

**DETERMINATION THE TYPE OF MORPHOLOGICAL ANAEMIA  
IN PREGNANT WOMEN**

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**ABSTRACT**

**Background:** A low birth weight is caused by anaemia, a serious health issue that affects pregnant women and substantially influences the mother's health and baby.

**Aim:** To identify the morphological kind of anaemia in anemic pregnant women and contrast that information with other statistics from other Iraqi cities.

**Patients and Methods:** Using a systematic random sample approach, 112 pregnant women were chosen for detailed, cross-sectional research at the "Al-Batool teaching hospital for maternity and children in Baqubah, Diyala, Iraq," between 29/9/2014 to 29/5/2015. Following a clinical evaluation, a blood count was performed, and complete participant information—including antenatal characteristics and sociodemographic like age, employment of pregnant women, interpregnancy interval, gravity, maternal healthcare visit, iron, and folic acid obtaining, any medical issues, and intensity of anaemia—was documented on a pretested form.

**Results:** From out 112 pregnant women, 48 (42.8%) had moderate anaemia, compared to 39.28% who had mild anaemia and 17.85% who had severe anaemia. Patients' ages varied from (17 to 42), with a mean age of 29.48. Hypochromic microcytic anaemia was the most common kind (67.85%), followed by 22 (19.6%) normochromic microcytic anaemia in non-worker, multiparous, and women with birth intervals between 103 years. A statistical study showed a substantial difference between women who visited regularly and those who took iron folic acid.

**Conclusion:** Multigravidae had a greater risk of iron deficiency anaemia than other groups. A comprehensive system should be developed to promote nutrition and health among pregnant ladies. Women's education on early ANC visits, the usage of iron and folic acid supplements

**Keywords:** Anaemia, pregnant women, iron deficiency, risk factor.

**INTRODUCTION**

Depending on a regression-based study, the WHO's worldwide database on anaemia has assessed a prevalence of around 14% [1]. Additionally, it identifies anaemia as a significant problem for public health in nations where the expansion of anaemia is more than 40% [2]. It is divided into 3 degrees: mild (9.0-10.9gm%), moderate (7.0-8.9gm%), and severe (<7.0 gm %) [3]. It is described as Hb less than 11gm in pregnancy. Compared to the first and second trimesters of pregnancy, it is noticeably greater in the third.

The prevalence of anaemia is most remarkable in Asia. Most anaemic women are from the countries of the Indian subcontinent. 88% of such women get anaemia during pregnancy[4].

The cause of anaemia in women is covered in depth in the literature available today. The most frequent cause of anaemia in women of reproductive age globally is iron deficiency

anaemia (IDA), according to statistics [5,6].

In this study, we depended on the below morphological classification of anaemia[7].

**The causes of normocytic and normochromic anaemias are:**

- Anaemia of acute hemorrhage.
- Hemolytic anaemia.
- Anaemia due to chronic diseases.

**The causes of microcytic anaemias and hypochromic are:**

- Thalassemia.
- Iron deficiency anaemia.

**The causes of Macrocytic Anaemias and Normochromic are:**

- Vit. B12 deficiency.
- Folate deficiency.

Knowing the types of anaemia among pregnant women and comparing that with other regions is the target of our research. This study gives data for the research institute, Clinicians, and all health institution workers and participates in determining the treatment guidelines.

Previous studies in different cities of Iraq (Baghdad, Wasit, and Basrah) show that Iron deficiency anaemia was the most common type of morphological anaemia among pregnant ladies.

The effects of anaemia extend beyond the mother and impact the baby [8]. An iron deficiency brings on anaemia in pregnancy, which may raise the risk of maternal morbidity and mortality, cause preterm birth, and result in low birth weight. Consequently, pregnant women should take frequent anaemia screening tests [9]. The consequences of IDA have been widely studied [10, 11, 12].

## **METHODOLOGY**

### **Study design**

Using a systematic random sampling approach, one hundred and twelve anemic pregnant women were chosen for detailed, cross-sectional research from the “Al-Batool teaching hospital” for pregnancy and children in Baqubah city between 9/29/2014 to 29/5/2015.

