

Demographic Determinants Associated with Anemia among Married Women: A Study in Rural Areas of District Faisalabad

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ABSTRACT

Background: About 43 percent of the population of the developing countries are facing the issue of anemia. Different socio-economic and demographic factors play a vital role to trigger this problem. Mostly the dominance of anemia among pregnant women is higher. **Objectives:** 1) The objective of the present study is to find out different socio-economic factors which are associated with anemia. 2) To analyse the respondents according to their haemoglobin level. 4) Find association between socio-economic and demographic variables with anemia. **Study Design:** the Cross-sectional study was conducted in rural areas of district Faisalabad. **Material and Methods:** Four hundred mothers aged between 18-49 years and having at least one child less than fifty-nine months of age were selected from the four towns of Faisalabad by using simple random sampling technique. A well-structured interview schedule was developed and used for data collection. **Results:** Data showed that respondents belonged to a different socio-economic background with different demographic values and education levels were facing the anemia. Majority of the respondent have the hemoglobin level between the range of 8.1-11.0. The results of the study showed a noteworthy association between educational attainments of the respondents and the level of examined hemoglobin of women. Data showed that the women who were used to smoke/hookah (a traditional way of smoking in Pakistan) reduced the level of hemoglobin and faced multiple reproductive complications. **Conclusion:** In Pakistan as a developing country, people have low demographic status and also culturally bound. The study found that the anemia was more common in women with early marriages. The illiteracy, lack of antenatal and postnatal care, low family income, living in nuclear family, low dietary diversity and smoking habits were all the factors that were significantly associated with anemic women.

KEY WORDS: Anemia, Rural Areas, haemoglobin, Demographic factors, Smoke/Hookah, Faisalabad

INTRODUCTION

Anemia is affecting 1.62 billion individuals all around the world [1]. Anemia is only problem of the developing countries. In developed countries the prevalence of this disease is only 9% and in developing countries the prevalence of anemia is 43%. It is estimated that anemia is contributing more than 1.15 million maternal deaths and 5.91 million prenatal every year around the globe. Mostly these deaths occur in developing countries [2]. The severity of anemia can be observed in reproductive age bracket in women and during pregnancy due to excessive requirements of nutrients, blood loss, psychological demands and infections [1-3].

Nutritional anemia, a very well-known anemia type across the world and mainly contains folic acid, iron, vitamin C deficiencies and vitamin B₁₂ [1-3-5]. Globally, almost half burden of anemia is caused by Iron deficiency [6]. Iron deficiency affects one fourth population of the world and out of those half are women in reproductive age bracket [7]. Anemia is health issue in which the concentration of blood haemoglobin decreased, and it is one of the frequently observed nutritional deficiency all over the globe and a more than a quarter of the population of the world is facing this deficiency [1-8].

The pregnant women at higher risk of anemia when their haemoglobin concentration becomes less than the required 7.0 g/dL, moderate when haemoglobin falls between 7.0-9.9 g/dL, and mild from 10.0-11 g/dL [2-4]. Among pregnant women, anemia is becoming the primary reason of mortality and especially in developing world, it has both maternal and fetal consequences [9-10]. Poor socio-economic status, multiparity and educational statuses are the major predictors of prevalence of anaemia [5]. [11] stated that mostly anemic women had poor dietary intake history. Anaemia is common in Pakistan mostly in those women who had no previous history of antenatal check-up and the women with the low socio-economic status were also the victim of this nutritional deficiency [12]. In Pakistan, a little more than half 51% of the women had normal haemoglobin levels. According to national nutrition survey among the anemic women, 26% were pregnant and 20% were non-pregnant women had iron deficiency anemia [13]. Therefore, the aim of the present research was to access the prevalence of anemia in women in reproductive age, and their relation to variables such as age, marital status, and education in third big

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populace district Faisalabad of Pakistan. In 2011, World Health Organization (WHO) stated that the pregnant women are more on risk of anemia during pregnancy which create problems for both, mother and child. Sholihah (2017) studied the difference of counselling among women on their knowledge, attitudes and behavior towards nutritional diet in pregnancy. The researcher collected the data from pregnant women and found that lack of knowledge about nutritional food was a major factor [33].

