

**Method of Collection of Blood Samples:** Maintaining all aseptic precaution 6ml of venous blood was drawn from the antecubital vein of each pregnant women in the sitting position. 2ml of the blood was taken in EDTA tube for HB% and peripheral blood film 4ml of blood was immediately transferred into clear dry test tube and was centrifuged within one hour of collection. The serum thus obtained was stirred at 70°C until assayed.

**Data Collection and Analysis:** Data collection was in pre-designed data collection sheet using various parameters interviews conducted using direct questionnaire and all information was noted in preform data collection sheet. Data were compiled and appropriate statistical package for social science (SPSS). P value <0.05 was taken as minimum level of significance.

## RESULTS

Table-1 shows number of pregnant women visiting for ANC in different trimester where among 100 pregnant women maximum 46.7% visited in 2nd trimester whereas only 25.8% , 27.5% visited 1<sup>st</sup> and 3<sup>rd</sup> trimester.

In figure-1 shows percentage of anaemia in different trimester where majority anemic 39.39% found 2<sup>nd</sup> trimester and 35.10% had normal findings.

In table-2 shows age distribution of the pregnant women where maximum (39.65%) pregnant women belongs to 26-30 age group ,whereas only 11.36% pregnant women belongs to ≤ 20 age group.

In figure 2 shows occupational status of the patients where 65% pregnant women were house wife, 22% were garments worker, 10% were service holder and only 3% day laborer women.

In figure 3 shows distribution of pregnant women by monthly family income where 58% were low income group had monthly income 1000-5000 taka followed by 25% had monthly income 5001-10000 taka and 17% had monthly income >10000 taka.

In figure 4 shows educational status of the pregnant women where 19.72% were illiterate, 37.63% were primary level, 18.69% were secondary level and 12.88% were higher secondary level.

In table-3 shows parity distribution of the pregnant women were among 100 pregnant women 52.02% pregnant women were in their first pregnancy followed by 28.28% were 2<sup>nd</sup> pregnancy, 19.7% were multi gravid women.

In figure 5 shows knowledge about antenatal care among pregnant women where 67.42% pregnant women had knowledge about ANC.

In table-4 shows knowledge of pregnant women about number of ANC visit where only 37.37% pregnant women had known the

needs of ANC visit more than 4 time, others had no good idea about how much visits is needed during pregnancy.

In figure 6 shows knowledge about anaemia during pregnancy in pregnant women where maximum 67.93% had no knowledge about anaemia and 31.57% had knowledge about anaemia during pregnancy. In table-5 shows knowledge about symptoms of anaemia where 33% had knowledge about symptoms of anaemia. In figure 7 shows knowledge of pregnant women about food stuffs containing iron where majority 71.46% of pregnant women visited for ANC had no knowledge about iron containing food.

In table-6 shows knowledge of pregnant women about food requirement where 69.7% pregnant women had good knowledge about amount of foods needed during pregnancy where as 20.7% knows same amount food as non-pregnant is enough during pregnancy state. In figure 8 shows knowledge about iron tablet requirement per day during pregnancy where 51.01% had no knowledge about iron tablet requirement per day during pregnancy whereas only 41.16% pregnant women knows about 1 tablet per day is needed during pregnancy .

In table-7 shows knowledge of pregnant women about correction anaemia by changing diet where only 27% of pregnant women knows that anaemia can be corrected by changing diet.

In figure 9 shows knowledge about of pregnant women about correction of anaemia by taking iron tablet during pregnancy where 100 women were intermixed among them only 26.8% knew daily iron tab intake during pregnancy helps to correct anaemia. but maximum 73.2% had no knowledge.

In table-8 shows knowledge about correction of anaemia taking anti helminthic where total 100 women only 4.8% knows that anti helminthic drug helps to correct anaemia

In figure 10 shows knowledge of pregnant women about effect of anaemia on fetus where only 20% of pregnant women had knowledge about the effect of anaemia.

In table-9 shows the knowledge about the benefit of treating anaemia where 8.08% pregnant women had knowledge about the benefit of treating anaemia and 61.62% had no knowledge.

