



A Correlation Between Knowledge and Dietary Patterns With the Incidence of Anemia Among Pregnant Women in The Working Area of Penarik Health Center 2025

Andri Yunita¹, Nimas Ayu Lestari Nurjanah², Ice Rakizah Syafrie³
^{1,2,3} Universitas Dehasen Bengkulu, Indonesia
¹ e-mail: nimas.ayu27@unived.ac.id

Received [04-04-2026]

Revised [09-06-2026]

Accepted [12-06-2026]

Abstract. Anemia in pregnant women remains a public health problem that can have adverse effects on both the mother and the fetus, especially in the second and third trimesters when iron requirements increase. Factors that play a role in the occurrence of anemia include the level of knowledge and dietary patterns of pregnant women. This study aimed to determine the relationship between knowledge and dietary patterns and the occurrence of anemia in pregnant women in the second and third trimesters in the working area of Penarik Health Center in 2025. This study used an analytical observational design with a cross-sectional approach. The population in this study was all pregnant women in the second and third trimesters in the working area of Penarik Health Center, with a sample size of 45 respondents taken using purposive sampling technique. Data were collected through questionnaires to measure knowledge and dietary patterns, as well as hemoglobin level examination to determine the occurrence of anemia. Data analysis was carried out univariately and bivariately using the Chi-Square test. The results showed that the majority of respondents had sufficient knowledge (40.0%), good dietary patterns (57.8%), and did not experience anemia (53.3%). Bivariate analysis results showed a significant relationship between knowledge and the occurrence of anemia in pregnant women in the second and third trimesters ($p < 0.000$), and there was a significant relationship between dietary patterns and the occurrence of anemia ($p = 0.008$). The conclusion of this study is that there is a meaningful relationship between knowledge and dietary patterns and the occurrence of anemia in pregnant women in the second and third trimesters in the working area of Penarik Health Center. It is expected that health workers can increase health education and nutrition counseling for pregnant women as an effort to prevent anemia during pregnancy.

Keywords: *Knowledge, Dietary Patterns, Anemia.*

INTRODUCTION

Based on the Bengkulu Provincial Health Profile, in 2024 the number of pregnant women in Bengkulu Province was recorded at 39,920 individuals, with 1,435 cases of anemia among pregnant women distributed across various regencies and municipalities in the province. The three regencies/municipalities with the highest incidence of anemia among pregnant women were Bengkulu City, which recorded the highest number of cases at 233, followed by Mukomuko Regency with 223 cases, and Rejang Lebong Regency with 219 cases. These data indicate that anemia among pregnant women remains a public health problem that requires serious attention within maternal health services in Bengkulu Province (Bengkulu Provincial Health Profile, 2024).

Anemia in pregnant women is a condition in which hemoglobin levels in the blood fall below the normal threshold, namely less than 11 g/dL. This condition reduces the blood's

capacity to transport oxygen to body tissues, which can have adverse effects on both the mother and the fetus. Several consequences of anemia during pregnancy include miscarriage, preterm birth, impaired fetal growth, bleeding during childbirth, and an increased risk of maternal and neonatal mortality (Pratiwi, 2022).

Various factors can influence the occurrence of anemia in pregnant women. These factors include maternal age, parity, nutritional status, birth spacing, infectious diseases, iron consumption, maternal knowledge, and dietary patterns during pregnancy. Maternal knowledge about anemia plays a crucial role in its prevention, as pregnant women with good knowledge tend to better understand the importance of adequate nutrition and adherence to iron supplementation during pregnancy (Amalia, 2023).

The results of a study conducted by Fitriani et al. (2023) showed a significant relationship between the level of maternal knowledge and the incidence of anemia, with a p-value of 0.003. The study stated that pregnant women with poor knowledge about anemia had a higher risk of experiencing anemia compared to those with good knowledge. Another study by Rahmadani and Sari (2024) also found a significant association between maternal knowledge and anemia incidence, with a p-value of 0.001. These findings indicate that the level of maternal knowledge greatly influences health-related behaviors during pregnancy.

