

A Study to Assess the Level of Knowledge Regarding Iron and Folic Acid Deficiency Anemia Among Antenatal Mothers of Selected Area of Maharashtra with A View to Develop an Information Booklet

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Abstract—Background: Iron and folic acid deficiency anaemia is a major public health problem among antenatal mothers and may adversely affect maternal and fetal health. Adequate knowledge regarding prevention, dietary sources, supplementation, and management is essential for reducing the risk of anaemia during pregnancy. **Objectives:** The study aimed to assess the level of knowledge regarding iron and folic acid deficiency anaemia among antenatal mothers and to determine the association between their knowledge level and selected socio-demographic variables. An information booklet was also developed for antenatal mothers. **Methodology:** A quantitative research approach with a descriptive research design was adopted. A sample of 60 antenatal mothers was selected using a non-probability convenience sampling technique. Data were collected using a self-structured questionnaire. The collected data were analyzed using descriptive and inferential statistics, including the Chi-square test. **Results:** The findings revealed that 11 (18.3%) antenatal mothers had poor knowledge, 32 (53.3%) had average knowledge, 14 (23.3%) had good knowledge, and 3 (5.0%) had excellent knowledge regarding iron and folic acid deficiency anaemia. A significant association was found between knowledge level and age ($\chi^2 = 19.21$, $df = 9$, $p = 0.023$), parity ($\chi^2 = 8.27$, $df = 3$, $p = 0.041$), and educational qualification ($\chi^2 = 49.62$, $df = 9$, $p < 0.001$). No significant association was found with type of family ($\chi^2 = 1.25$, $df = 3$, $p = 0.741$) or place of residence ($\chi^2 = 11.66$, $df = 6$, $p = 0.070$). **Conclusion:** The study concluded that the majority of antenatal mothers had an average level of knowledge regarding iron and folic acid deficiency anaemia. The findings indicate a need for targeted health education to improve maternal awareness regarding prevention and management of anaemia. An information booklet was

developed to support antenatal mothers in improving their knowledge and adopting appropriate preventive practices.

Index Terms—Antenatal Mothers; Iron Deficiency Anaemia; Folic Acid Deficiency; Knowledge; Pregnancy; Anaemia Prevention; Health Education; Information Booklet.

I. INTRODUCTION

“Maternal health remains a staggering challenge, particularly in the developing world. Globally, a woman dies from complications in childbirth every minute.”

Jessica Capshaw.

Anemia is one of the most prevalent nutritional deficiency disorders and a major public health problem affecting populations worldwide, particularly women of reproductive age and pregnant women. According to the World Health Organization (WHO), anemia is defined as a condition in which the number of red blood cells or the hemoglobin concentration within them is lower than normal, resulting in reduced oxygen-carrying capacity of the blood. Among the various types of anemia, Iron and Folic Acid Deficiency Anemia is the most common nutritional deficiency during pregnancy and contributes significantly to maternal and fetal morbidity and mortality.

Pregnancy is a crucial period in a woman's life characterized by increased physiological and metabolic demands. During pregnancy, the body

requires additional iron and folic acid to support the growth and development of the fetus, expansion of maternal blood volume, and formation of the placenta. Iron is an essential component of hemoglobin, which transports oxygen to tissues and organs, while folic acid plays a vital role in DNA synthesis, cell division, and fetal neural tube development. Inadequate intake or poor absorption of these nutrients can lead to Iron and Folic Acid Deficiency Anemia, adversely affecting both maternal and fetal health.¹

Iron Deficiency Anemia (IDA) occurs when the body's iron stores become depleted, resulting in insufficient hemoglobin production. Folic Acid Deficiency Anemia develops due to inadequate folate levels required for normal red blood cell formation. These deficiencies may occur individually or simultaneously, especially among pregnant women who have increased nutritional requirements. Factors such as poor dietary habits, repeated pregnancies, inadequate spacing between births, low socioeconomic status, parasitic infestations, infections, and lack of awareness regarding nutritional requirements contribute significantly to the development of anemia during pregnancy.

