



**Daffodil**  
*International*  
**University**

**A PROJECT REPORT**

**ON**

**Prevalence of pregnancy anemia among the pregnant woman at Mother  
and Child Welfare Center in Rajshahi: a cross-sectional study**

**By**

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Submitted to

Department of Nutrition and Food Engineering  
in the partial fulfillment of B.Sc. in Nutrition and Food Engineering

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## **APPROVAL**

This project " Prevalence of pregnancy anemia among the pregnant woman at Mother and Child Welfare Center in Rajshahi: a cross-sectional study" was submitted by Zannatul Ferdaous to the Department of Nutrition and Food Engineering. Daffodil International University has been accepted as satisfactory for the partial fulfillment of the requirement for the degree of B.Sc. in Nutrition and Food Engineering and approved as to its style and contents. The presentation has been held on

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**DECLARATION**

I hereby declare that this project titled “Prevalence of pregnancy anemia among the pregnant woman at Mother and Child Welfare Center in Rajshahi: a cross-sectional study” has been done under the supervision of Nasima Akter Mukta, Assistant Professor, Department of Nutrition and Food Engineering, Faculty of Allied Health Sciences, Daffodil International University. I also declare that neither this project nor any part of this project has been submitted elsewhere for the award of any degree or diploma.

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**Abstract**

Pregnancy is a most precious time for a woman. At this time a woman has to eat twice that of a normal woman. Babies are made by their mother's blood. If the mother's body is not able to produce a good quantity of blood, then she can get anemia. Anemia occurs when there aren't enough healthy red blood cells to carry oxygen to the body's organs. The purpose of this study was to identify the frequency of anemia in the pregnancy period at a certain time. A questionnaire with 24 basic items was given to 100 pregnant women. This cross-sectional study included 100 pregnant women who visited the Mother and Child Welfare Center, Rajshahi, Bangladesh in April 2023. A face-to-face interview was taken at that hospital. The study focused on determining mainly the percentage of anemia with the gestational age along with the dietary habits, and socio-demographic status. Hemoglobin status was measured to assess their anemia. Analysis of the resulting data revealed that 56 % of the respondents had normal hemoglobin whereas 30 % of the respondents were observed as mild anemic, and 40 % as moderate anemic. This result indicates that the occurrence of anemia is high among pregnant women in Rajshahi.

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**CHAPTER ONE**  
**Introduction**



## 1.1 BACKGROUND

A woman's life is transformed during pregnancy, which is defined by a variety of physiological changes intended to promote the development and growth of a new life. Anemia, a disorder characterized by a shortage in the quantity or quality of red blood cells, which results in decreased oxygen-carrying ability, is one significant health risk during pregnancy. Anemia comes in a variety of forms, but iron deficiency anemia is the most prevalent [Sachdev V, 2022]. Acute hemolysis or acute blood loss are the main causes of acute anemia. Chronic anemia is more prevalent and has several secondary causes. According to the National Cancer Institute, anemia is graded as follows: A mild condition would have a hemoglobin level between 10.0 and 10.0 g/dL, a moderate condition between 8.0 and 10.0 g/dL, a severe condition between 6.5 and 7.9 g/dL, and a life-threatening condition below 6.5 g/dL. [American Society of Hematology, 2022].

This thesis aims to delve into the multifaceted aspects surrounding the prevalence of pregnancy anemia among pregnant women. By exploring relevant research, epidemiological data, and the underlying factors contributing to this condition, we can gain insights into the magnitude of the issue and its implications for maternal and fetal health.

Furthermore, we will explore the factors that contribute to the occurrence of pregnancy anemia, such as nutritional deficiencies, socioeconomic factors, and access to quality healthcare.

According to a survey conducted in 2022, anemic pregnancy affects 52% of pregnant women in South and Southeast Asian (SSEA) nations [Commonwealth Fund, Dec. 2020]. Anemia affects around one-third of the world's population, and its epidemiology varies by age, sex, socio-cultural settings, and geographic areas [Janz TG, 2013]. According to estimates, anemia affected 50% of the population in Bangladesh [Hossain, 2022]. According to a different study conducted in Bangladesh, 40% or more of expectant mothers had anemia [Hossain, 2022]. As a result, it indicates that there is a significant difference in the frequency of anemia between and maybe even within nations.

In addition, micronutrient supplementation is insufficient and micronutrient deficiencies, particularly those of vitamin A and iron, are widespread [World Health Organization, 2011]. For instance, anemia affects 42% of women between the ages of 15 and 49, and it affects 50% of pregnant women [World Health Organization, 2011]. According the frequency of anemia among children in Bangladesh aged 6-59 months rose from 47% in 2001 to 64% in 2004. [World Health Statistics, 2000-2018].

A survey on anemia in Rajshahi is conducted in 2023 among Rajshahi University students [Anemia in Rajshahi, 2023]

Through an extensive analysis of existing literature and empirical evidence, this research aims to contribute to the existing body of knowledge on pregnancy anemia, fostering a deeper understanding of its prevalence, causes, and potential avenues for prevention and management.

By addressing this significant health issue, we can work towards empowering pregnant women with the necessary knowledge, resources, and support to promote healthier pregnancies and positive outcomes for both mothers and their babies [Gernand, 2016].

## 1.2 SCOPE OF THE STUDY

When considering the scope of a study on anemia during pregnancy in the context of Bangladesh, some country-specific factors and considerations can be taken into account. Here are a few aspects that could be included in the scope of a study on anemia during pregnancy in Bangladesh:

1. Prevalence and regional disparities: The research may seek to establish the anemia prevalence among expectant mothers in that particular area. It might look at any notable geographical differences in anemia prevalence, taking into account things like the urban-rural gap and socioeconomic differences.