SIGNIFICANCE OF THE STUDY

Females are an integral part of the development of a society. Their health is undoubtedly a crucial issue especially the health of the pregnant women. In Pakistan, the women did not focus on their health and diet and often they are not very well aware of the nutritional value of their diet. Almost a large number of women are victimized by anemia during their pregnancy. Basically, human health services reflect the human needs, including the need for social support. Women's specific concerns are about their reproductive health, pregnancy-related issues which they experience health care services especially women of the vulnerable areas. It is necessary to study the situation of pregnant women who are facing this issue and there is a research gap on this topic. This is the reason that motivated the researchers to conduct this study. Their health status is very closely related to sociological approaches and this research will help to fill this gap of literature.

METHODOLOGY

A cross-sectional study was carried out among the rural women of district Faisalabad. There are four rural Towns in district Faisalabad namely Samundari Town, Tandaliwal Town, Jaranwala, and Chak Jhummara. The sample size for this study has consisted on four hundred mothers aged between 18-49 years old and having at least one child less than fifty-nine months age. The sample was drawn through multistage sampling technique. At the first stage of the study, two union councils from each town were selected randomly. At the second stage, two villages were selected in each union council randomly. At the third stage, the eligible women listed were obtained from the LHWs and 25 women from each village were selected through systematic random sampling through structured lists. Data was collected through well design structure interview. The female students from the social science departments were hired for the fieldwork activities. The hemoglobin is taken as the dependent variable and demographic, lifestyle, and nutritional variables are taken as independent variables. For assessing the hemoglobin level, two female lab technician/pathologists were hired to take the blood sample from mothers. Level of hemoglobin was measured through hem cue meter and results are also categorized in three levels i.e. normal, moderate and severe. The principal investigator monitored and supervised all the field activates. The questionnaire was pre-tested, before the actual data collection, to examine the workability and sensitivity of the questionnaire. Uni-variate analysis i.e. frequency, percentages mean and the standard deviation was applied to describe the data. The relationship between dependent and independent variables were examined through bivariate analysis. The significance of relationship was tested through Chi-square and Gamma tests. Multivariate analysis (multiple linear regression) has been applied to check the relative importance of independent variables in explaining dependent variable.

RESULTS

Table 1: Socio-economic characteristics of the respondents (N = 400)

Socio-economic characteristics	Indicators	Frequency	Percentage
Education of the Respondents	Illiterate	161	40.3
	1-5	107	26.8
	6-12	97	24.3
	13+	35	8.9
Age of Respondents	Up to 24	63	15.8
	25-29	111	27.8
	30-34	121	30.3
	35+	105	26.3
Family monthly income (in PKR)	Up to 3500	85	21.3
	3501-10,000	180	45.0
	10,000 and above	135	33.7
Type of Family	Nuclear	167	41.8
	Joint	233	58.2

Table 1 shows the socio-economic characteristics of the respondents. Data depicted that 40.3% respondents were illiterate, a little more than one-fourth (26.8%) had primary education, one-fourth (24.3%) respondents had 6-12 grade education and 8.9% had passed their graduation examination or more than this. Majority of the respondents (30.3%) belonged to the age category 30-34 years, (27.8%) belonged to 25-29 years of age and 26.3% belonged to 35- 48 years, while 15.8 percent were up to 24 years old. The mean current age was 29.89 years with standard

deviation of 6.11 years which indicates that a vast majority of women were in their prime reproductive age. Results present that 21.3% of the respondents had up to 3500 family monthly income. This finding shows that majority of the farmers had no ownership of land. They worked on rented land; most of the farm income share goes to the owner of the land. About 45.0% had 3501-10,000 rupees income while 33.2% had 10001 and above income. The results indicate that 58.2% of the respondents were residing in joint family and 41.8 percent belonged to the nuclear family system.

Table: 2 Distribution of the women according to their hemoglobin level

Level of Haemoglobin(gm/dl)	Frequency	Percentage
Up to 8.0	133	33.3
8.1-11.0	169	42.3
11.1 +	98	24.5
Total	400	100.0

Data shows that the hemoglobin of one fourth of women was more than 11gm/dl and 42.3% and 33.3% of the respondents had the levels of haemoglobin was 8.1-11.0 and up to 8.0 gm/dl respectively.

