Anemia and Dietary Association among Women in Pakistan

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Abstract

Undernutrition among mothers is one of the leading morbidity and death in mothers are caused by a variety of factors, especially in underdeveloped countries. Anemia is a serious public health problem related with pregnancy, especially in developing nations like Pakistan. The goal of the current research was to assess the prevalence of anaemia, the effect of food on anaemia, and the relationship between anaemia and diet. Civil Hospital Liaquat University of Medical and Health Sciences Lumhs Hyderabadwas examined. A total of 500 pregnant females in their third trimester were monitored and followed up on following delivery. Changed personal characteristics, nutritionalmemories, biomarkers, and other elements were acquired using a well-designed questionnaire. The data from the forms was then implicit for use in the SPSS for analysis utilizing the chi-square test. Anemia is a moderate public health issue among pregnant females in Hyderabad, according to the current study, with more over half of the participants having reduced iron levels. Only 12% of the participants were judged normal. The overall anaemia prevalence in the research sample was 66.9% (95 percent confidence interval, 61.1–72.3), according to the findings. Anemia is a serious public health

condition that affects pregnant women. Low iron intake and poor eating habits were likely to blame for our participants' high prevalence of anaemia. Due to time limits and other circumstances, the study's findings may not be generalizable. The researchers concluded that dietary association is a decent proxy predictor for micronutrient sufficiency in pregnant women, but that adding the quantity of food taken can provide a better insight of the drivers of nutritional status in pregnant women. Maternal anaemia is still an important communitywellbeing issue that has to be addressed, particularly in developing and underdeveloped nations.

Keywords: Anemia, Dietary Associations, Pregnant Women, Pakistan.

1. INTRODUCTION

WRA anaemia is a global public health issue linked to increased morbidity and death in women of reproductive age, according to Stephen et al. (2018).According to the World Health Organization (WHO) (2021), it is also a symptom of poor nutrition and welfare, as well as a link in children, there is a lack of cognitive and motor-neurological development. According to WHO, (2021) WRA (15-49 years) make up one-third of the population, putting their children's nutrition and health at danger. According to the World Health Organization, (2017) the prevalence of anemia among pregnant femalesdiffersextensively around the world. In 2019, anaemia was found in 36.5 percent of pregnant women, 29.6% of non-pregnant females, and 39.8% of children aged 6-59 months over the world. According to Black et al. (2013), the highest rate of anemia is found in low- and middle-income countrie's pregnant females. While pregnant women in South America had the lowest rate (24.1 percent). Among Africa has the highest rate of anaemia in pregnancy (57%) among WHO areas, followed by South-East Asia (48 percent)and Europe (47%) correspondingly (WHO, 2021).

According to Sekhavat et al. (2011) around 18 percent of pregnant women in industrialized nations and 56 percent of pregnant women in underdeveloped countries suffer from anaemia throughout pregnancy. Only South Asian countries accounted for more than half of the deaths. India alone was responsible for 80% of the deaths, thanks to Soundarya and Suganthi (2017). Din et al. (2019) found that in Pakistan, in urban regions, 26% of married women aged 15 to 44 had anaemia, while in rural areas, 47% of married women aged 15 to 44 had anaemia. Pregnant women in metropolitan areas were equally susceptible to anaemia, with rates ranging from 29% to 50% among those accessing prenatal clinics at a big private tertiary hospital in Karachi (Ansari et al. 2008).

Anemia is classified in general based on the cause. Nutritional anaemia is caused by a micronutrient deficiency, such as iron, folate, riboflavin, and vitamins A, B12, and C, which are necessary for blood production. Heavy menstruation, higher iron requirements during pregnancy and in growing children, chronic infections (such as tuberculosis, HIV, hookworm, and malaria), and poor iron absorption, transport, and storage, including haemoglobinopathies, are among the other causes of anaemia, according to Gautam et al. (2018).Nutritional iron deficiency (ID) is a condition caused by low dietary iron intake, increased iron demand and/or iron loss, and decreased iron bioavailability from staple foods, according to Simbauranga et al. (2015). Anaemia is linked to a higher risk of negative maternal (e.g., ante-partum and post-partum haemorrhage) and perinatal (e.g., intrauterine foetal growth retardation, preterm birth, stillbirth) health outcomes, poor physical and cognitive development, and stunting in children in women of childbearing age (Kozuki et al. 2011).

