

Original article

Prevalence of Iron Deficiency Anemia Among Pregnant Women in Zawia, Libya

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ABSTRACT

Background: anemia is the most nutritional disorders affecting pregnant women particularly iron deficiency anemia IDA. IDA threatened the mother's life and considered as an established risk factor for intrauterine growth retardation, leading on too poor neonatal health and perinatal death. **Objective:** the aim of the study was to estimate the prevalence of IDA in Zawia city according to their hemoglobin level, age, and education. **Methods and materials:** the study was carried out in different centers in Zawia city, it was comprised 82 pregnant women aged 19-42 years, at various stage of pregnancy, out of 82 women 54 fulfilled the criteria, pregnant women who weren't have known about their hemoglobin, they were excluded. The data collected by using of a questioner including 30 questions were asked to participants face to face. **Data analysis:** after the data is collected it classified and analyzed to determine the percentage of pregnant women suffering from iron deficiency anemia. The data analyzed by using of Microsoft excel (2013). **Results:** the prevalence of anemia in the present study was 85.18%, This prevalence was almost consistent with studies conducted in ZAWIA city over the last years, from the current study it is evidence that pregnant women had poor knowledge regarding main risk of IDA as well as poor practices for IDA prevention.

Keywords: anemia, iron deficiency, pregnancy, and prevalence.

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INTRODUCTION

Anemia is the most common nutritional disorder affecting pregnant women^(1, 2); and the most common type is iron deficiency anemia (IDA) where, the prevalence of iron deficiency anemia, vary across the worldwide from 3% in Europe to more than 50% in Africa^(3,4,5). Furthermore, according to epidemiologic data from WORLD HEALTH ORGANIZATION (WHO), 24.8% of the human population is currently suffering from anemia out of

which a major portion is due to IDA⁽⁶⁾. Significant anemia in pregnancy defined as aHb level <11g/dl in the first trimester or <10g/dl in the second and third trimester, is divided into three levels in terms of severity: Mild anemia (Hb level, 9 -10.9g/dl), Moderate anemia (Hb level, 7- 8.9g/dl), and Severe anemia (Hb level 7-4.5 g/dl)^(7,8). IDA is more common in women than men particularly susceptible groups (pregnant women, children under 5, and those on low income⁽⁹⁾). IDA during

pregnancy not only threatened the mother is life, but also an established risk factor for intrauterine growth retardation, leading on too poor neonatal health and perinatal mortality^(10,11). **Iron deficiency anemia develops in the body in three stages:**

1.Pre latent stage: Iron stores are lowered or absent, serum iron concentration, hemoglobin and hematocrit are normal. This stage of iron deficiency is manifested

with reduction or absence of bone marrow iron stores and reduced serum ferritin level. **2. Latent stage:** serum iron (SI) and transferrin saturation are reduced in addition to reduced iron stores. Hemoglobin and hematocrit are within normal. **3. Marked IDA:** In addition to the depletion of iron stores, serum iron and transferrin saturation hemoglobin and hematocrit levels are reduced⁽¹²⁾.

METHODS AND MATERIALS

The study was carried out in different centers in ZAWIA city, it was comprised 82 pregnant women aged 19-42 years, at various stage of pregnancy, out of 82 women 54 fulfilled the criteria, pregnant women who weren't have known about their hemoglobin, they were excluded. The data collected by using of a questioner including 30 questions were

asked to participants face to face, this questioner includes three section, the first section includes age and stage of pregnancy, where the second section includes education of pregnant and their background on iron deficiency anemia, while the third section includes hemoglobin and severity of iron deficiency anemia based on their Hb level.

RESULTS

From different areas of Zawia city, 82 pregnant women were selected for the purpose of this study. Out of 82 women, 54 fulfilled the criteria.

