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Research Article

**FREQUENCY OF ANEMIA IN PREGNANT WOMEN IN OPD
OF GYNECOLOGY DEPARTMENT OF DHQ AND ALLIED
HOSPITAL FAISALABAD**¹Dr. Zanab Ali, ²Dr. Habib ur Rehman, ³Dr. Muhammad Adeel Zafar¹Govt General Hospital Ghulam Muhammad Abad Faisalabad²Tianjin Medical University, China³Lahore General Hospital**Abstract:**

Anemia is considered a severe public health problem by World Health Organization. The purpose of this study was to determine the prevalence of Anemia with associated risk factors in pregnant women. This study was done in OPD of gynaecology department of Allied hospital and DHQ hospital Faisalabad by using cross-sectional study. The study was conducted from 15th June 2014 to 15th August 2014 with the sample size of 30 pregnant women, selected through convenient sampling. Data was collected through questionnaire comprising of close ended questions including history of haemorrhage, intake of iron supplements, green leafy vegetables and meat, status of pregnancy either prim gravida or multigravida.

Anemia was more prevalent in 78% women who are uneducated, had poor sanitary condition, less intake of iron and meat, had history of heavy menstruation and postpartum haemorrhage.

Anemia in pregnant women is a public health problem, coexisting with iron, folate and vitamin B12 deficiency. Hence to overcome the prevalence of Anemia, Anemia control programs with reasonable care should be recommended.

Keywords: Anemia, pregnancy, postpartum haemorrhage, iron supplements.

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INTRODUCTION:

Anemia in pregnancy accounts for one fifth of maternal deaths worldwide and is a major factor responsible for low birth weight babies [1]. According to the United Nations (UN) estimate, approximately half of pregnant women suffer from Anemia worldwide. Anemia prevalence during pregnancy differed from 18% in developed countries to 75% in South Asia [2]. The World Organization definition for diagnosis of Anemia in pregnancy is haemoglobin concentration of less than 11gm/dl and a haematocrit of less than 0.33. Centre for disease control, USA proposes a cut off value of 10.5gm/dl in the second trimester [3]. Anemia is a major factor in women's health in developing countries. Severe Anemia during pregnancy is an important contributor to maternal mortality [4]. The causes of Anemia are multifactorial, including diet, infection and genetics, and for some of the commonest causes of Anemia there is good evidence of the effectiveness of simple intervention: for example, iron supplementation [5]. Pathological Anemia of pregnancy is mainly due to iron deficiency [6].

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-cell mass increase by 50% and 18-25% respectively, resulting in delusional decrease in Hb concentration called the physiological anemia of pregnancy, maximum at 32 weeks of gestation [7]. Anemia is the commonest medical disorder in pregnancy and has a varied prevalence, etiology and degree of severity in different population. Maternal anemia is important and is a common problem in pregnancy in developing countries like Pakistan. It is estimated that 1.20 million people are anemic globally [8]. Maternal anemia in pregnancy is commonly considered as risk factor for poor pregnancy outcome and can threaten the life of mother and fetus [9]. However, the extent to which the maternal hemoglobin concentration affects the fetal outcome is still uncertain. Some studies have shown a strong association between low hemoglobin level before delivery and an adverse outcome, [10] while other studies have not found a significant association [11]. The health-conscious world community has come to realize that anemia, the majority of which is due to iron deficiency, has serious health and functional consequences [12], is widespread especially among tropical-low income populations and that most of its nutritional component is controllable with a very high benefit/cost ratio.

Women of fertile age and pregnant-lactating as well

as their infants and young children are particularly affected [13, 14]. It is estimated that about 2,150 million people are iron deficient [15]. Anemia is the commonest medical disorder in pregnancy and has a varied prevalence, etiology and degree of severity in different populations, being more common in non-industrialized countries. The prevalence is 35% for non-pregnant women and 51% for pregnant women globally, and tends to be 3-4 times higher in non-industrialized than in industrialized countries [16]. Anemia affects about 18% of women during pregnancy in industrialized countries while in non-industrialized countries prevalence varies between 35-75% with an average being 56% [17].