In table-10 shows Haemoglobin level of pregnant women where 41.16% were mildly anemic, 22.22% were moderately anemic.

In figure-11 shows types of anaemia where 64% of pregnant women had microcytic hypochromic anaemia followed by 28.8% had normal findings and 7% had normocytic anaemia.

**Table 1: Frequency of pregnant women visiting for ANC in different trimester**

Different trimester	%
1 <sup>st</sup> trimester	25.8%
2 <sup>nd</sup> trimester	46.7%
3 <sup>rd</sup> trimester	27.5%
Total	100

**Table 2: Age distribution of the pregnant women**

Age in years	%
≤20	11.36%
21-25	39.65%
26-30	28.79%
31-35	15.91%
36 and above	4.29%

**Table 3: Parity distribution of the pregnant women**

Parity	%
Primigravida	52.02%
2 <sup>nd</sup> pregnancy	28.28%
Multi gravida	19.70%

**Table 4: Knowledge of pregnant women about number of ANC visit**

ANC visit require	%
One time visit	9.34%
Two time visit	18.69%
Three time visit	17.93%
Four time visit	16.67%
More than four time	37.37%

**Table 5: Knowledge about symptoms of anaemia**

Symptom anaemia	%
Yes	33.08%
No	66.92%

**Table 6: Knowledge of pregnant women about food requirement**

Amount of food	%
More than non-pregnant state	69.7%
Same as non-pregnant state	20.7%
Less than non-pregnant state	9.6%

**Table 7: Knowledge of pregnant women about correction anaemia by changing diet**

Knowledge of pregnant women about correction anaemia by changing diet	%
Yes	27%
No	73%

**Table 8: Knowledge about correction of anaemia taking anti helminthic**

Correction of anaemia taking anti helminthic	%
Yes	4.8%
No	95.20%

**Table 9: Knowledge about the benefit of treating anaemia**

The benefit of treating anaemia	%
Yes	8.08%
No	92.42%

**Table 10: Haemoglobin level of pregnant women**

Haemoglobin level of pregnant women	%
severe	1.52%
Moderate	22.22%
Mild	41.16%
No anaemia	35.10%

