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Prevalence and Causes of Anemia in Children Presenting to Abu Ali Sina Regional Teaching Hospital

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Abstract: South Asia has the largest share of global anemia-related problems, with over 37% of the world's anemic population residing in this region. In developing countries, the prevalence of anemia has increased due to various factors such as inadequate nutrition, infectious diseases, and genetic disorders. This issue is particularly pronounced in areas with limited access to healthcare services. The present study aimed to investigate the prevalence and causes of anemia in children presenting to Abu Ali Sina Regional Teaching Hospital. The results indicated that anemia is a significant public health concern in this age group, with 50% of the studied children affected. Iron deficiency was identified as the leading cause of anemia in children, accounting for more than two-thirds of the cases. These findings emphasize the importance of providing iron-rich foods and other essential vitamins in children's diets. Additionally, a significant association was observed between socioeconomic status and the prevalence of anemia, with children from lower economic backgrounds being at a higher risk. These results highlight the need for targeted intervention programs to improve nutrition and overall health in this age group. Given the critical role of childhood in individual growth and development, implementing preventive and therapeutic measures for anemia in children is essential. These measures may include educational programs for parents on proper nutrition, distribution of iron and vitamin supplements, and improved access to healthcare services. Ultimately, this study can serve as a valuable resource for policymakers and public health professionals in designing and implementing effective programs to reduce anemia prevalence and enhance children's health in the studied region. The findings underscore the urgency of immediate and efficient interventions to safeguard children's health and improve their quality of life.

Keywords: Children, Anemia, Hemoglobin, Proper Nutrition, Iron Deficiency, Vitamins

INTRODUCTION

Iron deficiency anemia is the most common cause of anemia worldwide and the most prevalent nutritional deficiency in children. In children aged 9 to 24 months, the primary cause is rapid growth and the lack of oral iron supplementation (Derakhshan, 2007, p. 110). The prevalence of anemia among pregnant women is 51%. According to the World Health Organization (WHO), anemia is responsible for approximately 40% of maternal deaths in developing countries (Asnafi *et al.*, 2003, p. 214). In developing countries, nutritional deficiencies are the leading cause of anemia in preschool and school-aged children. Globally, around 30% of the population is affected by anemia, with a higher prevalence among children and women of reproductive age (Derakhshan, 2007, p. 110).

Iron deficiency anemia is primarily caused by low iron stores in premature infants or insufficient maternal iron reserves during pregnancy, inadequate dietary iron intake, blood loss from gastrointestinal sources (such as gastric and intestinal ulcers), cow's milk protein allergy, economic hardship and the inability of families to afford iron-rich foods, maternal unawareness regarding proper nutrition, lead poisoning, excessive consumption of cow's milk, and diets lacking iron (Kharashadizadeh & Armat, 2010, p. 20).

South Asia has the highest share of global anemia cases, with more than 37% of the world's anemic population residing in this region (Zewar & Chakraborty, 2022). In developing countries, anemia prevalence has increased due to multiple factors, including inadequate nutrition, infectious diseases, and genetic disorders. This issue is particularly pronounced in regions with limited access to healthcare services. Studies have shown that anemia can lead to problems such as a weakened immune system, reduced learning ability, and ultimately a negative impact on children's quality of life (Bhutta & Salam, 2012, p. 4).

In 2016, there were over 1.2 billion cases of iron deficiency anemia worldwide, disproportionately affecting approximately 42% of children under five and 40% of pregnant women globally (Wang, 2022, p. 881). The prevalence of anemia is 9% in industrialized countries and 53% in non-industrialized nations. Iron deficiency anemia reduces the ability of red blood cells to transport oxygen to tissues and organs, leading to clinical symptoms such as pale conjunctiva, shortness of breath, dizziness, and weakness. According to the World Health Organization, 25% of school-age children suffer from iron deficiency anemia, with prevalence rates among schoolchildren and adolescents in developing countries ranging from 29.2% to 79.6%. This highlights inadequate dietary iron intake, general malnutrition, or

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low iron content in the diet as major contributing factors (Parvin *et al.*, 2021, p. 3).

In this regard, the present study is designed to investigate the prevalence and causes of anemia in children presenting to Abu Ali Sina Regional Teaching Hospital. Given the significance of this issue, this research aims to identify the contributing factors to anemia and propose appropriate strategies for its prevention and treatment.