### **Ethical approval**

The ethical approval was received from the administration of “Al-Batool Teaching Hospital in Baqubah, Diyala,” Iraq. Additionally, the women were made fully aware of their ability to decline participation in the study.

### **Sampling and processing**

On a coulter counter, a complete blood count was performed. The morphology of the blood cells was examined on a thin blood film stained with Giemsa. Blood samples were collected into an EDTA tube to determine the type of anaemia by the “hematological parameters” such as hemoglobin (Hb), MCV, MCH, and MCHC in all the samples.

A questionnaire included age, the mother’s job, weight, interpregnancy duration, maternity care visit, presence of any medical conditions, iron and folic acid intake, and the level of anaemia.

### **Statistical analysis**

The statistical software for “social sciences (SPSS) version 16” was used to examine the data. Using the Chi-square test, proportional differences were evaluated. Statistics were found necessary for P-values under 0.05.

**RESULTS**

We evaluated 112 pregnant women for the morphology of anaemia. Figure 1 lists the sociodemographic characteristics of the study group. The minimum age was 17 years, and the maximum was 42 years; the mean age was 37 years. Significant differences were noticed among the age group ( $P < 0.05$ ). Most women were non-workers 85(75.89%). Regarding parity, a large percentage of ladies were multipara 62(55.35%) then primipara 37(28.57%). Additionally, it was noted that the most significant number of research participants, 64 (57.14%), were a 1–3-year birth separation 42(37.5%). Some ladies even had less than a year of space; about 6 (5.35) women had births separated by more than three years.

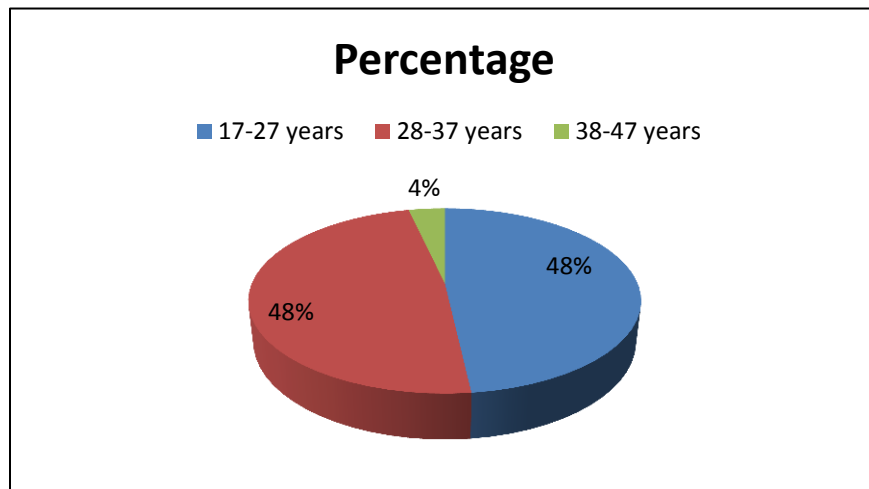


Figure (1) A. Socio-demographic details of the study group (P-value <0.001)



Figure (1) B. Socio-demographic details of the study group (P-value <0.001)