2. Nutritional factors: The study might look at the eating habits and nutritional condition of expectant mothers in Bangladesh given that nutritional deficiencies, particularly iron deficiency, are one of the main causes of anemia. It might investigate if the local diet has enough items high in iron and evaluate how dietary practices affect the prevalence of anemia.

3. Cultural and social factors: The study may consider cultural and social factors that influence the prevalence and management of anemia during pregnancy in Bangladesh. This could include exploring traditional beliefs, cultural practices, and socio-economic factors that may impact the access to healthcare services, nutrition, and adherence to treatment.

4. Maternal and fetal outcomes: The study could focus on investigating the impact of anemia on maternal and fetal health outcomes in the context of Bangladesh. It may explore the association between anemia during pregnancy and outcomes such as maternal mortality, preterm birth, low birth weight, and neonatal morbidity and mortality.

5. Healthcare infrastructure and interventions: The study may assess the existing healthcare infrastructure in Bangladesh in terms of its capacity to diagnose and manage anemia during pregnancy. It could evaluate the effectiveness of existing interventions, such as iron and folic acid supplementation programs, antenatal care services, and community-level awareness campaigns, in addressing the burden of anemia.

6. Barriers to prevention and management: The study could identify the barriers and challenges that pregnant women face in accessing and adhering to interventions for anemia prevention. This could include factors such as affordability, availability, acceptability, and cultural perceptions related to interventions like iron supplementation and dietary change.

These are some aspects that could be considered when defining the scope of a study on anemia during pregnancy in the context. It is important to align the research objectives with the specific needs and priorities to address the challenges and make meaningful contributions to maternal and child health [Haworth, 2021].

### **1.3 Literature Review**

Anemia during pregnancy is a prevalent condition with significant implications for maternal and fetal health. This literature review provides an overview of the key aspects related to anemia during pregnancy. It covers the definition and classification of anemia, its prevalence, and the various etiological factors such as iron deficiency, vitamin B12 deficiency, and folate deficiency. The salutary effect of iron supplementation on the improvement of hemoglobin levels in pregnancy has been documented in various studies, which are more similar to those of our study. Routine prophylaxis of iron is commonly recommended for pregnant women. Initiation of supplementation before conception is needed to reduce maternal anemia during early pregnancy. Despite the known consequences of anemia in pregnancy, there is scanty information on the ubiquity of anemia in pregnant women in Bangladesh. Several published studies on the prevalence and associated risk factors of anemia in pregnancy have received antenatal care at the different levels of the health care system.

The nutritional quality of households is negatively impacted by food insecurity, especially when it comes to nutrient-rich food intake. Families who lack access to food have less varied diets, which raises the risk of anemia in both children and adult women. At 18 months of age, infants in homes with food insecurity have a 1.42 times greater likelihood of becoming anemic. Despite multiple national plans of action, 40 million people in Bangladesh remain food insecure, and 11 million are experiencing acute food shortages. Bangladesh's ability to ensure food security for the whole population by 2021 looks dubious. Bangladesh receives a score of 20.4 in 2020, placing it 75th out of 107 nations according to the Global Hunger Index. This implies it will be challenging to fulfill Sustainable Development Goal 2 (End hunger, enhance food security, improve nutrition, and promote sustainable agriculture) by 2030 because the degree of hunger in Bangladesh is "serious." [World Food Programmed, 2016]

Some of the research involved primary healthcare levels at government hospitals, whereas the majority involved secondary and tertiary healthcare facilities in private hospitals. Information from the literature indicated that there were no published studies that have addressed the prevalence of anemia in pregnant women attending Mother and Child Welfare Center, Rajshahi. Anemia during pregnancy affects women differently depending on their financial

status, dietary habits, way of life, or health-seeking habits. Pregnancy anemia is more common, especially if there is poverty, poor nutrition, unsanitary living circumstances, a lack of education, unemployment among women, a lack of healthcare facilities, and a lack of awareness of prenatal care. The majority of the research participants were housewives, and more than half of the expectant women had at least a secondary education. The majority of women have a poor standing in society, making it difficult to attend to their basic medical requirements. Additionally, women in need could not have access to the current healthcare services. In addition, a lack of knowledge and awareness of health-related concerns causes delays in seeking treatment for life-threatening pregnancy complications. Lastly, it addresses challenges and future directions in anemia management during pregnancy and highlights the need for further research in this field. Overall, this literature review provides valuable insights into the understanding and management of anemia during pregnancy [Dhaka Tribune, 2020].

#### **1.4 Objective**

There are two purposes of this study:

- Primary Objectives: Identification of the percentage of anemic pregnant women at a specific time in a specific area.
- Specific Objectives:
  - a. To find out the socio-demographic status of the respondents
  - b. To find out dietary intake
  - c. To identify the rate of anemia.

## **CHAPTER TWO**

### **Methodology**

## 2.1 Setting

This cross-sectional experiment study was conducted at the “Mother and Child Welfare Center in Rajshahi, Bangladesh.” It is an organization that is mostly for family planning and to give all health facilities for women and including a little about men. This is providing high-quality services, and developing, and implementing effective programs, especially for the poor and vulnerable people including pregnant women. It has been able to attract patients with different demographic and socioeconomic backgrounds from all over the division. Thus, data generated from this clinic may be considered a fair reflection of the general population (pregnant women) of the division.

