

## ANEMIA AMONG PREGNANTS, A CROSS SECTIONAL STUDY IN BAGHDAD

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### ABSTRACT

**Objective:** The study aimed to measure the percentage of anemia among pregnant women attending AL Salam Primary Health Care Center, at AL Amel district. **Methods:** A cross-sectional study was conducted on 996 pregnant women attending our Center, in Baghdad, Iraq, from January 2017 to May 2018. Data were obtained from the records regarding hemoglobin level (which was measured by blood analysis) in addition to related socio-demographic and obstetric factors. **Results:** Percentage of anemia in pregnant women was found to be 56.8%. Mild anemia had the highest percentage. Most of the anemic women were housewives, with secondary level education and in their second trimester of pregnancy. **Conclusion:** The prevalence of anemia was found to be more than 40%. Age, level of education, occupation and trimester of pregnancy reveal an association with the presence of

anemia.

**KEYWORDS:** Anemia, hemoglobin.

### INTRODUCTION

Anemia in pregnancy remains the main health problem, especially in poor resource countries. It's one of the commonest nutritional deficiency disorders during pregnancy.<sup>[1]</sup>

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Anemia is considered as a reduction in the number of red blood cells, hemoglobin, (2) (3) or decreased ability of the blood to carry oxygen.<sup>[4]</sup> Iron deficiency causes decreased red blood cells production<sup>[5]</sup> leading to iron deficiency anemia<sup>[6]</sup>

Anemia in pregnancy is defined by the World Health Organization as hemoglobin level less than 11 gm. / d L. It is further divided into, mild (HB 10-10.9 g /d L), moderate (HB 7.0 -9.9 g / d L) and severe anemia (HB less than 7 g / d L).<sup>[7]</sup>

Pregnant women need more iron and folic acid than usual, making them more vulnerable to be anemic, but there are some factors which increase the risk for anemia such as: multiple pregnancies (more than one child), short interval between pregnancies (less than 2 years), teenager pregnant.<sup>[6]</sup> In addition to other factors such as poor health care access, high parity, vegetarianism, and low socioeconomic status.<sup>[8]</sup>

In most of the cases, anemia can be prevented and treated easily if detected early. Effective management of anemia is by treating the underlying causes, restoration of the HB level to normal, and preventing and treating the complication.<sup>[9]</sup>

For restoration of iron stores, young women require 1.3 mg, while pregnant women need 3.0 mg /day of iron.<sup>[10]</sup> Investment in managing micronutrient deficiency leads to improved health, a decrease in child and maternal mortality and better outcome with a benefit to cost ratio of almost 13 to 1.<sup>[11]</sup>

## METHODS

A cross sectional study was conducted in AL Salam Primary Health Care Centre which is one of the main centers, at AL Amel district in Baghdad from January 2017 to May 2018. this study was approved by the scientific and ethical research committees at AL Kharkh Health Directorate. Total 996 pregnant ladies who attended anti natal care services in the center were enrolled in the study. They were considered anemic, if Haemoglobin level was less than 11 gm. /dl; Pregnant women with anaemia for other causes (such as thalassemia) have been excluded. Information was taken from the participant's medical records regarding demographic characteristics (age, education, occupation), obstetric data such as (parity, trimester of pregnancy, and inter pregnancy interval) and haemoglobin level (which was measured by blood analysis by counting packed cell volume). Data were tabulated by excel

sheet and expressed by tables and figures. Standard deviation and Chi square test were used to look for any statistical significance.

## RESULTS

During the study period 996 pregnant women were included, their age ranges from 14- 42 years with a mean of  $25.57 \pm 6.17$  years standard deviation.

Three hundred ten (31.1%) of them were aged 20- 24 years, 772 (77.5%) were housewives, 564(56.6%) of them with secondary level education, (Table 1) which also show some obstetric characteristics (such as, trimester of pregnancy, spacing and parity).

Out of the 996 participants, 566 (56.8%) were anaemic (haemoglobin level below 11 gm. /dl), most of them 424 (76.2%) had mild anaemia, figure 1.