Table 3: Association between demographic variables with anemia

Indicators	Chi-Square value	Sig. level	Gamma Value	Sig. level
Respondent's education	23.5	0.001	0.22	0.001
Type of family	28.20	0.005	0.26	0.003
Family income	85.24	0.000	0.65	0.000
Smoking habits	35.72	0.003	-0.60	0.008
Calories intake per day	48.49	0.000	0.463	0.004
Age at marriage	54.86	0.028	0.024	0.023
Prenatal visits	50.89	0.005	0.181	0.008
Postnatal visits	68.59	0.000	0.433	0.004

Table 3 shows the association between dependent and independent variables. Association between education and level of hemoglobin of women was examined which is significantly associated. Chi-square value (23.05) shows that education of the respondents and their level of haemoglobin are highly associated with each other. The gamma value shows a strong positive relationship between the variables. Chi-square value (28.20) at 1% level of significance depicts that a strong relationship between family type and women's level of hemoglobin. The gamma value shows that the respondents who stayed in nuclear families had a mild/normal level of hemoglobin in comparison to those who were residing in joint families. Chi-square value (85.24) shows a highly significant association between family monthly income and level of hemoglobin. The gamma (0.65) value presents an encouraging relationship between the variables that indicate as income increases the level of hemoglobin increases.

There is a relationship between smoke/Hookah and level of hemoglobin of the respondents. Chi-square value (35.72) shows a significant association between smoke/Hookah and hemoglobin concentration in the respondents. The gamma statistic shows a significant and negative relationship between the variables. It means that the women who were used to smoke/hookah has a lower level of hemoglobin and faced multiple reproductive complications. Chi-square value (48.49) shows a significant association (P =0.000) between calories intake per day and level of hemoglobin. The gamma value shows a strong positive relationship between the both variables. Both chi-square and gamma statistics are significant at 1% level of significance. It defines that the women who were used to take required calories intake per day had a mild/normal level of hemoglobin as an indication of their good health. As chi-square value (54.86) shows a significant relationship (P=0.028) between age at marriage of the respondents and levels of anemia. Association shows that women who got married in mature age were likely to be less anemic than those who got married in teen ages. The segment describes the relationship between the respondents of a number of the visit for prenatal care and their levels of hemoglobin. Results reveal that more the frequency of visits for prenatal care plays a part to the mild/normal level of anemia.

It is the need of the current time for life-saving interventions, such as post-natal doctor visits, proper hygienic conditions, and counselling about the issues including maternal and newborn health. The postpartum period includes the first six weeks after delivery. The value of chi-square-square 68.59 indicates a significant association (P =0.000) between a number of visits for postnatal care of the respondents and levels of hemoglobin. The gamma value shows a strong positive relationship between the variables. The result shows that higher the visit for postnatal care, higher the levels of anemia (hemoglobin).

DISCUSSION

Women in their reproductive age (15-49) have severe level of haemoglobin without even knowing it. Research indicates that almost two third of the women in rural area are anemic. The study was conducted by Naz and Begum [14] in Karachi found that little more than half 54.3% women are anemic. According to the NNS [13], In Pakistan, 50.4% of non-pregnant women were suffering from anemia. According to World Health Organization [15] in South Asian developing countries, 58% of expecting women were victim of anemia. Even ministries of health in most of those countries have already developed policies to supply the iron supplements to pregnant women still, maternal anemia has not shown any significant decline. WHO reported that that the inadequate supply of iron is the key obstacle to supplementation. Furthermore, other concerned barriers are including inadequate awareness and counselling and supply of iron tablets, poor access and use of pre-natal health care facilities and strong cultural beliefs against consuming medications during pregnancy. Mostly rural women have fears that taking too much iron supplementation may result to excess blood and a heavy baby and that makes delivery difficult [16].

Different studies show that as regarding with categories, anemia may be mild, moderate, or severe in nature. Mild anemia commonly untreated because it is easily approachable to normal range. Mild/normal anemia, haemoglobin 11.1 g/dl, is often asymptomatic and frequently escapes detection and fatigue and weakness are common symptoms of mild anemia. While moderate anemia, level of haemoglobin 8.1-11.0 g/dl, may present with other symptoms and also warrants timely management to prevent long-term complications. Thirdly severe anemia, haemoglobin <8.0 g/dl, warrants investigation and prompt management [17-20]. Educated women are the main agent for change as far as health is concerned. The countries which have high female literacy rate have, good health, low infant and child mortality, curative reproductive issues, increased life expectancy, and in reverse. According to bi-variate analysis women's education, family type, family income and smoking has significantly associated with level of haemoglobin. The women, who were educated, had higher level of haemoglobin. [21] found the positive relationship between education and higher level of haemoglobin. He also determined that the intensification in haemoglobin resulting from good socio-economic conditions improved educational performance.

