



Analysis of Determinants of Anemia Incidence in Third Trimester Pregnant Women

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ARTICLE INFORMATION

Received: March 1, 2025

Revised: May 9, 2025

Available online: May 2025

KEYWORDS

Anemia; Nutritional status; Iron tablets; ANC visits

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ABSTRACT

Anemia in third-trimester pregnant women increases the risk of pregnancy complications such as preterm labor and low birth weight. Contributing factors include adherence to iron tablet consumption, maternal age, parity, nutritional status, and compliance with antenatal care (ANC) visits. This study aims to analyze the determinants of anemia in third-trimester pregnant women at the Gunung Selamat Labuhan Batu Health Center. This cross-sectional study involved 96 third-trimester pregnant women selected using consecutive sampling. Data were collected through interviews, hemoglobin level examinations, and evaluations of iron tablet adherence, nutritional status, and ANC visits. Data analysis used bivariate (chi-square) and multivariate (logistic regression) tests. Bivariate analysis showed a significant relationship between anemia and iron tablet adherence ($p=0.00$; $PR=5.95$), maternal age ($p=0.00$; $PR=5.11$), parity ($p=0.00$; $PR=4.95$), nutritional status ($p=0.00$; $PR=7.55$), and ANC visit compliance ($p=0.00$; $PR=8.55$). Multivariate analysis identified nutritional status ($p=0.00$; $Exp(B)=16.69$) and ANC visit compliance ($p=0.00$; $Exp(B)=14.51$) as the most dominant factors influencing anemia. Nutritional status and ANC visit compliance are key determinants of anemia in third-trimester pregnant women. Interventions focusing on nutritional education, ANC service optimization, and increased adherence to iron supplementation are essential to reduce anemia prevalence among pregnant women.

INTRODUCTION

Anaemia in pregnant women remains a critical health concern, particularly in developing countries, where its prevalence continues to be high and affects both maternal and foetal health. The World Health Organisation (WHO) defines anaemia during pregnancy as a haemoglobin level below 11 g/dL (Srou et al., 2018). Globally, the WHO estimates that around 40% of pregnant women experience anaemia, with the highest cases found in South Asia and Sub-Saharan Africa (WHO, 2021). In Indonesia, data from the Ministry of Health (Riskesdas, 2018) indicate that anaemia prevalence in pregnant women reached 48.9%, showing an increase from 37.1% in 2013. Furthermore, in Labuhan Batu Regency, the Health Office reported in 2023 that the prevalence of anaemia among pregnant women was 52.3%, exceeding the national average.

Anaemia during pregnancy can lead to severe complications, including preterm birth, low birth weight, and a higher risk of maternal and neonatal mortality (Umuro et al., 2019). Various studies have identified several key risk factors for anaemia, such as iron deficiency, poor nutrition, chronic illnesses, and socioeconomic constraints (Ouzennou et al., 2019; Yuliarti et al., 2022).

One of the main causes of anaemia in pregnancy, particularly during the third trimester, is iron deficiency due to increased iron demand to support foetal and placental growth (Suryanarayana et al., 2016). Many

women enter pregnancy with already depleted iron stores, worsening their anaemia condition throughout gestation (Seu et al., 2019; Varghese et al., 2019). Thus, ensuring compliance with Fe tablet supplementation is crucial in anaemia prevention. However, low adherence to Fe tablet consumption remains a significant challenge in maternal health interventions (Khanam et al., 2022).

Beyond Fe tablet consumption, a pregnant woman's nutritional status significantly affects anaemia occurrence. Deficiencies in essential micronutrients like folate and vitamin B12 heighten anaemia risk, which in turn can compromise foetal development and maternal well-being (Ouzennou et al., 2019). Additionally, maternal age and parity also influence anaemia incidence. Pregnant women under 20 years or over 35 years face an elevated risk due to potential nutritional deficiencies and suboptimal physiological conditions (Fajrin et al., 2023; Noviyanti et al., 2019; Pitale, 2018). Multiparous women are also more susceptible to anaemia, as frequent pregnancies prevent the full recovery of iron reserves between gestations, increasing anaemia vulnerability (Esem, 2023; Jasa & Listiana, 2023).

The frequency of antenatal care (ANC) visits plays a crucial role in anaemia prevention. Studies reveal that pregnant women who consistently attend ANC appointments benefit from nutritional counselling and iron supplementation, reducing their anaemia risk (Al-Nuzaili, 2023; Orwa et al., 2019). Conversely, pregnant women with irregular ANC visits are at a higher risk of anaemia due to insufficient early detection and medical interventions (Asres et al., 2022; Fernández-Batanero et al., 2022; Yadav et al., 2020).