In addition to knowledge, dietary patterns are also an important factor associated with anemia in pregnant women. Dietary patterns refer to habitual ways of consuming food, including the type, quantity, and frequency of daily food intake. An unbalanced diet can lead to deficiencies in essential nutrients, particularly iron, which is critically needed during pregnancy. Iron requirements increase during pregnancy due to the expansion of blood volume and fetal needs; therefore, inadequate iron intake places pregnant women at risk of developing anemia.

The study by Sari and Wulandari (2023) demonstrated a significant relationship between dietary patterns and the incidence of anemia among pregnant women, with a p-value of 0.012. Pregnant women with poor dietary patterns were found to be at higher risk of anemia compared to those with good dietary habits. Another study conducted by Rahmawati et al. (2024) also reported a significant association between dietary patterns and anemia in pregnancy, with a p-value of 0.018. These findings suggest that unbalanced dietary patterns can increase the risk of anemia during pregnancy.

Efforts to prevent anemia in pregnant women can be carried out through the fulfillment of balanced nutritional needs and adherence to iron (Fe) tablet consumption. According to the Regulation of the Minister of Health of the Republic of Indonesia Number 88 of 2014, pregnant women are recommended to consume at least 90 iron tablets throughout pregnancy to meet iron requirements and prevent anemia.

Based on a preliminary survey conducted by the researcher at the Penarik Community Health Center in Mukomuko Regency, data showed that there were 139 pregnant women who had completed K4 antenatal visits, and 7 pregnant women were identified as having anemia during the period from January to August, according to data from the Mukomuko Regency Health Office. This indicates that cases of anemia among pregnant women are still present in the working area of the Penarik Community Health Center, highlighting the need for research to identify factors associated with anemia in pregnant women.

LITERATURE REVIEW

Pregnancy is a period that begins with conception and continues until the birth of the fetus. The normal duration of pregnancy is 280 days (40 weeks or 9 months and 7 days) and is divided into three trimesters (Marbun et al., 2023). According to Ophie (2019) as cited in Marbun et al. (2023), pregnancy is a process that occurs from fertilization to childbirth, starting with the fertilization of an ovum by a sperm cell, followed by implantation in the uterine lining, and

subsequently developing into a fetus. Pregnancy is a period that begins with conception and ends with the birth of the fetus. The normal length of pregnancy is 280 days (9 months and 7 days, or 40 weeks), calculated from the first day of the last menstrual period (Febrianti & Aslina, 2019, as cited in Marbun et al., 2023).

Anemia in pregnancy is a condition in which a pregnant woman has a hemoglobin level below 11 g/dL or a hematocrit level of less than 33%. In the first and third trimesters, anemia is defined as a hemoglobin level below 11 g/dL, while in the second trimester it is defined as a hemoglobin level below 10.5 g/dL. This difference in the normal hemoglobin threshold across trimesters is caused by the occurrence of hemodilution during the second trimester (Pratami, 2019). Anemia occurs due to a decrease in red blood cells or hemoglobin levels, resulting in a reduced capacity of the blood to transport oxygen to the vital organs of both the mother and the fetus (Astutik & Ertiana, 2018). Anemia during pregnancy can lead to very serious complications and may even result in maternal and fetal mortality (Liyew et al., 2021).

METHODS

Univariate Analysis

Univariate analysis is conducted to describe the frequency distribution of each variable studied, including knowledge of dietary patterns and the incidence of anemia among third-trimester pregnant women, presented in percentages (%).

$$P = f \times 100\%$$

Description:

P = Percentage

f = Frequency of the observed variable

n = Sample size

Data interpretation according to Notoatmodjo (2011):

- 0%–25% = a small proportion of respondents
- 26%–49% = nearly half of the respondents
- 50% = half of the respondents
- 51%–75% = the majority of respondents
- 76%–79% = almost all respondents
- 100% = all respondents

Bivariate Analysis

Bivariate analysis is an analysis conducted on two variables that may potentially be related. In this study, bivariate analysis was carried out to determine the relationship between knowledge and dietary patterns with the incidence of anemia among third-trimester pregnant women using the Chi-square statistical test.

The Chi-square test is a statistical test used to analyze the relationship between two variables measured on a categorical scale (nominal or ordinal). The application of the Chi-square test must meet several requirements, namely:

1. Each cell in the contingency table must contain a frequency value (not zero) to ensure valid analysis.
2. In a 2x2 contingency table, none of the cells should have an expected frequency of less than 5.
3. In contingency tables larger than 2x2, expected frequencies of less than 5 are allowed, provided that the number of such cells does not exceed 20% of the total number of cells in the table.

