

The Relationship Between Pregnant Women's Knowledge of Anemia and Adherence to Iron Tablet Consumption at Bener Kelipah Community Health Center, Bener Meriah Regency, 2025

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ABSTRACT/ ABSTRAK

ABSTRACT. Anemia during pregnancy is a health problem that has serious impacts on both the mother and fetus, such as increasing the risk of preterm delivery, low birth weight, and delivery complications. One preventive measure is the provision of iron tablets; however, pregnant women's adherence to consuming them is often influenced by their knowledge of anemia. This study aimed to determine the relationship between pregnant women's knowledge of anemia and adherence to iron tablet consumption at Bener Kelipah Community Health Center, Bener Kelipah Subdistrict, Bener Meriah Regency, in 2025. This research employed an analytical observational design with a cross-sectional approach involving 32 pregnant women in their second and third trimesters, selected using accidental sampling. Data were collected using a structured questionnaire and analyzed univariately and bivariately using the chi-square test. The results showed that 69.7% of respondents had low knowledge and did not regularly consume iron tablets, while 31.3% had sufficient knowledge but still did not consume them regularly. The chi-square test revealed a significant relationship between pregnant women's knowledge of anemia and adherence to iron tablet consumption ($p = 0.001$; $p < 0.05$). It is concluded that pregnant women's knowledge influences adherence to iron tablet consumption; therefore, comprehensive nutritional and health education from healthcare providers is essential to improve adherence and prevent anemia during pregnancy.

ABSTRAK. Anemia pada kehamilan merupakan masalah kesehatan yang berdampak serius terhadap ibu dan janin, seperti meningkatkan risiko persalinan prematur, berat badan lahir rendah, dan komplikasi persalinan. Salah satu upaya pencegahan adalah pemberian tablet Fe, namun tingkat kepatuhan ibu hamil dalam mengonsumsinya sering dipengaruhi oleh pengetahuan tentang anemia. Penelitian ini bertujuan untuk mengetahui hubungan pengetahuan ibu hamil tentang anemia dengan kepatuhan mengonsumsi tablet Fe di Puskesmas Bener Kelipah, Kecamatan Bener Kelipah, Kabupaten Bener Meriah tahun 2025. Penelitian menggunakan desain observasional analitik dengan pendekatan potong lintang pada 32 ibu hamil trimester II dan III yang dipilih melalui teknik accidental sampling. Data dikumpulkan menggunakan kuesioner terstruktur, kemudian dianalisis secara univariat dan bivariat menggunakan uji *chi-square*. Hasil penelitian menunjukkan bahwa 69,7% responden memiliki pengetahuan rendah dan tidak rutin mengonsumsi tablet Fe, sedangkan 31,3% berpengetahuan cukup namun tetap tidak rutin mengonsumsi. Uji *chi-square* menunjukkan hubungan signifikan antara pengetahuan ibu hamil tentang anemia dengan kepatuhan mengonsumsi tablet Fe ($p = 0,001$; $p < 0,05$). Disimpulkan bahwa pengetahuan ibu hamil berpengaruh terhadap kepatuhan konsumsi tablet Fe, sehingga edukasi gizi dan kesehatan yang komprehensif dari petugas kesehatan sangat diperlukan untuk meningkatkan kepatuhan dan mencegah anemia selama kehamilan.

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INTRODUCTION

Anemia is a hematological disorder characterized by a reduced number of red blood cells or hemoglobin levels, thereby decreasing the blood's capacity to transport oxygen throughout the body. This condition can occur in various forms, with diverse causes and consequences, and affects populations worldwide. A comprehensive understanding of the complexity of anemia is essential to support accurate diagnosis and effective management. Clinically, anemia is defined as hemoglobin levels or red blood cell mass below the normal threshold for a specific age group, thereby impairing the body's oxygen transport capacity (Knez & Liang, 2024).