Despite numerous studies on anaemia in pregnant women, there remains a gap in research regarding the most dominant factors influencing its occurrence. Previous research has often focused on isolated factors, overlooking potential interactions between variables (Ahmed et al., 2021; Ngonzi et al., 2024). To address this gap, this study adopts a comprehensive approach to identify the key contributors to anaemia among pregnant women in their third trimester.

The main research question of this study is: Which determinant factors have the strongest correlation with the incidence of anaemia in third-trimester pregnant women at the Gunung Selamat Labuhan Batu Health Centre? Answering this question will help develop more effective strategies to reduce anaemia prevalence and improve maternal and foetal health. Specifically, this study aims to examine the relationship between Fe tablet consumption compliance, maternal age, parity, nutritional status, and ANC visit frequency in relation to anaemia incidence. Additionally, the study seeks to determine the most influential factor contributing to anaemia cases at the Gunung Selamat Labuhan Batu Health Centre.

Anaemia during pregnancy is defined as a condition where haemoglobin levels drop due to iron deficiency, insufficient nutrient intake, or chronic illnesses. The World Health Organisation (WHO) emphasises the importance of Fe supplementation during pregnancy to prevent iron deficiency anaemia

(Varghese et al., 2019). However, adherence to Fe supplementation is influenced by multiple factors, including side effects, limited awareness, and accessibility to healthcare services (Khanam et al., 2022). Maternal age significantly affects anaemia risk, with both younger and older mothers being more susceptible due to physiological limitations (Fajrin et al., 2023; Noviyanti et al., 2019). Additionally, women with higher parity levels are at greater risk since their iron reserves may not have fully recovered between pregnancies (Jasa & Listiana, 2023). Nutritional status also plays a crucial role, as malnutrition can hinder optimal red blood cell production (Diana et al., 2020; Ugwa, 2016).

Regular ANC visits are essential for early anaemia detection and timely interventions. WHO recommends a minimum of four ANC check-ups during pregnancy (Orwa et al., 2019). Research has shown that women who attend ANC consistently have a lower likelihood of developing anaemia compared to those with infrequent visits (Ngonzi et al., 2023).

This study aims to contribute to a better understanding of the primary risk factors associated with anaemia in third-trimester pregnant women. It also seeks to provide evidence-based recommendations for anaemia prevention and management. The findings can support healthcare professionals in enhancing education on Fe supplementation adherence, improving ANC services, and promoting healthy nutritional habits. These efforts will align with maternal and child health policies to reduce anaemia prevalence within primary healthcare facilities.

METHOD

This research utilised a cross-sectional approach to examine the correlation between various determinant factors and the occurrence of anaemia in third-trimester pregnant women at the Gunung Selamat Labuhan Batu Health Centre. This method enables data to be collected simultaneously within a specific timeframe, allowing for an assessment of anaemia prevalence and its contributing factors.

The study population comprised third-trimester pregnant women who attended antenatal care at the Gunung Selamat Health Centre between March and April 2024. Participants were selected through consecutive sampling, ensuring that only those meeting the inclusion criteria—gestational age between 28 and 41 weeks and willingness to undergo haemoglobin level examination—were included. Pregnant women with chronic illnesses were excluded. The sample size was calculated using the Slovin formula, determining a minimum of 96 respondents.

Data collection involved both questionnaires and laboratory assessments. The questionnaire gathered information on sociodemographic factors, pregnancy history, adherence to Fe tablet consumption, and compliance with antenatal care (ANC). Haemoglobin levels were measured using the Easy Touch Hb device, while nutritional status was assessed using LiLA tape to detect maternal chronic energy deficiency (SEZ).

Ethical approval for this research was obtained from the Health Research Ethics Committee of the Deli Husada Health Institute under approval number 097/KEP-IKDH/II/2024. All respondents provided informed consent, and their data were treated confidentially, strictly for academic purposes.

The data analysis process consisted of three stages: univariate analysis to describe frequency distributions, bivariate analysis using the chi-square test to examine variable relationships, and multivariate analysis through logistic regression to determine the most influential factors in anaemia incidence. The study findings are expected to serve as a foundation for anaemia prevention strategies in primary healthcare settings.