Out of an estimated 150 million deliveries occurring worldwide annually, approximately 600,000 women die from the complications of pregnancy and childbirth, 35-40 million suffer serious acute complications and 15-20 million have long term complications. It is responsible for 40-60% of maternal deaths in non-industrialized countries [18]. It causes direct, as well as indirect, deaths from cardiac failure, hemorrhage, infection and pre-eclampsia. It also increases prenatal mortality and morbidity rates consequent to preterm deliveries, intra-uterine growth retardation, low iron stores, iron deficiency anemia and cognitive and affective dysfunction in the infant [19].

REVIEW OF LITERATURE

Anaemia in pregnancy is thought to be one of the commonest problems affecting pregnant women in developing countries. In 1993, the World Bank ranked anaemia as the 8th leading cause of disease in girls and women in the developing world. Data collected from all over the world indicate that a total of 2170 million people (men, women and children) are anaemic by WHO criteria. The most affected groups, in approximately descending order are pregnant women, the elderly, school children and adult men. In developing countries, prevalence rates in pregnant women are commonly estimated to be in the range of 40%-60%. Among non pregnant women this is 20%-40% and in school aged children and adult men the estimate is around 20%.20

Data from industrialised countries suggest that maternal anaemia and iron deficiency increases low birth weight and pre term birth risk. Low birth weight (either Intra Uterine Growth Retardation or prematurity) is the most important risk factor for infant mortality and significant detriment of childhood morbidity. 21. The haemoglobin concentration, haematocrit and red cell count fall during pregnancy because the expansion of the

plasma volume is greater than that of the red cell mass. However, there is a rise in total circulating haemoglobin directly related to the increase in red cell mass. This in turn depends partly on the iron status of the individual.²²

Due to lack of resources and lack of staff motivation, screening of anaemia is often done solely by clinical examination of the conjunctivae or is not carried out at all. A new colour scale for the estimation of haemoglobin concentration has been developed by the WHO. A study carried out in Malawi showed that the sensitivity using the colour scale was consistently better than for conjunctival inspection alone and intra observer agreement and agreement with coulter counter measurement was good. The haemoglobin colour scale is simple to use, well accepted, cheap and gives immediate results. It shows considerable potential for use in screening for anaemia in antenatal clinics in settings where resources are limited. ²³ Further work is ongoing to assess the potential of this tool for wide spread use as a screening method in antenatal clinics.

Plasma volume rises progressively throughout pregnancy with a tendency to plateau in the last 8 weeks. Women with multiple pregnancies have proportionately higher increment of plasma volume and in contrast women with poorly growing fetuses have a correspondingly poor plasma volume. Red cell mass increases steadily between the end of first trimester and term. As with plasma volume the extent of the increase is related to the size of the foetus. ²⁴ Thus women with multiple pregnancies are also at increased risk of anaemia. Although some studies have found that anaemia is more common among adolescents, this appears to be a result of the fact that adolescents are more often primigravidae. Two studies from Malawi confirm this finding. In a study carried out in Queen Elizabeth Central Hospital and Namitambo Health centre Malawi, university analysis showed an increased risk of anaemia for women under 20 years of age, but when corrected for gravidity and trimester at booking the increased risk with young age no longer existed. ²⁵

A study in the Shire valley area showed that adolescent primigravidae had the lowest mean haemoglobin concentration and the highest prevalence of anaemia (93.8%,n=495). Adolescent multigravidae, adult primigravidae and adult multigravidae had prevalences of 87.7% (n=144), 90.7% (n=322) and 88% (n=2614) respectively.²⁶ However, age was no longer associated with an increased risk of anaemia when adjusted for gravidity. During pregnancy, anemia is most often believed to result from nutritional deficiencies,

especially iron deficiency. The definition and identification of iron deficiency is problematic especially in situations in which chronic inflammation is present. The gold standard for identifying iron deficiency anaemia is still the examination of suitably stained bone marrow aspirates for storage iron as haemosiderin. This method is invasive, and therefore not suitable for population screening [27].

