



ORIGINAL ARTICLE

## Anemia among pregnant women a major concern for achieving universal health coverage.

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**ABSTRACT... Objective:** To assess the frequency of anemia among pregnant females visiting Rawal Institute of Health Sciences and to find out the risk factors contributing to anemia. **Study Design:** Cross Sectional Descriptive study. **Setting:** Rawal Institute of Health Sciences, Islamabad, Pakistan. **Period:** May to July 2019. **Material & Methods:** A study was carried out to find the frequency of anemia among 100 pregnant women through non-probability convenient sampling at RIHS using a structured questionnaire. Hemoglobin concentration data in the blood was collected from their antenatal archives. **Results:** Hemoglobin level was found to be less than 7 g/dl in 3% of the pregnant females and 6% had moderate anemia. In addition to that 68% were mildly anemic. Overall frequency of anemic pregnant women was found to be 77%. **Conclusion:** In conclusion, anemia in this study population was high frequency. This high frequency according to our study is related to inadequate diet, stress, multiple pregnancies and menorrhagia.

**Key words:** Anemia, Housewives, Pregnancy, Universal Health Coverage, Working Females.

### INTRODUCTION

Nutritional anemia as stated by WHO is amongst the common public health problems, it is a state in which the hemoglobin quantity in blood is lesser than conventional, as a consequence of dearth of either one or the other important nutrient.<sup>1</sup> Anemia is a global issue and developing countries face the peaked prevalence.<sup>2</sup> Although anemia is a grave universal public health problem it principally affects young children and pregnant women. According to WHO 42% of less than 5 years of age children and 40% of expectant females globally and almost two-thirds of pregnant women in developing nations are anemic.<sup>3,4</sup> The highest prevalence rate of anemia during pregnancy approximately 61% was found to be in Africa and in South East Asia it tolls around 52%.<sup>5</sup> Anemia prevalence amongst women of childbearing age group aged 15 to 49 in Pakistan is 26% in cities and 47% in rural population.<sup>6</sup>

According to WHO standards, the mean lowest

admissible hemoglobin concentration in pregnancy is agreed to be 11 g/dl. It is further categorized by WHO into mild anemia with hemoglobin levels from 10-10.9 g/dl, moderate anemia with hemoglobin 7.0-9.9 g/dl and severe anemia with hemoglobin <7 g/dl.<sup>7</sup> Anemia in pregnancy has deleterious outcomes not only on health but also on social, and economic status of the country.<sup>8</sup> Anemia in pregnancy can lead to lethargy and risk of reduced physical activity, augmented chance of maternal morbidity and mortality that increases with severity of anemia. Furthermore, anemic pregnant mother and their neonates experience its implications such as fetal anemia, preterm delivery, IUGR, LBW, pre-eclampsia, PPH, prenatal, perinatal and postnatal mortality.<sup>9</sup> In emergent countries, anemia during pregnancy is complex and comprises of multiple causes which include nutritional deficit of iron, vitamin B12, folate, also parasites and vector borne infections, similar to hookworm and malaria.<sup>10</sup> However, iron deficiency contributes

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to 75% of anemia cases. Geography of the area, dietary pattern and a lot of other factors also determine anemia during pregnancy.<sup>11</sup>

There is inadequate data to define the suitable time for screening anemia during pregnancy. Guidelines accessible from The National Institute for Health and Care Excellence (NICE) recommend screening when the pregnancy begins and secondly around 28 weeks, it is also identified that evidence to upkeep this advice is deficient.<sup>12,13</sup> We also considered two readings to screen anemia among pregnant women following the NICE guidelines. The hemoglobin concentrations were obtained from the antenatal hospital records.

A lot of work has been done on anemia in pregnancy but there is a need for updated studies finding out the frequency of anemia in pregnancy, especially in this region of the capital city where there is easy access to tertiary care hospitals. In majority of the cases, anemia can be prevented and is curable if identified early. So, study carried out at Rawal institute of health Sciences to find out the frequency of anemia among pregnant women visiting our hospital will be aiding for the implementation of future interventions to reduce anemia.

## MATERIAL & METHODS

A descriptive cross sectional study from May to July 2019 was carried out at Rawal Institute of Health Sciences, Islamabad, Pakistan. Patients were selected through non probability convenient sampling from those who were booked for antenatal checkups. Multiparous pregnant women were included in the study. Only Primi gravidae and those who were non

booked were excluded from the study. The sampling frame was of 250 pregnant women visiting RIHS. Sample size calculator was used to calculate a sample size of 152. A confidence level of 95% and 5% margin of error was kept for calculations. According to sample size 152 participants were primarily chosen. Among those 100 participants willingly chose to be part of our study. The calculated response rate came out to be 67%. Questionnaire used was self-designed and pre-tested, subsequently the study's questionnaire was restructured. Ethical approval was attained from ERB of RIHS/VP/18-05/2019. The participants were given information sheets with attached consent forms. Consent was pursued from those patients, after comprehensive introduction and description of the study. The researchers themselves supervised the form filling procedure. Anonymity of all the personal information was made sure of. Analysis of data was done by using MS excel. The results were then presented in averages and percentages.