Table 2. shows that nearly one third of the pregnant women who had anaemia 174 (30.7%) were in the age group 25- 29 years, mostly housewives 462 (81.6%) and with secondary level education, with significant correlation (p value less than 0.0001), except for spacing which shows no significant association.

**Table 1: Some of the Socio-demographic and obstetric characteristics of the participants.**

Age (years)	Number	Per cent %
14 - 19	160	16.1
20- 24	310	31.1
25- 29	276	27.7
30- 34	126	12.7
35 and above	124	12.4
Educational level		
No formal education	14	1.4
Primary	262	26.3
Intermediate and secondary	564	56.6
College	156	15.7
Occupation		
House wife	772	77.5
Employee	168	16.9
Others (student,)	56	5.6
Trimester of pregnancy		
1 -3 months	230	23.1
4 -6 months	488	49
7- 9 months	278	27.9
Inter pregnancy interval ( spacing )		

Less than 2 years	154	15.5
≥ 2 years	842	84.5
<b>Parity</b>		
0	270	27.1
1	168	16.9
2_4	526	52.8
≥ 5	32	3.2
<b>Total</b>	<b>996</b>	<b>100%</b>

**Table 2: Some Sociodemographic And Obstetric Characteristics In Association With Anemia.**

Age group	Anemic		Not anemic		Total		
	No.	%	No.	%	No.	%	
14-19	58	36.3	102	63.7	160	100.0	P Value <0.0001*
20-24	170	54.8	140	45.2	310	100.0	
25-29	174	63.0	102	37.0	276	100.0	
30-34	100	79.4	26	20.6	126	100.0	
≥35	64	51.6	60	48.4	124	100.0	
*the association was statistically significant ( $\chi^2=58.5$ , $df=4$ , $P<0.0001$ )							
<b>Occupation</b>							
Housewives	462	59.8	310	40.2	772	100.0	P Value <0.0003*
Employee	84	50.0	84	50.0	168	100.0	
Others(student)	20	35.7	36	64.3	56	100.0	
*the association was statistically significant ( $\chi^2=16.2$ , $df=2$ , $P<0.0003$ )							
<b>Education</b>							
No formal education	4	28.6	10	71.4	14	100.0	P Value <0.0001*
Primary	118	45.0	144	55.0	262	100.0	
Intermediate & secondary	368	65.3	196	34.7	564	100.0	
College	76	48.7	80	51.3	156	100.0	
*the association was statistically significant ( $\chi^2=39.9$ , $df=3$ , $P<0.0001$ )							
<b>Duration of pregnancy in months</b>							
1-3	82	35.7	148	64.3	230	100.0	P Value <0.0001*
4-6	292	59.8	196	40.2	488	100.0	
7-9	192	69.1	86	30.9	278	100.0	
*the association was statistically significant ( $\chi^2=60.8$ , $df=2$ , $P<0.0001$ )							
<b>Inter pregnancy interval</b>							
Less than 2 years	98	63.6	56	36.4	154	100.0	P Value <0.06*
≥2 years	468	55.6	374	44.4	842	100.0	
*the association was statistically not significant ( $\chi^2=3.44$ , $df=1$ , $P<0.06$ )							
<b>Parity</b>							
0	104	38.5	166	61.5	270	100.0	P Value <0.0001*
1	86	51.2	82	48.8	168	100.0	
2-4	350	66.5	176	33.5	526	100.0	

$\geq 5$	26	81.2	6	18.8	32	100.0
*the association was statistically significant ( $\chi^2=67.1$ , $df=3$ , $P<0.0001$ )						
<b>Total</b>	<b>566</b>		<b>430</b>			<b>996</b>