Estimation of hemoglobin level of 82 women was done. Out of total studies population, 46 women have hemoglobin level less than 11 g/dl. This study showed the prevalence of IDA (defined by the WHO as hemoglobin<11 g/dl) in these subjects was 85.18% **Table 1.**

1. Prevalence of IDA in pregnant women according to their age:

Table 1: prevalence of IDA in pregnant women according to their age.

AGE	HB 7 or less	HB8	HB9	HB10	HB11	HB12 or more	Median HB conc.
<25	8	2	1	2	1	-	7
26- 30	9	2	1	6	-	-	8

31-35	3	-	2	3	1	-	9.5
>36	3	-	2	2	3	1	10

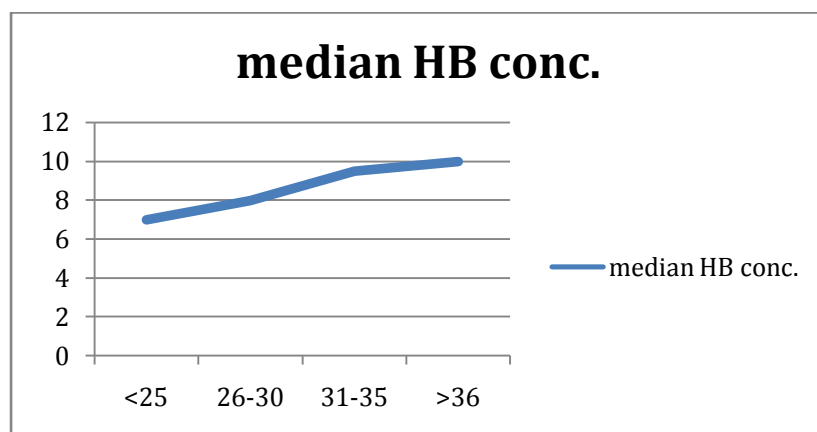


Figure1: the relation between age and median HB conc. of our subjects.

2. Prevalence of IDA based on severity and pregnancy status:

Grading of anaemia is done on WHO classification of anaemia. Out of the total, (33.9%) of the subjects were in their 2nd and 3rd trimester of pregnancy, and the rest of females (32%) were in their 1st trimester. Our study also reflected that,

the women in their 1st trimester represent the highest percentage of those suffering from mild anaemia (56%), where the 2nd trimester women record (50%) of moderate anaemia, and (53%) severe anaemic women in their 3rd trimester as shown in **Table 3**.

Table 3: prevalence of IDA based on severity and pregnancy status.

PREGNANCY STATUS	MILD ANEMIA (10 – 10.9 g/dl)	MODERATE ANEMIA (7 – 10 g/dl)	SEVER ANEMIA Less than 7
1 st trimester	9	4	4
2 nd trimester	4	9	5
3 rd trimester	3	5	10