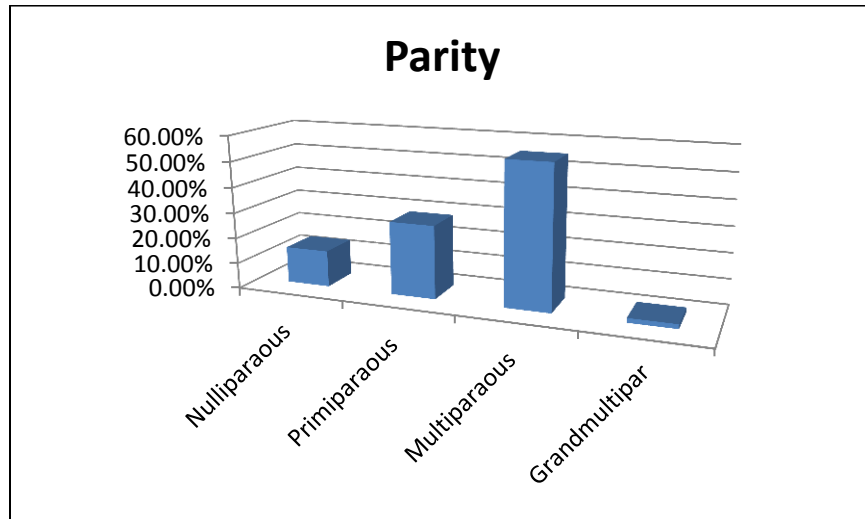


Figure (1) C. Socio-demographic details of the study group (P-value <0.001)

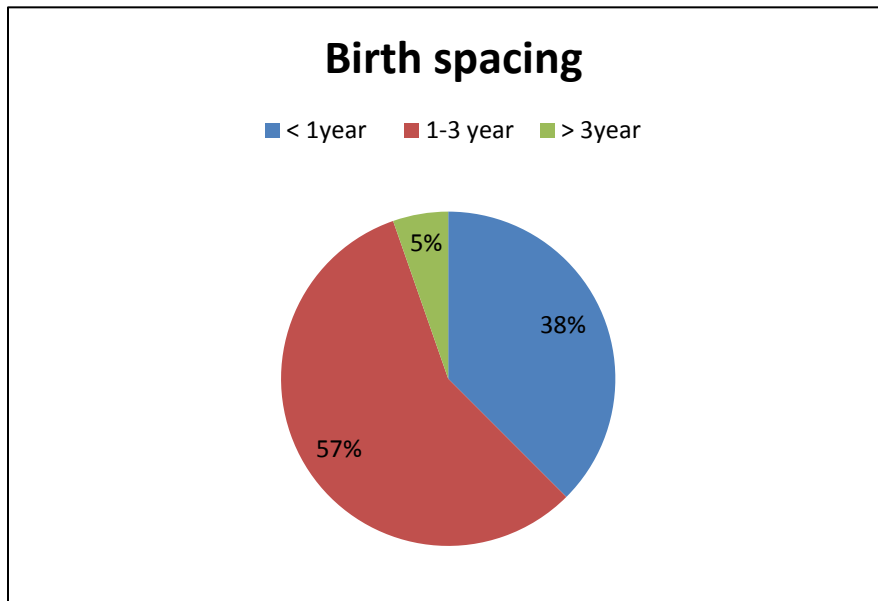


Figure (1) D. Socio-demographic details of the study group (P-value <0.001)

Anaemia was distributed as “severe (haemoglobin <7 g/dl), moderate (7- 9.9 g/dl), and mild” (≥10 g/dl); according to the result of this study, 20 patients (17.85%) had severe anaemia, 48 (42.85%) had moderate anaemia, and 44 (39.28%) had mild anaemia. Statistical analysis shows significant differences, as in figure 2.