## RESULTS

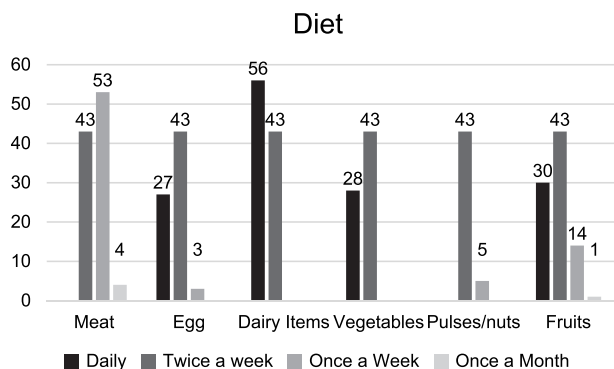
In our study the mean age of the sample was  $27.05 \pm 5.04$  years. The mean height of the participants was 5 ft. The hemoglobin level was found to be less than 7 g/dl in 3% of the pregnant females and 6% had hemoglobin level of 7-9.9% g/dl. In addition to that 68% were mildly anemic with hemoglobin levels in between 10-10.9 g/dl. We also explored the contraception use among pregnant women, 87% were using contraceptives and out of these 50% were working females and 37% were housewives. 20% of females were underweight according to their BMI data in the records and that reduced to 8% at term, overall weight gain was observed according to their records.

Education	n	Religion	n	Rooms in House		Occupation	
Primary	5	Muslim	92	1 room	27	Service	40
Secondary	21	Hindu	0	2 Rooms	52	Business	8
Graduate and above	71	Christian	8	3 Rooms	19	House wife	50
Illiterate	3	Others	0	4or more	2	Others	2

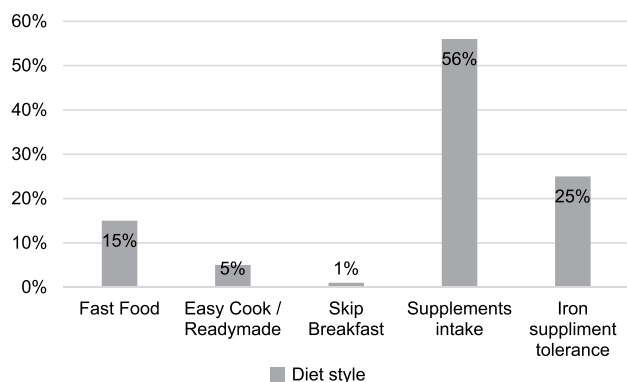
Table-I. Socio demographic factors (n=100)

Mental Health Symptoms	Yes	No
Depressed/diagnosed	8	92
Anxiety/Nervous	33	71
Smoke/Drink	0	100