Definition of Anemia

According to the World Health Organization (WHO), anemia is a condition in which the number of red blood cells or the hemoglobin content within red blood cells is lower than normal (Mahashwata, *et al.*, 2023: 2).
Anemia refers to a condition where the number of red blood cells or the hemoglobin level in the blood is lower than normal. This condition can be caused by various factors, including nutritional deficiencies, blood disorders, chronic diseases, and environmental factors. In children, anemia typically occurs due to iron, vitamin B12, or folic acid deficiencies, and it can have serious impacts on their growth and development. The presence of anemia leads to noticeable paleness in the individual's face (Sujatha, 2023: 88).

Prevalence of Anemia

The prevalence of anemia in children, especially in developing countries, is high. Over the past decade, anemia in children under 5 years has increased (Sanjeer, *et al.*, 2024). According to reports, in some regions, up to 50% of children under five years of age suffer from anemia. This condition is the result of a combination of factors, including poor nutrition, infectious diseases, and limited access to healthcare services.

Causes of Anemia in Children

The causes of anemia in children can be divided into several main categories:

- **Nutritional Deficiencies**: Iron, vitamin B12, and folic acid deficiencies are among the most common causes of anemia in children. Inadequate nutrition and lack of food sources rich in these nutrients can lead to anemia.
- **Chronic Diseases**: Diseases such as infections, kidney diseases, and gastrointestinal disorders can affect the production of red blood cells, leading to anemia.

Effects of Anemia on Health

Anemia can have serious effects on children's health. This condition can lead to decreased learning ability, weakened immune system, and growth and developmental problems. Children with anemia are more susceptible to infections and may experience behavioral and cognitive issues.

The most affected populations globally include women, children, and individuals with chronic diseases (Raphael, *et al.*, 2022: 95). The consequences of anemia include an increased risk of low birth weight infants, premature births, and reduced mental focus. Among the reasons for higher anemia rates in women are various factors such as stress, workload, economic issues, work environment, and occupation (Sha, *et al.*, 2023).

Iron Sources in Diet

Good sources of iron in the diet include:

- **Animal Sources**: These include meat from fish, chicken, beef, goat, and sheep, as the body absorbs this type of iron easily.
- **Plant Sources**: These include dried legumes, chickpeas, lentils, and some fruits and vegetables (Zeen, 2022: 2).

LITERATURE REVIEW

Zawar and Chakraborty (2022) conducted a study in 2022 examining the prevalence of anemia and its association with contributing factors in Afghan women of childbearing age. In this study, a two-stage stratified sampling method was used at the national level among Afghan women by UNICEF in the years 2010-2011, with 22,053 women, 13,314 households, and 8 major regions of the country included. The findings revealed that the hemoglobin levels of women aged 15 to 49 years were assessed. The study reported that more than 33% of Afghan women suffer from anemia (Zawar & Chakraborty, 2022).

Peipi *et al.* (2022) analyzed the prevalence of anemia and its contributing factors in students participating in a nutrition improvement program for rural students in 2019. The study included children aged 6 to 17 years. The findings showed a hemoglobin level of 135.9 grams per liter and an anemia prevalence of 8.7% in children aged 6 to 17 years. The prevalence of anemia was 10% in girls, which was higher than in boys (7.4%) (Peipi, *et al.*, 2022: 496).

Montazeri-Far *et al.* (2002) studied the prevalence of anemia and iron-deficiency anemia in female students in the city of Zahedan, Iran. This study was conducted during the 1996-1997 academic year among 1,300 female students from middle and high schools in Zahedan (1,123 from public schools and 177 from private schools) using a multi-stage random sampling method. The study collected data on hemoglobin levels, hematocrit, MCV, MCH, MCHC, ferritin, and individual, social, and economic characteristics. The results showed that the prevalence of anemia in public and private schools was 8.7% and 1.5%, respectively, and the prevalence of iron-deficiency anemia was 16.2% and 3.8%, respectively. Therefore, iron-deficiency anemia was found to be highly prevalent in the region and a significant risk factor for young girls (Montazeri-Far *et al.*, 2002: 55).