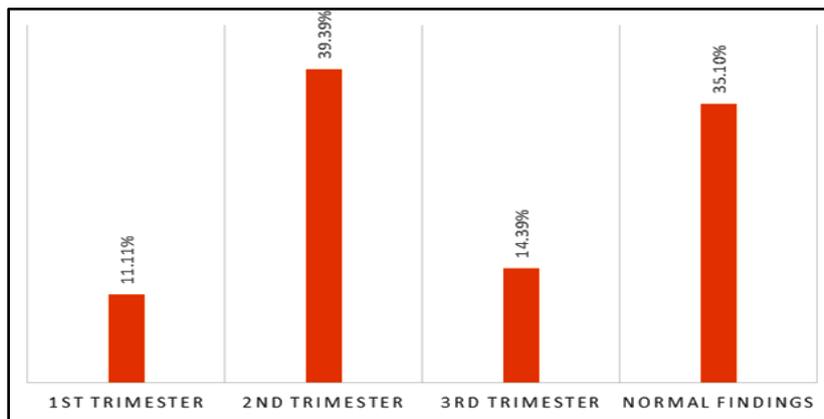


Fig 1: Percentage of anaemia in different trimester

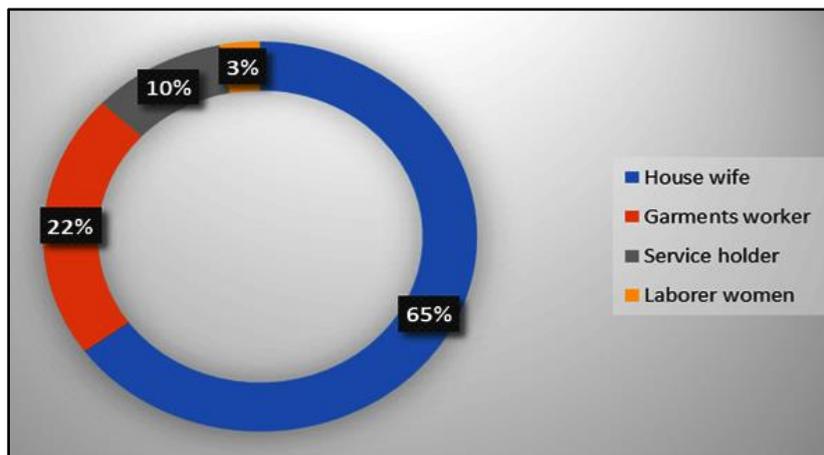


Fig 2: Occupational status of the patients

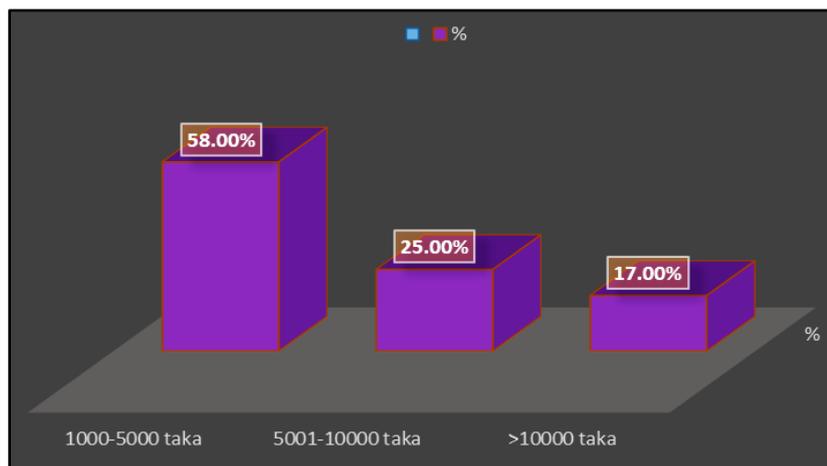


Fig 3: Distribution of pregnant women by monthly family income

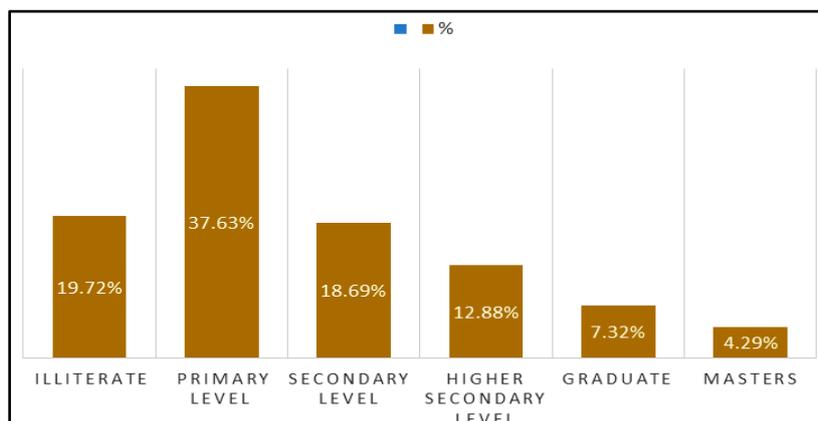


