

ORIGINAL ARTICLE

Frequency and Risk Factors of Anemia Among Adult Female Population of District Swat Khyber Pakhtunkhwa Pakistan

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ABSTRACT

Background: Globally, anemia is the most common problem and affecting approximately 15 to 30% of adult population and the most common nutritional deficiency worldwide. According to WHO, anemia is more prevalent in children and women and too many etiological factors are responsible for its causation. The main objective was to assess the frequency and risk factors of anemia among the adult female population in District Swat Khyber Pakhtunkhwa Pakistan.

Material and Methods: A descriptive cross sectional study was conducted from June to December 2021, in the district Swat, in which n=211 female individuals were selected through simple random sampling technique of age 18 years and above. Woman was termed as anemic if the HB level is below 10gm/ dl. A structured questionnaire was used to collect data and analyzed by SPSS version 19.0 and finally the results were presented in form of tables.

Results: The results showed that 29.86% of adult female populations in the study populations were found anemic. 54.50% were married, 56.40% had monthly income less than 25000 PKR pm, 22.27% were housewives, 17.54% were illiterate, 21.33% had 3 or more children, and 15.17% were under-weight. Moreover, 63.98%, 43.60%, 21.33%, and 62.08% had history of iron supplements intake, had history of acute and chronic infections, had single food intake per day and less or equal to two time meat intake per week respectively.

Conclusions: It was concluded that anemia among female adults had mild to moderate frequency and showed relationship with marital status, number of children, socioeconomic determinants, history of iron intake, acute and chronic diseases; and frequency of food and meat intake per day and week respectively, and thus health education and awareness services were needed to prevent and control anemia among the female adults.

Keywords: Anemia, Female, Risk Factor, Illiterate, Iron Intake, Meat, Swat.

INTRODUCTION

Globally; anemia is a one of the most common and chronic public health problem and affects children, young adults and old age people^{1,2,3}. Anemia is more prevalent among low socioeconomic status individuals, and showed significant strong association with food intake, nutrition status of individuals, acute and chronic medical conditions, and iron supplements⁴. Common prevalent medical problems like malaria, cardio-vascular diseases, diabetes mellitus, GIT disorders, cancers, and inflammatory bowel disease showed significant relationship with anemia^{5,6}. In most of the developing countries; anemia results from improper food intake, acute or chronic blood loss, worms infestations, chronic debilitating diseases and female gender pose a risk to development of anemia. Moreover, beside pathologic conditions; certain eating habits and poor periodic medical examinations and checkups affect the overall prevalence of anemia among the female populations^{7,8}.

Anemia among the female individuals has many consequences and thus is the major cause of morbidity and mortality of females both in developing and developed countries⁹. Moreover, approximately more than 2/3rd of the female population has experienced anemia in low- and middle-income countries; whereas in South Asian, African, and low-income countries, the prevalence of anemia is much higher as compared to the developed and western countries^{10,11}.

Globally; anemia is a major public health concern and is related to gender, age, pregnancy, illiteracy, intake of iron supplements, and food and meat intake frequency¹². The low family monthly income, pregnancy, gynecological problems, less birth interval, no iron supplementation, and more than 2 children per family are the well-known factors affecting anemia among the female adults. Moreover, approximately 40% of female experiencing pregnancy are anemic and worldwide, the prevalence of anemia in South Asia and Africa was high^{13,14}. Furthermore, anemia is also highly prevalent among low socio-economic status, working mothers, unemployment, poor intake of vegetables and fruits; and in countries with less human and financial resources¹⁵.

¹⁶. Moreover, many national and international studies confirmed and indicated that poor and no intake of iron supplementation is also one of the main important significant risk factors of anemia among the female populations^{17,18}.

According to the 2019, FWO/ WHO (World Health Organization) report, the estimated anemic population globally is 1.7 billion, and is estimated that 20% of women were anemic¹⁹. In a study conducted in Uganda, it also revealed that the prevalence of anemia was high in 3rd trimester as compared to 1st and 2nd trimesters and thus indicated that regular periodic medical examinations and iron supplements intake are important for female in child bearing ages^{20,21}. Moreover, anemia during pregnancy is a severe public health problem and resulting in many complications during and after pregnancy. According to WHO, Anemia is particularly prominent in South Asia and approximately 75% of pregnant women are affected²².