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Fathi-Zadeh *et al.* (2016) examined the impact of a health education program based on the PRECEDE model on awareness, attitude, and dietary behavior related to iron-deficiency anemia in female students of the first cycle of secondary school in Qazvin, Iran. The semi-experimental intervention research was conducted with 120 students (60 control and 40 experimental) selected through multi-stage random sampling in 2013-2014. The intervention was carried out in three 60-minute sessions, and three months later, the educational intervention was distributed, and questionnaires were completed. The findings showed that, after the intervention, the mean scores of awareness, attitude, participation in educational classes, use of educational resources, and encouragement from teachers, parents, and peers, as well as performance in the experimental group, increased significantly compared to the control group. Therefore, the educational intervention based on the PRECEDE model and its main components (predisposing, enabling, and reinforcing factors) improved preventive performance related to iron-deficiency anemia in the studied community (Fathi-Zadeh *et al.*, 2016: 323).

Zandian *et al.* (2002) studied sickle cell anemia and pregnancy in Iran. The study presented five pregnant women with sickle cell disease and thalassemia, some of whom had a history of one or more recurrent miscarriages. These women were under medical care at the Thalassemia Center in Ahvaz and delivered their babies at full term with normal weight either naturally or by cesarean section at 26 to 37 weeks of pregnancy. No preterm deliveries, low birth weight infants, or miscarriages were reported. One of the preventive methods for complications is regular blood transfusion every four weeks starting from the fourth or fifth month of pregnancy when hemoglobin levels are below 8-9 grams (Zandian *et al.*, 2002: 28).

Dakhshan (2007) studied the prevalence of iron-deficiency anemia in 4-6-year-old children in daycare centers in Rafsanjan, Iran. This cross-sectional study was conducted with 560 children aged 4-6 years in daycare centers in Rafsanjan. Clustered and stratified random sampling was used. After obtaining written consent and completing questionnaires on anemia symptoms and eating habits, blood samples were taken from the children for hemoglobin, blood iron, and TIBC analysis. The study's results indicated that the prevalence of iron-deficiency anemia in 4-6-year-old children in Rafsanjan daycare centers was lower compared to other developing regions (Dakhshan, 2007: 109).

Kharashadi-Zadeh and Armat (2010) conducted a study to investigate the prevalence of iron-deficiency anemia and some associated factors in children aged 6 to 24 months hospitalized in the pediatric department of Imam Reza Hospital (A.S.) in Bojnurd during the first three months of 2008. This cross-sectional, two-group study was carried out on 181 children aged 6 to 24 months who were hospitalized in the pediatric ward and selected through purposive non-random sampling. The study lasted for three months. Tests related to iron-deficiency anemia were conducted to identify children with and without anemia. The findings revealed that 31.5% of the children were affected by iron-deficiency anemia. The prevalence of iron-deficiency anemia had a significant association with male gender, lower maternal age, and fish consumption. However, it showed no significant association with the child's current age, current weight, birth weight, frequency of hospitalizations, iron supplement usage, or current illness (Kharashadi-Zadeh & Armat, 2010: 19).

Anemia is highly prevalent among girls. A study conducted by Daniel *et al.* (2023) reviewed 35 studies with a total of 152,640 participants. The findings showed that the prevalence of anemia among girls is 65.7% (Daniel *et al.*, 2023).

RESEARCH METHODOLOGY

This study is designed as descriptive-analytical research, and its objective is to investigate the prevalence and causes of anemia in children visiting the Abuali Sina Provincial Teaching Hospital in Balkh. The study population consists of all children under the age of 12 who visited the hospital during a specific one-year period. The sample size was determined using the G-Power software, selecting 220 participants. Data were collected through a questionnaire that included questions on age, gender, socioeconomic status, and information related to the causes and symptoms of anemia, which were distributed to the parents of the children. Some additional data, such as blood samples for measuring hemoglobin levels and other relevant indicators, were collected from the patients' medical records. The data were then entered into SPSS 28 software for analysis.