OBJECTIVE

To study the frequency of anemia in pregnant ladies.

MATERIAL AND METHODS:

STUDY DESIGN:

Cross-sectional study

SETTING:

OPD of gynaecology department of Allied Hospital & DHQ Faisalabad.

DURATION:

15th June 2014 - 15th August 2014. (2 months)

SAMPLE SIZE:

30 pregnant ladies.

SAMPLING TECHNIQUE:

Non probability convenient sampling

DATA COLLECTION PROCEDURE:

Face to face interview in the presence of interviewee

DATA ANNALYSIS:

Microsoft Excel spread sheet

QUESTIONNAIRE:

Closed ended questions

ETHICAL ISSUES: I have taken the informed consent from the participants and explained that all the data of patient will remain confidential. I have taken the permission from authorities (Head of departments).

RESULTS:

Results show that 80% of females were categorized as anemic. Among them anemia was more prevalent in uneducated women of age groups 18-31 years; living in rural population; having monthly income less than 10,000Rs.

Parity plays an important role, multipara women were more anemic, in addition excessive bleeding during menstrual period or post-operatively, low socioeconomic status, poor sanitary conditions at home resulting in hook worm infestation and less or no intake of iron supplements were found in more anemic.

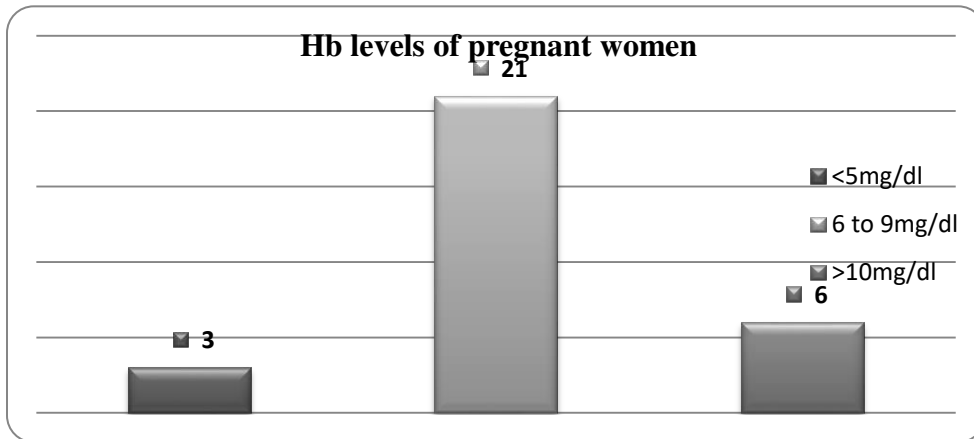
Bar chart-1: comparison of the number of anemic and non-anemic pregnant women