II. BACKGROUND OF THE STUDY

Pregnancy is a crucial period in a woman's life that demands increased nutritional requirements to support maternal health and fetal growth. Among the various nutritional deficiencies affecting pregnant women, iron and folic acid deficiency anemia remains one of the most common and significant public health problems worldwide. Anemia during pregnancy is associated with adverse maternal and neonatal outcomes, making it a major concern for healthcare providers, policymakers, and public health professionals. Despite the availability of preventive measures and supplementation programs, anemia continues to affect a substantial proportion of antenatal mothers, particularly in developing countries such as India.

According to the World Health Organization (WHO), anemia is defined during pregnancy as a hemoglobin concentration below 11 g/dL. Iron deficiency is the leading cause of anemia, accounting for nearly half of all anemia cases globally. Folic acid deficiency also contributes significantly to the development of

anemia and is associated with neural tube defects and impaired fetal development. During pregnancy, the demand for iron increases considerably due to the expansion of maternal blood volume, growth of the fetus and placenta, and preparation for blood loss during childbirth. Similarly, folic acid requirements increase because of rapid cellular growth and fetal tissue development.¹

III. NEED FOR THE STUDY

Iron and folic acid deficiency anemia (IDA) remains one of the most significant public health problems among pregnant women worldwide, particularly in developing countries such as India. Pregnancy is a period of increased nutritional demand, and adequate iron and folic acid intake is essential for maternal well-being, fetal growth, and favorable pregnancy outcomes. Despite the implementation of various national health programs and supplementation initiatives, anemia continues to affect a large proportion of antenatal mothers. Therefore, assessing the level of knowledge regarding iron and folic acid deficiency anemia among antenatal mothers is crucial for planning effective educational interventions.

According to the World Health Organization (WHO), more than 40% of pregnant women globally are affected by anemia, with iron deficiency accounting for at least half of these cases. During pregnancy, the demand for iron increases substantially to support the expansion of maternal blood volume, placental development, and fetal growth. Similarly, folic acid is essential for DNA synthesis, cell division, and prevention of neural tube defects in the developing fetus. Deficiencies of these nutrients can lead to maternal anemia, increased susceptibility to infections, preterm birth, low birth weight, fetal growth restriction, and maternal mortality. WHO recommends daily supplementation of 30–60 mg elemental iron along with 400 µg folic acid throughout pregnancy to prevent these adverse outcomes.⁵

India bears a significant burden of anemia among women of reproductive age. Recent national data indicate that more than half of Indian women are anemic, and the prevalence among pregnant women remains alarmingly high. Anemia during pregnancy not only affects maternal health but also contributes to poor neonatal outcomes and intergenerational

cycles of malnutrition. Despite free distribution of iron and folic acid tablets through antenatal care services under various government programs, many women continue to suffer from anemia due to poor awareness, inadequate compliance, misconceptions about supplementation, dietary deficiencies, and lack of knowledge regarding preventive measures.

IV. RESEARCH QUESTIONS

1. What is the level of knowledge regarding iron and folic acid deficiency anaemia among antenatal mothers in a selected area of Maharashtra?
2. Is there any significant association between the level of knowledge regarding iron and folic acid deficiency anaemia and selected socio-demographic variables of antenatal mothers?

V. OBJECTIVES

1. To assess the level of knowledge regarding iron and folic acid deficiency anaemia among antenatal mothers in a selected area of Maharashtra.
2. To determine the association between the level of knowledge regarding iron and folic acid deficiency anaemia with selected socio-demographic variables of antenatal mothers.
3. To develop and distribute an information booklet on iron and folic acid deficiency anemia for antenatal mothers.

VI. VARIABLES

There are total two types of variables in the study are as follows:

Research variable: level of knowledge regarding iron and folic acid deficiency anemia among antenatal mothers in a selected area of Maharashtra.

Demographic variable: Age, Parity, Educational Qualification, type of family, place of residence.

VII. METHODOLOGY

The study adopted a quantitative research approach with a descriptive research design. The population of the study consisted of all antenatal mothers in the selected area of Maharashtra, while the target population comprised antenatal mothers residing in

the selected area. The accessible population included antenatal mothers who were available at the time of data collection. A sample of 60 antenatal mothers was selected using a non-probability convenience sampling technique, based on the predetermined inclusion and exclusion criteria. Data were collected using a self-structured questionnaire. The research tool was validated by subject experts, and its reliability was established using the test-retest method. After obtaining the necessary permissions and consent from the participants, the researcher administered the research tool and collected the required data. The collected data were systematically coded, tabulated, analyzed, and interpreted using descriptive and inferential statistics and presented through appropriate tables and graphs. Based on the findings, an information booklet was prepared. Finally, the research report/dissertation was prepared and submitted, and the findings were considered for publication.