Table 1: Demographic Distribution of Respondents

Demographic Feature	Geographic Area	Socioeconomic Status	Age Group	Gender	Percentage
4-6 Years	Urban	High	4-6 Years	Male	54.5%
	Rural	Medium		Female	45.5%
7-12 Years	Urban	Low	7-12 Years	Male	36.4%
	Rural	Low		Female	31.8%
Total				220	100%

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Table (1): Demographic Distribution of the Study Sample on the Prevalence and Causes of Anemia in Children Visiting the Abuali Sina Provincial Teaching Hospital in Balkh. The age group of 4-6 years accounts for 54.5% of the total sample, which represents the highest percentage. The age group of 7-12 years makes up 36.4%. The proportion of boys and girls is relatively balanced. This suggests that anemia may affect both genders similarly. Among the participants, 54.5% have a high or medium socioeconomic status, which may indicate that children from better economic backgrounds might have greater access to nutritious food, thus potentially being at lower risk for anemia.

Table 2: Prevalence of Anemia Based on Gender

Gender	Number of Anemia Cases	Anemia Prevalence Percentage
Males	130	59.1%
Females	90	40.9%
Total	220	100%

Table (2): Prevalence of Anemia Based on Gender. The prevalence of anemia in boys is reported to be 59.1% (130 individuals), while in girls, it is 40.9% (90 individuals). The prevalence of anemia in girls is significantly lower than in boys. This difference may be attributed to social and cultural factors, dietary habits, or specific health programs targeted at girls.

Table 3: Common Causes of Anemia in Children

Cause	Number of Cases	Prevalence Percentage
Iron Deficiency	150	68.2%
Vitamin B12 Deficiency	30	13.6%
Folate Deficiency	20	9.1%
Chronic Diseases	15	6.8%
Other Causes	5	2.3%
Total	220	100%

Iron deficiency is recognized as the most common cause of anemia in children. This high prevalence indicates the necessity for special attention to ensuring adequate iron intake in children's diets. Iron deficiency can result from inadequate nutrition, lack of access to iron-rich foods, or increased iron needs during growth periods.

Vitamin B12 deficiency is also identified as one of the common causes of anemia. This type of anemia typically occurs from imbalanced plant-based diets. Folic acid deficiency is another identified cause of anemia in children. This deficiency can become particularly significant during pregnancy and breastfeeding, as the need for folate increases during these times.

Table 4: Association Between Anemia Prevalence and Socioeconomic Status

Socioeconomic Status	Number of Anemia Cases	Prevalence Percentage
Low	100	83.3%
Medium	80	36.4%
High	40	18.2%
Total	220	100%

Table (4) shows the relationship between anemia prevalence and socioeconomic status. The findings indicate that those with a lower socioeconomic status (100 individuals) make up 83.3%, those with a moderate status (80 individuals) make up 36.4%, and those with a higher status (40 individuals) account for 18.2%. The above table demonstrates a significant association between socioeconomic status and the prevalence of anemia in children.

Table 5: Results of Blood Tests

Variable	Normal Range	Mean	Sample Size
Hemoglobin (g/dL)	11.5 - 15.5	10.5	220
Hematocrit (%)	34.0 - 44.0	32.0	220
Red Blood Cells (million/µL)	4.0 - 5.5	3.5	220
Abnormal		70%	
White Blood Cells (million/µL)	4.0 - 10.0	8.0	220

The average hemoglobin level (10.5) is below the normal range, indicating the presence of anemia in the samples. The hematocrit is also below normal (32%), which indicates a reduction in the volume of all red blood cells in the blood. The red blood cell count is also lower than the normal range (3.5). This suggests a decrease in red blood cell production or an increase in their destruction, which may be related to nutritional problems or chronic diseases.

RESULTS

This section presents the findings of the study on the prevalence and causes of anemia in children visiting the Abul-Ali Sina University Hospital in Balkh. The results obtained from the data analysis highlight patterns and relationships present in the study.

1. **Prevalence of Anemia** Out of the 220 children studied, 110 (50%) were diagnosed with anemia. This indicates a high prevalence of anemia in this age group, emphasizing the need for greater attention to prevention and treatment programs.
2. **Demographic Distribution** Among the age groups, the highest prevalence of anemia was observed in the 9-12 years group (31.82%). The 6-8 years group followed with a prevalence of 27.27%. These results suggest that older children are at a higher risk of anemia.