Furthermore, in middle- and low-income countries, maternal nutritional insufficiency is a severe public health problem, with unfavourable mother and child health outcomes, as a result of resource-limited women eating a monotonous diet, according to USAID (2015). Although the required intake of most nutrients increases during pregnancy, when compared to WHO recommendations, most of pregnant females still have insufficient nutritional intake (2016). According to the World Health Organization, (2011) approximately half of all pregnant women suffer from anaemia, 9.8 million suffer from night blindness, and an estimated 19.1 million suffer from low serum retinol concentration.According to the Global Nutrition Report (2018), every year 20 million babies are born with low birth weight overall in the world, and maternal malnutrition causes 800,000 neonatal deaths each year due to births that are too small for age of conception (Bhutta et al. 2013).

Dietarypointers of pregnant women in Pakistan are quite low, according to the Pakistan National Nutritional Survey (2011). According to Ansari et al. (2008) food instability, lack of information and understanding about healthy foods, misconceptions and taboos, cultural practises, and gender discrimination are the most significant issues impacting dietary diversity and nutritional status of pregnant women in Pakistan. There appears to be a considerable link between maternal nutrition and foetal growth. According to Saad and Fraser, (2010) poor maternal nutrition causes unfavorable birth outcomes like low-birth-weight newborns, premature intrauterine growth retardation and delivery. Similarly, proper maternal nutrition leads to a healthy delivery outcome, hence Abu et al. (2011) recommends that an expectant mother's diet be balanced and diverse. Dietary patterns are linked to socioeconomic factors Age, education, occupation, parity, race, and ethnicity are all factors to consider. In pregnant women, increased age and education have been linked to a healthy and varied nutritional intake.Females who have less education, are unemployed, and have more children are more likely to eat an unhealthy, non-diverse diet (Northstone et al. 2007).

Anemia has been identified as anoutcome of a nutritional shortage in the people. The chance of as a dearth is higher in initial childhood likewise throughout pregnancy in females. According to Ansari et al. (2008) this is because growth in these time periods necessitates more iron than in other time periods. The underlying study intended to evaluate the status of anaemia and dietary association in a Pakistani hospital, in light of the concept's importance. It is critical to quicken the speed with which research in this sector is being conducted in order to deal with the difficulties as they arise. The study's research goals include:

- To determining the prevalence of anaemia.
- To determine the anemia-related risk factors.
- To see if there's a link between anaemia and food habits.
- To see if nutrition therapy can help with anaemia management.

The goal of this study is to analyze pregnant women who are now anaemic and learn how their diet contributed to their condition and how it may be controlled with adequate nutritional interventions to lower because there's a chance, you'll have troubles with both your mother and your baby.

1.1 Problem Identification

The aim of this current research was to assess the anaemialevel of pregnant women in Pakistani hospitals, likewise, to learn in what waynutritionalfeatures influence their illness state and in what way adequate nutritional therapies might help reduce the risk of maternal problems. Without a hesitation, it is regarded as one of the most serious public health problems not only in Pakistan, but

also around the world. Anemia not only affects a woman's health during pregnancy, but it can also lead to a lack of other essential micronutrients and a faulty fetal-maternal relationship result.

1.2 Problem Statement

The incidence of anemia in pregnant females, as well as its prevention and intervention, has been one of WHO's primary concerns around the world. Still, not only in underdeveloped countries, but also in developed countries, this is an underappreciated issue. The developing world, on the other hand, bears the brunt of the damage because to the severity, duration, and depletion of supplies. Furthermore, it is vital to address its symptoms early on in order to prevent patients from developing moderate or severe forms of anaemia.

2. METHOD

2.1 Data Collection

Civil Hospital Liaquat University of Medical and Health Sciences Lumhs Hyderabad where data was collected. The information was gathered by visiting each patient one at a time. The patient's file and reports were used to fill out the pre-designed questionnaire. They inquired about their eating history and memories in the presence of a family member. Their current state, on the other hand, was also conferred with their particular health-care practitioner.

2.2 Project Design

The information was gathered using a pre-designed questionnaire. It contained demographic, personal, and nutritional information, as well as medical history facts. Their medical history was also inquired about, including current prescriptions, weight, height, eating habits, tea consumption, and physical signs and symptoms are all factors to consider.The questionnaire asked about the patient's title, age, residence, qualification, occupation, monthly salary, gestational week, similarity, pregnancy, age of the last born, health history, recent medical status, LFTs, haemoglobin levels, mean corpuscular volume (MCV), hematocrit, and mean corpuscular volume haemoglobin. A blood CP report is also included to analyze the patient's condition. Their medical history was also inquired about, including current prescriptions, dietary supplements, weight, height, intakeways, tea taking, and physiological indications and symptoms. Queries about a pre-designed food frequency questionnaire were also asked. For the purposes of this study, 500 questionnaires were employed in total. Questionnaires were received from Civil Hospital Liaquat University of Medical and Health Sciences Lumhs Hyderabad respondents.

