

# Determinants of Anemia Among Pregnant Females Attending Sir Ganga Ram Hospital, Lahore

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## Abstract:

Anemia is an alarming situation in emerging countries and it almost affects the two - thirds of expecting women. It contributes to parental sickness and mortality, and low birth weight babies.

## Objective:

To find out the determinants of anemia among pregnant females attending sir Ganga Ram hospital, Lahore.

## Methods:

A cross sectional study was conducted at Sir Ganga Ram hospital, Lahore on 100 pregnant anemic women. Data were collected through pre-tested questionnaire by using non-probability convenient sampling technique. Duration of the study was 4 months. All anemic pregnant females aged between 18-45years were included. Data were analyzed by using SPSS version 21.0.

## Results:

42 % females were slightly anemic where as 58 % were severely anemic. Females between the age of 18-28 years were mostly anemic. Only 55% females were consuming red meat, which is a major source of iron. Only 27% were consuming organ meat and only 35% were consuming egg regularly. Less intake of nuts, salad and other foods items were also the causes of anemia and due to which 21% females experienced pica.

## Conclusions:

The ratio of anemia was more prevalent in females who used to avoid egg intake, salad, dried fruits and organ meat intake. Pregnancy in less age and low socioeconomic status were the major determinants of anemia in females. Also females who experienced multiple pregnancies without gap were more likely to develop anemia

## Key words:

Anemia, pregnant females, Hemoglobin, socio-

economic status, Diet.

## Introduction:

A decreased concentration of blood hemoproteins (Red blood cells) is called anemia. It is one amongst the foremost common nutritional diseases present globally and affects 1 / 4<sup>th</sup> of the world's population.<sup>1</sup> 1.62 billion Individuals (25%) affected through anemia globally, among that fifty-six million are pregnant women.<sup>2</sup> The foremost common worldwide explanation for anemia throughout physiological condition is inveterately inadequate dietary iron; this insufficiency will increase by the accrued physical demands for this essential nutrient obligatory by craniate wants and maternal blood volume enlargement throughout pregnancy.<sup>3</sup> However, iron deficiency isn't the sole explanation for anemia. Alternative causes embrace protozoa infection, chronic infections and biological process deficiencies of anti-ophthalmic factor, sustenance complex vitamin B complex and vitamin B-12. In several populations, the causes of anemia and lack of iron vary by gender; age and population are not well-represented.<sup>4</sup> In Maternal anemia may be a common drawback in physiological condition, particularly in developing countries. Consistent with various studies it's found that anemia, particularly iron-deficiency anemia (IDA), is very prevailing among pregnant girls. Anemia throughout physiological condition, significantly iron-deficiency anemia, continues to be a worldwide health issue. It is called the world's rifest biological process disorder because it affects quite 2 billion folks in each developed and developing countries. Consistent with the world organization (UN), fifty-six take advantages of pregnant girls in low-income countries suffer from anemia compared to eighteen throughout high-income countries. Its prevalence in physiological condition varies significantly attributable to the variations in, socioeconomic conditions, lifestyles, and perspective

towards health across actual different cultures.<sup>5</sup> consistent with the 2006-07 Pakistan Demographic and Health Survey, maternal mortality was found to be 276 deaths per one hundred,000 live births as compared to one in eight,000 within the developed world. Amongst eighty-nine Pakistani girls, one dies of vaginal birth complications.<sup>6</sup> The world health organization (WHO) defines anemia in physiological condition because the hemoprotein concentration < 11 g/dl, and just in case of severe anemia hemoprotein concentration is a smaller amount than 7g/dl, may be a worldwide problem<sup>7</sup>. Anemia is one amongst the foremost rife biological process deficiency issues afflicting pregnant women.<sup>8</sup> Maternal anemia in physiological condition is often thought of a risk issue for poor physiological condition outcome and may end in complications that threaten the lifetime of each mother and craniate. Some studies have incontestable a robust association between low hemoprotein before delivery and adverse outcomes.<sup>9</sup> Maternal anemia in physiological condition is frequently understood of as a risk issue for poor physiological condition outcome and may threaten the lifetime of mother and fetus<sup>10</sup>. However, the extent to that the maternal hemoglobin Concentration affects the craniate weight and craniate outcome remains uncertain.<sup>11</sup> The prevalence of anemia in physiological condition varies significantly attributable to variations in, for instance, socioeconomic conditions, lifestyles and health-seeking behaviors across total different cultures. Previous researches in Pakistan have documented iron deficiency because the leading explanation for low birth weight infants.<sup>12</sup> Pica, the craving and purposive consumption of substances that the consumer does not define as food is a phenomenon that has been documented around the world. The most common types of pica are geophagy (consumption of earth), amylophagy (consumption of raw starches such as cornstarch or uncooked rice), and pagophagy (the consumption of large quantities of ice), although a range of other non-food items have been reported, including chalk, baby powder, paper, and paint chips.<sup>13</sup> Tadesse SE *et al*, in 2017, conducted .In a study, in northern central Ethiopia for determinants of anemia among pregnant mothers attending antenatal care, it was found that inadequate intake of dark green leafy vegetables, inadequate consumption of chicken, in current pregnancy, HIV infection and medication

