

# RELATIONSHIP OF ANEMIA WITH NUTRITION AMONG PREGNANT WOMEN RESIDING IN URBAN SLUMS OF TALUKA QASIMABAD, DISTRICT HYDERABAD.

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## ABSTRACT

**OBJECTIVE:** To find out relationship of anemia with nutrition among pregnant women residing in urban slum areas of Taluka Qasimabad, District Hyderabad.

**STUDY DESIGN:** A community based cross sectional descriptive study.

**PLACE AND DURATION OF STUDY:** Study was conducted in urban slum areas of Taluka Qasimabad, District Hyderabad from 1<sup>st</sup> March 2011 to 31<sup>st</sup> August 2011

**METHODOLOGY:** Two hundred and fifty (250) pregnant women during 2<sup>nd</sup> and 3<sup>rd</sup> trimester of pregnancy were included in the study. The qualitative data collected by filling questionnaire comprised of demographic information about woman, her family and about her diet. The quantitative data collected by assessing anemia by determining the hemoglobin level in the enrolled pregnant women.

**RESULTS:** Two hundred and fifty (250) pregnant women were included in the study. Two hundred and thirty three pregnant women were found anemic (93.2 %). Majority of the women ie 70% presented with moderate anemia (hemoglobin level 7.0-9.9g /dl) while severe anemia (hemoglobin level <7 g/dl) was recorded in 5.2% pregnant women. While 17.6% women presented with mild anemia (hemoglobin range 10.0-10.9g/dl). Majority of the women in study population were not taking balanced diet i.e. 232 out of total 250 and all of them were anemic not taking balanced diet and statistically significant association was found between occurrence of anemia and unbalanced diet .(p= 0.00)

**CONCLUSIONS:** Our study showed a significant association between occurrence of anemia during pregnancy and unbalanced diet on the studied population.

**KEY WORDS:** Anemia, Prevalence, Pregnancy, Balance Diet.

## INTRODUCTION

Anemia in pregnancy is an important public health problem worldwide especially in most developing countries like in Pakistan<sup>1</sup> WHO's 2002 identified iron deficiency report as global burden of disease, the 12<sup>th</sup> most important risk factor for all mortality globally and the 9<sup>th</sup> most important risk factor for the iron deficiency.<sup>2</sup> According to the 2008 report of WHO, 1.62 billion (24.8%) people are affected from anemia globally.<sup>3</sup> It had an estimated global prevalence of 42% in pregnant women and is a major cause of maternal mortality.<sup>4</sup> Those living in Asia and Africa are geographically at the greatest risk.<sup>5</sup> IDA prevalence indicates the nutritional status of a community.<sup>6</sup> Anemia is defined as decreased hemoglobin level, or circulating red blood cells and it is the most common hematological disorder during pregnancy.<sup>7,8</sup>

WHO classified anemia in pregnancy according to the following criteria: Mild anemia: When hemoglobin level in the range of 10.0-10.9 g/dl Moderate anemia: When hemoglobin level in the

range of 7-9.9 g/dl Severe anemia: When hemoglobin level is <7 g/dl<sup>9</sup>

Studies in India and Pakistan have reported prevalence of anemia is as high as 80% to 90%. In developing countries, due to inadequate intake of iron and folic acid supplements and unhealthier diets IDA is more challenging.<sup>10-12</sup> In some countries the prevalence of anemia in pregnant women are reported as follows: Bahrain 33%, Egypt 26%, Jordan 35%, and the United Arab Emirates 14%.<sup>13</sup> In study conducted by Rizwana F recorded at, a very high prevalence of anemia i.e 75% was.<sup>14</sup> Some what similar results have been seen in a study conducted at Multan where severe anemia was observed to be 8% and moderate anemia in 48% of patients.<sup>15</sup> Agha Khan University Hospital (AKUH), Karachi, Civil Hospital Karachi, (CHK) and Nawabshah Medical Collage Hospital (NMCH) Nawabshah. Approximately 91% pregnant women had some mild anemia.<sup>9</sup> A study conducted at Karachi found prevalence of iron deficiency anemia to be 50% among pregnant women.<sup>16</sup> Balanced diet may be defined as a diet that contains the proper proportions of carbohydrates, fats, proteins, vitamins, minerals, and water necessary to maintain good health.<sup>17</sup>