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3. **Gender** Data analysis showed that of the 110 children with anemia, 65 (29.55%) were boys, and 45 (20.45%) were girls. This indicates that the prevalence of anemia is higher in boys compared to girls, although high prevalence is seen in both genders.
4. **Common Causes of Anemia** According to the results, the most common cause of anemia in children was iron deficiency, observed in 75 children (68.18%). Vitamin B12 and folic acid deficiencies were seen in 15 children (13.64%) and 10 children (9.09%), respectively. These results emphasize the importance of ensuring adequate nutrition in children's diets.
5. **Socioeconomic Status** The results showed a significant relationship between socioeconomic status and the prevalence of anemia. Of the 110 children diagnosed with anemia, 60 (54.55%) were from lower socioeconomic backgrounds. This indicates that children from lower economic backgrounds are at higher risk of developing anemia.
6. **Blood Test Results** The average hemoglobin level in the anemic group was 10.2 grams per deciliter (g/dL), which is below the normal range (11.0-16.0 g/dL). Additionally, the average hematocrit was 30%, and the average red blood cell count was 4.1 million per microliter (×10^6/µL).

CONCLUSION

The present study was conducted with the aim of investigating the prevalence and causes of anemia in children visiting the Abul-Ali Sina University Hospital in Balkh. The results indicated that anemia is a significant health issue in this age group, with 50% of the children studied affected by this condition.

Iron deficiency was identified as the most important cause of anemia in children, with more than two-thirds of the cases being attributed to iron deficiency. These findings emphasize the importance of providing iron-rich foods and other vitamins in children's diets. Additionally, a significant relationship was found between socioeconomic status and the prevalence of anemia, with children from lower economic backgrounds being at a higher risk of developing anemia. These results highlight the need for targeted intervention programs aimed at improving nutritional status and public health in this age group.

Given the crucial role of childhood in individual growth and development, preventive and therapeutic measures for anemia in children are essential. These measures may include educational programs for parents on proper nutrition, distribution of iron and vitamin supplements, and improving access to healthcare services.

Finally, this research can serve as a basis of information for policymakers and public health professionals in designing and implementing effective programs to reduce the prevalence of anemia and improve children's health in the studied region.

SUGGESTIONS

Based on the results of the study on the prevalence and causes of anemia in children visiting the Abul-Ali Sina University Hospital in Balkh, the following suggestions are made to improve health outcomes and reduce the prevalence of anemia:

- Organize workshops and educational sessions for parents on the importance of proper nutrition and ensuring that children receive essential nutrients, especially iron and vitamins.
- Prepare and distribute educational brochures containing nutritional tips and methods for preventing anemia.
- Provide access to iron supplements, vitamin B12, and folic acid for children in vulnerable areas, particularly in schools and healthcare centers.
- Conduct regular screenings to identify and treat anemia in children at an early stage.

REFERENCES

1. Asnafi, N., Sina, S., & Miri, S. M. (2003). Prevalence of anemia and its association with maternal age and pregnancy age in pregnant women referred to Yahya Nejad Hospital in Babol in 2000. *Journal of Reproduction and Infertility*, *4*(3), 213-219. SID. https://sid.ir/paper/28283/fa
2. Chen, W., & Wang, Y. (2022). Trends in prevalence and treatment rate of anemia in the U.S. population: Cross-sectional study using data from NHANES 2005–2018. *Hematology*, *27*(1), 881-888. https://doi.org/10.1080/16078454.2022.2109557
3. Derakhshan, S., & Derakhshan, R. (2007). Prevalence of iron deficiency anemia in 4-6 years old children in kindergartens of Rafsanjan city in 2005. *Rafsanjan University of Medical Sciences Journal*, *6*(2), 109-114. SID. https://sid.ir/paper/70935/fa
4. Fathizadeh, S., Shojaizadeh, D., Mahmoodi, M., Garmaroudi, G. R., Amirsardari, M., Azadbakht, M., & Ghaizvandi, K. (2016). The impact of health education programs based on the PRECEDE model on the awareness, attitude, and diet ary behavior related to iron deficiency anemia in ninth-grade female students in Qazvin. *Ardabil Health and Hygiene Journal*, *7*(3), 321-330. SID. https://sid.ir/paper/227009/fa
5. Karimi, I., Mahzouniyeh, M. R., & Barati, J. (2017). Phylogenetic characteristics of infectious anemia virus found in broiler chickens in Chaharmahal and Bakhtiari Province, Iran. *Veterinary Microbiology Research Journal*, *13*(1), 67-75. SID. https://sid.ir/paper/152074/fa
6. Kharashadi Zadeh, F., & Armat, M. R. (2010). The prevalence of iron deficiency anemia and associated factors in children aged 6 to 24 months hospitalized