Pakistan is a developing country, and having high prevalence of communicable and non-communicable diseases. Moreover, due to multiple socio-economic determinants, anemia is common among the adult female individuals and thus prone to many complications during lifetime. Therefore this cross sectional study was conducted to estimate the frequency of anemia and risk factors among female adult population; so to prevent and reduce the prevalence of anemia and its associated complications among the adult female population of District Swat, Khyber Pakhtunkhwa Pakistan.

METHODOLOGY

After taking ethical approval, a descriptive cross sectional study was conducted from June to December 2021, among the local community of district Swat. A total of n=211, adult female individuals, permanent resident of District Swat, Khyber Pakhtunkhwa Pakistan; were selected. The simple random sampling technique was used in which female age 18 years & above; agreed to participate in the study were enrolled, along with informed written consent for blood collection. Woman with HB level below 10gm/ dl were labeled as anemic. A structured

questionnaire was used to collect data regarding the socio-economic determinants and well know epidemiological factors affecting anemia. Data was analyzed by SPSS version 19.0 and finally the results were presented in form of tables.

RESULTS

Table 1: Showing Frequency & Percentage Of Anemia Among Adult Female Population (N=211) Of District Swat Khyber Pakhtunkhwa Pakistan

| S. No | HB Levels | Outcome | F | % |
|-------|---------------|-----------|-----|-------|
| 1 | HB < 11 gm/dl | Anemia | 63 | 29.86 |
| 2 | HB > 11 gm/dl | No Anemia | 148 | 70.14 |
| Total | | | 211 | 100 |

Table 2: Demographic Characteristics Of Adult Female Population (N=211) Of District Swat Khyber Pakhtunkhwa Pakistan

| Demographics | Variables | F | % |
|-----------------------|----------------------|-----|-------|
| Age | < 30 years | 93 | 44.08 |
| | 30-40 years | 65 | 30.81 |
| | 40 & above | 53 | 25.12 |
| Family Monthly Income | < 25000 | 119 | 56.40 |
| | 25000 – 40000 | 55 | 26.07 |
| | > 40000 | 37 | 17.54 |
| Occupations | Housewife | 47 | 22.27 |
| | Job | 91 | 43.13 |
| | Studying | 73 | 34.60 |
| Educational Status | Middle | 23 | 10.90 |
| | Secondary | 71 | 33.65 |
| | Intermediate & above | 80 | 37.91 |
| | Illiterate | 37 | 17.54 |
| Marital Status | Married | 115 | 54.50 |
| | Unmarried | 96 | 45.50 |

Table 3: Risk Factors of Anemia Among Adult Female Population (N=211) Of District Swat Khyber Pakhtunkhwa Pakistan

| Variables | Response | F | % |
|-------------------------------------|-------------|-----|-------|
| No of Children | None | 107 | 50.71 |
| | 1 & 2 | 59 | 27.96 |
| | 3 & 4 | 32 | 15.17 |
| | > 4 | 13 | 6.16 |
| | | | |
| BMI | Underweight | 32 | 15.17 |
| | Normal | 97 | 45.97 |
| | Overweight | 53 | 25.12 |
| | Obese | 29 | 13.74 |
| History of worm infestation | Yes | 30 | 14.22 |
| | No | 181 | 85.78 |
| Taking Iron Supplements | Yes | 135 | 63.98 |
| | No | 76 | 36.02 |
| History of Any Acute Disease | Yes | 59 | 27.96 |
| | No | 152 | 72.04 |
| History of Any Chronic Disease | Yes | 33 | 15.64 |
| | No | 178 | 84.36 |
| Frequency of Meals Per Day | One | 45 | 21.33 |
| | Two | 61 | 28.91 |
| | > 2 | 105 | 49.76 |
| Frequency of Meat Per Week | None | 19 | 9.00 |
| | 1 & 2 | 112 | 53.08 |
| | 3 & 4 | 49 | 23.22 |
| | > 4 | 31 | 14.69 |
| | | | |
| Frequency of Energy Drinks Per Week | None | 81 | 38.39 |
| | One | 72 | 34.12 |
| | Two | 37 | 17.54 |
| | > 2 | 21 | 9.95 |

DISCUSSIONS

In our study, the prevalence of anemia among the studied female population was 29.86%. Thus our results of anemia prevalence were less as compared to national and international studies showing prevalence of 42.7% and 56.8% respectively^{23, 24}. Moreover, our study results were high as compared to a study published in Journal of Family Medicine and Primary Care by Suryanarayana R et al., 2017, revealed approximately 62.7% of anemia among female population²⁵. Furthermore, according to a study conducted by Nyamu GW et al., 2020: found that

approximately 56% of pregnant women were anemic and thus our study results also showed that 54.50% of adults female were married; and due to multiple socio-economic determinants are at risk of development of anemia²⁶.