For a 2x2 Chi-square test, the results can be interpreted based on the p-value in the continuity correction column. If the table size is larger than 2x2, the results are interpreted based on the p-value from the Pearson Chi-square test. If the assumptions of the Chi-square test are not met, Fisher's Exact Test can be used, and the results are interpreted based on the p-value of the Fisher's Exact Test. Statistical analysis was performed using SPSS version 26, with a significance level of $p < 0.05$ (95% confidence level) (Nugroho, 2020).

RESULTS

Univariate Analysis

Table 1 Frequency Distribution of Pregnant Women's Knowledge in the Work Area of Penarik Health Center, 2025

Knowledge Level	Frequency	Percentage (%)
Good	17	37.8
Moderate	18	40.0
Poor	10	22.2
Total	45	100

Table 2 Frequency Distribution of Maternal Dietary Patterns in the Work Area of Penarik Health Center, 2025

Dietary Pattern	Frequency	Percentage (%)
Good	26	57.8
Poor/Moderate	19	42.2
Total	45	100

Table 3 Frequency Distribution of Anemia Incidence in the Work Area of Penarik Health Center, 2025

Anemia Incidence	Frequency	Percentage (%)
No Anemia	24	53.3
Mild Anemia	16	35.6
Moderate Anemia	5	11.1
Total	45	100

Bivariate Analysis

Table 4 Relationship Between Maternal Knowledge and Incidence of Anemia in Pregnant Women in the Working Area of Puskesmas Penarik, 2025

Knowledge	Incidence of Anemia							P-Value	
	Not Anemic		Mild Anemia		Moderate Anemia		Total		
	n	%	n	%	n	%	n		%
Good	16	94,1	1	5,9	0	0	17	100	0,000
Fair	8	44,4	8	44,4	2	11,1	18	100	
Poor	0	0	7	70	3	30	10	100	
Total	24	53,3	16	35,6	5	11,1	45	100	

Table 5 Relationship Between Dietary Patterns and Incidence of Anemia in Pregnant Women in the Working Area of Puskesmas Penarik, 2025 Reporting Research Results

Dietary Patterns	Incidence of Anemia							P-Value	
	Not Anemic		Mild Anemia		Moderate Anemia		Total		
	n	%	n	%	n	%	n		%
Good	19	73,1	5	19,2	2	7,7	26	100	0,008
not very good	5	26,3	11	57,9	3	15,8	19	100	
Total	24	53,3	16	35,6	5	11,1	45	100	

DISCUSSION

Overview of Pregnant Women's Knowledge

Based on statistical analysis of 45 respondents in the second and third trimesters, the majority of respondents had moderate knowledge about anemia, namely 18 respondents (40.0%). Those with good knowledge numbered 17 respondents (37.8%), while respondents with poor knowledge were still found to be 10 (22.2%).

These results indicate that most pregnant women have a basic understanding of anemia, but their level of knowledge is not yet fully optimal. Anemia during pregnancy is a common condition and can increase the risk of pregnancy complications, such as preterm birth, hemorrhage, low birth weight (LBW), and increased maternal and infant mortality. Therefore, pregnant women's knowledge about anemia is an important factor in the prevention and management of anemia.

Pregnant women in the second and third trimesters generally have repeated antenatal care (ANC) visits, providing more opportunities to obtain health information, including anemia, iron tablet consumption, and a nutritious diet. Research by Sari et al. (2022) states that a high frequency of ANC visits is associated with increased knowledge about anemia and its prevention.

Nevertheless, the existence of 22.2% of respondents with poor knowledge shows that education related to anemia is not yet fully understood by all pregnant women. Factors such as educational level, comprehension of health information, and the quality of communication between health workers and pregnant women can influence knowledge levels. This aligns with the study by Putri and Handayani (2023), which stated that pregnant women with a low level of education are at higher risk of having insufficient knowledge about anemia.

Moreover, the Indonesian Ministry of Health (2023) emphasizes that low knowledge of anemia among pregnant women contributes to poor adherence to iron tablet consumption. Pregnant women with good knowledge tend to be more compliant in taking iron tablets and following a diet rich in iron, folic acid, and vitamin C as a preventive measure against anemia.