were the determinants of anemia among pregnant females. The study suggested that anemia prevention strategy should include promotion of adequate intake of dark green leafy vegetables and chicken, increased meal pattern during the entire pregnancy and strengthening the prevention of mother to child HIV transmission/antenatal care programs.<sup>14</sup> A study was performed by Vanderjaget DJ *et al*, in 2007 to evaluate the relative contribution of iron, folate, and B12 deficiency to anemia in pregnant women in sub-Saharan Africa. In total, 146 pregnant females, who attended two antenatal clinics in Gombe, Nigeria. The most common cause of anemia in the pregnant women was iron deficiency, and the deficiency of folate and B12 vitamin shows the high concentration rate of homocysteine.<sup>15</sup> In 2016, Xu X carried out a study on Chinese women, *et al*. in this study anemia was found in 11% of the women who skipped breakfast. The presence of anemia was compared in women of different socioeconomic statuses. It was found that compare with those of a low status, pregnant females who were admitted to a high or medium rank were less likely to have anemia. Women from medium income families were less likely to have anemia than those from low-income families. Compared with women with non-manual jobs, females with manual jobs and unemployed females be more likely to have anemia. Daily exercise time, sleeping time, spend time on TV and computers also included in the study but no significant relationship was found with anemia.<sup>16</sup> In 2016 a study conducted by Shweta Rajput, Manish Kumar Singh About 75% of pregnant women were found to be anemic with about 14.5% being severely anemic. Percentage of anemic females were reported to be higher in age groups less than 20 years, joint families, and women following vegetarian diet. History of menstrual irregularities and prolonged cycles was reported in significantly higher percentage of anemic women as compare to non-anemic females.<sup>17</sup> A study of 2015 conducted by Bedi R, Acharya R, Gupta R *et al*, explore the maternal factors of anemia in 3rd trimester of Pregnancy. More proportion of anemia was found among non-vegetarian than vegetarian women. 46.6% women having 2 children were more anemic than women with 1 children (37.89%). Working women were significantly higher in prevalence of anemia, suggesting that occupation was associated with

anemia in pregnancy. As well 50.26% among socio-economic status were significantly more anemic. Anemia in pregnancy is considerably decrease with increasing socio-economic status according to the findings. In 3<sup>rd</sup> trimester of pregnancy occurrence of anemia were found to be 91.3%.<sup>18</sup> Fatigue is considered the fundamental symptom of anemia. The pathological pathway in anemia leading to fatigue is not clearly understood but it is believed that abnormalities in the metabolism of energy plays a role in causing fatigue. At the medical level, the relationship between anemia and fatigue is accepted globally. However, early studies were unable to show a clear association between fatigue and hemoglobin levels. Recently, the effects of fatigue and other symptoms of anemia on the patient's well-being and quality of life have been assessed. A direct effect of hemoglobin levels on fatigue and other quality of life parameters has been found.<sup>19</sup> Food craving was reported by 73.8% of the study participants and nearly half (48.7%) had food aversions. Pica prevalence was at 27.4%, with consumption of soil and soft stones being frequently reported. There was a highly significant association between level of education ( $p = 0.02$ ) and history of child death/still birth ( $p = 0.01$ ) with pica. Eggs, tea and milk were also avoided.<sup>20</sup> The mortality and morbidity rates are high due to presence of anemia during pregnancy leading to developing of abnormalities of the fetus. Therefore, the researcher was aimed to find out the determinants of anemia to overcome the nutritional deficiency among pregnant females through health education. So that the anemia and low birth weight babies could be prevented through extensive health education.

### Methods:

A cross sectional study was conducted in July 2017, at Sir Ganga Ram hospital, Lahore. 100 pregnant anaemic females were selected through non probability convenient sampling technique. Both indoor and outdoor patients of gynecology unit were included. Data were collected through pre-tested questionnaire. All pregnant females with Hb level less than 11g/dl were included for the study. Pregnant females with Hb level more than 11g/d were exempted from the study. In addition, pregnant females from departments other than the gynecology and non-cooperative females were excluded.

