

Factors Related to The Occurrence of Anemia in Pregnant Women at Tebing Tinggi Health Center in Empat Lawang Regency in 2025

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ABSTRACT

Introduction: Anemia is a condition in which hemoglobin and erythrocyte levels are lower than normal. Anemia is a condition in which the number and size of red blood cells, or hemoglobin concentration, are below the normal limit (<11 g), which can interfere with the blood's ability to transport oxygen throughout the body. In 2025, there were 34 cases of anemia in pregnant women out of 216 pregnant women at Tebing Tinggi Health Center in Empat Lawang Regency. This study aims to determine factors related to the occurrence of anemia in pregnant women at Tebing Tinggi Health Center in Empat Lawang Regency, in 2025. **Method:** The study used a cross-sectional design. The population in this study was all pregnant women at Tebing Tinggi Health Center in Empat Lawang Regency, totaling 216 pregnant women. The sample size was 68. The results are presented in univariate and bivariate analyses using the chi-square test at 5% α . **Result and Discussion:** The results showed a significant correlation between iron tablet intake and the occurrence of anemia ($p=0.004$). There is a significant correlation between parity and the occurrence of anemia ($p=0.002$). There is a significant correlation between infectious diseases and the occurrence of anemia ($p=0.02$). **Conclusion:** It is recommended that the results of this study provide additional data for health centers to evaluate improvements in the MCH program, particularly anemia in pregnant women.

INTRODUCTION

Anemia is a condition in which hemoglobin and erythrocyte levels are lower than normal. Anemia is a condition in which the number and size of red blood cells or hemoglobin concentration is below normal limits (< 11 g%), which can interfere with the blood's ability to transport oxygen throughout the body. Anemia is an indicator of poor nutrition and poor health. Anemia in pregnant women is strongly associated with maternal and infant mortality and morbidity, including the risk of miscarriage, stillbirth, prematurity, and low birth weight (Marmi, 2017).

According to the WHO, the prevalence of anemia in pregnant women worldwide is 41.8%. Meanwhile, in developed countries, the prevalence of anemia in pregnant women is 14%, and in developing countries it is 51%. Anemia in pregnant women is an important public health issue worldwide. Anemia in pregnant women can lead to adverse birth complications, such as neonatal death, premature birth, and low birth weight. (World Health Organization 2024).

The 2018 Basic Health Research shows that pregnant women are one of the groups at high risk of anemia, although the anemia they experience is generally relative anemia due to physiological changes in the body during pregnancy. Anemia in the pregnant population according to WHO criteria and Ministry of Health guidelines is 48.9%, with prevalence rates almost equal between urban (36.4%) and rural (37.8%) pregnant women. Based on the 2023 Indonesian Health Survey (SKI), the prevalence of anemia in pregnant women in Indonesia is 27.7%. The highest prevalence was found among pregnant women aged 35-44 years.

The most common cause of anemia is not meeting the daily iron requirement due to insufficient consumption of iron sources, resulting in iron deficiency in the body. Other contributing factors that cause anemia are deficiencies in nutrients such as protein, folic acid, vitamin A, vitamin B, vitamin C, and zinc, which play a role in the formation of red blood cells and hemoglobin and also play a role in iron metabolism. Factors that influence the occurrence of anemia include age, gender, knowledge and attitudes towards anemia, consumption levels, and menstrual patterns (E. Wijayanti & Fitriani, 2019).

Anemia in Indonesia is mostly caused by iron deficiency in 62.3% of cases. Anemia in pregnant women also contributes to fetal mortality in 12% to 28% of cases, neonatal mortality in 7% to 10% of cases, and perinatal mortality in 30% of cases (Ministry of Health 2018).

Based on 2023 health data from the province of South Sumatra, there were 4,873 cases of anemia in pregnant women (South Sumatra Provincial Health Office, 2023). Cases of anemia in pregnant women in Empat Lawang District in 2025 for the two months of January to February totaled

201 cases, consisting of 10 community health centers in Empat Lawang District. The Tebing Tinggi Community Health Center had 34 cases of anemia in pregnant women out of 216 pregnant women in 2025.

RESEARCH METHODS

Cross-sectional research design, which means that data on independent and dependent variables are collected at the same time. The data used is secondary data obtained by reviewing medical records of pregnant women who have undergone Hb tests at the Tebing Tinggi Community Health Center in Empat Lawang Regency. The research was conducted in June 2025. The research location was the Tebing Tinggi Community Health Center in Empat Lawang Regency. The population in this study was all pregnant women at the Tebing Tinggi Community Health Center in Empat Lawang Regency, totaling 216 pregnant women. To determine the number of the population used, a formula was used to calculate the sample size from the population, resulting in a sample of 68. Bivariate analysis was performed on two variables that were suspected to be related or correlated. In addition to univariate analysis, the data obtained was also analyzed bivariate between the independent and dependent variables using the Chi-Square test. To determine the significance of the statistical calculations, a significance level of 5% was used.