According to WHO criteria, anemia in pregnant women is defined as hemoglobin levels <11 g/dL, which serves as a reference in numerous studies and health guidelines (Dewi, 2024; Dametas et al., 2024). One of the most common forms of anemia during pregnancy is iron deficiency anemia, a global health issue with significant impacts on maternal and fetal health. Low adherence among pregnant women to oral iron supplementation remains a major challenge in its prevention and treatment (Obianeli et al., 2024). Severe anemia during pregnancy is a critical global health concern because it increases the risk of both maternal and fetal morbidity and mortality. Nevertheless, this condition can be managed through preventive and therapeutic interventions, such as iron and folic acid supplementation, along with nutrition education (Obeagu, 2024).

In Indonesia, the 2015 Intercensal Population Survey (SUPAS) reported a maternal mortality rate (MMR) of 305 per 100,000 live births. Indonesia ranks second highest in Southeast Asia after Laos, with a mortality rate nine times higher than Malaysia, five times higher than Vietnam, and nearly double that of Cambodia (Rakerkesdas, 2019). Globally, the prevalence of anemia among pregnant women is estimated at 41.8%, with significant regional variations: approximately 14% in developed countries and 35–75% in developing countries (Maiti et al., 2020; Thobbi & Bijapur, 2020). Data from the Indonesian Ministry of Health (2018) show that the MMR decreased from 307 per 100,000 live births in 1998–2002 to 228 in 2003–2007, but then rose again to 359 in 2008–2017. The 2018 Indonesia Health Profile also reported a prevalence of anemia among pregnant women of 37.1%, with average iron tablet distribution coverage reaching 85.1%.

Anemia affects the majority of women across various regions, and among pregnant women, its prevalence can reach up to 81.2% in certain populations (Palat et al., 2024). This condition increases the risk of postpartum hemorrhage, a leading cause of maternal mortality, with 76.5% of pregnant women with anemia experiencing postpartum bleeding (Syamsuriyati et al., 2024). Severe anemia (hemoglobin levels <7 g/dL) worsens pregnancy outcomes, including preeclampsia and an increased need for intensive care unit (ICU) admission (Obeagu, 2024; Shrivastava et al., 2024), and is associated with prolonged hospitalization, higher maternal morbidity, and even death (Shrivastava et al., 2024). The fetal impact is also significant, including preterm birth and low birth weight; approximately 50% of neonates born to anemic mothers are premature, and 62.75% have low birth weight (Shrivastava et al., 2024). One contributing factor to iron deficiency anemia is the low level of knowledge among pregnant women regarding the importance of consuming a balanced, iron-rich diet, as well as limited understanding of food sources that enhance iron absorption (Sumi Anggareani, 2019).

Several studies in Indonesia have shown that low knowledge levels among pregnant women can affect dietary practices and adherence to anemia prevention measures, including iron supplementation. Amir et al. (2024) reported a significant association between nutritional knowledge and the incidence of anemia at Wanasari Community Health Center. A study in Palembang by Fadillah et al. (2024) found that higher knowledge levels were associated with better adherence to iron tablet consumption, thereby reducing the incidence of anemia. Similar findings were also reported by Rismayani et al. (2024) at Muara Maras Community Health Center, indicating that good maternal knowledge correlates with lower anemia rates.

A preliminary survey in the working area of Bener Kelipah Community Health Center involving five pregnant women found that two of them had anemia due to non-adherence to iron tablet consumption as recommended by healthcare providers and a lack of knowledge regarding the benefits of iron during pregnancy. Based on these conditions, this study aimed to determine the relationship between pregnant women's knowledge of anemia and adherence to iron tablet consumption at Bener Kelipah Community Health Center, Bener Kelipah Subdistrict, Bener Meriah Regency, in 2025.