Therefore, efforts are needed to improve the knowledge of pregnant women in the second and third trimesters regarding anemia through optimized education during ANC services, use of easy-to-understand educational media, and family support. Increasing knowledge is expected to reduce the prevalence of anemia in pregnant women and improve maternal and fetal health.

Overview of Pregnant Women's Dietary Patterns

Based on statistical analysis of 45 respondents in the second and third trimesters, most respondents had good dietary patterns, namely 26 respondents (57.8%), while 19 respondents

(42.2%) had poor dietary patterns. These results indicate that more than half of pregnant women have implemented a diet appropriate for pregnancy needs, but a fairly large proportion still has suboptimal dietary habits.

Good dietary patterns in pregnant women in the second and third trimesters are important because nutritional requirements increase significantly during this period, particularly for energy, protein, iron, folic acid, and calcium. Adequate nutrition supports fetal growth and development and prevents nutritional problems such as anemia and chronic energy deficiency (CED).

Pregnant women with good dietary patterns generally consume a diverse, balanced, and regular diet while paying attention to meal frequency and portion sizes. This condition can be influenced by increased awareness of the importance of nutrition during pregnancy, especially after receiving nutrition education during ANC visits. Research by Rahmawati et al. (2022) shows that pregnant women who routinely attend ANC have better dietary patterns than those who rarely attend.

However, the presence of 42.2% of respondents with poor dietary patterns indicates challenges in meeting nutritional needs during pregnancy. Factors such as limited nutritional knowledge, economic conditions, pre-pregnancy eating habits, and certain food restrictions can influence pregnant women's diets. This aligns with the study by Nuraini and Lestari (2023), which stated that socioeconomic and cultural factors are significantly related to dietary patterns in pregnant women.

Additionally, poor dietary patterns in pregnant women increase the risk of anemia and impaired fetal growth. The Indonesian Ministry of Health (2023) emphasizes that imbalanced nutrient intake, particularly iron and protein, remains one of the main causes of high nutritional problems among pregnant women in Indonesia. According to the World Health Organization (2024), the quality of pregnant women's diets plays a key role in reducing the risk of pregnancy complications and poor pregnancy outcomes.

Thus, although most second- and third-trimester pregnant women have good dietary patterns, efforts to improve diet quality are still necessary, especially for those with poor dietary habits. Optimizing nutrition education through ANC services, individualized counseling, and family involvement in meeting maternal nutritional needs is expected to improve diet quality and maternal and fetal health.

Overview of Anemia Incidence in Pregnant Women

Based on statistical analysis of 45 respondents in the second and third trimesters, the majority of respondents did not experience anemia, namely 24 respondents (53.3%). However, anemia was still found among some pregnant women, with 16 respondents (35.6%) having mild anemia and 5 respondents (11.1%) having moderate anemia. These results indicate that although more than half of the respondents are in normal condition, the prevalence of anemia among pregnant women remains relatively high.

Anemia during pregnancy is a common health problem due to increased iron requirements, especially in the second and third trimesters. At this stage, maternal blood volume increases significantly to support fetal growth and development, making the risk of anemia higher if nutrient intake is insufficient. This aligns with the World Health Organization (2023), which states that anemia among pregnant women remains a global health problem, particularly in developing countries.

The proportion of pregnant women with mild anemia (35.6%) indicates that some respondents may not fully meet iron requirements, either from dietary intake or adherence to iron tablet consumption. Research by Utami et al. (2022) states that mild anemia in pregnant women often occurs due to poor adherence to iron tablet consumption and unbalanced diets. If not properly addressed, this condition can develop into more severe anemia.

The presence of 11.1% of respondents with moderate anemia requires special attention, as moderate anemia increases the risk of pregnancy complications such as preterm birth, low birth weight, and postpartum hemorrhage. The Indonesian Ministry of Health (2023) emphasizes that moderate and severe anemia in pregnant women contributes to increased maternal and infant morbidity and mortality.

Factors influencing anemia incidence in second- and third-trimester pregnant women include knowledge about anemia, dietary patterns, adherence to iron tablet consumption, frequency of ANC visits, and socioeconomic conditions. Research by Rahman et al. (2024) shows that pregnant women with good knowledge and adequate dietary patterns have a lower risk of anemia than those with poor knowledge and dietary patterns.