## 2.2 Data collection period

The data collection period was from 1 April 2023 to 25 April 2023.

## 2.3 Study Population

The study was conducted among 100 pregnant women, aged between 20 and 30 years with 2nd to 3rd trimester who visited the mother and child welfare center in Rajshahi for routine antenatal check-ups.

## 2.4 Sample-size calculation

$$\text{Sample size} = \frac{z^2 pq}{e^2}$$

$$= \frac{(1.96)^2 \times 0.5 \times (1-0.5)}{(0.098)^2}$$

$$= \frac{3.8 \times 0.5 \times 0.5}{0.0096}$$

$$= 100$$

Here,

e= margin of error

p= proportion of success

q= 1-p

z= z-score

## 2.5 Sampling technique

A consecutive sampling technique was applied. Pregnant women were selected who met the additional criteria until either the needed sample size was achieved or the survey period was over during the antenatal care period.

## **2.6 Data-collection**

For the purpose of gathering data on the Sociodemographic traits, reproductive history, and medical history of the research subjects, a pretested semi-structured questionnaire was utilized. Throughout the initial phase of the questionnaire's construction, various professionals from relevant disciplines and counsels provided their opinions and assistance. The arranged sequence was kept, and the questions were written in as straightforward a manner as feasible. The questionnaire was created in English and then translated into Bangla, the original tongue. Hemoglobin levels in the blood were measured by specialists in this area. The qualified technician drew venous blood samples from the mothers for the assessment of their anemia. The reference values of hemoglobin were categorized according to the WHO criteria as normal (11 g/dL or higher), mild (10–10.9 g/dL), and moderate (7–9.9 g/dL). Mild and moderate levels (<11 g/dL) of hemoglobin is defined as anemic [WHO, 2011] [Jones, 2011]

## **2.7 Collection of blood sample**

A disposable plastic syringe was used to draw a 2 mg/L EDTA (ethylenediaminetetraacetic acid) vial from the antecubital vein while adhering to all aseptic procedures. After centrifuging the serum for 10 minutes at a speed of 2000 rpm while it was still at room temperature, the blood was immediately allowed to coagulate for 30 minutes. For the hemoglobin testing, separate serum was placed in several Eppendorf tubes. The concentration of hemoglobin was measured using the colorimetric technique.

## **2.8 Limitation in data collection**

As most of the women were not well educated at first some did not give information, but after a demonstration of my work, they agreed to cooperate. To give a brief about the question and collect appropriate data it takes ten to twenty minutes per woman.

## **2.9 Analysis of data**

Data was extensively examined for consistency and completeness following collection, and it was cleaned, updated, and validated each day to make sure there were no mistakes or discrepancies. With the exception of statistical analyses, Google Excel for Windows was used.

## **2.10 Ethical aspects**

Each and every participant was informed about the research, method, and techniques in detail. “Mother and Child Welfare Center” was informed and approved the data collection. Written information was taken from them through face-to-face interviews, ensuring privacy and confidentiality.

**CHAPTER THREE**  
**RESULTS**



## Results

Most of the women who participated in the study subject were under 25 years old. Blood sample results showed that 56% had normal hemoglobin during their pregnancy, 30% was mild anemic and 14% was moderate anemic (Table 1, Figure 1).