RESEARCH METHOD

This study employed an analytical observational design with a cross-sectional approach to determine the relationship between pregnant women's knowledge of anemia and adherence to iron tablet consumption, measured at a single point in time. The study population comprised all pregnant women in their second and third trimesters who attended antenatal care at Bener Kelipah Community Health Center, Bener Meriah Regency, from February to April 2025, totaling 180 individuals. The sample size was determined using the Arikunto formula with a proportion of 25%, resulting in 32 respondents selected through accidental sampling. Inclusion criteria included pregnant women in their second or third trimester, having received iron tablets, and willing to participate, while exclusion criteria were non-pregnant women, those who had not received iron tablets, and those unwilling to participate. The independent variable was pregnant women's knowledge of anemia, measured using a structured questionnaire and categorized as good (76–100%), fair (56–75%), and poor (<56%). The dependent variable was adherence to iron tablet consumption, categorized as adherent (>50%) and non-adherent (<50%). The research was conducted at Bener Kelipah Community Health Center from April to May 2025. Primary data were collected through interviews using a structured questionnaire, while secondary data were obtained from health center records. Data analysis was performed univariately to describe frequency and percentage distributions and bivariately using the Chi-Square test with a significance level of $p < 0.05$.

RESULTS

A total of 32 pregnant women in their second and third trimesters at Bener Kelipah Community Health Center, Bener Meriah Regency, participated as respondents in this study.

Univariate Analysis

Table 1. Distribution of Respondents' Characteristics (n = 32)

No	Characteristics	F	%
1	Age		
	<20 years	6	10
	20–35 years	18	60
2	>35 years	8	30
	Education		
	Primary	13	42
3	Secondary	10	24
	Higher	9	35
	Occupation		
4	Employed	26	90
	Unemployed	6	10
5	Parity		
	0	8	20
	1–4	24	80
	Gestational Age		
	First trimester	5	15
	Second trimester	9	35
	Third trimester	18	50
	Total	32	100

Most respondents were in the 20–35 years age group (60%), while 10% were under 20 years and 30% were over 35 years. Educational levels varied, with the majority having primary education (42%), followed by higher education (35%) and secondary education (24%). Most respondents were employed (90%), while 10% were unemployed. Regarding parity, 80% had 1–4 children, and 20% had none. In terms of gestational age, 50% were in the third trimester, 35% in the second trimester, and 15% in the first trimester.

Bivariate Analysis

Table 2. Relationship Between Pregnant Women's Knowledge of Anemia and Adherence to Iron Tablet Consumption (n = 32)

Knowledge Level	Non-Adherent		Adherent		Total		p-value
	n	%	n	%	n	%	
Good	0	0	5	11,6%	5	11,6	0,001
Fair	4	4,6%	6	13,9%	10	18,7	
Poor	15	65,1	2	4,6%	17	69,7	
Total	32	69,7%	13	30,3%	32	100	

The analysis revealed a significant relationship between pregnant women's knowledge of anemia and adherence to iron tablet consumption ($p = 0.001$). In the good knowledge category, all respondents (11.6%) were in the adherent group, with none being non-adherent (0%). In the fair knowledge category, 4 respondents (4.6%) were non-adherent, and 6 respondents (13.9%) were adherent. Meanwhile, in the poor knowledge category, most respondents were non-adherent (65.1%), with only 2 respondents (4.6%) being adherent. Overall, 69.7% of respondents were classified as non-adherent, while 30.3% were adherent. These findings indicate that the lower the level of knowledge pregnant women have about anemia, the lower their adherence to iron tablet consumption during pregnancy.

DISCUSSION

The findings of this study indicate a significant relationship between pregnant women's knowledge of anemia and adherence to iron (Fe) tablet consumption at Bener Kelipah Community Health Center, Bener Meriah Regency, in 2025 ($p = 0.001$; $p < 0.05$). Among the 32 respondents, the majority (69.7%) had low knowledge regarding the benefits of Fe tablets and did not consume them regularly during pregnancy.

These findings are consistent with those of Rumiya et al. (2019), who reported that good knowledge can enhance adherence to Fe tablet consumption among pregnant women, thereby increasing hemoglobin levels and reducing the risk of anemia. Similar results were reported by Nurhayati (2018), who found that a positive attitude and adherence to Fe tablet consumption contributed to anemia prevention during pregnancy.