Thus, although most respondents did not experience anemia, continuous prevention and management efforts are still needed. Optimizing ANC services, improving nutrition education, monitoring hemoglobin levels regularly, and increasing adherence to iron tablet consumption are important steps to reduce anemia prevalence and improve maternal and fetal health.

Relationship Between Knowledge and Anemia Incidence

This study found a highly significant relationship between knowledge levels and anemia incidence in second- and third-trimester pregnant women ($p < 0.000$). This finding confirms that knowledge is an important factor in preventing anemia during pregnancy, particularly in the second and third trimesters when iron requirements increase significantly due to increased blood volume and fetal growth.

The marked differences in anemia incidence among knowledge groups show a gradient relationship, where lower maternal knowledge levels correspond to higher anemia severity. Pregnant women with good knowledge are mostly not anemic, while those with poor knowledge all experience anemia, both mild and moderate. This pattern indicates that knowledge is not only associated with the presence of anemia but also its severity.

Conceptually, knowledge forms the basis for health attitudes and behaviors. Pregnant women with good knowledge about anemia tend to understand the importance of regular iron tablet consumption, choosing foods rich in iron, protein, and vitamin C, and avoiding factors that inhibit iron absorption, such as excessive tea or coffee consumption. This aligns with health behavior theory, which states that knowledge is a primary predisposing factor in developing healthy behaviors.

Among women with moderate knowledge, a relatively high proportion still experienced anemia. This suggests that partial or superficial knowledge does not necessarily lead to optimal preventive behavior. Some women may know what anemia is but do not fully understand its impact on maternal and fetal health or lack strong awareness to consistently implement preventive measures.

Meanwhile, in the low-knowledge group, all respondents experienced anemia, indicating that limited knowledge can lead to poor adherence to iron tablet consumption, unbalanced diets, and lack of awareness of regular hemoglobin checks. This is supported by Putri et al. (2022) and Sari & Handayani (2023), who state that pregnant women with low knowledge have a much higher risk of anemia than those with good knowledge.

This finding is also in line with the World Health Organization (2023), which emphasizes that effective health education is a key component of global strategies to reduce anemia in pregnant women. Moreover, the Indonesian Ministry of Health (2023) emphasizes that improving pregnant women's knowledge through integrated counseling during ANC is a strategic step in increasing adherence to iron tablets and improving dietary patterns.

Overall, this study confirms that improving the knowledge of second- and third-trimester pregnant women is a critical strategy for anemia prevention. Continuous, communicative education tailored to the characteristics of pregnant women should be optimized through ANC

services, prenatal classes, and family involvement. Increased knowledge is expected to help pregnant women adopt health behaviors that prevent anemia and improve maternal and fetal health.

Relationship Between Dietary Patterns and Anemia Incidence

This study found that dietary patterns are significantly associated with anemia incidence in second- and third-trimester pregnant women ($p = 0.008$). This finding emphasizes that the quality and adequacy of nutrient intake during pregnancy play an important role in determining maternal hemoglobin status, particularly in the second and third trimesters when nutritional requirements increase physiologically.

The distribution of anemia incidence based on dietary patterns shows a clear difference between the good and poor diet groups. Most pregnant women with good dietary patterns were not anemic, whereas those with poor dietary patterns mostly experienced mild to moderate anemia. This pattern indicates that nutrient imbalance directly contributes to lower hemoglobin levels. Biologically, anemia in pregnancy is closely related to deficiencies in iron, protein, and other micronutrients such as folic acid and vitamin B12.

Poor dietary patterns are generally characterized by low consumption of heme iron sources (such as red meat, liver, and fish), low protein intake, and insufficient fruits and vegetables containing vitamin C, which enhances iron absorption. Additionally, consuming tea or coffee with meals can inhibit iron absorption, increasing the risk of anemia. In the second and third trimesters, plasma volume increases more than red blood cell mass, making pregnant women prone to hemodilution. This condition further increases the risk of anemia if dietary iron intake is insufficient. This explains why pregnant women with poor dietary patterns in this study had a higher proportion of anemia.