Inference: In a sample of 30 pregnant women 80% were found anemic

Bar chart-2: percentage distribution of living in rural and urban population

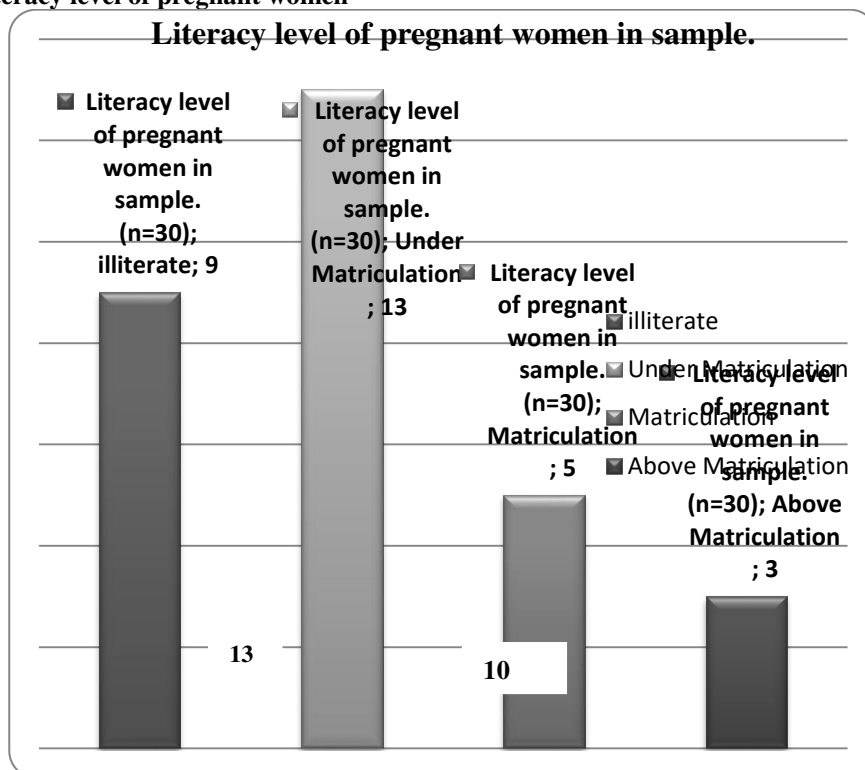
Inference: It shows that anemia is more prevalent in women living in rural areas 56.66% (17 women) as compared to urban areas.

Bar chart-3: Hb levels of pregnant women



Inference: It shows 70% (21) women had their Hb levels between 6 to 9gm/dl.

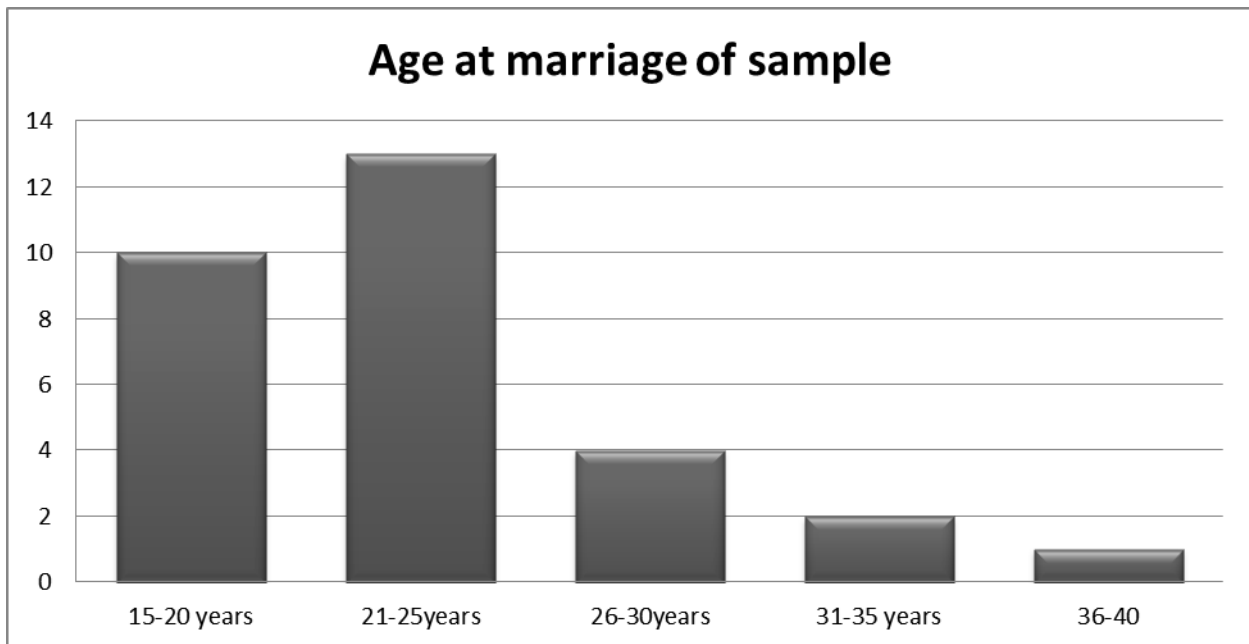
Bar chart 4: Literacy level of pregnant women