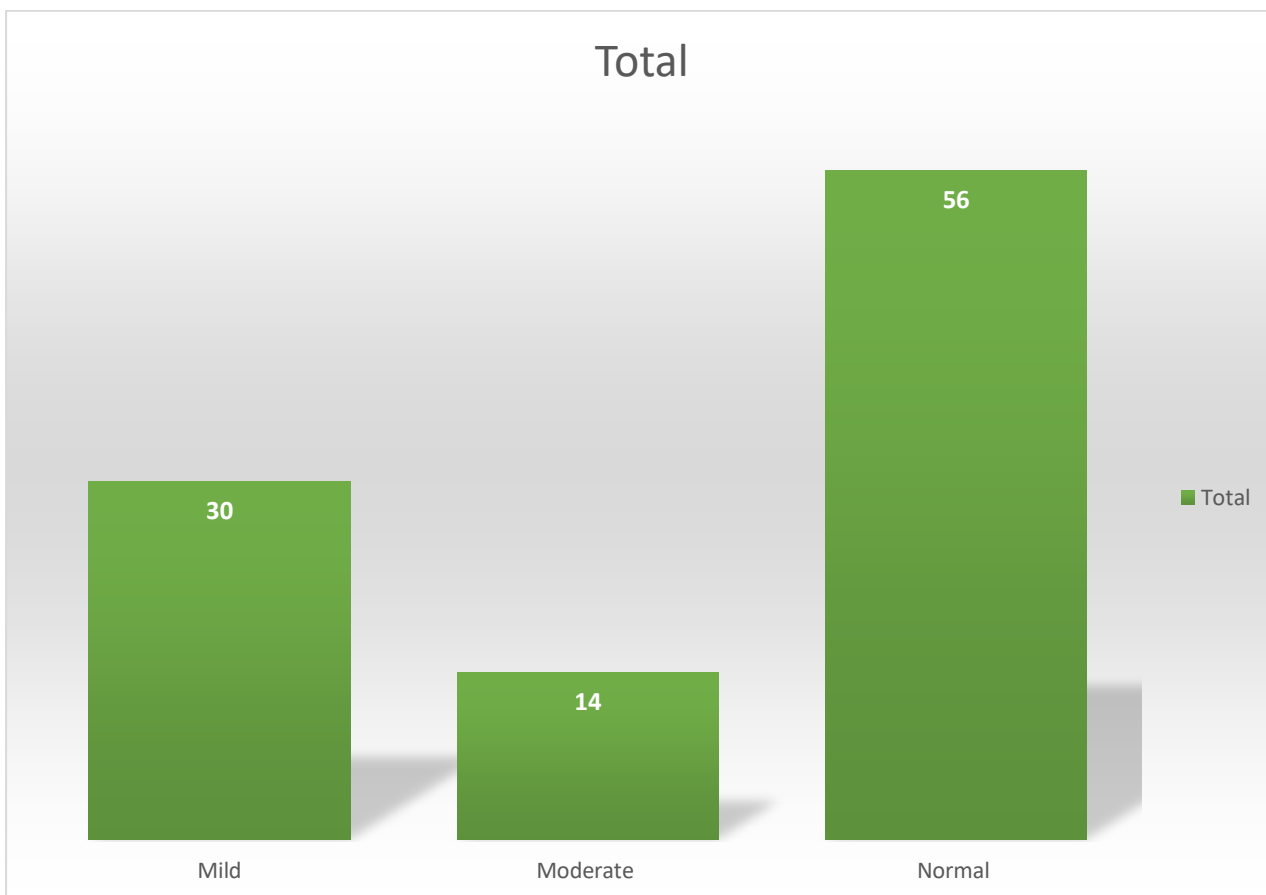


Figure 1 Percentages of pregnant mothers according to their hemoglobin status

Table 1 Sociodemographic and clinical characteristics of the study subjects (n = 100)

<b>Variables</b>	<b>N</b>	<b>%</b>
Age		
>25	<b>89</b>	<b>89%</b>
<25	<b>11</b>	<b>11%</b>
Education Level		
<HSC	<b>42</b>	<b>42%</b>
>SSC	<b>58</b>	<b>58%</b>
Occupation		
Housewife	<b>79</b>	<b>79%</b>
Self-independent	<b>21</b>	<b>21%</b>
Family income		
Low income (10K)	<b>19</b>	<b>19%</b>
Middle income (15-20K)	<b>56</b>	<b>56%</b>
High income (up to 20K)	<b>25</b>	<b>25%</b>
Living area		
Village	<b>44</b>	<b>44%</b>
City	<b>56</b>	<b>56%</b>
Gestation age		
2 <sup>nd</sup> trimester	<b>17</b>	<b>17%</b>
3 <sup>rd</sup> trimester	<b>83</b>	<b>83%</b>
Gravida		
Primi gravida	<b>81</b>	<b>81%</b>
Multi gravida	<b>19</b>	<b>19%</b>

## Age

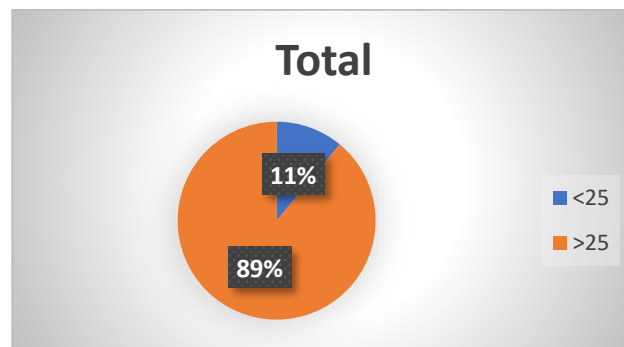


Figure 2: Frequency distribution of age

Here, we can see that under 25 years old women are 89% and 11% are up to 25 years old.

## Education

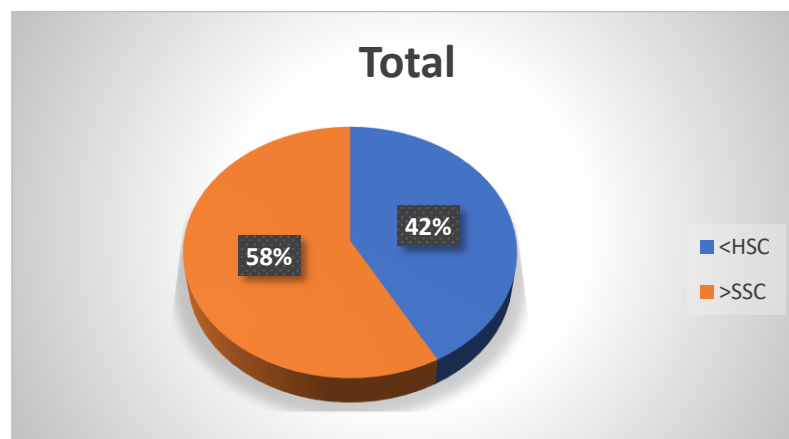


Figure 3: Frequency distribution of education level

From these 100 women, 42% are well educated like they are Higher secondary pass, some are university student also. And 58% are below secondary school pass, as much are not studying anymore.

## Occupation

In those women, 79% are housewife, and other 21% are self-independent as this 21% women are either job holder, or have own business.