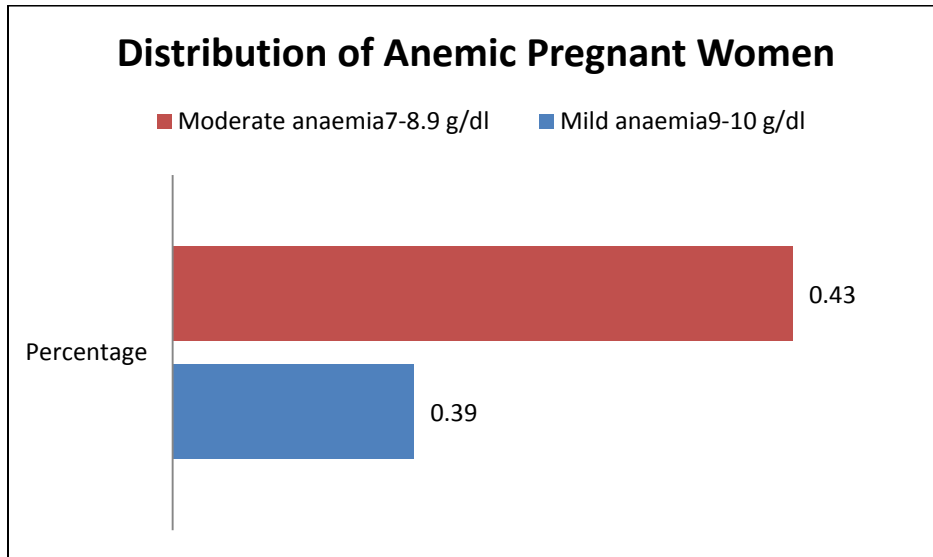


Figure (2) A Distribution of anemic pregnant women according to severity of anaemia

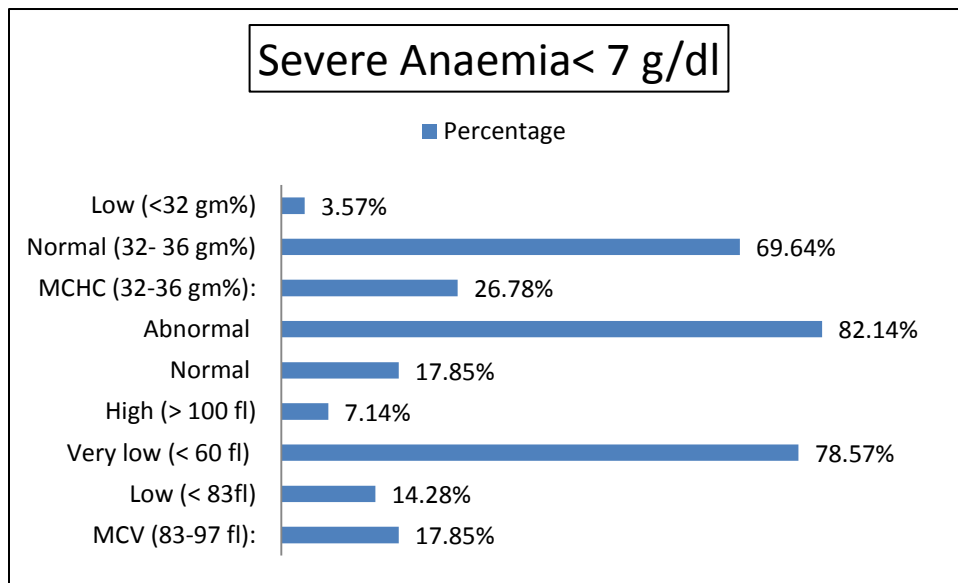


Figure (2) B Distribution of anemic pregnant women according to severity of anaemia Typing of anaemia was determined by morphological examination of the peripheral blood film; the results revealed that 87 anemic pregnant women (67.85%) had hypochromic microcytic anaemia, 22 (19.6%) normochromic microcytic anaemias. While 10 (8.92%) had normochromic normocytic as shown in table 1.

Type of Anemia	Frequency	Percentage
Hypochromic Microcytic Anaemia	87	73
Normochromic Microcytic Anaemias	22	18.5
Normochromic Normocytic	10	8.5
<b>Total</b>	<b>119</b>	<b>100</b>

Table (1): Anaemia types in pregnant women.

According to the subjects "visitors to antenatal care, "the more significant number of them illustrated regular visits, and they accounted for 50(44.643%), followed by an irregular visit, and they are accounted 24(21.42%), and finally, non-visits accounted for 38 (33.92%). Therefore, the prevalence of anaemia was higher among women with regular visitors to antenatal care, which and statistical analysis show a significant difference ( $P= 0.011$ ) as in table (2).

<b>Antenatal Care visit</b>	<b>Frequency</b>	<b>Percentage</b>
Regular Visits	50	44.643
Irregular Visit	24	21.42
Non Visits	38	33.92
<b>Total</b>	<b>112</b>	<b>100</b>
<b>P Value = 0.011</b>		

Table (2): Distribution of anemic pregnant women according to antenatal care (ANC) visit.