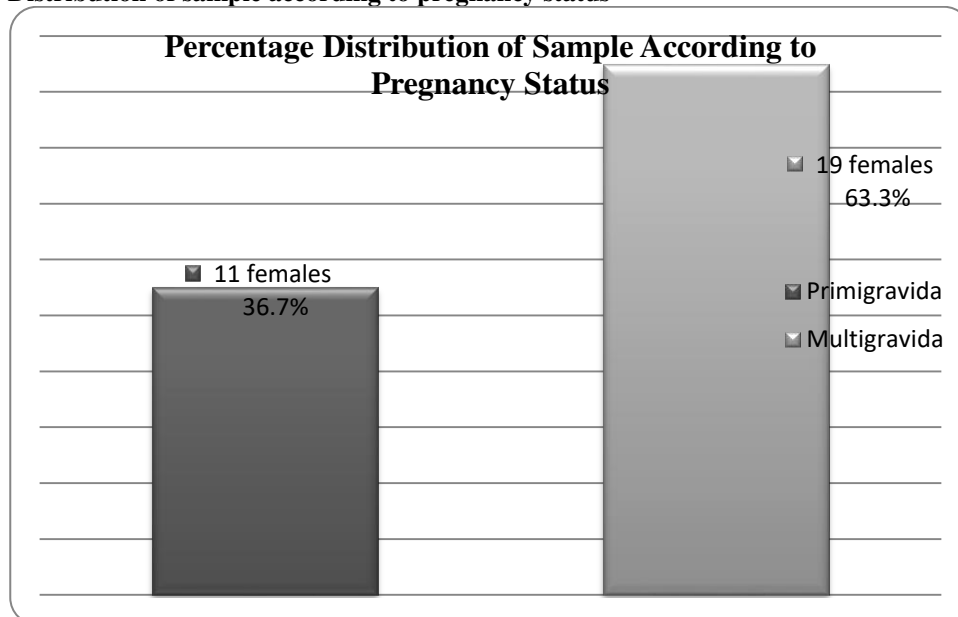
Inference: This shows that anemia is exhibited more in those women who had education less than matriculation (43.33%).

Bar chart-5: Age at Marriage of sample

Inference: Women who were married at less than 25years were more anemic 44%



Bar chart-6
percentage Distribution of sample according to pregnancy status



Inference: Anemia was more common in multigravida (63.3%) as compared to primigravida.

DISCUSSION:

Anemia is the most common cause of death of women in pregnancy worldwide. Moreover anemia is considered as a major cause of many fetal deformities. This may cause many anomalies in mothers as well. In our study conducted in year 2014, different area, population and time period make this research different from other studies conducted on

same topic. This study was another randomized, cross-sectional, questionnaire based and multicentric study for anemia in pregnant women. This study was in consistent with the study conducted on the same topic in India. That study showed a high prevalence of moderately severe anaemia (<10 g/dl haemoglobin) among young women of reproductive age attending health facilities. The values were

highest among women with suspected pelvic inflammatory disease who had impaired fertility, probably as result of this disease [28].