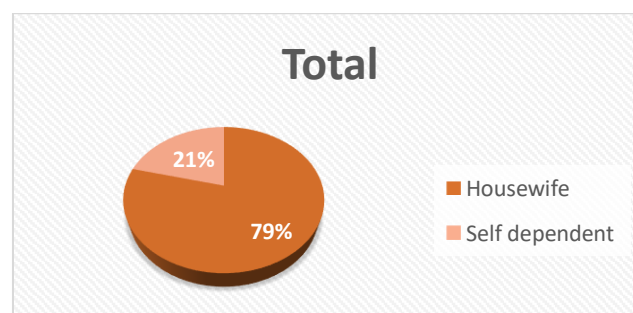


Figure 4: Frequency distribution of occupation

**Earning**

In total 100 women 19% have low income as their total family income is ten thousand taka or below it. 56% have middle income range. Their total family income is between 15 thousand to 20 thousand takas. 25% are in high income group. They earn more than 20 thousand taka.

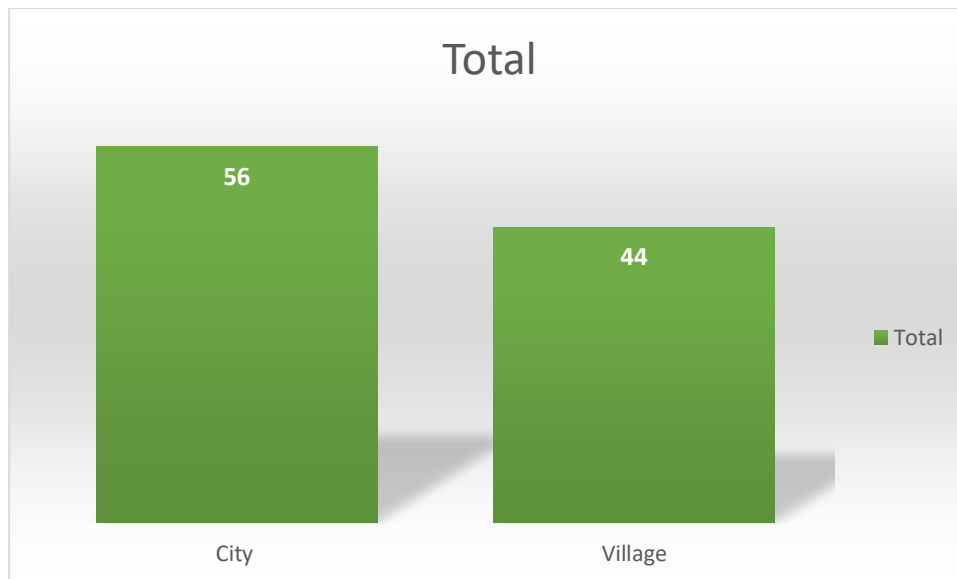
**Living area**

Figure 5: Frequency distribution of living area

44% women are from village and 56% of respondent live in city.

**Gestational Age**

From the data, it is evident that there were 17% women are in second trimester and 83% were third trimester.

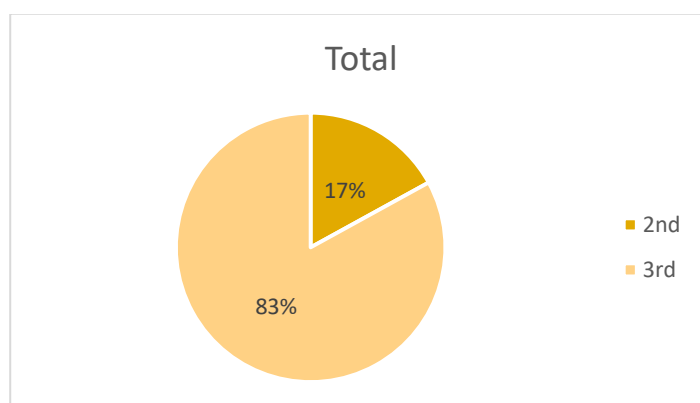


Figure 6: Frequency distribution of gestation age

## Gravida

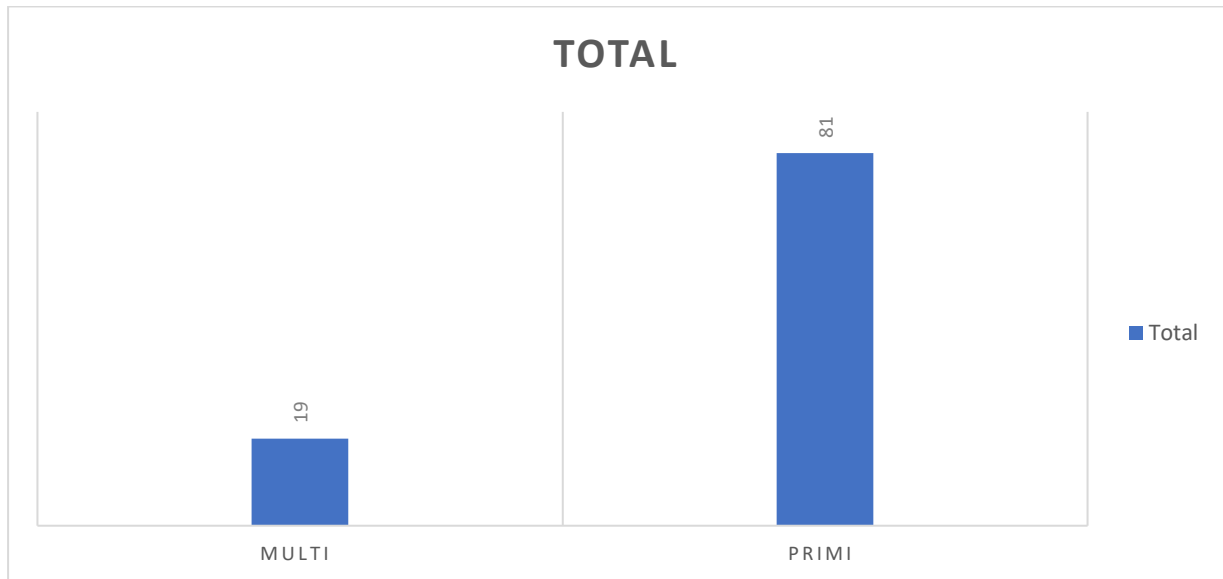


Figure 7: Frequency distribution of gravida

The term "gravida" can be used to refer to a pregnant woman. A "nulligravida" is a woman who has never been pregnant. A "primigravida" is a woman who is pregnant for the first time or has been pregnant once. A "multigravida" or "secundigravida" is a woman who has been pregnant more than once.<sup>[4]</sup> Primi gravida percentage is 81. And multi gravida is 19%.