VIII.ASSESSMENT OF EXISTING KNOWLEDGE SCORE OF ANTENATAL MOTHERS REGARDING IRON AND FOLIC ACID DEFICIENCY ANEMIA

Table 1.: Assessment of Existing knowledge score of antenatal mothers regarding iron and folic acid deficiency anemia

n=60

Knowledge Level	Frequency (n)	Percentage (%)
Poor	11	18.3
Average	32	53.3
Good	14	23.3
Excellent	3	5.0
Total	60	100.0

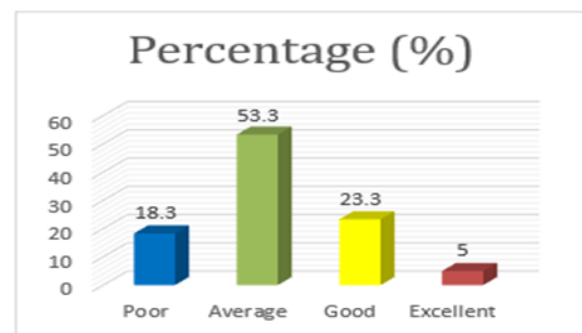


Figure 1.1: Assessment of Existing knowledge score of antenatal mothers regarding Iron and folic acid deficiency anemia

INTERPRETATION

The above table shows the distribution of antenatal mothers according to their level of knowledge regarding iron and folic acid deficiency anemia. Out of 60 antenatal mothers, the majority, 32 (53.3%), had an average level of knowledge. 14 (23.3%) mothers demonstrated a good level of knowledge, while 11 (18.3%) had poor knowledge regarding the subject. Only 3 (5.0%) mothers possessed an excellent level of knowledge.

These findings indicate that more than half of the antenatal mothers had only an average understanding of iron and folic acid deficiency anemia, and nearly one-fifth had poor knowledge. The very low percentage of mothers with excellent knowledge suggests a need for educational interventions. Therefore, developing and providing an information booklet may help improve the knowledge and awareness of antenatal mothers regarding the prevention and management of iron and folic acid deficiency anemia.

IX. ASSOCIATION OF PRE-TEST KNOWLEDGE SCORE OF ANTENATAL MOTHERS WITH THEIR DEMOGRAPHIC VARIABLES

Table No-1.2: Association Between Level of Knowledge and Selected Demographic Variables Using Chi-square Test

(N = 60)

Variable	χ^2	df	P-value	Decision
Age	19.21	9	0.023	Significant
Parity	8.27	3	0.041	Significant
Educational Qualification	49.62	9	<0.001	Highly Significant
Type of Family	1.25	3	0.741	Not Significant
Place of Residence	11.66	6	0.070	Not Significant

INTERPRETATION

The Chi-square analysis revealed that age was significantly associated with the level of knowledge ($\chi^2 = 19.21$, df = 9, p = 0.023). Hence, the null hypothesis for age was rejected.

Parity also showed a statistically significant association with knowledge ($\chi^2 = 8.27$, df = 3, p =

0.041). Therefore, the null hypothesis for parity was rejected.

Educational qualification demonstrated a highly significant association with knowledge ($\chi^2 = 49.62$, df = 9, p < 0.001), indicating that mothers with higher educational attainment possessed better knowledge regarding iron and folic acid deficiency anaemia. Thus, the null hypothesis was rejected.

However, no statistically significant association was observed between knowledge and type of family ($\chi^2 = 1.25$, df = 3, p = 0.741). Likewise, place of residence was not significantly associated with knowledge ($\chi^2 = 11.66$, df = 6, p = 0.070). Therefore, the null hypothesis was accepted for these variables.

X. CONCLUSION

The findings of the present study revealed that most antenatal mothers possessed only an average level of knowledge regarding iron and folic acid deficiency anaemia. Educational qualification, age, and parity significantly influenced knowledge levels, whereas type of family and place of residence did not show statistically significant associations. These findings highlight the need for targeted health education programmes to improve awareness among antenatal mothers and promote preventive practices against iron and folic acid deficiency anaemia.

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