RESULTS

Univariate analysis in research to examine the description of dependent and independent variables. The complete results of the univariate analysis are presented in the following table:

Table 1. Frequency Distribution

Variabel	Freuency (n)	Present (%)
Iron Tablets Intake		
Insufficient	26	38,2
Enough	42	61,8
Parity		
Primiparae	32	47,1
Multipara	36	52,9
Infectious diseases		
Infectious diseases	31	45,6
Not Infectious diseases	37	54,4
Anemia		
Anemia	26	38,2
Not Anemia	42	61,8

Table 1 Distribution of Iron Intake Table Fe shows that almost half (38.2%) of respondents had insufficient iron intake from iron tablets. The distribution of parity shows that almost half (47.1%) of respondents were primiparous. The distribution of infectious diseases shows that almost half (45.6%) of respondents had infectious diseases. The distribution of anemia shows that nearly half (38.2%) of respondents have anemia. Bivariate analysis was performed to determine the relationship between independent variables and dependent variables, namely the relationship between iron tablet intake, parity, and infectious diseases with the incidence of anemia in pregnant women. The statistical test used was chi-square (χ^2) with a significance level (α) of 5%. The complete bivariate analysis results can be seen in the table below:

Table 2. Correlation between iron tablet intake and the occurrence of anemia in Pregnant Women at Tebing Tinggi Health Center in Empat Lawang Regency in 2025

Iron Tablets Intake	Anemia				Total		P
	Anemia		Not Anemia		f	%	
	f	%	f	%			
Insufficient	16	61,5	10	38,5	26	100	0,004
Enough	10	23,8	31	76,2	42	100	
Total	26	38,2	42	61,8	68	100	

Table 2 shows that of the 26 respondents who had insufficient iron intake from Fe tablets, 16 (61.5%) had anemia. The chi-square test yielded a p-value of 0.004, which is less than $p=0.05$, indicating a significant association between iron intake from Fe tablets and the incidence of anemia among pregnant women in the service area of the Tebing Tinggi Health Center, Empat Lawang District, in 2025.

Tabel 3. Correlation between Infectious diseases and the occurrence of anemia in Pregnant Women at Tebing Tinggi Health Center in Empat Lawang Regency in 2025

Infectious diseases	Anemia				Total		P
	Anemia		Not Anemia				
	f	%	f	%	f	%	
Primiparae	19	59,4	13	40,6	32	100	0,002
Multipara	7	19,4	29	80,6	36	100	
Total	26	38,2	42	61,8	68	100	

Table 3 shows that of the 32 primiparous respondents, 19 (59.4%) had anemia. The chi-square test yielded a p-value of 0.002, which is less than $p = 0.05$, indicating a significant relationship between parity and the incidence of anemia in the working area of the Tebing Tinggi Community Health Center, Empat Lawang District, in 2025.

Tabel 4. Correlation between Parity and the occurrence of anemia in Pregnant Women at Tebing Tinggi Health Center in Empat Lawang Regency in 2025

Parity	Anemia				Total		P
	Anemia		Not Anemia				
	f	%	f	%	f	%	
Infectious diseases	17	54,8	14	45,2	31	100	0,002
Not Infectious diseases	9	24,3	28	75,7	37	100	
Total	26	38,2	42	61,8	68	100	

Table 4 shows that of the 31 respondents with infection, 17 (54.8%) had anemia. The chi-square test yielded a p-value of 0.02, which is less than $p = 0.05$, indicating a significant relationship between infectious diseases and the incidence of anemia in the working area of the Tebing Tinggi Community Health Center, Empat Lawang District, in 2025.

DISCUSSION

Correlation between iron tablet intake and the occurrence of anemia in Pregnant Women at Tebing Tinggi Health Center in Empat Lawang Regency in 2025

The results of this study show that of the 26 respondents who had insufficient iron intake from iron tablets, 16 (61.5%) had anemia and 10 (38.5%) did not have anemia. This was because they had no history of anemia before pregnancy, and they also consumed many other food sources containing iron. Of the 42 respondents who had sufficient iron intake (iron tablets), 10 (16.1%) experienced anemia. This was because, even though they regularly and routinely consumed iron tablets, they still experienced anemia because they did not consume enough other foods containing iron.

There were also those who, during the first trimester, although they always consumed iron tablets, vomited after taking them, so the iron tablets they consumed were not absorbed by the body but were expelled with the vomit they experienced during the first trimester. There were also those who had a history of anemia before pregnancy. The chi-square test yielded a p-value of 0.004, which is less than $p=0.05$, indicating a significant relationship between iron tablet intake and the incidence of

anemia in pregnant women in the working area of the Tebing Tinggi Community Health Center, Empat Lawang Regency, in 2025.