RESULT

Table 1 presents the findings from the univariate analysis, detailing the characteristics of the respondents. These characteristics include maternal age, adherence to Fe tablet consumption, parity, nutritional status, frequency of ANC visits, and the prevalence of anemia among pregnant women at the Gunung Selamat Labuhan Batu Health Center.

Table 1 Frequency Distribution of Respondent Characteristics of Pregnant Women at the Gunung Selamat Labuhan Batu Health Center.

Characteristics	Frequency (f)	Percentage (%)
Age		
<20-35	42	43.8
>35 Year	54	56.3
Adherence to Fe Tablet Consumption		
Non-compliant	33	34.4
Compliant	63	65.6
Parity		
Risk	41	42.7
Non-Risk	55	57.3
Nutritional Status		
CED	40	41.7
Non-CED	56	58.3
ANC visit		
Compliant	38	39.6
Non-compliant	58	60.4
Incidence of Anemia		
Anemia	37	38.5
No Anemia	59	61.5
Total	96	100

Table 1 presents the frequency distribution of respondent characteristics among pregnant women at the Gunung Selamat Labuhan Batu Health Center. Most respondents were over 35 years old (56.3%), with 65.6% demonstrating adherence to Fe tablet consumption. Regarding parity, 42.7% of pregnant women were classified as high-risk, while 41.7% were identified as experiencing Chronic Energy Deficiency (CED). Additionally, 60.4% of respondents did not comply with ANC visit recommendations, which could increase their risk of developing anemia. Out of the 96 respondents,

38.5% were diagnosed with anemia, while 61.5% did not experience the condition. These findings suggest that maternal age, adherence to Fe tablet supplementation, nutritional status, and ANC visit compliance contribute to the incidence of anemia in pregnant women.

Table 2. Relationship between adherence to Fe tablet consumption and the incidence of anemia in third trimester pregnant women at the Gunung Selamat Labuhan Batu Health Center

Variable		Incidence of Anemia					Prevalence ratio	95 % CI		P
Adherence to Fe Tablet Consumption	Anemia	%	Non Anemia	%	Total	%	5,949	Lower	Upper	0,00
	Tablet Fe									
Non-compliant	26	70.2	11	29.8	37	100		6,095	50,585	
Compliant	7	11.9	52	88.1	59	100				

Table 2 illustrates that among pregnant women who did not adhere to Fe tablet consumption, 70.2% experienced anemia, whereas only 11.9% of those who complied with supplementation were anemic. With a prevalence ratio of 5.949 and a p-value of 0.00, the analysis indicates that non-adherent mothers face a 5.95 times higher likelihood of developing anemia. These results highlight a significant correlation between adherence to Fe tablet consumption and the occurrence of anemia.

Table 3. Relationship between maternal age and the incidence of anemia in third trimester pregnant women at the Gunung Selamat Health Center

Variable		Incidence of Anemia					Prevalence ratio	95 % CI		p
Mother's age	Anemia	%	Non Anemia	%	Total	%	5,11	Lower	Upper	0,00
High Risk	32	86.5	5	5.2	13.5	100		9,809	100,264	
Risk	10	17	49	83	59	100				
Low										

Table 3 reveals that 86.5% of pregnant women in the high-risk age category experienced anemia, which is significantly higher compared to only 17% in the low-risk age group. Conversely, 83% of pregnant women who did not have anemia belonged to the low-risk age category. The prevalence ratio of 5.11 with a p-value of 0.00 indicates that mothers in the high-risk age group were 5.11 times more likely to develop anemia compared to those in the low-risk age group. These findings confirm a significant relationship between maternal age and the incidence of anemia.

Table 4. The Relationship between Maternal Parity and the Incidence of Anemia in Third Trimester Pregnant Women at the Gunung Selamat Labuhan Batu Health Center

Variable		Incidence of Anemia					Prevalence ratio	95 % CI		p
Parity	Anemia	%	Non Anemia	%	Total	%	4,95	lower	Upper	0,00
Risk	31	83.7	6	16.3	37	100		8,364	76,633	
Non-Risk	10	17	49	83	59	100				

Table 4 illustrates that 83.7% of pregnant women classified as having high-risk parity experienced anemia, which is significantly greater compared to the 17% found in the low-risk parity group.

Conversely, 83% of non-anemic mothers belonged to the low-risk parity category. The prevalence ratio of 4.95 with a p-value of 0.00 suggests that mothers with high-risk parity were 4.95 times more likely to develop anemia than those in the low-risk group. These results indicate a significant correlation between parity and the incidence of anemia.