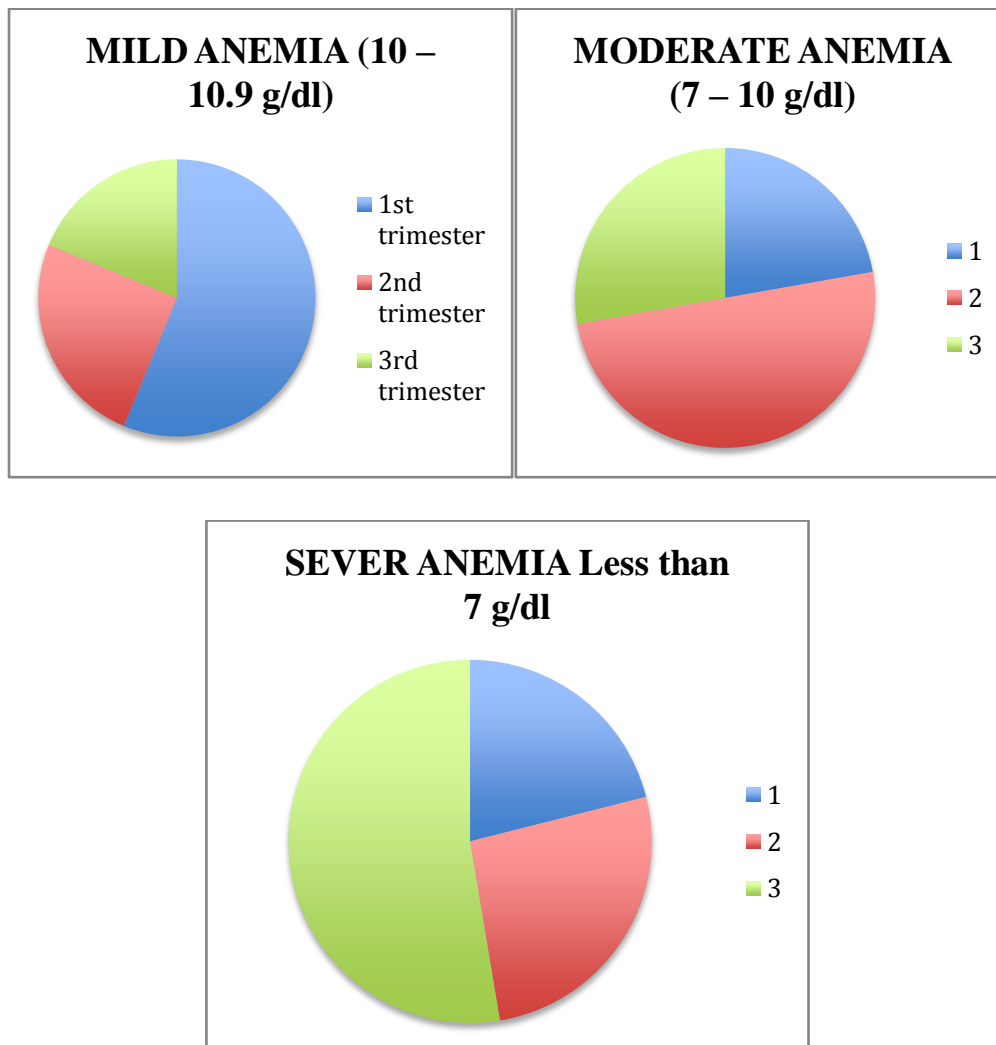


Figure 2: pie chart showing the severity of anemia in each trimester.

3. Health awareness and its effect on pregnant women:

The study population comprised of 82 pregnant women, 50 of them fulfilled the criteria of this section. What we mean by education here is the general background of the subjects, and if they know the strategy that they should follow during their pregnancy. This includes her background of the required and necessary diets, supplements, follow up with their doctor and so on. As shown in **Table 4** the level of education has an effect on the

severity of anaemia. So as we can see the percentage of anaemic non-educated participants is 66.6%, and this is very high when compared to educated group, which is only represent 10.3%.

Education	No. of moderate and sever anemic women.	No. of non anemic women And mild anemic.
Educated (29 out of total)	3	26
Non educated (21 out of total)	14	7

Table 3: Health awareness and its effect on pregnant women.