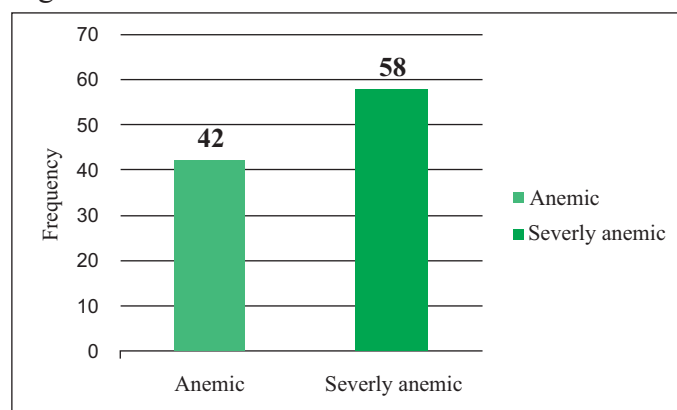
### Results:

73% pregnant anemic females were educated, 44% pregnant anemic females were belonged to lower middle class and 79% had anemia which belongs age between (18-28) as shown in Table 1.

Sr. no	Demographics	Percentage
1	Educated	73%
2	Low middle class	44%
3	Age (18-28)	79%

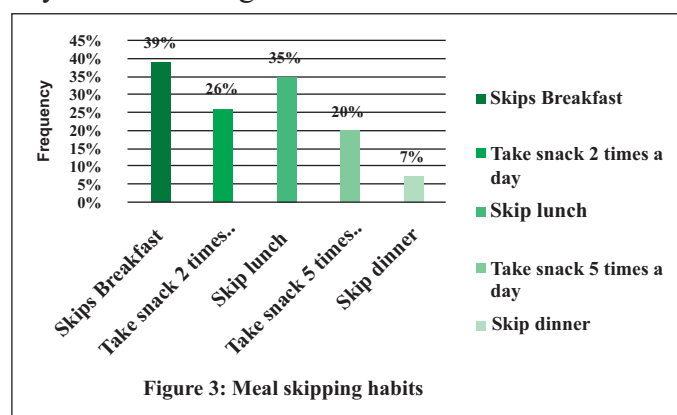
**Table 1:** Distribution of demographics of patients

Analysis revealed that out of the 100 women questioned, 42 were mild anemic. While 58 females had severe anemia. This showed that majority of the pregnant women were severely anemic as shown in Figure 1.



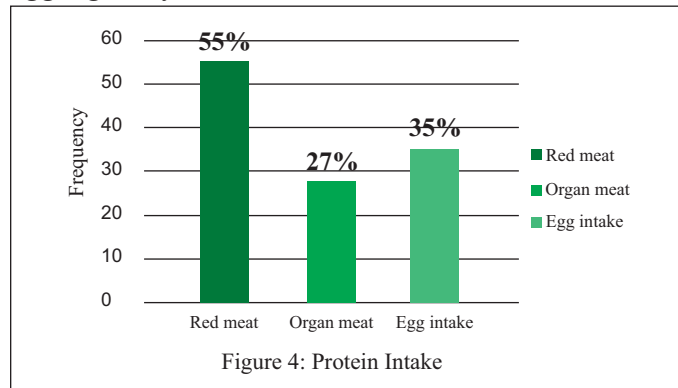
**Figure 1:** Distribution of anaemia among females

Meal skipping was also found to be a major determinant for anemia among pregnant anemic females. 39% individuals reported that they were skipping breakfast, 26% individuals were consuming two times snacks a day, 35% were skipping their lunch, and 7% were skipping their dinner and only 20% individuals were consuming snacks five times a day as shown in Figure 2.



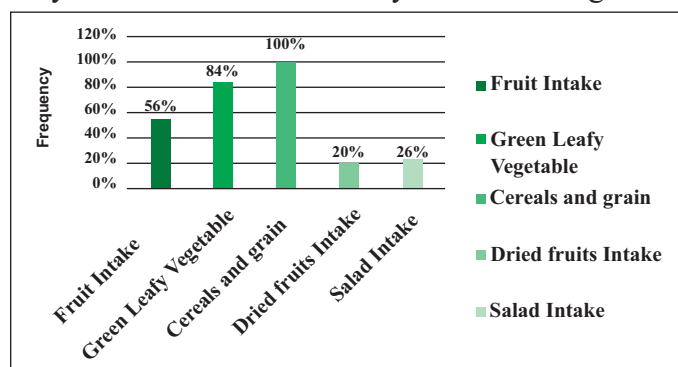
**Figure 2:** Meal skipping habits

Meat and poultry are a major source of iron in diet. Women were asked about their protein intake and the results are shown in the Figure 3. 55% women informed that they consumed red meat. 27% individuals consume organ meats and only 35% took egg regularly.