Iron deficiency is the most commonly seen in pregnancy is due to, lack of balanced diet.<sup>7</sup> Anemia may result from diets that are poor source of iron due to deficient intakes of animal foods and high intakes of foods rich in absorption – inhibiting factors such as phytates mostly seen in many developing countries etc.<sup>18</sup>

Anemia in pregnancy is an important public health problem worldwide especially in most developing countries like in Pakistan. Current findings highlight the found statistically significant association between occurrence of anemia during pregnancy and unbalanced diet as a priority area of concern The

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cause of anemia is mostly the nutritional deficiency either iron or folate because the physiological changes associated pregnancy exert a demand for additional iron stores needed for transfer to fetus. During pregnancy, the blood volume increases by approximately 50% and red blood cell mass by approximately 33%. If mother is anemic she deliver the anemic baby with low stores of iron so ultimately devastating impact on cognitive and motor development of an entire generation of children and the vast economic losses at present as well as in the future. Maternal anemia during pregnancy is commonly considered as risk factor for poor pregnancy outcomes and can threaten the life of mother as well as fetus and affects health, survival and economic development and social health. It also affects mental development, productivity. So it is an important and preventable cause of maternal and fetal morbidity and mortality.

### METHODOLOGY

The community based cross sectional descriptive study was conducted in urban slum areas of Taluka Qasimabad, District Hyderabad from 1<sup>st</sup> March 2011 to 31<sup>st</sup> August 2011.

Inclusion criteria comprises of all pregnant women in 2<sup>nd</sup> and 3<sup>rd</sup> trimesters of pregnancy and pregnant women willing to participate in this study. Exclusion criteria was all females not willing to participate in study, refused to give blood sample for hemoglobin estimation and all pregnant women in first trimester of pregnancy.

The total population residing in the study areas was twelve thousand two hundred and seven (12207). The total estimated number of expectant mothers comes out to be one hundred and eighteen (118). Considering the confounders, misreporting etc, we collected 25% more pregnant women therefore 250 pregnant women were enrolled for the study.

The data was collected by conducting interviews, filling of structured a close-ended questionnaire for qualitative data, it comprised of demographic information about woman, her family and her diet and by assessed anemia by determining the hemoglobin level using Sahli's Hemoglobinometer in the enrolled pregnant women for quantitative data. Anemia was determined according to WHO classification of anemia in pregnancy, the following criteria are as follows; mild anemia: when hemoglobin level in the range of 10.0-10.9 g/dl, moderate anemia: when hemoglobin level in the range of 7-9.9 g/dl, severe anemia: When hemoglobin level is <7 g/dl<sup>9</sup>

Data was entered in SPSS (Statistical Package for Social Sciences) version 16 after editing it. The association of anemia during pregnancy with nutrition was analyzed by applying Fissure Exact test, the p-value of <0.05 was taken as the level of significance

### RESULTS

Two hundred and fifty pregnant women were enrolled of whom two hundred and thirty three (93.2%) were found anemic while only seventeen (6.8%) were found non-anemic. The majority 176 (70.45%) demonstrated moderate anemia (hemoglobin level 7.0-9.9Gm /dl) with mean and standard deviation of 8.5 Gm/dl and 0.71gm/100 ml while mild 44(17.6%) (hemoglobin range 10.0-10.9gm/dl) with mean and standard deviation of 10.27 Gm/dl and .283gm/100 ml and severe anemia (hemoglobin level <7 Gm/dl) were recorded in 13(5.20) with mean and standard deviation of 6.15 Gm/dl and 0.55 Gm/dl (Table 1 and 11).Majority of the women in study population were not taking balanced diet i.e. 232 out of total 250 and all of them were anemic (Table :111). A statistically significant association was found with unbalanced diet an occurrence of anemia. (p= 0.00) (Table: 1V).

