p-ISSN: 2089-6778
e-ISSN: 2549-5054

NUTRITIONAL STATUS AND ANEMIA IN PREGNANT WOMEN

Syarini Novita[1)], Dewi Fajar Wati[2)]
Email: syarininovita85@gmail.com[1)], dewifajar1824@gmail.com[2)]
[1,2)]Program Studi D3 Kebidanan Fakultas Ilmu Kesehatan dan Sains Universitas Bhakti Pertiwi Indonesia
Jl. Jagakarsa Raya No.37 Kota Jakarta Selatan Daerah Khusus Ibu Kota Jakarta

Article Information

Received:
May 07, 2025

Revised:
June 02, 2025

Accepted:
June 05, 2025

Abstract

Anemia affects a significant number of pregnant women in Indonesia, with a prevalence of approximately 48.9%. In Lampung, the incidence remains high, posing serious risks to both mothers and their unborn children due to low hemoglobin levels. This study aimed to determine the effect of nutritional status on the incidence of anemia among pregnant women at the Tanjung Agung Health Center. Using an analytical survey with a cross-sectional approach, the study included 67 first-trimester pregnant women selected through total sampling. Data were obtained from secondary sources, specifically upper arm circumference (LILA) measurements and anemia status recorded on maternal health cards. Findings revealed that 80% of pregnant women with poor nutritional status experienced anemia. Statistical analysis showed a significant relationship between nutritional status and anemia, with a p-value of 0.001 (≤ α 0.05) and an odds ratio (OR) of 8.53. This indicates that pregnant women with poor nutritional status are over eight times more likely to develop anemia. In conclusion, poor nutritional status significantly increases the risk of anemia during pregnancy. The study recommends that families actively support pregnant women by promoting a varied and iron-rich diet and ensuring regular hemoglobin checks during antenatal visits to help prevent complications.

Keywords: *Anemia, Nutritional Status, Pregnant Women*

Correspondence:
Dewi Fajar Wati. Program Studi Diploma III Kebidanan Fakultas Ilmu Kesehatan dan Sains Universitas Bhakti Pertiwi Indonesia. Jl. Jagakarsa Raya No.37 Kota Jakarta Selatan Daerah Khusus Ibu Kota Jakarta.
dewifajar1824@gmail.com

1. Introduction

Maintaining the nutrition of pregnant women is essential so that the baby is born healthy and grows optimally. This is because pregnancy is included in an important period called the first 1000 days of life, which greatly determines the quality of health in the future. Pregnant women are more susceptible to malnutrition problems because the food consumed is very much needed for the needs of the fetus in the womb; for that reason, sufficient and balanced nutritional intake in pregnant women is essential so that the incidence of low birth weight (LBW) and stunting can be prevented. WHO estimates that 42% of children under 5 years and 40% of pregnant women suffer from anemia. Approximately 370 million women in developing countries suffer from iron deficiency anemia, 41% of whom are pregnant women [1].

Anemia in pregnant women is a major health problem in the world, especially in South and Southeast Asia. Globally, 41.8% of pregnant women experience anemia. The number of

p-ISSN: 2089-6778
e-ISSN: 2549-5054

anemia in pregnancy varies by region; in South America, the prevalence is around 31%, while in South Asia, it is higher. So when combined, South Asia and Southeast Asia contribute around 58% of all cases of anemia in developing countries. In North America, Europe, and Australia, cases of anemia due to iron deficiency during pregnancy are relatively rare. In the United States alone, only around five percent of children and between one and ten percent of women of reproductive age experience anemia caused by iron deficiency [2] Some of all pregnant women in Indonesia experience anemia, around 48.9%. Most of the 84.6% of anemia cases occur in the young age group, specifically those aged 15-24 years; therefore, it is very important for pregnant women to routinely take iron supplements during pregnancy to maintain their health [3].

Anemia in pregnant women in Lampung is quite high and is a serious health problem, especially since there are still quite a lot of people whose hemoglobin levels are quite low so that it can endanger the mother and fetus. Based on the Lampung Province Health profile, it shows as many as 21,771 (88%). Pregnant women who experience anemia are 8,435 (36.4%) with Hb levels of 8-11 gr/dl and 810 pregnant women (3.4%) with Hb levels <8 gr/dl[4]. A person's nutritional status is influenced by the intake of nutrients they consume, so it can reflect their nutritional condition. Pregnant women are a group that is vulnerable to nutritional problems. If during pregnancy the intake of nutrients, especially iron as an important micronutrient, is insufficient, it can cause anemia [5].