Fig 4: Educational status of the pregnant women

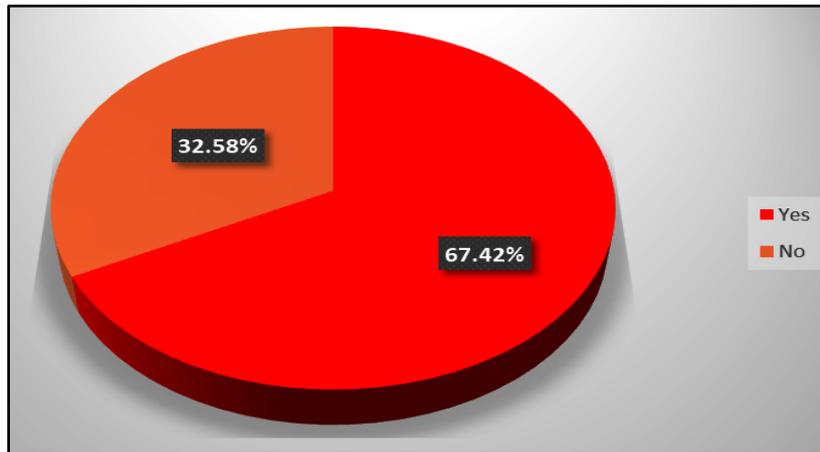


Fig 5: Knowledge about antenatal care among pregnant women

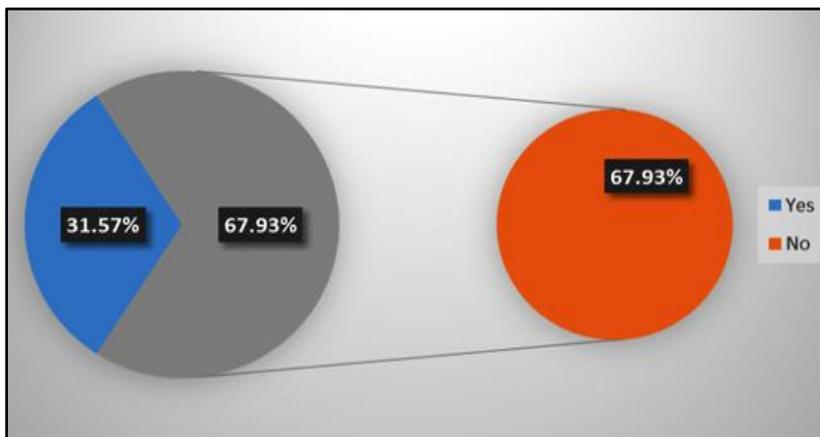


Fig 6: Knowledge about anaemia during pregnancy in pregnant women

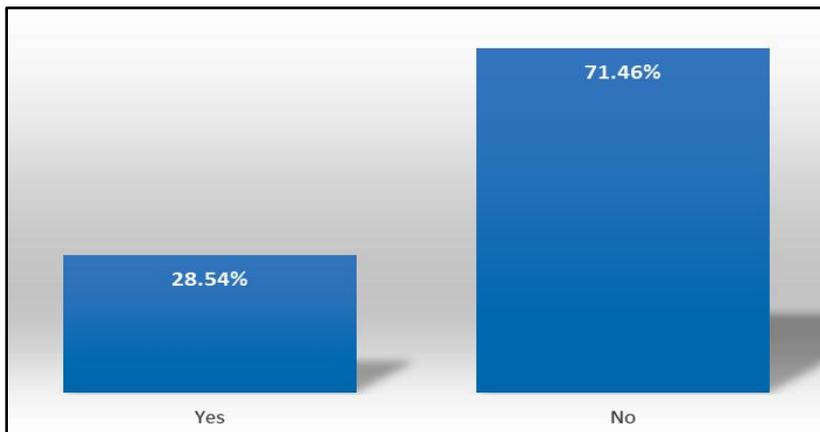


Fig 7: Knowledge of pregnant women about food stuffs containing iron.