Globally, the most important and significant risk factor of anemia is multi-parity and many international studies showed that increase in the number of pregnancies and less birth intervals between two subsequent pregnancies, increases the risk to anemia²². Moreover, many international studies found that large family size and multi-parity increases risk to anemia^{12, 27}; as was revealed and supported by our study results in which 49.29% of female adults had more than one child and thus showed consistency with international study (Table 3).

In a study conducted internationally by Tariq N et al., 2015; & Campos P., 2021; in European Commission, Gynecology; found that anemia is more common among female adults and can be effectively prevented by supplementation of iron and by increasing interval space between subsequent pregnancies^{28, 29}. In our study, approximately 14.22% of female adults had history of worm infections and such findings were also reported by many international studies with prevalence ranged from 10% to 30% among female populations^{5, 7}. Thus our study results were consistent with international findings.

In our study, approximately 62.8% of female adults had history of iron supplementation and was reported by many national and international studies which supported and recommended iron supplementation during pregnancy^{16, 30}. In an international study conducted by Qadir SY et al., 2021, and published by The Professional Medical Journal, found that approximately 44.7% of Ethiopian pregnant women were undernourished on MUAC assessment; whereas in our study only 15.17% of female adults were malnourished and had BMI less than 19; and thus our study results revealed less prevalence of malnourishment among female adults²⁰.

Many international studies reported that women with low socio-economic status; unemployment, illiteracy, less family monthly income had high prevalence of anemia as compared with those with satisfactory socio-economic status, educated, having job, and sufficient family monthly income^{18, 31}. Moreover, in our study, 43.60% of female adults had positive history of acute and or chronic medical conditions as was revealed and supported by many international studies which showed strong relationship of anemia with medical conditions among female adults^{12, 32, 33}.

Many international studies found that healthy dietary pattern and frequency of diverse food intake with rick quantities of fruits and vegetables along with iron supplements prevents and retards development of anemia. Many international studies reported strong and significant relationship of anemia with fruits and meat consumption frequency per day and per week^{7, 27}. Our study results that those female adults who took iron supplements, had more than two times food intake per day and more than two time meat intake/ week gave only 29.86% of anemia among female adults³⁰. In our study, approximately 78.67% had more than two time food intake per day; and 91% of adult female had more than two times of meat intake per week and that might be the reason that our study results showed less prevalence of anemia (29.86%). In our study, 91% had regular meat intake per week, while in a study conducted in Philippines by Yamashita T et al., in 2021; revealed that nearly 31% of female consumed meat³⁴.

In an internationally study conducted in Pakistan in 2020, and published in The Professional Medical Journal; reported that 96% and 66.6% had eaten meat and fruits more than two times per week respectively while in our study 91% had consumed more than 2 times meat per week²⁰. Moreover, in our study, 21.33% had single intake of food per day and thus showed similar findings of anemia (29.86%) among the female adults^{30, 31, 35}.

Dietary pattern along with fruits, vegetables and their frequency per day and week were the significant determinants which predisposes female to anemia. In our study, about 61.61% of adult female had history of fruits consumption per week;

whereas in international studies published in in 2021 & 2022 revealed that approximately 64% of females had fruits consumption per week; and thus our study supported the findings of previous international study ^{35, 36, 37}.

CONCLUSIONS

From the results, it was concluded that anemia among the studied female adults had mild to moderate frequency. Moreover; anemia among female adults showed relationship with age, marital status, children per female, literacy level, and family monthly income. Furthermore; BMI of adult female, history of iron intake, acute and chronic medical conditions; and frequency of food, fruits and meat intake showed relationship with anemia among female adults and thus health education and awareness services, food guidance, promotion of fruits and vegetables and iron supplementations strategies were needed to prevent and control anemia among the female adults.

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