

## ORIGINAL ARTICLE

**A Retrospective Study on the Prevalence of Iron Deficiency Anemia Frequency in Rural Areas of District Faisalabad**AMIN ANJUM<sup>1</sup>, NIDA<sup>2</sup>, SHABANA KIRAN<sup>3</sup>, TARIQ MAHMOOD MALIK<sup>4</sup>, HAMZA ASHRAF<sup>5</sup><sup>1</sup>Assistant Professor of Medicine Medical Unit 4 DHQ Hospital Punjab Medical College/ Faisalabad Medical University<sup>2</sup>Assistant Professor of Physiology Avicenna Medical College<sup>3</sup>Lecturer Rehman medical institute, Peshawar<sup>4</sup>Associate Professor of Anaesthesia Bahria University of Health Sciences Karachi<sup>5</sup>PGR, Sheikh Zayed Hospital LahoreCorrespondence to: Amin Anjum, Email: [aminanjum1155@gmail.com](mailto:aminanjum1155@gmail.com)**ABSTRACT****Objective:** To evaluate the prevalence of different anemic grades in patients to give better treatment and to improve quality of life of patients.**Material and Methods:** This retrospective study was conducted to analyze the immensity of Deficiency of Iron Anemia in DHQ Hospital Faisalabad, and the duration of this study was from February 2021 to January 2022 to evaluate the prevalence and different stages of anemic patients. Two hundred patients were included in this study who met all the criteria needed to this study. In this study we examined blood tests, CBC reports of all patients in the laboratory. Moreover, including detailed patient's history, previous diseases, current diseases, anemia history in family, gynecological history of women were examined.**Results:** In all two hundred anemic patients, we found one hundred and seventy (85%) patients had deficiency of iron and 30 (15%) patients had inadequacy of non-iron (lack of other minerals) anemia. Most of the patients (58.8%) who had less volume of iron were aged of 21 to 32 Years. On basis of serum ferritin level (SFL), We observed the intensity of deficiency of iron and classify into modest, mildest and acute groups. We found 120 (70.6%) patients had modest IDA (iron deficiency anemia), 20 (11.8%) patients had acute and rest (17.6%) had mildest deficiency of iron anemia. In 160 IDA patient's women were 95 (55.9%), 40 (23.5%) were men > 19 years and 35 (20.6%) were growing children had an aged < 14 years.**Practical implication:** This study was conducted to evaluate the frequency of IDA to maintain a better treatment and to reduce the death ratio and to improve quality of life of patients affected by anemia.**Conclusion:** In this study, we observed deficiency of iron is the most frequent cause in patients of anemia, especially in females.**Keywords:** blood, Anemia, oxygen, Deficiency of Iron, hemoglobin level,**INTRODUCTION**

Anemia is the condition in which the volume of blood (hemoglobin level) to take oxygen is less than the required volume of blood in normal with respect to his sex, age, and physiological state <sup>1</sup>. Deficiency of iron anemia patients' population is increasing in all over the world, mostly in rural areas population. It may be due to lack of resources, no awareness, and less diet <sup>2</sup>. Iron deficiency is mostly observed in that state when need of iron is much important i.e. growing children and pregnant women. It is also found in elderly aged people due to less hemoglobin level, weakness, no healthy diet, and loss of blood in any incident <sup>3,4,5</sup>. Deficiency of iron anemia is the most common observation in whole world population.

The less Hb level than required volume has been measured for anemia definition as 12 and 13gm/dl in women and men. We can further categorize deficiency of iron anemia into modest, mildest and acute depends on their Hb values <sup>7,8,9</sup>. Anemia may cause due to deficiency of three main minerals such as iron, folic acid and VitB12 <sup>(5)</sup>. But we observed the most frequent and most common cause of anemia is deficiency of iron and it is similar to the other studies. According to the WHO research, about 20% to 30% of non-pregnant women and 50% to 60% of growing children found anemic in underdeveloped countries <sup>(6)</sup>.