2.3 Participants

The members in this research were third-trimester pregnant females. Females in their first and second trimesters of pregnancy were not allowed to participate. A total of 500 pregnant women were approached for the purpose of filling out the survey in direction to obtain actual data.

2.4 Analytical Methods

The study's participants were given a standardized questionnaire to fill out in order to collect data. Pregnant women who visited the common OPD and interviews were conducted with patients admitted to the Gynecology ward for this purpose, and their files were read to collect the essentialdata. As part of the individualaspect, sociodemographic history, and health and nutritional history, information liketitle, age, qualification, job, family revenue, gravidity, parity, medicinal history, test centerstandards, food habits, and lifestyle variables were obtained.

2.4.1 Data Analysis

Following the data assemble, the following stage was to evaluate the data in order to gain useful insights. A statistical programme called SPSS was utilised for this. To begin with the analysis section of the analysis, the data was first coded according to the software's specifications. The Chi-square test was chosen like the best fit for the present research. This assessment determines whether or not there is a considerable difference or relationship between several elements.

3. RESULTS AND DISCUSSIONS

First, all of the raw data was entered into Excel sheet. The data was correctly organized on distinct sheets with codes such as 0, 1, 2, 3, 4, and so on. After that, all of the prepared data from 500 females was imported to SPSS version 23.0. Data was also reorganized in this section so that the results could be accurately analyzed. The last statistical method, chi-square, was used with the help of SPSS. This allowed researchers to see if the findings of several determinants were related to the patients' hemoglobin levels in a significant or non-significant way.

3.1 Distribution of Monthly Income

Because the majority of the women are husbands and wives of housewives are labourers, their monthly salary is also between 10 and 20 thousand dollars, accounting for 42.2 percent of the total. Only 6.6 percent had a monthly income of more than $50,000, as seen in Figure 1. Because the p-value is more than.05, or 0.500, the outcome of the relationship got from the chi-square test demonstrates that there is no relation between the patients' financial level and the prevalence of anaemia.
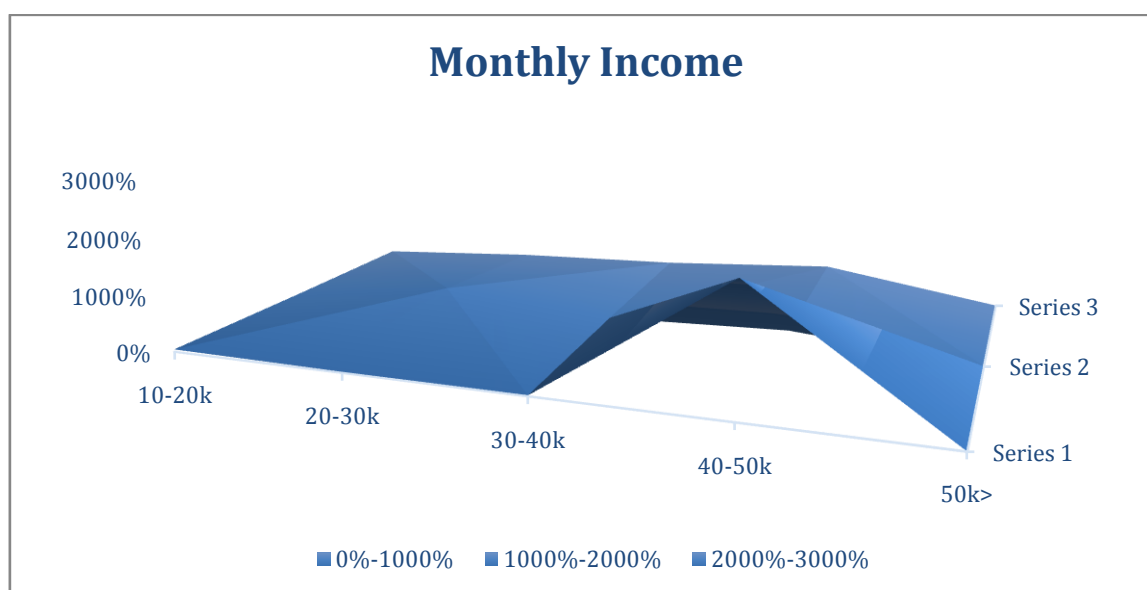

