

Analysis of Factors Affecting Pregnant Women's Adherence to Iron (Fe) Tablet Intake

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Article Info	ABSTRACT
Keywords: Adherence; Pregnant Women; Iron (Fe) Tablets	Background: The World Health Organization (WHO) recommends that all pregnant women receive a daily supplement containing 30–60 mg of elemental iron and 400 µg of folic acid throughout pregnancy as part of antenatal care (ANC). The 2010 Indonesian Basic Health Research (Riskesdas) reported that 80.7% of women aged 10–59 years received or purchased iron (Fe) tablets. However, 19.3% of pregnant women did not consume iron tablets, and only 18.0% consumed 90 tablets or more during pregnancy. This study aimed to analyze the factors influencing pregnant women's adherence to iron (Fe) tablet consumption. Methods: This quantitative study involved a population and sample of 28 pregnant women, selected using a total sampling technique. Data were analyzed using bivariate correlation tests with a significance level of $p < 0.05$. The study was conducted at Rasanae Timur Public Health Center, Bima City, West Nusa Tenggara Province, Indonesia, in 2024. Results: The results showed that parity ($p < 0.04$), knowledge ($p < 0.03$), and motivation ($p < 0.04$) were significantly associated with pregnant women's adherence to iron (Fe) tablet consumption. In contrast, age ($p > 0.20$), education ($p > 0.30$), and occupation ($p > 0.10$) were not significantly associated with adherence to iron (Fe) tablet consumption. Conclusion: Parity, knowledge, and motivation significantly influence pregnant women's adherence to iron (Fe) tablet consumption. Therefore, health education should be strengthened to improve awareness of the importance of consuming iron supplements during pregnancy.
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INTRODUCTION

Iron (Fe) is an essential micronutrient required for normal physiological functions. Iron supplementation during pregnancy is closely associated with maternal hemoglobin levels. Anemia in pregnant women may lead to miscarriage, preterm birth, low birth weight (LBW), antepartum and intrapartum hemorrhage, and even maternal and fetal mortality. According to the World Health Organization (WHO), the prevalence of anemia among pregnant women worldwide remained high in 2017, primarily due to inadequate adherence to iron tablet consumption. Globally, the prevalence of anemia in pregnancy was estimated at 41.8%, and approximately 800 women die every day from pregnancy-related complications,

including severe postpartum hemorrhage. The prevalence of anemia among pregnant women was reported to be 57.1% in Africa, 24.1% in the Americas, and 25.1% in Europe [1].

The WHO recommends that all pregnant women receive a daily supplement containing 30–60 mg of elemental iron and 400 µg of folic acid throughout pregnancy as part of routine antenatal care (ANC). Many countries aim for every pregnant woman to consume at least 90 iron tablets during pregnancy to reduce the risk of maternal anemia and its complications [2]. The 2010 Indonesian Basic Health Research (Riskesdas) reported that 80.7% of women aged 10–59 years had received or purchased iron tablets. However, 19.3% of pregnant women did not consume iron tablets, and only 18.0% consumed 90 tablets or more during pregnancy. Furthermore, 15.3% of pregnant women reported that they did not know the correct instructions for taking iron tablets, while 36.3% consumed iron tablets for only 0–30 days during pregnancy [3].

The 2018 Indonesian Basic Health Research (Riskesdas) showed that 73.2% of pregnant women consumed iron tablets, but only 38.1% completed the recommended intake of at least 90 tablets during pregnancy. According to data from the Directorate General of Public Health, Ministry of Health of the Republic of Indonesia, the coverage of iron tablet distribution among pregnant women reached 79.0% in 2014 and increased to 85.17% in 2015. In 2016, only 40.2% of pregnant women consumed at least 90 iron tablets, whereas 53.1% consumed fewer than 90 tablets. These figures remained below the national Minimum Service Standard (SPM), which targets 90% coverage of iron tablet supplementation among pregnant women. Similarly, the coverage in 2017 was 80.81%, which also failed to meet the national target, and further declined to 73.2% in 2018.

According to Mardhiah and Marlina (2019), adherence to iron tablet consumption refers to the extent to which pregnant women follow healthcare providers' recommendations regarding regular iron supplementation. Adherence can be assessed based on the correctness of the method of taking the tablets, the number of tablets consumed, and the frequency of daily intake. Pregnant women who do not adhere to the prescribed iron supplementation regimen have a greater risk of developing anemia [4]. Maternal anemia has serious consequences for both the mother and the fetus, including low birth weight, preterm delivery, miscarriage, postpartum hemorrhage, prolonged labor, and hypovolemic shock [5].

Several factors influence pregnant women's adherence to iron tablet consumption. These include inadequate knowledge regarding the instructions provided by healthcare workers, insufficient information about the importance of iron supplementation, low motivation, maternal attitudes toward iron supplementation, the quality of communication between healthcare providers and pregnant women, and inadequate family support [1]. In addition, maternal characteristics such as age, educational level, and occupation have also been reported to influence adherence to iron supplementation [6].

Alfi Nurlah (2018) reported that inadequate knowledge regarding the importance of iron supplementation is one of the primary causes of non-adherence among pregnant women, as knowledge is acquired through various sources of information and serves as the

foundation for health-related behavior [7]. Maternal attitudes also play an important role in determining adherence to iron tablet consumption. Wiknjosastro highlighted that the knowledge and information obtained by pregnant women strongly influence their attitudes and behaviors toward compliance with iron supplementation. Furthermore, family support is an important determinant of adherence. Family support encompasses attitudes, actions, encouragement, acceptance, motivation, and assistance provided by family members, creating a sense of security and comfort for pregnant women. Such support motivates pregnant women to consistently consume iron tablets as recommended by healthcare providers to prevent anemia during pregnancy. Healthcare workers also play a crucial role in improving adherence through effective communication, counseling, and education regarding the benefits of iron supplementation [7].