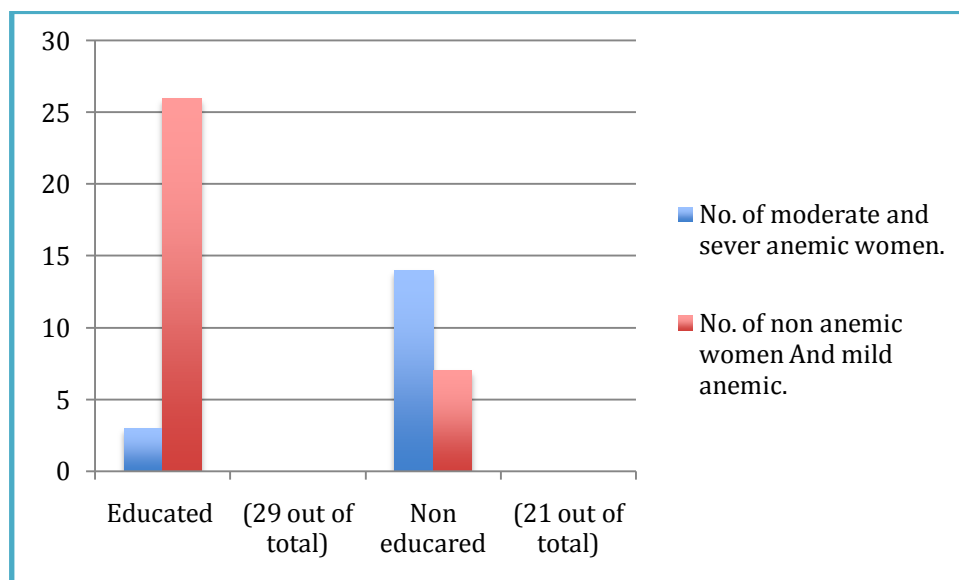


Figure 3: bar chart showing the relation between health awareness and anemia.

DISCUSSION

Anemia is a public issue during conception, the high occurrence of IDA among women during their conception is a matter of concern, the perinatal mortality and morbidity is significantly related to maternal anemia (IDA)⁽¹³⁾. The prevalence of anemia in the present study was 85.18%, this percentage was almost consistent with studies conducted in ZAWIA city. From the current study it is evidence that pregnant women had poor

knowledge regarding main risk of IDA as well as poor practices for IDA prevention. The general knowledge of women about IDA is not sufficient, where when they asked to mention the most important foods which are protective against IDA many of them said during the survey "I don't know about the products that contained iron" but, at the same time, one of the most widespread misconceptions among pregnant women is possibility to

correct and maintain hemoglobin level only by diet. The effect of education in the present study was pronounced, where 66.6% were non-educated they suffering from anemia whereas only 10.3% has some education background, their hemoglobin were more than 11 g/dl as shown in **table 3**. Another analysis conducted according to WHO scale, when hemoglobin level is < 11g/dl, the classification of anemia will varied in the severity as shown in **table 2**, most of our subjects were suffering from mild anemia (56%) they were in the 1st trimester of their pregnancy, while those in the second trimester are suffered from moderate anemia (53%), and in third trimester suffered from sever anemia (53%). This explain that, at the beginning of pregnancy the consumption of iron will be less than that in the last months of it, so as the pregnancy proceeds the consumption will be increased, that's why most of 3rd trimester women suffered from sever anemia.

CONCLUSION

It can be concluded from this study that, anemia due to iron deficiency is highly prevalent in ZAWIA city, The results of the current study were found in Pregnant women in the second and third trimester, were more likely to be anemic when compared to pregnant women in first trimester, and also level of education and maternal age has an important role which may lead to increase the chance of iron deficiency anemia in those subjects, for this reason, awareness and educational programs about the seriousness of iron deficiency anemia should be provided to pregnant women, to increase their knowledge and fill the insufficiency regarding this disorder. And thus, a constant iron supplement and dietary

Regarding age, the prevalence of iron deficiency anemia was more common in women aged 19 to 30 years compared to women aged 31 to 36 years as shown in **table 1** this because the group 19-30 years they still in their reproductive age which require more iron consumption. Other information was collected such as interval between the two pregnancies and parity status, but due to insufficiency of data it were excluded. However from the available cases it was clear that, the shorter time between two pregnancies the more susceptible to iron deficiency anemia and vice versa, in addition as the number of pregnancies be high (multigravida or grand multi) the women will be more susceptible to iron deficiency anemia. Another issue that most of pregnant women fall in is being aware of their pregnancy just during the second trimester. So they had a lack of iron intake at the time of pregnancy, this will have an impact on the mother and neonate is health.

diversification is required for pregnant women during conception particularly in our city where most of our diets have a low bioavailability of iron.

Disclaimer

The article has not been previously presented or published, and is not part of a thesis project.

Conflict of Interest

There are no financial, personal, or professional conflicts of interest to declare.

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