Although some pregnant women with good dietary patterns still experienced anemia, this indicates that anemia during pregnancy is multifactorial. Other factors, such as adherence to iron tablets, closely spaced pregnancies, pre-pregnancy nutritional status, infections, and socioeconomic conditions, also influence anemia incidence. Nevertheless, dietary patterns remain a modifiable factor and play a crucial role in anemia prevention.

This finding aligns with Rahmawati et al. (2022), which states that diet quality is significantly associated with anemia incidence in pregnant women, where those with unbalanced diets have a higher risk of anemia. Putri and Lestari (2023) also confirm that low iron intake due to poor dietary patterns contributes to high anemia prevalence in advanced-trimester pregnant women.

Additionally, the World Health Organization (2023) emphasizes that improving maternal diet quality is a key intervention in global anemia prevention strategies. The Indonesian Ministry of Health (2023) also states that nutrition education and counseling on appropriate dietary patterns during pregnancy should be an integral part of ANC services, especially to prevent anemia in the second and third trimesters.

Although some cells in the statistical analysis had expected counts less than 5, the significance values obtained and the consistency of data distribution patterns indicate that the relationship between dietary patterns and anemia is real and clinically relevant. Therefore, this study can serve as a basis for planning nutritional interventions for pregnant women. Overall, this study emphasizes that improving dietary patterns of second- and third-trimester pregnant women is a strategic step in anemia prevention.

Recommended interventions include trimester-specific nutrition education, promotion of iron- and protein-rich foods, and guidance on iron tablet consumption. With a comprehensive approach, the incidence of anemia among pregnant women can be reduced, improving maternal and fetal health.

CONCLUSION

1. Some pregnant women in the working area of Puskesmas Penarik had moderate knowledge, totaling 18 respondents (40%).
2. Some pregnant women in the working area of Puskesmas Penarik had good dietary patterns, totaling 26 respondents (57.8%).
3. Some pregnant women in the working area of Puskesmas Penarik did not experience anemia, totaling 24 respondents (53.3%).
4. There was a significant relationship between knowledge and the incidence of anemia among pregnant women in the working area of Puskesmas Penarik in 2025 (p-value = 0.000).
5. There was a significant relationship between dietary patterns and the incidence of anemia among pregnant women in the working area of Puskesmas Penarik in 2025 (p-value = 0.008).

LIMITATION

For future researchers, it is recommended to conduct studies with a more complex design, such as cohort or experimental studies, to determine the causal relationship between knowledge, dietary patterns, and the incidence of anemia in pregnant women. Future studies are also expected to include other variables that may influence the occurrence of anemia, such as adherence to iron tablet consumption, pre-pregnancy nutritional status, birth spacing, and socioeconomic conditions. In addition, using a larger sample size and a broader study area is expected to enhance the generalizability of the research findings.

REFERENCES

- Alfaridzi, M. R., Hafiani, R., & Junita, R. (2024). Dietary Patterns and Iron Deficiency Anemia in Adolescent Girls in Bengkulu City. *Andalas Journal of Public Health*, 10, 11-18.
- Amalia, R., Sutrisminah, E., Astuti, Y., Midwifery Study Program and Midwifery Profession Faculty of Medicine Sultan Agung Islamic University Semarang, P., & Author, K. (2023). Factors Causing Anemia in Adolescent Girls: Literature Review. *Mppki*, 6(9), 1715–1720. <https://doi.org/10.56338/mppki.v6i9.3614>
- Astutik, R. Y., & Ertiana, D. (2018). *Anemia in Pregnancy*. East Java: CV. Pustaka Abadi.
- Cholifah, S., & Rinata, E. (2022). *Textbook of Pregnancy*. Sidoarjo: UMSIDA Press.
- Davidson, S. M., Tampubolon, R., & Bornensiska, C. B. (2022). Nutritional Adequacy and the Incidence of Anemia in Pregnant Women in the Working Area of Sidorejo Lor Community Health Center, Salatiga City. *Journal of Nutrition*, 11(2), 85-95.
- Elisa Safitri, M., & Rahmika, P. (2022). Factors Related to the Incidence of Anemia in Pregnant Women. *Journal Healthy Purpose*, 1(2), 58–67. <https://doi.org/10.56854/jhp.v1i2.127>
- Fitriani, et al. (2023). The Relationship Between Pregnant Women's Knowledge Level and the Incidence of Anemia in Pregnancy. *Journal of Public Health*.
- Haikala. (2021). Iron Requirements During Pregnancy and Their Relationship with Anemia in Pregnant Women. *Journal of Public Health*, 12(4), 202–209.
- Harahap, M. R. (2022). The Relationship Between Pregnant Women's Knowledge and the Incidence of Anemia at Batang Bulu Community Health Center, Barumon Selatan District, Padang Lawas Regency, 2022.
- Haslin, S., Simanjuntak, N. M., & Simanjuntak, E. H. (2024). Counseling for Anemia Prevention in Pregnant Women. *Tour Abdimas Journal*, 3(2), 130–134.