The following pie chart shows relation between the percentage of age and gestation age with hemoglobin rate among the interviewed population

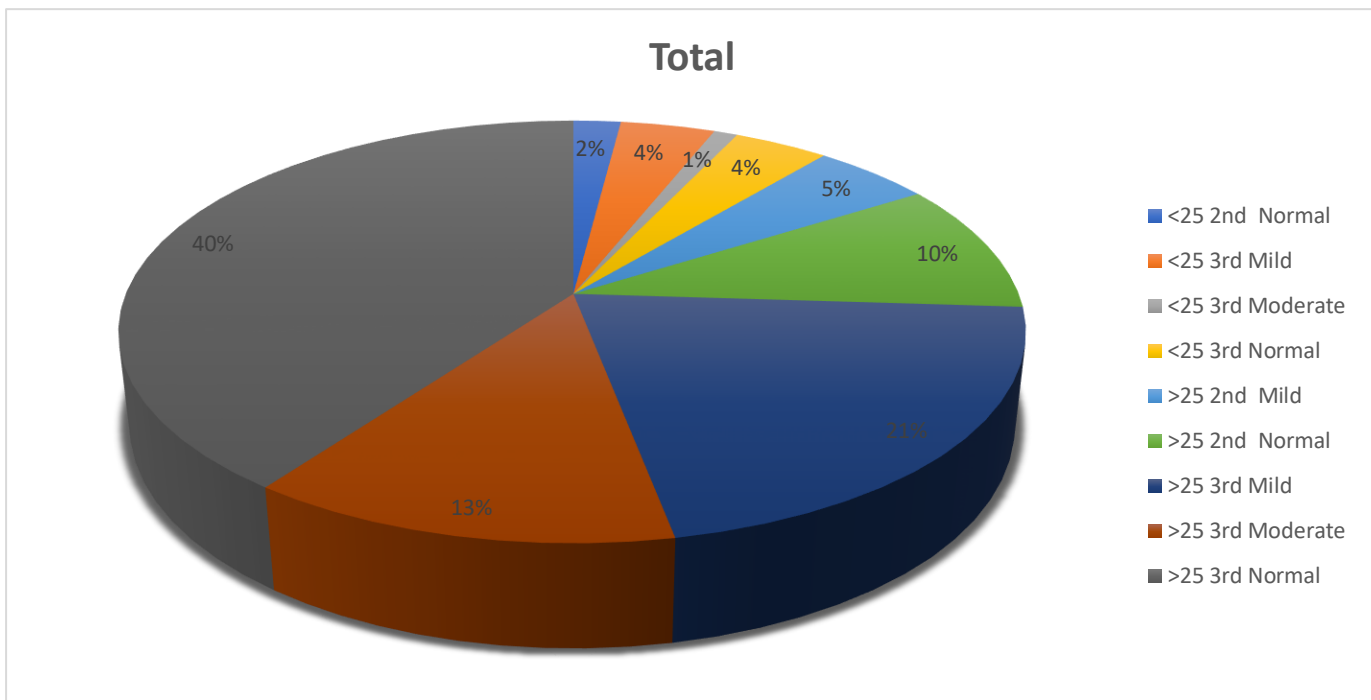


Figure 8: Hemoglobin relation showing with gestation age

As 89% were under 25 years old, among them 15% were in second trimester. In this 15%, 5% are in mild hemoglobin rate and 10% are in normal. Other 74% are in third trimester. In this percentage 21% are in mild, 13% are in moderate and 40% are in normal hemoglobin rate.

And other 11% which is up to 25 years old, among them 2% were in second trimester and in normal hemoglobin rate. Other 13% are in third trimester. In this percentage 4% are in mild, 1% are in moderate and 4% are in normal hemoglobin rate.

Table:2 Dietary characteristics associated with anemia and hemoglobin concentration in pregnant women

Characteristic	Mild (%)	Moderate (%)	Normal (%)
Meat consumption before pregnancy			
Never or >2 in a week	9%	7%	16%
<2 in a week	21%	7%	40%
Meat consumption after pregnancy			
Never or >2 in a week	10%	3%	21%
<2 in a week	20%	21%	35%
Chicken consumption before pregnancy			
Never or >2 in a week	5%	5%	13%
<2 in a week	25%	9%	43%
Chicken consumption after pregnancy			
Never or >2 in a week	7%	1%	12%
<2 in a week	23%	13%	44%
Egg consumed during pregnancy			
Never or >2 in a week	10%	3%	14%
<2 in a week	20%	11%	42%
Fruit and vegetable consumption in pregnancy			
Never or >2 in a week	7%	2%	6%
<2 in a week	23%	12%	50%

Here the percentage of meat consumption during pregnancy shows that the rate of normal hemoglobin rate is high who eat more than two times a week, compared to those who do not consume meat or have it less than twice a week. The percentage of mild and moderate anemia

who consume meat more than twice a week is 21 and 7, respectively; and those who eat meat less than twice a week are 9 and 7, respectively. Moreover, after pregnancy the percentage is different, but it shows that women have a normal hemoglobin rate those who eat more than twice a week compared to the women who do not eat meat or less than two times, and the percentage of those who consume more than two times is 20% (mild anemia), 21% (moderate anemia). Furthermore, those who never eat or less than two times have 10% and 3% of mild and moderate anemia, respectively.