Based on the above background, further investigation is required to identify the factors associated with pregnant women's adherence to iron tablet consumption. Therefore, this study aimed to analyze the factors influencing pregnant women's adherence to consuming iron (Fe) tablets.

METHODS

This study employed a quantitative research design. The study population consisted of all pregnant women who attended antenatal care services at the Rasana'e Timur Public Health Center, Bima City, West Nusa Tenggara Province, Indonesia, in August 2024, totaling 28 pregnant women [8]. The study sample included all members of the population ($n = 28$). Therefore, a total sampling technique was applied, whereby all eligible pregnant women were recruited as research participants [9].

The study was conducted at the Rasana'e Timur Public Health Center, Bima City, West Nusa Tenggara Province, Indonesia, in 2024. Data were collected using a structured questionnaire. Both primary and secondary data were obtained for analysis. Primary data were collected directly from respondents through the questionnaire, while secondary data were obtained from relevant health records and supporting documentation.

Data analysis was performed using bivariate analysis with a correlation test to identify the factors associated with pregnant women's adherence to iron (Fe) tablet consumption. Statistical significance was determined at a p -value of < 0.05 .

RESULTS AND DISCUSSION

Results

Table 1. Bivariate Analysis of Factors Influencing Pregnant Women's Adherence to Iron (Fe) Tablet Consumption

Variables	Correlation Coefficient (p-value)	Interpretation
Age	0.224	Not significant ($p > 0.05$)
Education	0.388	Not significant ($p > 0.05$)
Occupation	0.189	Not significant ($p > 0.05$)
Parity	0.041	Significant ($p < 0.05$)
Knowledge	0.034	Significant ($p < 0.05$)

Variables	Correlation Coefficient (p-value)	Interpretation
Motivation	0.048	Significant ($p < 0.05$)

As shown in Table 1, parity, knowledge, and motivation were significantly associated with pregnant women's adherence to iron (Fe) tablet consumption ($p < 0.05$). Specifically, the p-values were 0.041 for parity, 0.034 for knowledge, and 0.048 for motivation, indicating statistically significant relationships with adherence.

In contrast, age, educational level, and occupation were not significantly associated with adherence to iron (Fe) tablet consumption, with p-values of 0.224, 0.388, and 0.189, respectively ($p > 0.05$). These findings suggest that demographic characteristics such as age, education, and employment status were not significant determinants of adherence among pregnant women in this study, whereas obstetric experience (parity), knowledge regarding iron supplementation, and maternal motivation played important roles in influencing compliance with the recommended iron tablet regimen.

Discussion

The findings of this study demonstrated that parity, knowledge, and motivation were significantly associated with pregnant women's adherence to iron (Fe) tablet consumption ($p < 0.05$). These findings indicate that these three factors play important roles in determining adherence to iron supplementation during pregnancy.

Parity refers to the number of children a woman has delivered, whether live-born or stillborn. Women who have experienced more than one pregnancy generally possess greater knowledge and experience regarding maternal nutritional needs, including the importance of adequate iron intake during pregnancy. Previous pregnancy experiences may increase awareness of the consequences of iron deficiency and encourage greater adherence to iron supplementation recommendations.

Maternal knowledge regarding iron supplementation is another important determinant of adherence. Adequate knowledge enables pregnant women to understand the benefits of iron tablets in preventing anemia and pregnancy-related complications. Women who possess better knowledge are more likely to apply the information provided by healthcare professionals, including consuming iron tablets regularly and selecting foods rich in dietary iron to meet nutritional requirements during pregnancy. Conversely, limited knowledge may reduce awareness of the importance of iron supplementation, thereby decreasing adherence.

Several factors may contribute to inadequate knowledge among pregnant women, including limited educational media during health education sessions, such as flip charts or leaflets, the use of complex medical terminology by healthcare providers, and a lack of interest among pregnant women in seeking information about the benefits of iron tablets. Therefore, health education should be delivered using simple and understandable language, supported by appropriate educational materials, to improve mothers' comprehension. Pregnant women should also be encouraged to actively seek information regarding iron supplementation rather than relying solely on information provided during antenatal care visits.

Motivation was also found to be a significant predictor of adherence to iron tablet consumption. Motivation represents an individual's internal drive, including personal desires and expectations, that encourages behavior aimed at achieving specific goals. Pregnant women with strong motivation are more likely to consume iron tablets regularly because they recognize the importance of preventing anemia and maintaining both maternal and fetal health. Higher levels of motivation encourage positive health behaviors, including compliance with iron supplementation recommendations. Therefore, strengthening maternal motivation through effective counseling, continuous support from healthcare providers, and family involvement is essential for improving adherence to iron (Fe) tablet consumption.

Overall, these findings highlight the importance of educational and motivational interventions in promoting adherence to iron supplementation among pregnant women. Healthcare providers should implement effective counseling strategies, supported by appropriate educational media and family engagement, to enhance maternal knowledge and motivation, thereby improving adherence to iron (Fe) tablet consumption and reducing the risk of maternal anemia.

CONCLUSION

There was a significant association between parity, knowledge, and motivation and pregnant women's adherence to consuming iron (Fe) tablets. In contrast, age, educational level, and occupation were not significantly associated with pregnant women's adherence to iron (Fe) tablet consumption.

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