A study in Indonesia reported a 27.9% prevalence of anaemia (<12.0g/dl haemoglobin) among non-pregnant working women, 21.1% among adolescent girls, and 52.3% (<11.0 g/dl haemoglobin) among pregnant women [29]. In our study 82.2% of non-pregnant women and 79.6% of pregnant women fell below recommended value (<11.0 g/dl haemoglobin). It shows that women who don't have children had higher haemoglobin values than women having children. It supports the view that childbirth, lactation, and child-bearing tax a woman's nutritional condition. However, the magnitude of the effects of child-bearing on haematological status in this population was limited. The regression analysis showed a difference of -0.1 g/dl from the mean baseline haemoglobin value for each live birth, which is a small value. The explanation for this is probably the low mean number of children born to currently married women in Maharashtra State: 2.95, with a mean of 2.62 children still living [30]. In our study population, women had a mean of three pregnancies over an average reproductive span of 10 years [31]. The short reproductive span as a result of tubal sterilization at an early age (mean, 28 years) and short-term measures such as iron supplementation during pregnancy are likely to have mitigated some of the effects of child-bearing on anaemia, and may account for the absence of severe anaemia (<8 g/dl haemoglobin). The results of this study suggest that in India, interventions that focus on reducing fertility or on iron supplementation during pregnancy will have beneficial nutritional effects but will still leave most women iron deficient. In Mumbai the women studied were largely from poor backgrounds and probably had inadequate diets. However, the problem of under nutrition generally started much earlier in life, with gender discrimination resulting in under nutrition of girls [32-34], which was exacerbated by menstrual iron losses after menarche [35].

Another study conducted on reproductive health in EUROPE also states that the prenatal process data of 43801 women delivering between 1993-2008 (91% of all deliveries) in the largest university obstetric department in Germany were analysed and the association of Hb<8g/dl with maternal characteristics, pregnancy risks, delivery mode and estimated delivery blood loss were calculated, multi variable logistic regression models were applied to compute odds ratios. Additionally, the impact of these risk factors for delivery blood loss was

estimated with multi variable linear regression analysis [36].

Another study in areas of Multan shows that on the basis of rural and urban distribution 60% belonged to rural and 40% to urban population. Anemia was more prevalent in rural areas probably because of lack of health education, inadequate nutrition and improper medication. Similar observations were made in a study of anemia in pregnant women of Railway Colony, Multan. They observed that microcytic, hypochromic anemia resulting from iron deficiency was the most frequent of anemia (76%) followed by folate deficiency was 20% and combined iron and folate deficiency (20%). Biochemical and haematological parameters correlate during pregnancy. The haemoglobin, hematocrit and red cell count decreased during pregnancy. One factor may be the expansion of plasma volume. They were of the opinion that low level of haemoglobin might be due to inadequate food consumption, malabsorption, worm infestations or excessive menstrual bleedings [37].

Another study was found in consistence with our data conducted at Gilgit Pakistan. In a survey conducted to estimate the prevalence of anemia in females aged 14-65 years. The haemoglobin was estimated in each patient and out of 447 patients 376 females were pregnant and 71 were non-pregnant showing different reproductive complaints. Considering 11gm/dl as normal limit of haemoglobin level for the study population 43.1% patients were found to be anemic [37]. On the basis of blood picture, out of these 100 pregnant women, 80 were anemic and 20 non-anemic. When the pregnancy status was studied, it was found that out of 80 anemic females 12.5% were primigravida, 87.5% were multigravida and majority had 4-5 children already. Therefore, parity is an important factor in anemia. There was an increased prevalence in age group 36-50 years (62.5%) as compared to 18-35 years age (37.5%). Similarly as shown in above table, according to severity about 10% cases were severely anemic with blood haemoglobin levels less than 5gm%, 75% were moderately anemic with haemoglobin between 6-9gm%, 15% were mildly anemic with haemoglobin levels less than 10gm%. The symptoms frequently shown by the patients include easy fatigue-ability, pallor, headache and weakness (85%) each and fainting and breathlessness (10%). Infrequently observed symptoms include fainting, palpitation, nausea and abdominal pain (10%) each. A small number of cases exhibited symptoms as pica, craving for clay (5%) while almost 15% of cases were asymptomatic [38].