The rate of chicken consumption before pregnancy shows that those who have normal hemoglobin percentage eat more than two times in a week compared to those who did not take or less than two times in a week. 13% have a normal rate who have never eaten or less than two times in a week and 43% are for who eat chicken more than two times in a week. For mild and moderate anemia, the percentage of women who consume chicken more than two times is 25% and 9%, the other side who consume chicken less than two times or never is 5%. The rate of mild and moderate anemia of those women who consume chicken less than two times or never is 7% and 1%. Also, the rate of those who eat chicken more than two times a week is 23% and 13%.

Those who consume eggs more than two times a week have normal hemoglobin compared to those who consume eggs less than two times or never in a week. For mild and moderate anemia, the rate for those who consume an egg more than two times is 20% and 11%, and who did not take an egg less than two times is 10% and 3%.

The fruit and vegetable consumption rate in pregnancies who eat those more than two times in a week is 50% normal hemoglobin and for those who did not take or less than two times is 6%. It shows that the rate of mild anemia and moderate anemia who take fruits and vegetables more than two times a week is 23% and 12%. Those who did not take or less than two times a week have 7% mild anemia and 2% moderate anemia.



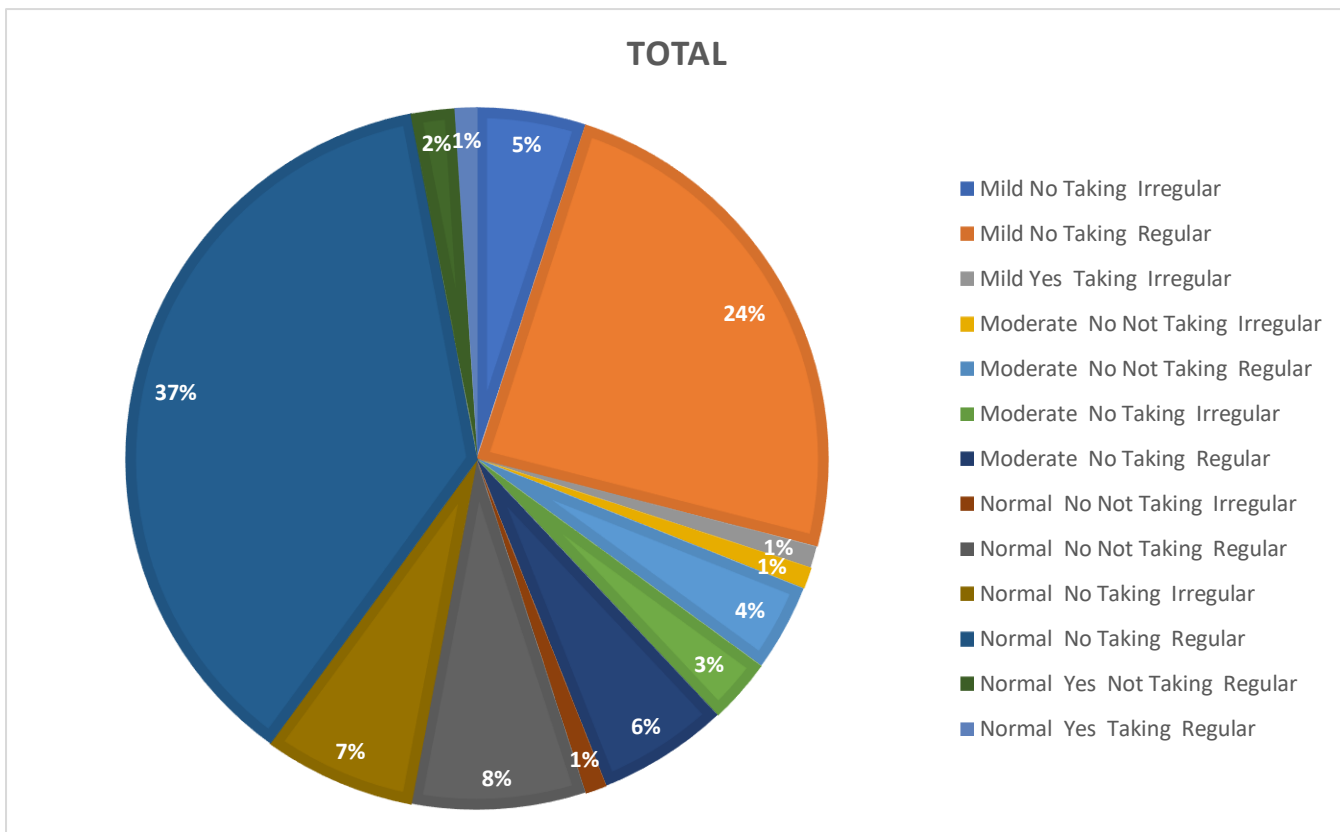


Figure 9: Hemoglobin percentage associate with health (Diabetics, Iron supplement and Period)

Pie chart shown in Figure 9 represents the relation of hemoglobin percentage with diabetics, period type and pattern of iron supplement intake after pregnancy.