Pregnant women's distribution according to the receiving of iron and folic acid demonstrated that 62 (55.35%) with iron-folic acid taken while non-taken constituted 50(44.64%); however, the distinction was minor ( $p=0.257$ ) as shown in table 3

<b>Iron-Folic</b>	<b>Frequency</b>	<b>Percentage</b>
iron-folic acid	62	55.35
non-taken	50	44.64
<b>Total</b>	<b>112</b>	<b>100</b>
<b>P Value = 0.257</b>		

Table (3): Division of anaemic pregnant ladies based on using iron and folic acid (IFA) pills.

Most familiar diagnosis 108 (96.42%) in anemic patients without any medical problem. Four cases had only 4 (3.57%) hypertension, as shown in table (4).

<b>Medical Problem</b>	<b>Frequency</b>	<b>Percentage</b>
With Medical Problem	4	3.57
Without Medical Problem	108	96.42
<b>Total</b>	<b>112</b>	<b>100</b>

Table (4): Distribution of study group according to any medical problem

## DISCUSSION

Anaemia is a severe public health issue that affects both emerging and industrialized nations, significantly impacting the economic and social growth of people's health. Although it can happen at any stage of life, it's more common in infants and pregnant women. Contemporary strategies for avoiding and treating anaemia in pregnant ladies in developing countries have had negligible efficacy [16].

In 20 cases, severe anaemia was discovered. Compared to the Geelhoed research, which found no cases of severe anaemia[19]. Also, with [20].

According to the study, anaemia is more prevalent in multiparity due to the depletion of iron brought on by repeated deliveries and those who did not regain and make up for it [13,14,15].

The leading causes of the high incidence of anaemia in the community are multiparity, educational statuses, and poor socioeconomic [21]. The high rate of anaemia in pregnant, jobless ladies in this study suggests that poverty brought on by unemployment might have considerably led to the high rate of anaemia because the women are unable to receive maternity care, consume nutritional food, or guard against potential infections.

A study done by Khalil *et al.* (2007) made it known that birth order had no bearing on the result. Anaemia was more likely to develop after two years than after six. As defined in the inclusion criteria, age had no bearing on the anaemia pattern, and primigravida was just as likely to be anaemic as the third gravida. The consumption of pills did not provide any clear indications, other than that neither of the groups routinely consumed them. Daily supplements were as likely to be consumed by anaemic patients as they were by non-anemic individuals.

Nevertheless, even taking frequent iron supplements, ladies who were not anaemic in the first and second trimesters of pregnancy could not avoid becoming anaemic in the third. The already low iron levels at the beginning of the pregnancy are most likely to blame. Nutrients were comparable, too. Meat and pulses are consumed "every other day." with frequent consumption of fruits and salads (This might be the reason why the sample didn't have any megaloblastic anaemia) [23].

This is consistent with the fact that the most prevalent anaemia in pregnancy is iron deficiency anaemia, which is more common than anaemia and frequently manifests in the latter phases of pregnancy, also in women who start their pregnancies with adequate iron levels [25]. Iron deficiency is widespread throughout certain life stages, including puberty, pregnancy, and lactation.

The findings of this study were also presented to us, showing that pregnant ladies who take vitamin B12 and iron have a greater incidence of anaemia than pregnant women who do not take this preventative medication. These results disagree with [13].

The development of anaemia in pregnant women taking these medications may result from incomplete or incorrect usage of these preventive medications. As the developing fetus consumes 500 mg of iron all through pregnancy, despite the woman having an iron deficiency, iron deficiency is one of the most common causes of anaemia in the world, with the ratio of occurrence in tropical regions with lower meat consumption.

The study's findings, which include that iron deficiency anaemia is still a serious health issue in Baqubah city and that multigravidae are more at risk than others, demonstrate the persistence of anaemia in pregnancy as a significant public health issue.

Thus, comprehensive nutrition awareness and promotion programs should focus on pregnant women. In addition, these programs should inform women about the need for early ANC visits and the use of iron plus folate supplements.

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