- Hasnamuntaz, S., Hidayanti, D., Widayani, W., & Sofiyanti, S. (2021). Breast Care During Pregnancy and Exclusive Breastfeeding. *Siliwangi Health Journal*, 2(2), 708–715.
- Ministry of Health BKKP. (2023). Indonesian Health Survey (SKI) in Figures. Ministry of Health, Health Development Policy Agency.
- Ministry of Health of the Republic of Indonesia. (2014). Regulation of the Minister of Health of the Republic of Indonesia Number 88 of 2014 concerning the Provision of Iron Tablets for Pregnant Women. Jakarta: Ministry of Health RI.
- Ministry of Health of the Republic of Indonesia. (2023). Guidelines for the Prevention and Management of Anemia in Pregnant Women. Jakarta: Ministry of Health RI.
- Ministry of Health of the Republic of Indonesia. (2023). Indonesian Health Survey (SKI) 2023. Jakarta: Ministry of Health RI.
- Liyew, A.M., Tesema, G.A., & Alamneh, T.S. (2021). Prevalence and Determinants of Anemia Among Pregnant Women in East Africa: A Multi-level Analysis of Recent Demographic and Health Surveys. *PLoS ONE*.
- Marbun, U., Uliarta, et al. (2023). Basic Needs of Pregnant Women. *Midwifery Documentation*. Central Java: PT Nasya Expanding Management.
- Mariana, D., Wulandari, D., & Padila, P. (2018). The Relationship Between Dietary Patterns and Anemia in Pregnant Women in the Working Area of Community Health Centers. *Jurnal Keperawatan Silampari*, 1(2), 108–122. doi: 10.31539/jks.v1i2.83.
- Mayasari, N., Devita, H., & Utami, A. W. (2022). The Relationship of Knowledge About Anemia With Anemia Status in Adolescent Girls at SMA N 07 Padang. *J Ibu dan Anak*, 11(2), 82–87.
- Ningtyas, W. F., Aryatika, K., Mufidah, L. N., Irmayanti, S., & Soleha, W. S. (2022). Pocket Book on Anemia Prevention in Adolescent Girls: Smart Strategies Using Tricky Card Games.
- Nuraini, S., & Lestari, D. (2023). Socioeconomic and Cultural Factors Related to Dietary Patterns of Pregnant Women. *Indonesian Journal of Public Health*, 18(1), 55–63. <https://doi.org/10.7454/jkmi.v18i1.2023>
- Pibriyanti, K., et al. (2023). Relationship of Knowledge, Attitude, Behavior, and Sleep Duration with Anemia Incidence in Adolescent Girls in Islamic Boarding Schools. *Global Health Journal*, 6(1), 18–26.
- Pratiwi, D., Widyastuti, D. E., & Pratiwi, E. N. (2022). Relationship Between Physical Activity and Sleep Quality of Pregnant Women in Third Trimester. *Kesehatan*, 12.
- Pratiwi. (2022). Anemia in Pregnancy and Its Impact on Maternal and Fetal Health. *Jurnal Kebidanan*.
- Bengkulu Provincial Health Profile. (2024). Bengkulu Provincial Health Profile 2024. Bengkulu: Bengkulu Provincial Health Office.
- Putri, A. R., & Handayani, S. (2023). Relationship Between Education Level and Pregnant Women's Knowledge About Anemia. *Journal of Midwifery and Reproductive Health*, 14(1), 45–52. <https://doi.org/10.31290/jkkr.v14i1.2023>
- Putri, D. A., & Lestari, P. (2023). Relationship Between Dietary Patterns and Anemia in Pregnant Women. *Journal of Reproductive Health*, 14(2), 112–120. <https://doi.org/10.22435/jkr.v14i2.2023>