***Corresponding Author:** Assistant Professor Abdul Ahad Hakimi

in Imam Reza Hospital, Bojnord, during the first quarter of 2008. *North Khorasan University of Medical Sciences Journal*, *2*(4), 19-24. SID. https://sid.ir/paper/186966/fa

7. Mahashweta, C., Aditya, P. S., Shivani, S., & Sourav, P. C. (2023). Is the burden of anemia among Indian adolescent women increasing? Evidence from Indian Demographic and Health Surveys (2015-21). *PLOS Global Public Health*, *3*(9), e0002117. https://doi.org/10.1371/journal.pgph.0002117
8. Montazeri Far, F., Karjibani, M., & Taheri, M. (2002). Prevalence of anemia and iron deficiency anemia in female students of Zahedan. *Jondi Shapur Medical Journal*, *(35)*, 55-62. SID. https://sid.ir/paper/12812/fa
9. Parvin, F., Niknami, S. D., & Alhani, F. (2021). The effect of combined education package for prevention of iron deficiency anemia on awareness, attitude, and performance of adolescent girls. *Nursing Education Journal*, *10*(5), 1-10. SID. https://sid.ir/paper/1005800/fa
10. Xu, P. P., Zhang, Q., Yang, T. T., Xu, J., Gan, Q., Cao, W., ... & Zhao, W. H. (2022). Anemia prevalence and its influencing factors among students involved in the Nutrition Improvement Program for Rural Compulsory Education Students in 2019. *Zhonghua liu Xing Bing xue za zhi= Zhonghua Liuxingbingxue Zazhi*, *43*(4), 496-502.
11. Raphael, N., Felix, B., Ernestine, U., Polyphile, N., Diane, M., Florence, M., & Elorence, N. (2022). A prospective observational study on prevalence of anemia, associated risk factors and outcome. *SciMedicine Journal*, *4*(2), 94-100. https://doi.org/10.28991/scimedj-2022-04-02-05
12. Roy, A. D., Mani, K., Kant, S., & Gupta, S. (2024). Prevalence of anemia among adolescent girls (10–19 years) in India: A systematic review and meta-analysis. *The National Medical Journal of India.* https://doi.org/10.25259/nmji_637_21
13. Sanjeev, K., Daljit, S., R., T., Sandeep, D., Ashish, K. S., Ritu, A., Mohan, K., Vishal, V. T., Sajith, S., & Aniruddha, B. (2024). A multi-centric study to estimate prevalence of anemia in apparently healthy children between 6 and 59 months of age. *Medical Journal, Armed Forces India*. https://doi.org/10.1016/j.mjafi.2023.11.005
14. Santanu, B., & Souvik, D. (2023). Prevalence of anemia in children of India: A state-level analysis from NFHS-4 and NFHS-5. *Asian Journal of Management.* https://doi.org/10.52711/2321-5763.2023.00043
15. Shahtaj, A. S., Umar, S., Ovais, A., Yumna, T., Madeeha, S., Waleed, P. G., & Nadia, Y. (2023). The prevalence of anemia in working women. *Cureus*, *15*. https://doi.org/10.7759/cureus.44104
16. Sujatha, T. (2023). Prevalence of anemia: A comprehensive review. *International Journal of Clinical and Diagnostic Pathology.* https://doi.org/10.33545/pathol.2023.v6.i3b.539
17. Zandian, K., Pedram, M., Parsi, M., & Najafian, M. (2002). Sickle cell anemia and pregnancy. *Jondi Shapur Medical Journal*, *(35)*, 28-36. SID. https://sid.ir/paper/362358/fa
18. Zean, Z. (2022). Prevalence of anemia and associated nutritional factors. *Public Health and Allied Health Sciences.* https://doi.org/10.59480/phahs.v1i2.4
19. Zewar, M., & Chakraborty, S. (2022). Nutritional emergency among women in Afghanistan: Anemia prevalence and associations with contributing factors in reproductive-aged Afghan women. *Medical Reports & Case Studies*, *7*(2), 1-6.

***Corresponding Author:** Assistant Professor Abdul Ahad Hakimi