LIMITATIONS:

The sample size was 30 pregnant women. So larger sample size and multicentric studies are needed. The research was conducted on localized area where mostly the people were illiterate.

CONCLUSION:

After comparison and discussion of results it is concluded that anemia is more prevalent in females of age group 18-31 years (78%), and females who are malnourished, multigravida, having poor sanitary conditions at homes, taking no supplements and belong to low socio-economic status.

RECOMMENDATIONS

We should conduct anemia control seminars and introduce anemia preventing programs and policies. We should do our level best to decrease the prevalence of anemia and do health education of people.

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Annexure-1

QUESTIONNAIRE

We the student of 4th year MBBS are conducting research on
FREQUENCY OF ANEMIA IN PREGNANT WOMEN IN OPD OF GYANECOLOGY DEPARTMENT OF DHQ AND ALLIED HOSPITAL FAISALABAD
 NAME----- AGE----- ADDRESS-----
 Rural/Urban-----Husband Name----- Duration of Marriage-----
 Monthly income: <5000Rs ----- 5000Rs----- 10000Rs----- above-----
 Hb level-----<5gm/dl ----- 6-9gm/dl----->11gm/dl

1-Are you aware what anemia is?

Yes----- no-----

2-At which age you got married?

<20-----<25-----<30-----<35----->35-----

3-Is this your first pregnancy?

Yes----- no-----

4-If no then how many children do you have?

1--- 2---- 3----- 4---- more-----

5-Was it a normal delivery or c-section?

Normal----- C-section-----

6-Is there any history of heamorhage intra or post operatively in any surgery?

Yes----- no-----

7-Do you have following symptoms?

- | | |
|-------------------------------------|------------------------------|
| • Easy fatigue tiredness & weakness | yes---- no----- occasionally |
| • Fainting & breathlessness | yes---- no----- occasionally |
| • Pale skin, gums & nailbeds | yes---- no----- occasionally |
| • Headache & light headedness | yes---- no----- occasionally |
| • Palpitation | yes---- no----- occasionally |
| • Asymptomatic | yes---- no----- occasionally |

- 8- Have you got your Hb levels checked before?
Yes----- no-----
- 9- Is there any bleeding from natural orifices?
* Nose yes--- no---
* Mouth yes--- no---
* Anus yes--- no---
- 10- Any history of excessive bleeding during menstrual cycle?
Yes----- no-----
- 11- Is there any family history of bleeding disorder?
Haemophilia ----- Thalasemia----
- 12- Are you under weight?
Yes----- no----
- 13- How many times do you take meat in a week?
Once---- twice--- thrice----
- 14- How many times do you take green leafy vegetables in a week?
Once---- twice--- thrice----
- 15- Have you taken iron, folic acid supplement?
Yes---- no----
If yes then in which form
Oral----- injectable---- both----
- 16- What type of sanitary condition do you have?
Good----- fine---- poor---
- 17- Have you booked your present pregnancy?
Yes---- no----
- 18- Is your family caring during pregnancy?
Yes---- no---- occasionally---
- 19- what is your education level?
Illiterate-----under-matriculation-----matriculation-----above matriculation

Annexure-II**SAMPLE OF CONSENT FORM****INFORMED CONSENT**

Respected Participant,

You have been selected for this research study being conducted by Department of Community Medicine PMC, Faisalabad. This study is only for research purpose and your name and address will be kept confidential and only codes will be used for the data analysis. Your participation is voluntary and you may refuse answering any question.

Signature of interviewer -----

Signature of participant -----

Dated on: -----

Annexure-III**GANTT'S CHART**

Time for data collection	0-10 days	10-20	20-30	30-40	40-50	50-60
Data collection						
Data compilation						
Data analysis						
Data submission						