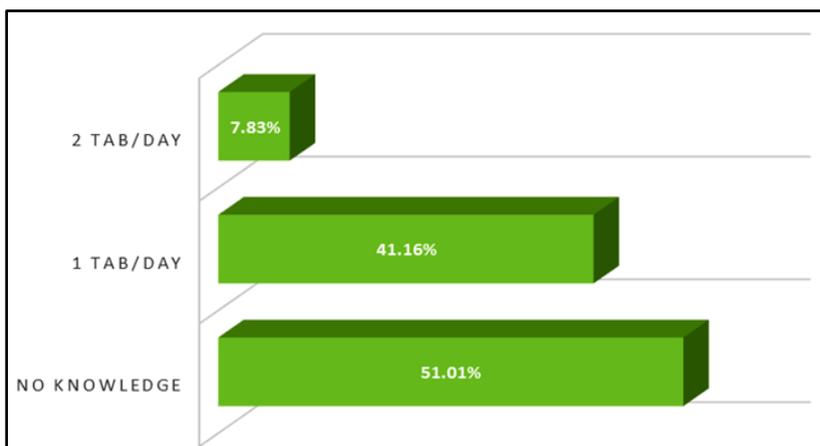


Fig 8: Knowledge about iron tablet requirement per day during pregnancy

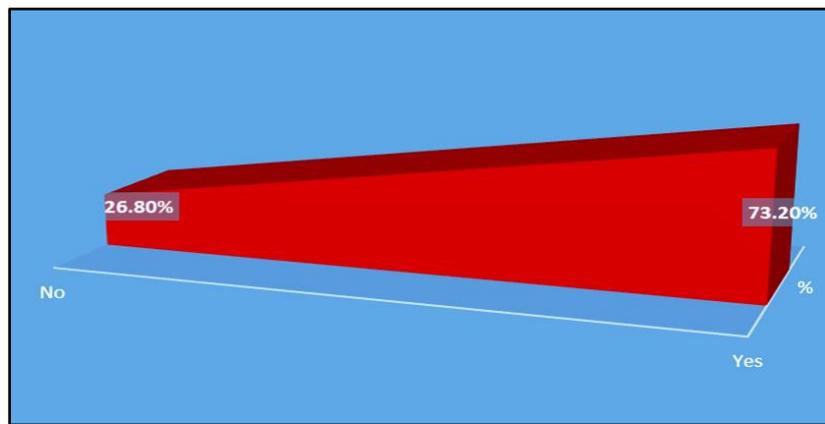


Fig 9: Knowledge about of pregnant women about correction of anaemia by taking iron tablet during pregnancy