Table 5. Relationship between Nutritional Status and the Incidence of Anemia in Third Trimester Pregnant Women at the Gunung Selamat Labuhan Batu Health Center

Variable	Incidence of Anemia					Prevalence ratio	95 % CI		p
	Anemia	%	Non Anemia	%	Total		Lower	Upper	
CED	33	89.1	4	10.9	37	100	7,550	16,642	225,691
Non-CED	7	11.8	52	88.2	59	100			0,00

Table 5 presents that 89.1% of pregnant women with Chronic Energy Deficiency (CED) experienced anemia, which is significantly higher compared to the 11.8% found in the non-CED group. Conversely, 88.2% of non-anemic mothers were from the non-CED category. The prevalence ratio of 7.550 with a p-value of 0.00 indicates that pregnant women with CED are 7.55 times more likely to develop anemia than those with adequate nutritional status. These findings highlight a significant association between nutritional status and the incidence of anemia.

Table 6. Relationship between ANC visits and the incidence of anemia in third trimester pregnant women at the Gunung Selamat Labuhan Batu Health Center

Variable	Incidence of Anemia					Prevalence ratio	95 % CI		p
	Anemia	%	Non Anemia	%	Total		Lower	Upper	
Non-compliant	32	86.4	5	13.6	37	100	8,554	15,951	200,369
Compliant	6	10.1	53	89,9	59	100			0,00

Table 6 reveals that 86.4% of pregnant women who did not adhere to ANC visits experienced anemia, a considerably higher percentage than the 10.1% found in the compliant group. On the other hand, 89.9% of non-anemic mothers belonged to the ANC-compliant category. With a prevalence ratio of 8.554 and a p-value of 0.00, the results indicate that pregnant women who were non-compliant with ANC visits had an 8.55 times greater likelihood of developing anemia compared to those who followed the recommended ANC schedule. This suggests a significant correlation between ANC visit adherence and the occurrence of anemia.

Table 7. First stage logistic regression test of the incidence of anemia in third trimester pregnant women at the Gunung Selamat Labuhan Batu Health Center

Variable	p	Exp (B)
Age	0,00	0,00
Parity	0,999	0,00
Fe Tablet Consumption	0,230	2,572
Nutritional Status	0,00	0,00
ANC visit	0,001	12,925

Table 7 shows the results of the first stage logistic regression test on the incidence of anemia in third trimester pregnant women. Age ($p = 0.00$), nutritional status ($p = 0.00$), and ANC visits ($p = 0.001$) had a significant association with the incidence of anemia. ANC visits had the strongest influence with $\text{Exp}(B) = 12.925$, indicating that mothers who did not comply with ANC visits had a 12.93 times greater risk of anemia. Meanwhile, parity ($p = 0.999$) and Fe tablet consumption ($p = 0.230$) showed no significant association in this regression model.

Table 8. Logistic regression test of the second stage of the incidence of anemia in third trimester pregnant women at the Gunung Selamat Labuhan Batu Health Center

Variable	p	$\text{Exp}(B)$
Age	0,00	0,00
Fe Tablet Consumption	0,280	2,697
Nutritional Status	0,001	45,277
ANC visit	0,001	13,492

Table 7 presents the findings from the first-stage logistic regression analysis on anemia incidence among third-trimester pregnant women. The results indicate that maternal age ($p = 0.00$), nutritional status ($p = 0.00$), and ANC visit compliance ($p = 0.001$) had a significant correlation with anemia occurrence. Among these factors, ANC visit adherence exhibited the strongest impact, with an $\text{Exp}(B)$ value of 12.925, meaning that mothers who did not comply with ANC visits were 12.93 times more likely to develop anemia. In contrast, parity ($p = 0.999$) and Fe tablet consumption ($p = 0.230$) did not demonstrate a statistically significant relationship within this regression model.

Table 9. Third stage logistic regression test for the incidence of anemia in third trimester pregnant women at the Gunung Selamat Labuhan Batu Health Center.

Variable	p	$\text{Exp}(B)$
Age	0,99	0,00
Nutritional Status	0,001	45,277
ANC visit	0,001	13,492

Table 9 presents the results of the third-stage logistic regression analysis on anemia incidence among third-trimester pregnant women. The findings indicate that nutritional status ($p = 0.001$, $\text{Exp}(B) = 45.277$) and ANC visit compliance ($p = 0.001$, $\text{Exp}(B) = 13.492$) were significantly associated with anemia occurrence. Pregnant women experiencing Chronic Energy Deficiency (CED) had a 45.28 times higher likelihood of developing anemia, while those who did not adhere to ANC visits faced a 13.49 times greater risk. In contrast, the maternal age variable ($p = 0.99$) did not exhibit a significant correlation within this regression model.