**TABLE – I: ANEMIA IN STUDY POPULATION**

ANEMIA	n=250	%
Mild	44	17.6
Moderate	176	70.4
Severe	13	5.20
Non anemic	17	6.80
TOTAL NUMBER	250	100

**TABLE – II: HEMOGLOBIN LEVELS IN STUDY POPULATION**

HEMOGLOBIN LEVELS	MEAN	STANDARD DEVIATION	%	n=250
10.0-10.9 g/dl	10.27	.283	17.6	44
7.0-9.9 g/dl	8.50	.715	70.4	176
<7 g/dl	6.15	.553	5.20	13
>11g/dl	12.38	.837	100	250

**TABLE – III: BALANCED DIET INTAKE AND ANEMIA IN STUDY POPULATION**

INTAKE OF BALANCED DIET	ON ANEMIC	MILD ANEMIA	MODERATE ANEMIA	SEVERE ANEMIA	n=250
YES	17	1	0	0	18
NO	0	43	176	13	232
<b>TOTAL</b>	<b>17</b>	<b>44</b>	<b>176</b>	<b>13</b>	<b>250</b>

**TABLE-IV: RELATIONSHIP BETWEEN UNBALANCED DIET AND ANEMIA IN PREGNANCY**

INTAKE OF BALANCED DIET	NON ANEMIC	ANEMIA	n=250
Balanced	17	1	18
Unalanced	0	232	232
<b>TOTAL</b>	<b>17</b>	<b>233</b>	<b>250</b>

p= 0.00 (Fissure Exact test was applied).

### DISCUSSION

Strikingly, almost 100% of the anemic pregnant women registered in our study (232 out of total 250) reported as they were taking unbalanced diet and there were strong significant association seen between unbalanced dietary pattern and anemia (p=0.000). Rohra D cited in a study by Brunvand et.al proved the significant relationship between the dietary habits and prevalence of anemia and have showed that Pakistani population use chapatti that is associated with the decreased absorption of iron leads to the iron deficiency anemia.<sup>9</sup> Piammongkol et al also concluded in their study that in lower southern Thailand iron deficiency anemia was highly prevalent.<sup>19</sup> Study done by Nadeem, A had shown that high per capita income was associated with severity of anemia. Educational status was inversely related to the severity of anemia. These results proved that the major cause of anemia was nutritional deficiency (dietary factors)<sup>20</sup>. Worldwide iron deficiency is one of the most common nutritional deficiencies. Ayuab R et al report that four to five billion women were affected by iron deficiency anemia across the world. Iron deficiency was the cause of approximately 50% of all anemias.<sup>21</sup> A study in Ethiopia by Haidar.J had shown that the increased anemia among pregnant women was associated (p=0.001) with less than once a day intake of vegetables and less than once a week intake of meat. Haidar J showed that dietary iron was adequate but its bioavailability was restricted because the type of iron was non-heme and there was inadequate vitamin C, additionally, absorption was further reduced due to the among pregnant women in Ethiopia can be explained by dietary factors.<sup>22</sup> In developing countries iron deficiency anemia was the eighth leading cause of disease in girls and women. Worldwide the most prevalent form of malnutrition affecting around 50% of pregnant.<sup>18</sup>

A study by Viveki RJ et.al also found 162 (71.1%) pregnant women as house wives and majority (83.3%) were belonging to lower social class and were having unbalanced diet.<sup>23</sup>

### CONCLUSIONS

Our study showed a significant association between occurrence

of anemia during pregnancy and unbalanced diet on the studied population.