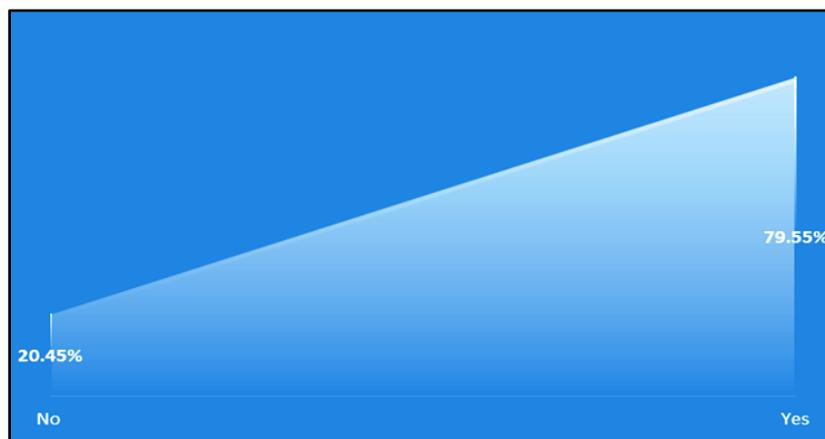


Fig 10: Knowledge of pregnant women about effect of anaemia on fetus

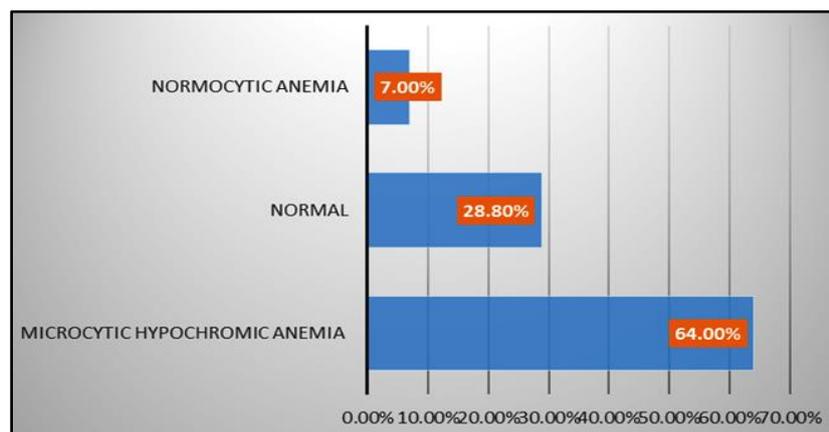


Fig 11: Types of anaemia

## DISCUSSION

A total 100 patients are interviewed for this study, for the highest number (46.7%) visited in 2nd trimester, 27.5% were in 3rd and 25.8% in 1st trimester. A survey of pregnant women in Nigeria found that women in tertiary hospital for antenatal care, higher percentage in (63.5%) women registered in 2nd trimester of pregnancy in our country due to lack of knowledge about ANC, women's attending tertiary hospitals during third trimester mostly, or when delivery is impending.<sup>13</sup>

In this study a total of 100; Among pregnant mother 64% pregnant women were anemic, indicating that anaemia in pregnancy still a major problem in our country, although other study found that specially in rural area Bangladesh, the prevalence of anaemia among pregnant women was 50%.<sup>11</sup> In rural area in some NGO

works for prevention of anaemia by iron supplementation. In other countries in the south Asian region the Anaemia prevalence in pregnant women is reportedly higher. One national estimate in India is 87%.<sup>14</sup> From the plains of Nepal, prevalence of anaemia was 73%.<sup>15</sup> In Sri-Lanka 65% pregnant are anemic.<sup>16</sup> In this study maximum pregnant women (39.6%) who were interviewed are in age group between 21-25 years. 28% were in age group between 26-30 years. One study found that one hundred pregnant women was attended Gynae and obs OPD of railway hospital. Mean maternal age recorded was 30.24±6.15 years (maximum 42 years and minimum 20 years).<sup>2</sup> Among the pregnant women visited, 65% were house wife, 22% were garments worker, and 10% were service holder. As in tertiary hospitals in urban area, low economical status group

patients are more visited, so, in this study service holder pregnant women were visited only 10%, and 58% pregnant women's had low family income (1000-5000).

So anaemia in pregnancy is common in our country, because of low socioeconomic status, women's had poor dietary status, which makes micronutrients deficiency and anaemia.

Education and knowledge is important to prevent anaemia in pregnancy, illiteracy, ignorance deteriorous effect on mental health. Although tertiary hospital visited illiterate pregnant women were 19.7%, 37.63% were educated in primary level.

ANC helps to early diagnosis of anaemia in pregnancy, in this study maximum 67% pregnant women had knowledge about, what is antenatal care, but 32% had no knowledge about this, ANC improve pregnant women's knowledge of its benefits. A study in Indonesia, an experimental design with 60 pregnant women from 10 cluster villages is used in this study. The intervention group received the new approach to ANC, while the control group received routine ANC. The findings show that the improvement of knowledge in the intervention group significant particularly in the knowledge about healthy pregnancy ( $p=0.012$ ), pregnancy complications ( $p=0.01$ ), safe birth ( $p = 0.01$ ) and taking care of the newborn ( $p=0.012$ ). The improvement of knowledge was significantly influenced by the respondents educational background ( $p=0.002$ ) and socio-economic status ( $p=0.027$ ). This study in Indonesia, recommends that the new approach to ANC be considers to educate pregnant women regarding safe birth and it is considered as one of the strategies that may be adopted to reduce maternal mortality.<sup>19</sup>

Ideally the pregnant mother should attend the clinic once a month during the first 7 months; twice a month during the next two months; and there after once a week. In the study 37% pregnant women had good knowledge that frequent ANC visit is necessary, but due to poor socio economic factor, poor transportation application is also poor.

Maximum 67% pregnant women had no knowledge about anaemia in pregnancy. So case of anaemia is still high because most women have low consciousness about the important of anaemia prevention, a similar study in community health and nutrition Research Laboratory, a bivariate analysis resulted that, knowledge, attitude, practice and the number of pregnancy were significantly associated with anaemia. Using logistic linier model indicated that the lower knowledge about anaemia in pregnant women will be increased risk five times more than higher and the worse practice about anaemia preventive pregnant women increase anaemia risk six times more than good practice. [20] Most of the gravid women not aware about symptoms of anaemia, only 31% had knowledge about the symptoms of anaemia, remaining 66% had no knowledge.