Adherence to Fe tablet consumption directly influences hemoglobin levels in pregnant women. Widyawati et al. (2025) reported a significant association between adherence to Fe tablet consumption and increased hemoglobin levels ($p = 0.003$). A study by Mardhiah et al. (2024) at Johan Pahlawan Community Health Center also demonstrated similar results, with $p = 0.024$. Knowledge is a key factor in encouraging this adherence. Nugraheni & Sulastri (2024) found that pregnant women with a high level of knowledge about the benefits of Fe tablets were more likely to comply with the recommended intake ($p = 0.020$). These findings reinforce the idea that enhancing nutritional education can be an effective strategy for preventing anemia.

Anemia during pregnancy is a global health problem with serious implications for both mother and fetus. This condition is characterized by low hemoglobin levels, which can lead to complications such as preterm delivery, low birth weight, and increased maternal morbidity. Nutritional deficiencies, particularly iron deficiency, are the primary factors exacerbating this condition, especially in resource-limited settings. Therefore, understanding the prevalence, causes, and impacts of anemia is essential for formulating appropriate interventions.

Globally, anemia affects approximately 40% of pregnant women, with higher prevalence rates in developing countries due to nutritional deficiencies and socioeconomic factors (Zade, 2024; Palat et al., 2024). Iron deficiency is the most common cause, often compounded by deficiencies in vitamin B12 and folate (Palat et al., 2024; Obeagu, 2024). Awareness of folate content and the benefits of iron supplementation has been shown to promote adherence to supplement intake (Mulalinda et al., 2024; Nugraheni & Sulastri, 2024). The prevalence of anemia tends to increase during the second and third trimesters due to increased blood volume and fetal nutritional demands (Obeagu, 2024).

Anemia increases the risk of preterm birth, low birth weight, postpartum hemorrhage, and fetal death (Zade, 2024; Begum et al., 2024; Obianeli et al., 2024). Severe anemia ($Hb < 7$ g/dL) can lead to more serious complications such as preeclampsia, intrauterine growth restriction, and an increased risk of maternal and neonatal mortality (Obeagu, 2024;

Shrivastava et al., 2024). Moreover, this condition is associated with prolonged hospitalization and greater demand for intensive care unit (ICU) services for both mother and infant (Shrivastava et al., 2024).

Management of anemia during pregnancy includes supplementation with iron and folic acid, intravenous iron administration in moderate to severe cases, and blood transfusion in critical conditions (Obeagu, 2024; Obianeli et al., 2024). Important non-pharmacological interventions include nutrition education, community-based health programs, promotion of early antenatal visits, and routine anemia screening (Obeagu, 2024). Addressing socioeconomic disparities and providing targeted nutritional support can also reduce the incidence of anemia (Palat et al., 2024; Begum et al., 2024).

Overall, the results of this study strengthen the evidence that knowledge is a critical factor influencing adherence to Fe tablet consumption among pregnant women. Comprehensive health education, adequate supplement availability, and community-based interventions are key components for improving maternal nutritional status and reducing the prevalence of anemia.

CONCLUSION

This study demonstrates a significant relationship between pregnant women's knowledge of anemia and adherence to iron tablet consumption at Bener Kelipah Community Health Center, Bener Meriah Regency, in 2025 ($p = 0.001$; $p < 0.05$). Of the 32 respondents, 69.7% had low knowledge regarding the benefits of iron tablets and did not consume them regularly during pregnancy. These results affirm that good knowledge contributes to increased adherence to iron tablet consumption as an effort to prevent anemia among pregnant women.

Pregnant women are encouraged to improve their knowledge about anemia and the benefits of iron tablet consumption by seeking information from various credible sources, particularly from healthcare providers, to enhance adherence and prevent the occurrence of anemia during pregnancy.

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