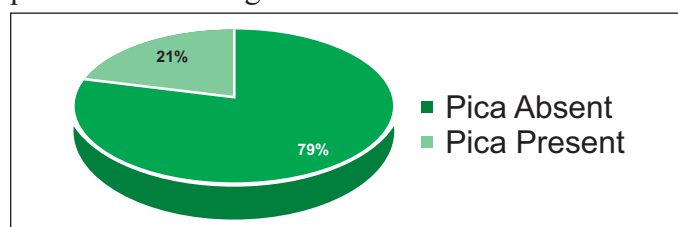
**Figure 3:** protein intake

Out of 100 pregnant anemic females 84% consumed green leafy vegetables and 26% individuals consume raw salad, 100% of them had a regular intake of cereal grains. 56% of the females take fruits regularly, and only 20% took dried foods daily as shown in Figure 4.



**Figure 4:** Fruits, vegetables and grain consumption

Pica is the consumption of non-food items. People suffering from anemia most of the times crave items like clay, raw rice or chewing ice chips. This is called pica and is a common practice among pregnant anemic females. The results of current study showed that 79 % pregnant females did not consume raw rice or clay and only 21% pregnant women experienced pica as shown in Figure 5.



**Figure 5:** Pica in patients

## Discussion:

The result of current study revealed that consumption of green leafy vegetables was 84% in pregnant anemic women, only 20% pregnant anemic women ate five-time meal day, these results were in accordance to another study conducted by Tadesse SE *et-al*, in 2017 in northern central Ethiopia for determinants of anemia among pregnant mothers in which it was found that there was inadequate intake of dark green leafy vegetables. The study suggested that anemia prevention strategy should include promotion of adequate intake of dark green leafy vegetables, increased meal pattern during the entire pregnancy.<sup>14</sup> The findings of current study showed that majority of pregnant women were iron deficient, similar to the findings of a study conducted by VanderJagt DJ *et-al*, in 2007 which showed that most of pregnant anemic women were iron deficient.<sup>15</sup> Results of the current study showed that majority of pregnant anemic women belonged to lower middle socio-economic status while results of a study conducted by Xu Xet al, in 2016 revealed that majority of pregnant anemic women belonged to lower socio-economic status.<sup>16</sup> The current study showed that 58% pregnant women were severely anemic, majority of pregnant anemic women were between 18-28 years of age, in accordance to the results of a study done by Rajput S, Singh MK, which revealed that most of pregnant anemic women were of 20 years of age.<sup>17</sup> Findings of current study concluded that 84% pregnant anemic women were consuming green leafy vegetables as compared to the findings of study done by Bedi R *et al*, stated that only 47% pregnant anemic women were consuming green leafy vegetables<sup>18</sup>. The current study shows that 58% pregnant women were severely anemic, majority of pregnant anemic women were between 18-28 years of age, in accordance to the results of a study done by Rajput S, Singh MK, which revealed that most of pregnant anemic women were of 20 years of age.<sup>17</sup> Current study revealed that women with symptoms of anemia also get easily fatigued. Similar the study done by Sombrero A *et al*, a direct effect of hemoglobin levels on fatigue and other quality of life parameters. It was founded that anemic people show greater signs of tiredness and fatigue.<sup>19</sup> Current study revealed that a significant number of pregnant women with anemia craved and consumed nonfood items, similar to the study



conducted by Lin JW *et al*, conducted among Mexican women, that pica is a common practice among anemic pregnant women and also study done by Kariuki L *et al*, consequences of consumption of food and non-food items (pica) present in pregnant women. Food craving was reported by 73.8% of the study participants and nearly half (48.7%) had food aversions.<sup>13,20</sup>

## Conclusions:

The high rate of anemia was observed during the current study. Almost more than 60% of respondents suffered from severe anemia. The reason was attributed to scarcity and partial access to nutrition and knowledge about health. Therefore, adequate nutritional knowledge about the rich source of iron containing foods must be taught to the women enlightenment about better choices of food can diminish anemia. The ratio of anemia was more prevalent in females who used to avoid egg intake, salad, dried fruits and organ meat intake. Pregnancy in less age and low socioeconomic status were the major determinants of anemia in females. Also females who experienced multiple pregnancies without gap were more likely to develop anemia

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