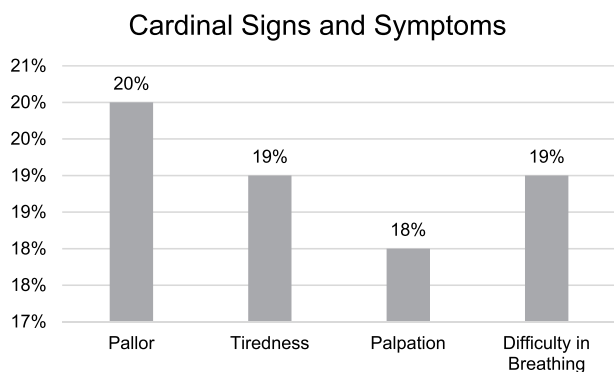
**Table-II. Mental health n=100**



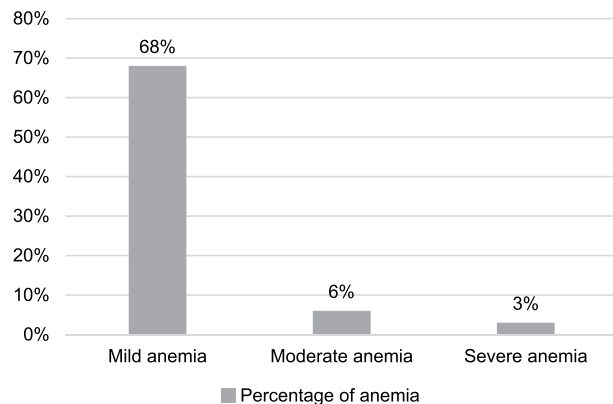
**Figure-1. Dietary pattern**



**Figure-2. Diet style**



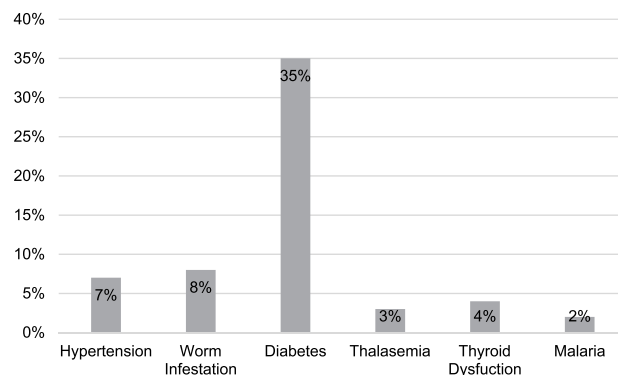
**Figure-3. Signs and symptoms of anemia**



**Figure-4. Comparison of frequency of anemia**

	Pregnant Females n=100
Contraceptive use	87%
Previous history of menorrhagia	19%
Multiparity	100%
Intestinal parasitic infection	3%
Previous low birth weight	32%

**Table-III. History regarding previous pregnancies (n=100)**



**Figure-5. Medical history**

**DISCUSSION**

The frequency of anemia in our sample was higher (77%). Results when compared with other studies from Pakistan, considering it an urban population this rise in number could be attributed to the multiparity of the participants. This fact is also established in many studies that parity increases the risk of anemia.<sup>14,15</sup> According to a research study in 2015 conducted in Faisalabad, 75% population was anemic.<sup>16</sup> Another study in urban area of Pakistan showed 90.5% of participants anemic.<sup>3</sup>

In our study we did not find an improvement in iron levels with high educational background, as only 3% of our sample was illiterate, and out of these, 2% were severely anemic, rest of the women were qualified and employed. While other studies show that illiterate women had anemia levels of about 53%.<sup>17</sup> This variation might be because of characteristics of study populations, which might be different in respect to their socio-economic standing, family settings and employment status. However, severe anemia in pregnant women was lower in our study which is similar to a Tanzania study which is also an urban area with 2% of severe anemia in pregnancy.<sup>18</sup>

In our study, anemia in pregnant women was seen to be higher with presence of clinical illness. A reasonable number of women were hypertensive, diabetic and had also suffered from parasitic infections. The women with co-morbidities along with intestinal parasitic infection were found to be more anemic compared to those without any infection. This is also seen in the researches carried out in other parts of the world including Pakistan.<sup>19,20</sup>

When dietary patterns were explored, it was found that none of the women were taking meat in their diet daily, 43 percent were taking meat twice a week and less amount of portion than recommended dietary meat intake per day.<sup>21</sup> Alternative protein intake was also found low in our study. Poor protein and dietary intake can also be related to poor mental health of the participants, which is also observed in our study, which was also observed in our study.<sup>22</sup>

## CONCLUSION

In conclusion, anemia in this study population was found to be of high frequency making it a leading public health problem. This high frequency according to our study is related to inadequate diet, stress, multiple pregnancies and menorrhagia, clinical illnesses and intestinal parasitic infection.

## RECOMMENDATIONS

Pre-pregnancy screening, balanced nutriment and supplement intake during pregnancy are of

prime importance. So availability of fortified food, to build long term iron stores should be done. To combat working women stresses and related anemia, on job medical checkups in pregnancy should also be incorporated and scheduled by the employer, and also comfortable occupational environment during pregnancy should be provided by the employer. Lack of tolerance for different iron preparations should be considered.

This study paves the path for large scale longitudinal studies with greater sample size, along with more power to the study.






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### AUTHORSHIP AND CONTRIBUTION DECLARATION

No.	Author(s) Full Name	Contribution to the paper	Author(s) Signature
1	Asma Abdul Qadeer	Principal Author, Study conception and design, Data collection, Data analysis, Interpretation of results, Draft manuscript preparation, Reviewed the results and approved the final version of the manuscript.	
2	Rabia Mehmood	Draft manuscript preparation, Reviewed the results and approved the final version of the manuscript.	
3	Saadia Baraan	Reviewed the results and approved the final version of the manuscript.	
4	Nadia Junaid	Reviewed the results and approved the final version of the manuscript.	
5	Sara Bashir Kant	Draft manuscript preparation, Reviewed the results and approved the final version of the manuscript.	
6	Sarah Habib	Data analysis, Reviewed the results and approved the final version of the manuscript.	