The culture of each country effects the family structure and the living style of the respective society. As study found that the respondents who belonged to the nuclear family structure, had less symptoms of anemia because in nuclear family structure, the size of family is less than the joint family system and the access to nutrient food is more that balance the haemoglobin level. Similar kind of results has been found by [22] regarding family structure. In addition the researcher found that in nuclear families, the member of the family have easy access to the income of both parents. In another study, the results depicts that the women whose families are earning better had mild/normal level of haemoglobin. [23] depicts that the monthly income of the family played an important role in the health of mothers and children. Improved financial situations helps in the better utilization of health services and reducing biasness in contrast to gender equality and nutrition. Appropriate family earnings and up gradation are another aspect that ensure the opportunity to women to effectively contribute in socio-economic aspects. Women contribution and participation can benefit the state as well as the families. Their contribution can improve their economic situation as well. Nutritional and health situation will be upgraded. [24] found that severity of anaemia was significantly associated with lower socio-economic status of the respondents and their odd eating habits.

Pakistan is a traditional society; its women like men are also involved in smoke/Hookah especially in rural areas. Although smoking directly affects fitness and reproductive health of the body. It develops fatigue, weakness, physically inactive. It also reduces and disturbances the hormonal system of the body. Subramoney and [25] found that lower level of haemoglobin in smoker's women in contrast to non-smokers. They found that pregnant women, though, have often highly associated smoking with decreased the levels of haemoglobin. Use of tobacco is generally prevalent among women in Southeast Asian countries. Poor nutrition status in female is often fundamental symptoms such as: performance decreases, tiredness, and repeated anemia. Required calories intake consists of protein, fat, carbohydrates and other essential nutrients is essential for better nutrition status. Although Pakistan's rural women have poor nutritional status and less calories intake than recommended level [26] concluded that Iron deficiency anemia (IDA) is the most rigorous nutritional deficiencies in women across the world. Poor diet is also known to impair psychomotor development, direct effect on physical health, work duration, lower immunity to infections and adversely impacts birth consequences and mother-infant survival. [27] conducted study in Ghana and found that recommended food intake is associated with better haemoglobin level. Another study conducted in Cairo found the significant relationship between perceiving risk of anemia and eating practices of women [28].

The rural women are facing socio-cultural, health and environmental, challenges. Early marriage is main factor for creating hardship for females such as a number of pregnancies, long duration breast feeding and unusual household responsibilities; never let females come out of the morbidity. Cross tabulation analysis shows the significant relationship between the both variables. Goli found that women whose first birth was before age of eighteen years had a significantly higher probability of being anemic [29]. A foundation SRIJAN concluded that

girls of 10 to 18 years are known as adolescence and mostly development and growth occurs quickly in this period [30]. Therefore, more attention should be provided to nutrition and food of young adolescents.

Prenatal visits are the cares that receive from a health professional, such as a doctor and midwife, during the pregnancy. The regular examinations are chance to seek how to manage the discomforts of pregnancy and other health related hazards. Pakistani rural society is more typical and conservative society than urban areas, early marriages and pregnancy-related disorders are prevailing there. According to Kennedy *et al.*, prenatal care is not a mere health care rather it includes education, awareness about various aspects and problems of pregnancy [31]. [32] examined the prevalence of anaemia was more common in women with early marriages and teenage pregnancies, who had not taken folic acid tablets, lack of antenatal care, less educated and who belonged to low family income, rural background, who were grand multi-gravida and had less than twenty four months birth spacing in last pregnancy were found severely anemic. [33] also concluded that recommended prenatal visits and counselling reduce the incident of anaemia during pregnancy. Postnatal care is critical time for life-saving interventions, such as post-natal visits, proper hygiene, and counselling about the danger signs of maternal and newborn health. [33] enlightened on making motherhood safer is critical to saving new-borns. Research shows that a significant number of stillbirths and neonatal deaths could be prevented if all women were adequately nourished, prevented from anemia and received good quality care during pregnancy, delivery, and the postpartum period. When mothers are malnourished, sickly, and anemic or receive inadequate prenatal and delivery care, their babies face a higher risk of disease and premature death. The rate of new-borns death is thus high in regions where the risk of maternal death is high.

CONCLUSION

In Pakistan as a developing country, people have low socio-economic and demographic status and also culturally bound. The study shows that respondents mean education is only 4.37 and forty percent of them are literate, similarly with 11488.00 is the mean value of their family monthly income. Almost one-fourth of the respondents are quite healthy with the mild/normal level of hemoglobin which is commonly untreated. While the majority are in the moderate level of HB, who are at risk situation. One-third of them are severely deficient which represents a poor picture of maternal health status. The study found that the anemia was more common in women with early marriages, illiteracy, lack of antenatal and postnatal care, low family income, living in nuclear family, low dietary diversity and smoking habits were all the factors that were significantly associated with anemic women.

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