There is very high prevalence of anaemia during pregnancy in Delhi, probably due to very low frequency of meat eating in India.<sup>21</sup>

In this study maximum 73% of pregnant women had poor knowledge that anaemia can be corrected by changing diet, also 73.2% pregnant women do not know that, taking of iron tab during pregnancy helps to prevent anaemia and only 26.8% knows daily intake iron is necessary during pregnancy. Pregnancy is probably the greatest physiological challenge to human body, iron requirements are very high in pregnancy, it is several times higher than other periods, so prevalence of iron deficiency is common in

our country. Considering the daily iron requirement and bioavailability of food iron absorption, the recommended daily allowances of iron have been set 15 mg per day. For normal women and 38 mg for pregnant women prophylactic iron supplements, in a dose of 65mg of elemental iron per day from 20 weeks on words is sufficient to prevent iron deficiency anaemia in mother.<sup>21</sup>

Many study showed that iron deficiency has been the most dominant factor in the causation of anaemia in pregnancy.<sup>10</sup>

Present study also revealed that, knowledge of anti helminthic drugs taking to prevent anaemia is very poor, about 38% of the women had ascariasis and three women (1%) had Hook worm infestation. Hook worm infestation malaria and HIV infection have been shown to be associated with severe Anaemia and iron deficiency in Bangladesh. Detection of worm infestation may be improved by including stool examination for every pregnant women. Anti-helminthic therapy could be given to infested women before conception as a public health strategy to improve iron store. <sup>16</sup> In present study maximum 79% had no knowledge about the effect of Anaemia on fetus.

Among 100 pregnant women interviewed, almost 92% had no knowledge of benefit to treating anaemia.

On the basis of Hb estimation, mild anaemia was found maximum (67%), moderate anaemia was (31%) and severe case of anaemia was only 1%. Another study in India, found that of 1150 women, 96% were anemic (89.8% mildly anemic, 5.3% severely anemic.<sup>21</sup> Another study of rural Bangladesh, the anaemia was mild in 28%, moderate 22% and none of them had severe anaemia.<sup>9</sup>

On assessing the type of anaemia by peripheral blood film, found that microcytic hypochromic anaemia was highest (64%), normocytic anaemia 7% and 28.8% had normal findings microcytic hypochromic anaemia resulting from iron efficiency is the most frequent from anaemia (76%).<sup>3</sup>

## CONCLUSION

From our results, we can conclude that to prevent deficiency anaemia during pregnancy, adequate iron supplementation should be given to pregnant women from the first trimester. Also further study is needed for better outcome.

## REFERENCES

1. Allen LH. Anaemia and iron deficiency: effects on pregnancy outcome. *The American journal of clinical nutrition*. 2000 May 1;71(5):1280S-4S.
2. Sood SK, Banerji L, Ramalingaswami V. Occurrence of nutritional anaemias in tropical countries. Occurrence, causes and prevention of nutritional anaemia. *Almqvist c Wiksell, Uppsala*. 1968:135-47.
3. Siteti MC, Namasaka SD, Ariya OP, Injete SD, Wanyonyi WA. Anaemia in pregnancy: Prevalence and possible risk factors in Kakamega County, Kenya. *Sci J Pub Hlth*. 2014;2(3):216-22.
4. Toteja GS, Singh P, Dhillon BS, Saxena BN, Ahmed FU, Singh RP, Prakash B, Vijayaraghavan K, Singh Y, Rauf A, Sarma UC. Prevalence of anaemia among pregnant women and adolescent girls in 16 districts of India. *Food and Nutrition Bulletin*. 2006 Dec;27(4):311-5.
5. Mulla S, Akarte S, Mankeshwar R, Ansari S. Adverse Pregnancy Outcome As A Result Of Anaemia And Hyperglycaemia With Special Focus On Time Of Registration And