The link between iron and anemia is due to iron being a key component in the production of red blood cells in hemoglobin synthesis. Large amounts of iron are stored in the form of ferritin protein and hemosiderin in the liver, spinal cord, spleen, and muscles. Adequate iron stores support the production of red blood cells, but if iron stores in the body are low and iron intake is also low, an iron imbalance occurs in the body, resulting in a decrease in red blood cell and hemoglobin production to below normal levels, a condition known as anemia (Briawan, 2016).

Correlation between Infectious diseases and the occurrence of anemia in Pregnant Women at Tebing Tinggi Health Center in Empat Lawang Regency in 2025

The results of this study indicate that of the 31 respondents with infections, 17 (54.8%) had anemia. The chi-square test yielded a p-value of 0.02, which is less than $p = 0.05$, indicating a significant relationship between infectious diseases and the incidence of anemia in the working area of the Tebing Tinggi Community Health Center in Empat Lawang Regency in 2025.

Infectious diseases are one of the risk factors for anemia, as a poor appetite is a cause of infection, resulting in inadequate nutrition. Pregnant women who are infected with diseases such as diarrhea, urinary tract infections, respiratory tract infections, and hypertension are at risk. To avoid infection, pregnant women must maintain good hygiene, a healthy diet, and eat nutritious foods (Nuauli and Siregar, 2023).

Previous research by Mahyuni (2019) also stated that there is no proven link between disease infection and the occurrence of anemia. Pregnant women who are infected with disease are few, but most pregnant women experience anemia due to lack of compliance in taking iron tablets. Most pregnant women experience anemia due to disease caused by parasitic infections, which can disrupt iron balance. The prevalence of parasitic infections in Indonesia is also high, but they are generally rare (Siregar, 2023).

Correlation between Parity and the occurrence of anemia in Pregnant Women at Tebing Tinggi Health Center in Empat Lawang Regency in 2025

The results of this study show that of the 32 primiparous respondents, 19 (59.4%) experienced anemia and 13 (40.6%) did not. This is because even though they were pregnant with their first child, they always consumed additional iron tablets during pregnancy so that their iron intake requirements during pregnancy were met, and also supplemented with other food sources containing iron.

Of the 36 multiparous respondents, 7 (19.3%) experienced anemia. This was caused by insufficient consumption of iron tablets during pregnancy. Although they had been pregnant before, they still experienced anemia in their current pregnancy. This was because they had already used up their iron reserves during their previous pregnancies. During their current pregnancies, they always felt nauseous and vomited after taking iron tablets, so the iron tablets they consumed were not absorbed by their bodies. In addition, the previous pregnancies were too close together, resulting in a lack of iron in their bodies, which caused anemia during pregnancy. The chi-square test yielded a p-value of 0.002, which is less than $p = 0.05$, indicating a significant association between parity and the incidence of anemia in the service area of the Tebing Tinggi Health Center, Empat Lawang District, in 2025.

Research conducted by Diana and Kartika (2020) on the Relationship Between Parity and Anemia in Third Trimester Pregnant Women at the Sidotopo Weta Surabaya Community Health Center found that almost all (89.4%) were aged 20-35 years, and most (59.7%) had a secondary education. The chi-square test yielded a value of $p = 0.000 < 0.05$, which means that H_1 is accepted, and there is a relationship between parity and the incidence of anemia in pregnant women in their third trimester at the Sidotopo Wetan Community Health Center in Surabaya.

The conclusion of this study is that there is a relationship between parity and the incidence of anemia in pregnant women in their third trimester at the Sidotopo Wetan Community Health Center in Surabaya. Having too many children (>3) can lead to diseases during pregnancy and childbirth, including anemia. The more often a woman experiences pregnancy and childbirth, the more iron she loses and the more anemic she becomes.

CONCLUSIONS AND RECOMMENDATIONS

Based on the results of research and discussion on factors related to the incidence of anemia in pregnant women in the working area of the Tebing Tinggi Community Health Center, Empat Lawang Regency, in 2025, it can be concluded that there is a significant relationship between iron tablet intake and the incidence of anemia. there is a significant relationship between parity and the

incidence of anemia, and there is a significant relationship between infectious diseases and the incidence of anemia in the working area of the Tebing Tinggi Community Health Center, Empat Lawang Regency, in 2025. Based on the results of the research and discussion, the researchers would like to offer the following recommendation to the health department: Health workers assigned to posyandu should be more active in providing knowledge about maternal and child health to husbands and wives. Improving knowledge and attitudes can be achieved by increasing education about maternal health.

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