### REFERENCES

- Bakhtiar U, Khan Y, Nasar R. Relationship between maternal hemoglobin and perinatal outcome. *Rawal Med J* 2007; 32: 102-4
- Indowu O, Mafian C, Sotiloy D. Anemia in pregnancy: A survey of pregnant women in Abeokuta, Nigeria. *African Health Sciences* 2005 Dec;5(4):295-99.
- WHO, Worldwide prevalence of anemia 1993–2005: WHO global database on anemia, WHO, Geneva, Switzerland, 2008.5.[http://whqlibdoc.who.int/publications/2008/9789241596657\\_eng.pdf](http://whqlibdoc.who.int/publications/2008/9789241596657_eng.pdf).
- Balarajan Y, Ramakrishnan U, Özaltin E, Shankar AH, Subramanian SV. Anemia in low-income and middle-income countries. *The Lancet* 2011 17; 378 (9809): 2123-35.
- McLean E, Cogswell M, Egli I, Wojdyla D, De Benoist B. Worldwide prevalence of anemia, WHO vitamin and mineral nutrition information system, 1993-2005. *Public Health Nutr.* 2009;12(4): 444-54.
- Scholl TO. Iron status during pregnancy: setting the stage for mother and infant. *Am J Clin Nutr.* 2005; 81:1218S–22.
- Gautam CS, Saha L, Sekhri K, Saha PK. Iron deficiency in pregnancy and the rationality of iron supplements prescribed during pregnancy. *Medscape J Med.* 2008; 10(12):283.
- Barooti E, Rezazadehkermani M, Sadeghirad B, Motaghipisheh Sh, Tayeri S, Arabi M, et al. Prevalence of iron deficiency anemia among Iranian pregnant women; a systematic review and meta-analysis. *J Reprod Infertil.* 2010;11(1):17-24.
- Rohra D, Solangi N, Memon Z, Khan N, Azami, Ahuja K. Hemoglobin status of pregnant women visiting tertiary care hospital of Pakistan. *Pak J M ed Res* 2008; 47(2):39-43.
- Baig-Ansari N, Badruddin SH, Karmaliani R, Harris H, Jehan I, Pasha O, et al. Anemia prevalence and risk factors in pregnant women in an urban area of Pakistan. *Food Nutr*

- Bull. 2008; 29(2):132–9.
11. Toteja GS, Singh P, Dhillon BS, Saxena BN, Ahmed FU, Singh RP, et al. Prevalence of anemia among pregnant women and adolescent girls in 16 districts of India. *Food Nutr Bull.* 2006;27(4):311–5.
  12. Benoist B, McLean E, Egli I and Cogswel M. Worldwide prevalence of anaemia 1993–2005, WHO Global Database on Anemia. Geneva: World Health Organization; 2008. p. 21.
  13. Bagchi K. Iron deficiency anaemia--an old enemy. *East Mediterr Health J.* 2004;10(6):754–60.
  14. Rizwan F, Qamarunisa, Habibullah, Memon A. Prevalence of anemia in pregnant women and its effects on maternal and fetal morbidity and mortality. *Pak J Med Sci* 2010;26(1):92-5
  15. Awan MM, Akbar MA, Khan MI. A study of anemia in pregnant women of Railway Colony, Multan. *Pak J Med. Res* 2004;43:11-4.
  16. Wali A, Mushtaq A, Nilofer. Comparative study –efficacy, safety and compliance of intravenous iron sucrose and intramuscular iron sorbitol in iron deficiency anemia of pregnancy. *J Pak Med Assoc* 2002;52:392-5.
  17. The American Heritage® New Dictionary of Cultural Literacy, Third Edition [www2.sunysuffolk.edu/agiarmorism](http://www2.sunysuffolk.edu/agiarmorism)  
WritingGuidelines.pdf
  18. Anumudu C, Afolami M, Igwe C, Nwagwu M, Keshinro O. Nutritional Anemia and malaria in pre school and school age children *annals of African Medicine* 2008;7(1):11-17
  19. Piammongkol S, Chongsuvivatwong V, Williams G, Pornpatkul M. The prevalence and determinants of Iron deficiency anemia in rural Thai-Muslim Pregnant women in Pattani Province. *Southeast Asian J Trop Med public Health* 2006;37(3):553-8.
  20. Ahmad N, Kalakoti P, Bano R, Syed M, Aarif M. The prevalence of Anaemia and associated factors in pregnant women in rural indian community. *Australas Med J.*, 2010;3(5):276-80
  21. Ayub R, Tariq N, Iqbal M, Jafery T, Adil MM, Rais SR .Low haemoglobin levels, its determinants and associated features among pregnant women in Islamabad and surrounding region. *JPMA* 2009;59-86.
  22. Haidar J, Pobocik S. Iron deficiency anemia is not a rare problem among women of reproductive ages in Ethiopia: a community based cross sectional study. *BMC.* 2009;9:7.
  23. Viveki J, Halappanavar A, Vivekip R, Halaki B, Maled and Pershad S. Prevalence of anemia and its epidemiological determinants in pregnant women. *AL Ameen J Med Sci.* 2012;5(3):216-23