This chart shows that 56% women are in the normal hemoglobin rate. Among this 56%, 53% of the people did not have diabetics. 9% of these women had not taken any iron supplement, where 1% have an irregular menstrual cycle and the rest had a regular period history. 37% women have had regular periods from the 44% women conducted taking the iron supplement. 3% women are diabetic with a regular periodic cycle and of which only 1% had been consuming the iron supplements.

14% are in moderate anemia, without being diabetic. 5% do not take iron supplements, with 1% irregular and 4% regular period history. 9% are taking iron with period history of irregular and regular is 35% and 6%, respectively.

30% of these women have mild anemia, only 1% of which are diabetic patients who intake the iron supplements and have regular menstrual cycle. 24% regular and 5% irregular period history, respectfully among the women that do not have diabetics.

## **CHAPTER FOUR**

### **Discussions**

## Discussions

According to the findings of the study, fifty-six percent have normal hemoglobin. Thirty percent are in mild anemia and fourteen percent are in moderate anemia.

Figure: 8 shows the relation between hemoglobin in age and gestation age. It shows that a large number of those aged under 25 were pregnant. And normal percentage of hemoglobin is 40 in the third trimester and 10% are in the second trimester.

The sample for the 1998 study on anemia and vitamin deficiencies in pregnancy was collected from a maternity and child health clinic in Dhaka City, Bangladesh. A random sample of 383 pregnant women (20–30 years old, 20–30 weeks along, and 40% anemic) were chosen [Ahmed et al., 2003]. According to earlier research in Bangladesh that estimated the prevalence, 37% of the women were anemic (mild 26% and moderate 11%), whereas 63% of the women had normal hemoglobin status [Chowdhury et al., 2015]. 2019 saw the completion of a research on the prevalence of anemia among expectant mothers in the Kustia district's private and public hospitals. 62.5% of respondents had anemia, of which 22.2% had mild cases, 38.2% had moderate cases, and 2.1% had severe cases. [Ahmed *et al.*, 2019]

According to estimates, anemia affects 60% and 52% of pregnant women in Asia and Africa, respectively, and between 1% and 5% of them are seriously anemic [Leenstra et al., 2004]. Anemia during pregnancy is more prevalent at 43% and 56% in developing countries compared with 9% and 18% in developed countries, respectively [Balarajan et al., 2011; Abriha et al., 2014].

Thus, it indicates that a substantial variation in the frequency of anemia exists within a country. Despite the given consequences of anemia in gestation, there's skimp information on the ubiquity of anemia in pregnant women in Bangladesh.

From the table: 2 women have normal hemoglobin rates separately for each topic of consuming protein-based food as meat, chicken, and egg and also fruits and vegetables. We know when a woman is pregnant, she has to produce more blood to support the baby's health. If the mother does not get a proper meal, then she will be too weak to produce blood, that time she will be caught by anemia. To reduce anemia, she has to eat more iron-containing food.

This table shows that the mothers who eat less protein get anemia, and their hemoglobin rate is low. To get healthy doctors prescribe them iron supplements.

In the majority of South Asian nations, anaemia contributes to higher rates of maternal and infant mortality and morbidity. Effective programs and programming for the prevention and control of anemia should consider the specific causes connected to anemia in each nation. Strategies to prevent and control anemia should focus in particular on pregnant women, light women, and women who have undergone sterilization in all nations. [Ahmed F, 2003].

## **Conclusion**

The study's purpose was the prevalence of anemia in pregnant women at Rajshahi. The study area is considered the Mother and Child Welfare Center of Rajshahi City. Women from both cities and nearby villages usually come to that hospital for their regular checkups during the pregnancy period. According to the study, it was revealed that the rate of anemia was 30% mild anemic, 14% moderate, and 56% possessed normal hemoglobin rate. Counseling about good dietary habits must be required to avoid such situations in the future.

## Appendix

### Questioner

1. Name
2. Age a) <25 b) >25
3. Educational level a) <HSC b) >SSC
4. Occupation a) Housewife b) self-independent
5. Monthly income a) 10k b) 15k c) 20k d) 25k+
6. living area a) city b) village
7. Gestational age \_\_\_\_\_
8. Age at first pregnancy \_\_\_\_\_
9. Gravida a) primi b) multi
10. Period type a) regular b) irregular
11. Dietetics a) yes b) no
12. Was there anemia before pregnancy a) yes b) no
13. history of miscarriages a) yes b) no
14. Suffering from any sort of hemoglobin disease a) yes b) no
15. % of hemoglobin a) 5-6g/dl b) 7-10g/dl c) above 10g/dl
16. Weekly amount of chicken to eat before pregnancy  
a) Never or >2 in a week b) <2 in a week
17. Weekly amount of chicken to eat after pregnancy  
a) Never or >2 in a week b) <2 in a week
18. Weekly intake of meat after pregnancy  
a) Never or >2 in a week b) <2 in a week
19. Weekly amount of beef consumed before pregnancy  
a) Never or >2 in a week b) <2 in a week
20. Weekly intake of eggs to eat after pregnancy  
a) Never or >2 in a week b) <2 in a week
21. Weekly intake of Eggs to Eat Before Getting Pregnant  
a) Never or >2 in a week b) <2 in a week
22. Weekly number of fruits and vegetable during Pregnancy  
a) Never or >2 in a week b) <2 in a week
23. Blood group \_\_\_\_\_
24. taking iron supplements, a) yes b) no

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