There are many medical conditions that cause the anemia. The active blood loss through the injuries, iron deficiency and chronic anemia. The iron deficiency anemia is most prevalent in pregnant women (PW). In Iron deficiency anemia major causes include less intake of iron containing foods to meet the proper needs of Iron during pregnancy <sup>(7)</sup>. These causes may vary in different cases but mainly include nutrition deficiencies like insufficient intake of iron and other micronutrients like folate, vitamin B12 and Vitamin A. During pregnancy anemia cause damage for both mother and the health status of baby. It can result in premature delivery, low birth weight and improper development of baby's brain. Anemia is also related with the pre-term labor, pre-eclampsia (complication in pregnancy which causes coma or convulsions and maternal sepsis. Due to anemic mother during pregnancy babies also develops anemia in the first year after birth

<sup>(6,7)</sup>. The levels of serum ferritin used as "gold standard" for measuring the iron stores in body under normal conditions. Variance was observed in Ferritin level with gender and age. The concentration of ferritin in females remain low until menopause and then rise. The concentration of ferritin <15g/L in adults reflects iron deficiency, however, ferritin is an acute phase protein, so may also be increased in case of infection and inflammation <sup>(8)</sup>. That's why ferritin concentration alone does not necessarily showed iron deficiency. Similarly, increased risk of iron deficiency was reported in more advanced pregnancy, in the final trimester than in the first trimester. Therefore, in view of all above facts and severances of this medical condition during pregnancy more research is need of time in developing countries like Pakistan. In Pakistan, Deficiency of iron is the most common cause of anemia and mostly observed in pregnant women <sup>(12)</sup>. Different studies regarding to IDA have been conducted in different areas of Pakistan to examined/evaluate the frequency of this main health related disease <sup>(8,10)</sup>. This retrospective study was conducted to evaluate the frequency of IDA to maintain a better treatment and to reduce the death ratio and to improve quality of life of patients affected by anemia.

**MATERIAL AND METHODS**

This retrospective study was conducted to analyze the immensity of Deficiency of Iron Anemia in DHQ Hospital Faisalabad, and the duration of this study was from February 2021 to January 2022 to evaluate the prevalence and different stages of anemic patients. In this study two hundred patients were included and their Hb values were less than 9gram/dl. We were included the complete history of all the patients after taking their consent, regarding their age, sex, previous diseases history, current diseases, IDA history in family, loss of blood details, use of drugs, malaria, diarrhea, diet history and details, In women gynecological history.

In this study we conducted a detailed and complete examination of physical health of all the patients. We examined patient's blood tests, Hb Level, SFL, CBC reports were examined in the laboratory. Platelets were also counted. We considered SFL for acute ID is less than 14ng/dl. Hb values were considered to

examine the designated limit in women and men were ten to 12gm/dl.

## RESULTS

In this study, we observed that the deficiency of iron is the main cause of anemia in all the patients included in this study. From all two hundred patients, we found one hundred and seventy (85%) patients had less iron frequency (value) and 30 (15%) patients had non-iron anemia. Most of the patients (58.8%) who had deficiency of iron were aged of 21 to 32 years. On basis of serum ferritin level (SFL), We observed the intensity of deficiency of iron and classify into modest, mildest and acute groups. We found 120 (70.6%) patients had modest IDA (iron deficiency anemia), 20 (11.8%) patients had acute and rest (17.6) had mildest deficiency of iron anemia. In 170 IDA patient's women were 95 (55.9%), 40 (23.5%) were men > 19 years and 35 (20.6%) were growing children had an aged < 13 years.

Table 1: Deficiency Of Iron Anemia Patients

Characteristics	Frequency	Percentage
Deficiency of Iron	170	85
Men=40		
Women=95		
Children<13=35		
Deficiency of other minerals	30	15

Table 2: Age Wise Distribution of Patients

Participants	Frequency	Percentage
8-13	35	20.6
14-20	-	0
21-26	49	28.8
27-32	51	30.0
33-38	20	11.8
39-44	15	8.8

Table 3: SFL (Serum Ferritin Level)