In a non-pregnant state, iron can be met by consuming nutritious and balanced foods, but in a pregnant state, because the need for iron is greater than in a non-pregnant state, it is necessary to add iron supplements such as Fe tablets. The government has made efforts to reduce the incidence of anemia by ensuring that pregnant women can routinely consume iron tablets, at least 90 tablets during pregnancy, but this has not yielded results in efforts to reduce these cases [6]. Maternal age, gestational age and level of knowledge also play a role as factors that can cause anemia during pregnancy [7].

The impact of anemia in pregnancy is very bad for both the mother and the fetus. Anemia causes the mother's condition to be bad not only during pregnancy but also during the labor and postpartum process. The impact during pregnancy is that miscarriage and premature labor can occur. During the labor process, it will cause inadequate uterine contractions so that this long labor occurs because the blood supply is lacking in the uterine muscles and the oxygen supply is lacking, which causes cordis decompensation. Hypoxia due to anemia can cause shock and maternal death during labor. The impact on the fetus due to this anemia is stunted fetal growth and premature birth [8].

The preliminary survey conducted by researchers in November 2023 found that the prevalence of anemia in pregnant women at the Tanjung Agung Health Center in 2021 was 129 (17.08%) out of a total of 755 pregnant women. In the 2022 period, it decreased to 124 (16.35%) pregnant women experiencing anemia out of 758 pregnant women, and in the January-December 2023 period, the prevalence of anemia increased, namely 85 pregnant women (17.34%) of the total 490 pregnant women. In the November 2023-January 2024 period, the number of visits by pregnant women who underwent pregnancy check-ups was 198, and 67 respondents were pregnant women in the first trimester. Based on the problems above, researchers are interested in conducting a study that aims to understand how the nutritional status of pregnant women affects the prevalence of anemia at the Tanjung Agung Health Center.

p-ISSN: 2089-6778
e-ISSN: 2549-5054

2. Methods

This study used an analytical survey with a cross-sectional approach to determine the effect of nutritional status on anemia in pregnant women at the Tanjung Agung Health Center. The data collection method relied on secondary data, which involved reviewing LILA examination results and the anemia status recorded on the status cards of pregnant women who visited the health center. The instrument used was a checklist sheet designed as a guideline for collecting research data.

The sample in this study consisted of all pregnant women in the first trimester at the Tanjung Agung Health Center, totaling 67 respondents. With a total population of less than 100, the researcher decided to take the entire population as a research sample [9]. Data collection was carried out for the period November 2024 to January 2025. Data analysis was carried out using the chi-square test.

3. Results and Discussion

Table 1. Frequency Distribution of Nutritional Status and Anemia in Pregnant Women in the Tanjung Agung Health Center Work Area

No	Variable	Frequency (n)	Percentage (%)
Nutritional status			
1	Not enough	20	29,9
2	Enough	47	70,1
	Total	67	100
Anemia Occurrence			
1	Anemia (Hb < 11 gr/dl)	31	46,3
2	Not Anemic (Hb ≥ 11 gr/dl)	36	53,7
	Total	67	100

By looking at the table above, the nutritional status of pregnant women shows that there are more mothers with sufficient nutritional status, namely 47 respondents (70.1%) and the distribution of the frequency of anemia occurrence is dominated by respondents without anemia, namely 36 respondents (53.7%).

Table 2. Relationship between Nutritional Status and the Incidence of Anemia in Pregnant Women in the Tanjung Agung Health Center Work Area

Nutritional status	Anemia in Pregnant Women				Total		*P Value*	OR
	Anemia		Not Anemic					
	n	%	n	%	N	%		
Malnutrition	16	80,0	4	20,0	10	100	0,001	8,53 (2,4-29.95)
Adequate Nutrition	15	31,9	32	68,1	47	100		
Amount	31	46,3	36	53,7	67	100		

The results of the analysis of the relationship between nutritional status and the incidence of anemia in pregnant women showed that out of 20 respondents with poor nutritional status, there were 16 respondents (80.0%) mothers with anemia and 4 respondents (20.0%) who were not anemic. Meanwhile, out of 47 respondents with sufficient nutritional status, there were 15 respondents (31.9%) with anemia and 32 respondents (68.1%) who were not anemic. The results of the statistical test showed a p value = 0.001 <0.05, meaning that there was a relationship between nutritional status and the incidence of anemia in the Tanjung Agung Health Center Work Area in

p-ISSN: 2089-6778
e-ISSN: 2549-5054

2024. The results of the analysis also obtained an OR value of 8.53 so that it can be concluded that respondents with poor nutritional status are at 8.53 times risk of experiencing anemia compared to respondents with sufficient nutrition.