Figure 1. Monthly Income Distribution in Percentage

3.2 Distribution of Fruits Intake

Because the women were pregnant, they consumed a variety seasonal fruit such as apple, guava, pomegranate, and others are consumed on a daily basis. In this research, 63.2 percent of women eat 1-2 servings of fruits daily, 18.8 percent eat 2-3 servings, 8% eat 3-4 servings weekly, and 10% eat only 1-2 servings of fruits monthly.
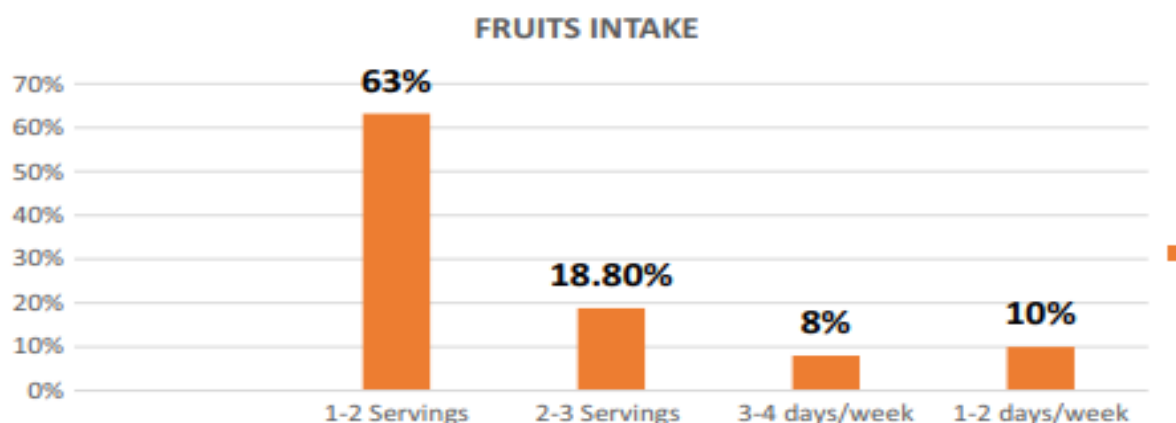
Figure 2. Percentage Distribution of Fruit Intake

3.3 Distribution of Intake of Meat and Its Substitutes

According to the findings of present research, 55.8% of pregnant women consume 1-2 servings of meat or meat alternatives, such as eggs, pulses, legumes, and beans. Because they are poor or detest it, 25.5 percent consume 1-2 servings each week.
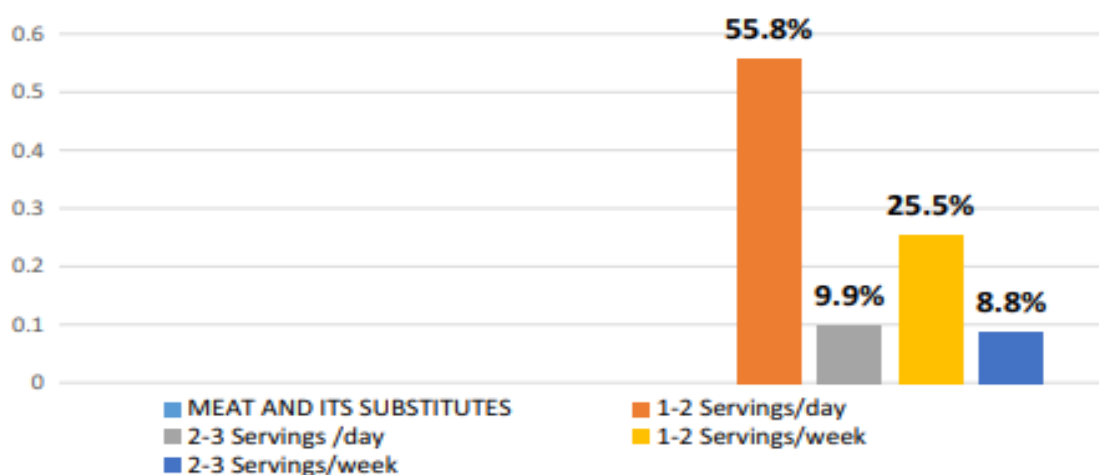

Figure 3. Meat and Meat Substitutes Consumption as a Percentage of Total Intake

3.4 Distribution of Type of Pregnancy

Table 1 demonstrates that just five females were pregnant with twins, while the remaining 495 were pregnant with a single child. We learned from this data that the most of ladies born a single child.