SFL	Frequency	Percentage
F <14ng/dl	20	11.8
F 14-44	120	70.6
F 45-99	30	17.6

Table 4: Category Wise Distribution

Category/group	Percentage	Frequency
Modest IDA	120	70.6
Acute IDA	20	11.8
Mildest IDA	30	17.6

## DISCUSSION

Millions of people in the world have been affected by Anemia, it is due to many latent causes such as poor financial status, unhealthy diet, lack of awareness, poor literacy ratio in developed countries and also in rural areas of under developing countries<sup>(5)</sup>. These causes reflect the acuteness of this disease. In Pakistan, most of studies have been conducted on anemia/iron deficiency on growing children and females in different areas<sup>(10)</sup>. This study was conducted to evaluate the causes of Deficiency of iron anemia to provide better treatment and to reduce the morbidity.

We found that the frequency of deficiency of iron anemia is too high in this area of Pakistan. It may be due to lack of education, poor financial status, lack of health-related facilities, lack of awareness about IDA<sup>(1,12)</sup>. In this study we found IDA mostly in growing children and in females. In women deficiency of iron anemia ration was high due to their gynecological problems<sup>(13)</sup>. In this study the common reasons/causes/factors not included because our main focus was to examine the frequency of deficiency of iron anemia a most frequently problem regarding to health in the whole world<sup>(14,15)</sup>. Moreover, this is not sufficient research, we should have to evaluate the significance and factors related to this disease for better treatment and to reduce the morbidity and to improve the quality of life of anemic patients.

Another 375 million people are affected by mild iron deficiency anaemia. Approximately 610 million individuals, or 8.8% of the global population, have mild iron deficiency anaemia. It occurs significantly more frequently in females than in males, in kids, during pregnancy, and in older people<sup>(6)</sup>. Iron deficiency anaemia is the most typical cause of anaemia, according to the WHO. In erythropoiesis, iron is crucial<sup>(4,8)</sup>. The results of this investigation demonstrate that patients with anaemia lacked sufficient iron. This result supports the earlier study's conclusion that women of reproductive age are the group most impacted by iron deficiency<sup>(9)</sup>. Iron-deficiency an estimated 50% of all cases of anaemia are caused by the most prevalent kind of nutritional anaemia, anaemia, which is caused by a persistently poor iron balance<sup>(5,1)</sup>. The level of haemoglobin or haematocrit is severely low, indicating an iron deficiency. While it can affect persons of any age, it is more common and severe in young children and women who are of reproductive age. Usually, an iron deficiency does not become clinically apparent until severe anaemia has set developed<sup>(12)</sup>. IDA was present in 32.0% of Indian medical students, of which 44.0% were female and 20.0% were male. Similar to this, 3.8% of Iranian university students have IDA<sup>(4)</sup>. Additionally, the frequency of anaemia was reported to be 29.0% among Emirati students in the 18 to 24 age range<sup>(4)</sup>. Since of menstruation and societal conventions, female students are more likely to develop iron deficiency anaemia than male students because they receive a lower-quality diet. The most frequent cause of anaemia globally is iron deficiency, which is widely observed in general practice. By having red blood cells that are smaller than usual (microcytic) and having less haemoglobin than normal (hypochromic), iron deficiency anaemia is brought on by faulty haemoglobin production<sup>(5)</sup>. Haemoglobin contains iron, which limits the rate of erythropoiesis. The production of haemoglobin dominates the body's metabolism of iron. The body's total iron concentration typically stays within a small range since any iron lost via dietary iron absorption (about 10–30 mg per day) must be made up for. Iron is not really expelled but rather lost in desquamated cells, especially gastrointestinal epithelial cells. Women who are menstruating will lose an additional, highly variable quantity of iron, and women who are pregnant use iron at a rate that is around three to five times higher than that of healthy males. About 13% of the body's total iron is present in the storage forms of iron, ferritin, and hemosiderin.

## CONCLUSION

It is observed that deficiency of iron is most frequent cause of anemia mostly in women and growing age children. Many elements involved in the high frequency of this disease, such as poor financial status, low literacy level, awareness of nutrition and minerals etc. We should have to overcome to these factors so that the ratio of this disease could be decrease in this area of Pakistan.

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