This research is in line with the results of the analysis at the Karang Anyar Health Center, showing that there is a relationship between nutritional status and the incidence of anemia in pregnant women, this is proven by a p-value of 0.000 which means that the relationship is statistically significant. [10]. Likewise with research [11] shows that most pregnant women are not anemic with sufficient nutritional status, namely 39.3%. The cause of anemia is blood thinning or called hypovolemia where plasma increases by 30.00% compared to red blood cells which only amount to 18.00% and Hemoglobin 19.00%. The formation of red blood cells that is too slow is what causes a lack of red blood cells or called anemia.

This research is supported by research results by [12], which states that nutritional status has a major influence on the risk of anemia, but is not the only causative factor. Other factors such as age, number of births, exercise and a person's physical strength also play a role. This can be seen from the P value of 0.001 and the OR value of 0.300, it can be concluded that there is a significant relationship between nutritional status and the incidence of anemia and pregnant women with poor nutrition have a 0.300 times greater chance of experiencing anemia compared to pregnant women with good nutrition, researchers assume that good nutritional status is very important to prevent iron deficiency in pregnant women. The worse the nutritional status, the higher the chance of pregnant women experiencing iron deficiency during pregnancy. Researchers found that there were pregnant women with good nutritional status but still experienced anemia, the number was 21 people (15.3%). There were also pregnant women whose nutritional status was poor but did not experience iron deficiency, this may be because their immune system was good and they exercised regularly, so that their bodies were still able to form hemoglobin even though their nutritional intake was not perfect.

According to the researcher's assumption, anemia during pregnancy is influenced by various factors including age, parity, pregnancy spacing, number of antenatal visits, nutritional status and Fe supplementation. In addition to these elements, it is important to note that during pregnancy, there are changes in hematological aspects. This occurs as a result of increased circulation triggered by the development of the fetus, placenta, and breasts, which has an impact on hemoglobin levels in pregnant women. In this study, respondents who were not anemic were dominated by 53.7%, because the nutritional status of the respondents was more in the sufficient category, namely 47 respondents (70.1%).

This research is in line with research [13] strongly related to the incidence of anemia in pregnant women, which often occurs is iron deficiency anemia, where in addition to additional Fe supplements, adequate nutritional intake can help reduce the incidence of anemia in pregnant women. In this study, out of 10 mothers with a low status, there were 4 respondents (20%) who were not anemic, this is because the pregnant women regularly undergo antenatal check-ups so that the condition of the mother and fetus can be monitored and they are obedient in consuming Fe tablets, this is recorded in the pregnant woman's card.

Based on research results [13] the results showed a strong relationship between maternal nutritional status and the incidence of anemia at Kotagede II Health Center with the incidence of anemia in mothers experiencing KEK reaching 13% while in mothers who were not at risk it was 23%. By conducting LILA examinations we can find out the nutritional status of pregnant

p-ISSN: 2089-6778
e-ISSN: 2549-5054

women and whether they suffer from KEK (Chronic Energy Deficiency) and can find out early on the risk of LBW.

In line with the theory, pregnant women in the first and third trimesters are included in the category of pregnancy age at risk for anemia, but it is in accordance with the conditions and complications felt by the mother. Mothers whose pregnancy age is in the risk category but are not anemic due to sufficient iron intake and good nutritional status of the mother. Anemia can also be caused by factors of compliance in consuming Fe tablets, regularity and the amount of Fe tablet consumption during pregnancy [14] However, it is slightly different from the research results of Wahyuningsih et al., who explained that there was no significant relationship between LILA values and the incidence of anemia in pregnant women with a p-value of 0.475 [15].

The upper arm circumference (MUAC) of pregnant women can indicate whether their food intake, especially energy and protein, is sufficient in the long term. If the MUAC is small, it means a continuous lack of energy. This can happen because the mother's body does not have enough nutritional reserves to support pregnancy, such as hormonal changes and increased blood volume needed for fetal growth [16].

4. Conclusion

This study shows that most pregnant women at Tanjung Agung Health Center are malnourished with anemia of 80%, with a p-value of 0.001, meaning that there is a significant relationship between nutritional status and the incidence of anemia in pregnant women. The OR value is 8.53 times, so pregnant women with poor nutritional status are at high risk of anemia; for that, it is necessary to cooperate between mothers, families, and health services for prevention and treatment. Good communication between pregnant women and their family members is needed to optimize families' contributions to increasing nutritional awareness and encouraging the consumption of a variety of foods, especially those containing iron. In addition, it is important to revive a number of health center programs, including conducting home visits for pregnant women. This aims to quickly detect anemia and overcome this problem through regular Hb level checks during pregnancy checks.