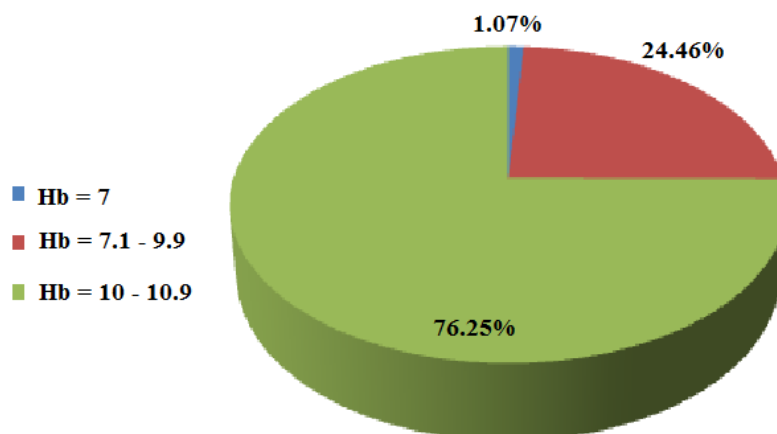


Figure 2 : percentage of types of anaemia

## DISCUSSION

Data from developing countries has revealed the prevalence of anemia during pregnancy that is about 35-75%.<sup>[12]</sup>

Percentage of anemia in this study was 56.8%, which is similar to which was found in eastern Ethiopia by Gode (56.8%)<sup>[13]</sup>, and in Nigeria (54.5%)<sup>[14]</sup>, and nearly equal with a study conducted in Pakistan.<sup>[15]</sup>

This high percentage is probably related to the life style of the pregnant women, which affect their nutritional attitude and their ability to access health services.<sup>[16]</sup>

The commonest types of anemia found were mild to moderate while severe anemia constitute only 1.07%, these results are nearly equal to which was found from Ugwuja et al<sup>[17]</sup> and those of Aluka et al<sup>[18]</sup> and Adinma et al.<sup>[19]</sup>

On assessing the association between the presence of anemia and some socio demographic factors, such as age, level of education and occupation. Regarding age, most of the anemic pregnant were in the age group 25-29 years which agree with findings reported in Karachi<sup>[20]</sup>, in Iran<sup>[21]</sup>, and in Tanzania.<sup>[22]</sup>

About 462 (81.61%) of the anemic pregnant were housewives, which agree with findings reported in Turkey.<sup>[23]</sup>

While for education, most of the pregnant women were either illiterate or just receiving secondary and primary education. Being poorly educated found to affect the occurrence of anemia in pregnancy compared to being well educated; this result confirms the findings in Egypt<sup>[24]</sup>, Sudia Arabia<sup>[25]</sup>, and in Karachi<sup>[20]</sup>, where they found that maternal illiteracy have significant association with anemia, this could be explained by pregnant women usually had limited knowledge and understanding concerning anemia and its influence on health and the necessity for nutrition during pregnancy, referring to the important role of the educational level of the pregnant in management of anemia.<sup>[23]</sup>

The study revealed that trimester of pregnancy found to be an important variable in association with anemia. During the first trimester, the number of women with anemia was the lowest. This is similar to the findings of Komolafe et al<sup>[26]</sup>, and Bukar et al.<sup>[16]</sup>

With increasing the trimester, anemia was also increased. This finding is an agreement with Rasheed in Sudia Arabia<sup>[27]</sup>, and Banerjee in India<sup>[28]</sup>, which both found a large percentage of anemia in the second and third trimesters of pregnancy. This could be to increase sharing of the resources of the pregnant mother with the fetus, with increasing gestational age, leading to decreasing iron.

Without iron supplementation during pregnancy to meet iron demand, iron stores will be depleted especially in the second and third trimesters<sup>[29]</sup>, while with adequate iron supply haemoglobin level increases gradually in the third trimester to the normal levels before pregnancy<sup>[30]</sup>,<sup>[31]</sup> and that what was found in our results.

**Regarding parity**, anemia in pregnancy is generally thought to increase with increasing parity, due to the drain from the iron stores (19), this study agrees with a strong association.

**Regarding inter pregnancy interval**, our results are similar to the findings of Bukar et al.<sup>[16]</sup> This could be to the awareness of the women about the complications of short inter pregnancy interval, or could be due to social and economic reasons.

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