Table 10. Fourth stage logistic regression test for the incidence of anemia in third trimester pregnant women at the Gunung Selamat Labuhan Batu Health Center.

Variable	p	$\text{Exp}(B)$
Nutritional Status	0,00	16,687
ANC visit	0,00	14,505

Table 10 presents the results of the fourth-stage logistic regression analysis on anemia incidence among third-trimester pregnant women. The analysis reveals that nutritional status ($p = 0.00$, $\text{Exp}(B) = 16.687$) and ANC visit compliance ($p = 0.00$, $\text{Exp}(B) = 14.505$) had a significant correlation with anemia occurrence. Pregnant women with Chronic Energy Deficiency (CED) were 16.69 times more likely to develop anemia, while those who did not adhere to ANC visits had a 14.51 times higher risk. These findings emphasize that nutritional status and compliance with ANC visits are the most influential factors in the incidence of anemia among third-trimester pregnant women.

DISCUSSION

Relationship Between Adherence to Fe Tablet Consumption and the Incidence of Anemia

The results of this study indicate that adherence to Fe tablet consumption has a significant effect on the incidence of anaemia in pregnant women. Mothers who did not comply with taking Fe tablets had a 5.95 times higher risk of experiencing anaemia compared to those who adhered to the supplementation regimen. This finding aligns with the World Health Organisation (WHO) guidelines, which highlight the necessity of iron supplementation in pregnancy to prevent anaemia and its associated complications (Varghese et al., 2019). Additionally, previous studies have shown that regular Fe tablet intake can lead to increased haemoglobin levels, subsequently reducing anaemia prevalence among pregnant women (Seu et al., 2019).

Despite its well-documented benefits, adherence to Fe supplementation remains a major challenge. Several factors contribute to poor compliance, including side effects such as nausea, constipation, and gastrointestinal discomfort, which discourage some women from continuing supplementation. Other barriers include a lack of awareness regarding the long-term benefits of Fe tablet consumption and limited access to healthcare facilities, which prevents some women from obtaining the necessary supplements (Astuti et al., 2023; Khanam et al., 2022). To address these challenges, healthcare providers must intensify educational efforts, ensuring that pregnant women receive adequate counselling on the importance of iron intake and practical strategies to manage its side effects. Improving access to Fe supplementation through community-based health programmes and government support can further enhance compliance rates.

Relationship Between Maternal Age and Anemia Incidence

This study found that maternal age is an important determinant of anaemia incidence. Pregnant women aged over 35 years had a significantly higher risk—5.11 times greater—of developing anaemia than those aged 20–35 years. This elevated risk can be attributed to physiological changes associated with ageing, including a reduced ability to absorb iron and an increased likelihood of pre-existing conditions such as hypertension and diabetes, which can worsen anaemia (Noviyanti et al., 2019; Pitale, 2018). As maternal

age increases, iron metabolism becomes less efficient, leading to depleted iron stores that may not be replenished through diet alone.

In addition to physiological factors, increased metabolic demands during pregnancy further exacerbate the risk of anaemia in older women. The body's iron requirements rise significantly during pregnancy and failing to meet these needs results in lower haemoglobin levels. Previous research has consistently demonstrated that older pregnant women tend to have lower haemoglobin levels and are more vulnerable to iron deficiency due to their diminished iron reserves and heightened metabolic stress (Umuro et al., 2019). To mitigate this risk, healthcare providers should prioritise early prenatal screening, ensuring that older pregnant women receive iron supplementation and dietary counselling to maintain optimal haemoglobin levels.

Relationship Between Parity and Anemia Incidence

The findings of this study indicate that multiparity is a significant risk factor for anaemia, with mothers who had undergone multiple pregnancies being 4.95 times more likely to develop anaemia than those with lower parity. This supports existing literature, which suggests that successive pregnancies can lead to chronic depletion of iron stores, increasing the likelihood of anaemia if adequate nutritional recovery does not occur between pregnancies (Esem, 2023; Fajrin et al., 2023). Each pregnancy imposes additional physiological demands on the mother's body, particularly in terms of iron requirements, making iron deficiency anaemia more prevalent among multiparous women.