- Weight Gain During Pregnancy. *National Journal of Community Medicine* 2014 Oct – Dec; 5(4): 447-52.
6. Breyman C. Iron supplementation during pregnancy. *Fetal and maternal medicine review*. 2002 Feb;13(1):1-29.
7. Murphy JF, Newcombe RG, O'riordan J, Coles EC, Pearson JF. Relation of haemoglobin levels in first and second trimesters to outcome of pregnancy. *The Lancet*. 1986 May 3;327(8488):992-5.
8. Cunningham F, Leveno K, Bloom S, Spong CY, Dashe J. *Williams obstetrics*, 24e. Mcgraw-hill; 2014.
9. Begum M, Nessa Z. Nutritional status of school going children of a selected school of Dhaka city. *Bangladesh Journal of Scientific and Industrial Research*. 2008;43(1):97-102.
10. Guralnik JM, Eisenstaedt RS, Ferrucci L, Klein HG, Woodman RC. Prevalence of anaemia in persons 65 years and older in the United States: evidence for a high rate of unexplained anaemia. *Blood*. 2004 Oct 15;104(8):2263-8.
11. Hyder SZ, Persson LÅ, Chowdhury M, Lönnerdal BO, Ekström EC. Anaemia and iron deficiency during pregnancy in rural Bangladesh. *Public health nutrition*. 2004 Dec;7(8):1065-70.
12. Yadi M, Eklogi OD. Wound dehiscence pasca bedah Caesar 2005.
13. Rahman ML, Nessa Z, Yesmin S, Rahman MH, Rahman CF. A Study on Prevalence of Anaemia in Pregnancy among the Women Reporting for Antenatal Care in Combined Military Hospital, Dhaka Cantonment. *Journal of Dhaka Medical College*. 2017;26(2):103-10.
14. Kalaivani K. Prevalence & consequences of anaemia in pregnancy. *Indian J Med Res*. 2009 Nov 1;130(5):627-33.
15. Dreyfuss ML, Stoltzfus RJ, Sherestha JB, Pradhan EK, LeClerq SC, Khatry SK. Hookworms, Malaria and Vitamin A deficiency contribute to anaemia and iron deficiency among pregnant women in the plains of Nepal. *Jurnal of nutrition* 2000;130:2527-36.
16. Jain M. Sustainability of the effects of medicinal iron and iron rich food supplementation on haemoglobin, intelligence quotient and growth of school aged girls. *Indian Journal of Community Health*. 2014 Dec 31;26(Sup 2):279-87.
17. Agus Y, Horiuchi S. Factors influencing the use of antenatal care in rural West Sumatra, Indonesia. *BMC pregnancy and childbirth*. 2012 Dec;12(1):9.
18. Nurdianti DS, Sumarni S, Hakimi M, Winkvist A. Impact of intestinal helminth infection on anaemia and iron status during pregnancy: a community based study in Indonesia. *Southeast Asian journal of tropical medicine and public health*. 2001 Mar 1;32(1):14-22.
19. Bhagwan SJ, Soni D, Srinivasa MN, Malhotra M. Effect of dietary habits on prevalence of anaemia in pregnant women of Delhi. *The Journal of obstetrics and gynaecology research*. 2003 Apr 1;29(2):73-8.
20. Rusia US, Madan NI, Agarwal NE, Sikka ME, Sood SK. Effect of maternal iron deficiency anaemia on foetal outcome. *Indian journal of pathology & microbiology*. 1995 Jul;38(3):273-9.
20. Nguyen PH, Gonzalez-Casanova I, Nguyen H, Pham H, Truong TV, Nguyen S, Martorell R, Ramakrishnan U. Multicausal etiology of anaemia among women of reproductive age in Vietnam. *European journal of clinical nutrition*. 2015;69(1):107.
21. Puolakka J, Jäne O, Pakarinen A, Järvinen PA, Vihko R. Serum ferritin as a measure of iron stores during and after normal pregnancy with and without iron supplements. *Acta Obstetrica et Gynecologica Scandinavica*. 1980 Jan;59(S95):43-51.

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