Table 1. Pregnancy Type Distribution of Frequency and Percentage

Types of Pregnancy	Frequency	Percentage	Valid Percent	Cumulative Percent
Single	495	99.0	99.0	99.0
Twin	5	1.0	1.0	100.0
Total	500	100.0	100.0	

3.5 Distribution of Menstrual Bleeding

Menses bleeding is another factor to consider. Prior to pregnancy, the majority of the pregnant women experienced normal bleeding. Heavy, normal, light, and extremely light were the classifications. Table 2 demonstrates that before pregnancy, 74.4 percent and 13.4 percent of women had light and normal monthly bleeding, accordingly, whereas only 7.4 percent and 4.8 percent experienced very light and heavy periods bleeding, accordingly.

Table 2. Menstrual Bleeding Frequency and Percentage Distribution

Menstrual Bleeding	Frequency	Percentage	Valid Percent
Heavy	24	4.8	4.8
Normal	67	13.4	13.4
Light	372	74.4	74.4
Very Light	37	7.4	7.4
Total	500	100.0	100.0

3.6 MCV Levels Versus Hemoglobin Levels

The total blood count's mean corpuscular volume is highly related to haemoglobin levels, with 0.001. The outcomes reveal that both of these parameters have a positive relationship, and as seen in Table 3, the results are extremely significant. Poor MCV levels are associated with low haemoglobin levels in the majority of pregnant women.

When both haemoglobin levels and mean corpuscular volume are taken into account, anaemia appears to be extremely probable. PJ discovered that the link between mean corpuscular volume and maternal haemoglobin can help estimate iron status levels in a study published in 2000. Iron deficiency is indicated by a hemoglobin content of 95 g/L and an MCV of 84 fl. Hemoglobin levels between 95 and 105 g/L indicate a reduced likelihood of low birthweight and premature labour in newborns (Soundarya &Suganthi, 2017).

Table 3.MCV and Hemoglobin Levels Have a Relationship

	Hemoglobin levels (g/d L)			Total	p-value
	<10	10-12.4	>12.5		
>/84 fl	10	297	71	378	.001
<84 fl	116	0	6	122	
	126	297	77	500	

3.7 Prevalence of Anemia

Anemia (hemoglobin 11.0 g/dl) was found to be prevalent in 66.9% of the population (95 percent CI, 60.3 percent -71.2 percent). Mild anaemia affected 64.8 percent of the women (95 percent confidence interval: 59.0 percent -70.3 percent), moderate anaemia affected 1.7 percent of the women (95 percent confidence interval: 0.57 percent -4.02 percent), and one woman was severely anaemic (Table 4).

Table 4. Anemia in Pregnant Women's Prevalence

Variables	Number	Percentage	95% CI
Anemia	192	96.9	61.1-72.3
Severity of Anemia			
Mild Anemia	186	64.8	59.0-70.3
Moderate Anemia	5	1.7	0.57-4.02
Severe Anemia	1	0.3	-

LIMITATIONS

The underlying research was based on a sample of just Civil Hospital Liaquat University of Medical and Health Sciences Lumhs Hyderabad, with a focus on only onehospital. Because of this aspect in Pakistan, the study's findings may not be generalizable.

RECOMMENDATIONS

In light of the conclusions of the study, it is suggested that more research be conducted on the subject of developing and impoverished countries. As a result, this huge problem will be resolved. As a result, better policies will be made and the appropriate decisions will be made. It will also assist in identifying the critical component that must be addressed in order to handle this catastrophic and scary condition.

CONCLUSION

Prevalence of anaemia among pregnant females in Hyderabad, Pakistan, is a serious public health issue. Anemia is linked to being Muslim, having a lesser education, having fewer prenatal visits, not receiving deworming medicine, and having a diet with insufficient variety. According to the findings of this study, anaemia has a strong link to food habits. The current study emphasizes the urgent need to increase the number of prenatal visits and deworming programmetreatment in Pakistan. Additionally, fostering nutritional diversity at the family level may aid in the reduction of anaemia rates. Nutrition interventions for anaemia prevention should also women from the most marginalized ethnic groups and those with lesser levels of education should be targeted and reached, according to recent studies. As a result, more attention should be paid to the etiological variables connected to maternal anaemia during pregnancy in Pakistan.

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Declaration of Interests Statement

The authors declare no conflict of interest.

Additional Information

No additional information is available for this paper.

Data Availability Statement:

Data available on request due to privacy/ethical restrictions. The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

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