Additionally, inadequate birth spacing contributes to iron depletion, as women do not have sufficient time to restore their iron stores before conceiving again. Studies also indicate that mothers with higher parity tend to experience a decline in nutritional status due to increased household responsibilities and reduced access to healthcare services, exacerbating the risk of anaemia (Jasa & Listiana, 2023). Addressing this issue requires the promotion of family planning programmes, nutritional education, and targeted iron supplementation for women with high parity to prevent chronic iron depletion and improve maternal health outcomes.

Relationship Between Nutritional Status and Anemia Incidence

Nutritional status is a critical factor influencing anaemia risk in pregnant women. The results of this study show that women experiencing Chronic Energy Deficiency (CED) had a 16.69 times higher likelihood of developing anaemia compared to those with good nutritional status. This is primarily due to deficiencies in essential micronutrients, such as iron, folate, and vitamin B12, which are necessary for red blood cell production (Diana et al., 2020). Poor dietary intake and inadequate nutrition during pregnancy hinder haemoglobin formation, increasing the risk of anaemia. The role of nutritional status in anaemia has been widely studied, with research confirming that malnutrition significantly contributes to anaemia prevalence (Karagiannidis et al., 2020; Yuliarti et al., 2022).

Women with poor nutritional status often exhibit lower haemoglobin levels due to the insufficient intake of essential nutrients needed for healthy blood formation. Malnourished pregnant women are also more susceptible to infections and pregnancy complications, further exacerbating anaemia risk. Addressing this issue requires a holistic approach, including dietary interventions, micronutrient supplementation, and food fortification strategies. Healthcare providers should prioritise nutritional education and provide targeted interventions to ensure that pregnant women receive adequate nutrition. Improving access to iron-rich foods and ensuring the widespread availability of prenatal supplements can significantly reduce anaemia prevalence among nutritionally vulnerable pregnant women (Ugwa, 2016).

Relationship Between Frequency of ANC Visits and Incidence of Anemia

The frequency of antenatal care (ANC) visits plays a crucial role in the prevention and management of anaemia during pregnancy. This study found that pregnant women who did not comply with regular ANC visits had an 8.55 times higher risk of developing anaemia than those who attended ANC regularly. This result highlights the significance of ANC in monitoring maternal health, as it provides essential services such as iron supplementation, nutritional education, and routine haemoglobin checks (Al-Nuzaili, 2023; Srouf et al., 2018). Pregnant women who fail to attend ANC visits consistently are at a higher risk of missing critical interventions, including early detection of anaemia and timely supplementation, which are essential in preventing the condition from worsening (M Afolabi et al., 2020; Saaka et al., 2017).

Furthermore, inadequate ANC attendance limits access to preventive healthcare services, leaving pregnant women more vulnerable to anaemia-related complications. Previous studies have shown that ANC visits also serve as an opportunity for healthcare providers to educate pregnant women on balanced nutrition, proper iron intake, and overall maternal well-being (Yadav et al., 2020). The findings of this study reinforce the importance of strengthening ANC programmes at the primary healthcare level, ensuring that pregnant women are aware of and encouraged to participate in regular prenatal check-ups. Increasing awareness and accessibility to ANC services can significantly contribute to reducing anaemia prevalence and improving maternal health outcomes.

This study shows that anaemia in third-trimester pregnant women is influenced by various factors, including Fe tablet consumption compliance, maternal age, parity, nutritional status, and frequency of ANC visits. The most influential factors were nutritional status and ANC visit compliance, which is in line with previous research. Therefore, intervention strategies should focus on improving education on the importance of nutrition during pregnancy as well as increasing ANC coverage and iron supplement compliance.

CONCLUSION

Anaemia in third-trimester pregnant women at Puskesmas Gunung Selamat Labuhan Batu is influenced by several main factors, namely Fe tablet consumption compliance, maternal age, parity, nutritional status, and ANC visit compliance. The results showed that nutritional status and ANC visit compliance were the most dominant factors in the incidence of anaemia. Mothers with CED have a greater risk of anaemia, as do mothers who do not regularly attend ANC. Therefore, efforts to prevent anaemia should focus on these two main aspects, namely improving the nutritional status of pregnant women through education on healthy eating patterns and increasing coverage and compliance with the ANC programme. In addition, efforts should be made to improve adherence to Fe tablet consumption by providing education on the benefits of iron supplementation and how to overcome side effects. In the future, further research is needed to explore innovative approaches to increase ANC adherence and iron supplement consumption and improve the nutritional status of pregnant women.

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