- Putri, R. A., Lestari, D., & Pramono, A. (2022). Relationship Between Pregnant Women's Knowledge About Anemia and the Incidence of Anemia. *Journal of Reproductive Health*, 13(1), 45–53. <https://doi.org/10.22435/jkr.v13i1.2022>
- Rabbania Hiksas, R., Rima Irwanda, & Noroyono Wibowo. (2021). *Iron Deficiency Anemia*. Jakarta: UI Publishing.
- Rahmadani, & Sari. (2024). Relationship Between Pregnant Women's Knowledge and the Incidence of Anemia. *Journal of Health*.
- Rahman, F., Nurhayati, S., & Prasetyo, A. (2024). Determinants of Anemia Among Pregnant Women in the Second and Third Trimester. *Journal of Maternal and Child Health*, 9(1), 12–20. <https://doi.org/10.26911/thejmch.2024.09.01.02>
- Rahmawati, A., Sari, N. P., & Wulandari, R. (2022). Dietary Patterns and the Incidence of Anemia in Pregnant Women in Second and Third Trimester. *Journal of Maternal Nutrition and Health*, 11(1), 45–53. <https://doi.org/10.21776/jgki.v11i1.2022>
- Rahmawati, et al. (2024). Relationship Between Dietary Patterns and Anemia in Pregnant Women. *Journal of Health Science*.
- Safitri, E., & Rahmika. (2022). Relationship Between Nutritional Status of Pregnant Women and Fetal Health Conditions. *Journal of Health*.
- Sari, D. P., Lestari, N., & Wulandari, E. (2022). Relationship Between Antenatal Care Visits and Pregnant Women's Knowledge About Anemia. *Journal of Public Health*, 18(2), 123–130. <https://doi.org/10.20473/jkm.v18i2.2022>
- Sari, M. P., & Handayani, S. (2023). Pregnant Women's Knowledge and Compliance With Iron Tablet Consumption on the Incidence of Anemia. *Journal of Midwifery and Maternal Health*, 15(2), 101–109. <https://doi.org/10.31290/jkki.v15i2.2023>
- Sari, & Wulandari. (2023). Relationship Between Dietary Patterns and Anemia in Pregnant Women. *Journal of Midwifery*.
- Sasmita, A., Runjati, & Arwani. (2022). *Red Bean (Phaseolus vulgaris L) Extract as an Alternative Treatment for Anemia in Pregnant Women*. Pustaka Rumah Cinta. Poltekkes Ministry of Health Aceh.
- Sulistyoningrum, D., & Adi, M. S. (2020). Differences in Hemoglobin Levels in Breastfeeding Mothers in Mountainous Areas (Sumoeono) and Coastal Areas (Bandarharjo) Semarang. 19, 10.
- Tarwoto, & Wasnidar. (2019). *Anemia in Pregnant Women: Concepts and Management*. Jakarta: CV. Trans Info Media.
- Utami, R. D., Lestari, P., & Handayani, S. (2022). Compliance With Iron Tablet Consumption and the Incidence of Anemia in Pregnant Women. *Journal of Reproductive Health*, 13(2), 98–105. <https://doi.org/10.22435/jkr.v13i2.2022>
- Wahyuni, D., Rohmatin, H., & Farianingsih. (2023). Relationship Between Maternal Age and Parity With the Incidence of Anemia in Pregnant Women in the Working Area of Jatiroto Community Health Center, Lumajang Regency. *Journal of Midwifery and Obstetrics*, 15(2), 64–74.
- World Health Organization. (2022). *Global Anaemia Estimates in Women of Reproductive Age*. Geneva: WHO.

World Health Organization. (2023). *Anaemia in Women and Children: Global Progress and Challenges*. Geneva: World Health Organization.

Zulfikar, M., Setiawati, D., Pratiwi, U. M., Rahmadhani, R., & Hilal, F. (2023). Relationship Between Pregnant Women's Nutritional Status Based on MUAC and the Incidence of Low Birth Weight. *Bnu Sina: Journal of Medicine and Health*, 22(1), 81–88