5. Acknowledgment

The author would like to thank LPPM STIKES Bhakti Pertiwi Indonesia for providing the opportunity to conduct this research. We would also like to thank all respondents who have helped researchers during the data collection process.

6. References

[1]. Dai NF. "Anemia Pada Hamil". 2021 [cited 2025 Apr 26];5–7. Available from: https://www.google.co.id/books/edition/ANEMIA_PADA_IBU_HAMIL/nX4xEAAAQBAJ?hl=id&gbpv=0

[2]. Organization WH. "Global Nutrition Targets 2025: Low Birth Weight Policy Brief". Switzerland; 2018.

[3]. Kementrian Kesehatan RI. "Penilaian Status gizi". Jakarta; 2018.

[4]. Soleha N, Astriana A, Amirus K. "Pemberian Jus Buah Naga Mempengaruhi Kadar Hemoglobin Pada Ibu Hamil". *J Kebidanan Malahayati*. 2020;6(3):355–341.

[5]. Marlapan S, Wantouw B, Sambeka J. Hubungan Status Gizi Dengan Kejadian Anemia Pada Ibu Hamil Di Wilayah Kerja Puskesmas Tuminting Kec. Tuminting Kota Manado. *Andrew's Dis Ski Clin Dermatology* [Internet]. 20AD;1(1):1–7. Available from: https://ejournal.unsrat.ac.id/v3/in

p-ISSN: 2089-6778
e-ISSN: 2549-5054

dex.php/jkp/article/view/2232/1789

[6]. Juwita ratna. "Anemia pada Ibu Hamil dan Faktor yang Memengaruhinya" - Google Books [Internet]. 2023 [cited 2025 Apr 26]. p. 110. Available from: https://www.google.co.id/books/edition/Anemia_pada_Ibu_Hamil_dan_Faktor_yang_Me/roS3EAAAQBAJ?hl=id&gbpv=1&dq=status+gizi+dengan+kejadian+anemia+pada+ibu+hamil&pg=PA69&printsec=frontcover

[7]. Riezqy Ariendha DS, Setyawati I, Utami K, Hardaniyati H. "Anemia Pada Ibu Hamil Berdasarkan Umur, Pengetahuan, Dan Status Gizi". *J Midwifery*. 2022;10(2):97–104.

[8]. Proverawati A. "Anemia dan Anemia Kehamilan". Yogyakarta: Nuha Medika; 2018.

[9]. Sugiyono. "Metode Penelitian Bisnis : Pendekatan Kuantitatif, Kualitatif", Kombinasi dan R&D. Bandung: Alfabeta; 2017. hal. 218.

[10]. Mutoharoh AVN, Indarjo S. "Faktor Risiko Kejadian Anemia pada Ibu Hamil". *HIGEIA (Journal Public Heal Res Dev*. 2024;8(1):22–30.

[11]. Utama RP. "Status Gizi dengan Kejadian Anemia Pada Ibu Hamil". *J Ilm Kesehat Sandi Husada*. 2021;10(2):689–94.

[12]. Dhilon DA, Riani, Sundari P. "Hubungan Status Ekonomi dan Status Gizi Dengan Kejadian Anemia Pada Ibu Hamil di Wilayah Kerja Puskesmas Siak Hulu III Tahun 2019". *J Doppler Univ Pahlawan Tuanku Tambusai* [Internet]. 2019;3(2):1–8. Available from: journal.universitaspahlawan.ac.id

[13]. Sari LP, Sarwinanti S, Djannah SN. "Hubungan Status Gizi Dengan Kejadian Anemia Pada Ibu Hamil Di Puskesmas Kotagede Ii Yogyakarta". *J Cakrawala Promkes*. 2020;2(1):24.

[14]. Qomarasari desy. "Monograf Kejadian Anemia pada Kehamilan" - Google Books [Internet]. Pekalongan, Jawa Tengah: NEM; 2023 [cited 2025 Apr 26]. 72 p. Available from: https://www.google.co.id/books/edition/Monograf_Kejadian_Anemia_pada_Kehamilan/oRbgEAAAQBAJ?hl=id&gbpv=1&dq=status+gizi+dengan+kejadian+anemia+pada+ibu+hamil&pg=PA46&printsec=frontcover

[15]. Endang Wahyuningsih, Hartati L, Dewi Puspita W. "Analisis Resiko Kejadian Anemia pada Ibu Hamil". *Prof Heal J*. 2023;4(2):303–13.

[16]. Aguscik A, Ridwan R. "Pengaruh Status Gizi Terhadap Kejadian Anemia Pada Ibu Hamil Di Daerah Endemik Malaria Kota Bengkulu". *JPP (Jurnal Kesehat Poltekkes Palembang)*. 2019;14(2):96–9.