Original Research Paper

Relationship between nutritional status and anemia incidence in pregnant women at Kelua Health Center 2024

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Abstract

A low hemoglobin level, known as anemia, raises the risk of maternal and foetal sickness or death and is among the most prevalent nutritional status concerns. The purpose of this research was to identify the rate of anemia among pregnant women in the Kelua Health Center's service area in Tabalong Regency in 2023 and to draw any conclusions about the association between nutritional status and this condition. The study is cross-sectional in nature and employs quantitative methods. The population and sample used the Total Sampling technique, which consisted of 42 respondents, and observations were made in a record book and data was collected using a Spearman rank test. The study's results found that 25 pregnant women with anemia (59.5%) and pregnant women with abnormal nutritional status amounted to 22 people (52.4%). A positive value of 0.573** and a p-value of 0.000<0.05 were produced by the Spearman rank statistical test's examination of the link between the Bebes variable and the bound variable. There was a strong and unidirectional significant relationship between nutritional status and the incidence of anemia in pregnant women in the Kelua Health Center Working Area, Tabalong Regency. Providing knowledge, education and handling about the importance of consuming nutritious food such as the recommendation of the contents of my plate to increase Hb levels in the blood as a treatment for anemia in pregnant women.

Keywords: anemia; nutritional status; pregnancy

1. Introduction

Worldwide, 43.9% of pregnant women suffer from anaemia. Estimates put the prevalence of anaemia in pregnant women in Asia at 49.4%, Africa at 59.1%, the United States at 28.2%, and Europe at 26.1%. Iron deficiency during pregnancy is responsible for over 40% of maternal fatalities in underdeveloped nations (Sumarmi, 2017).

The highest prevalence of anaemia in rural areas is 37.8%, while the lowest in urban areas is 36.4%. In Indonesia, expectant women have a 37.1% prevalence of anaemia. The number of maternal deaths in 2021 increased by 7,389 deaths in Indonesia compared to 4,627 deaths in 2020 (Kemenkes Kesehatan RI, 2021).

Anemia of pregnant women in South Kalimantan in 2021 was 19.60%. Pregnant woman with anaemia in Tabalong Regency According to statistics compiled by the Tabalong Regency Health Office in 2020, a total of 4433 pregnant women (35.6%) experienced anaemia and in 2021 as many as 4,868 people (38.5%) (Dinas Kesehatan Kabupaten Tabalong, 2021). In 2020, ninety pregnant women were diagnosed with anaemia at the Kelua Health Centre, in 2021 it increased to 106 pregnant women and in 2022 it also decreased to 102 pregnant women (Puskesmas Kelua, 2022).

The government's efforts to overcome anemia by overcoming anemia in pregnant women by providing iron (Fe) as many as 90 tablets during the pregnancy period and filling my plate, improving

pregnant women's nutritional status and fostering more collaboration across programs and sectors to prevent and control nutritional anaemia are the goals of this activity.

Babies born to mothers with untreated anaemia are more likely to be born prematurely, have a low birth weight, or die during the first trimester. Untreated anaemia also increases the chance of miscarriage and other complications during pregnancy. The chance of having a low birth weight infant is double for pregnant women whose haemoglobin levels are less than 10 g/dl, and four times higher for pregnant women with severe anaemia. This increases the likelihood of maternal mortality for pregnant women with anaemia (Lin et al., 2018).

S & Kartini (2019) found that factors related to nutritional status impact the prevalence of anaemia in pregnant women. The risk of anaemia during pregnancy is 3.514 times higher in mothers with good nutritional status compared to those with poor nutritional status during pregnancy. Nutritional monitoring is useful as an overview of changes in nutritional status over time. To lessen the likelihood of anaemia during pregnancy, it is important to monitor pregnant women's nutritional status so that they can pay attention to and arrange a balanced, diverse diet.

The prevalence of anaemia is strongly correlated with nutritional status. The Upper Arm Circumferrence (UAC) is a nutrient assessment tool for pregnant women. Pregnant women's nutritional condition and the presence or absence of CED can be assessed with this assessment (Chronic Energy Deficiency) (Tanziha, Utama and Rosmiati, 2016).

Nutrition problems are caused by many factors, one of which is caused by maternal behavior in choosing foodstuffs according to maternal nutritional needs (Fuadah & Sianipar, 2018). In a study on the Effect of Nutritional Status on Pregnant Women (Mutiarasari, 2019), it is stated that especially with nutritional status, there is a risk that it will have an impact on mothers who will experience anemia and the fetus can have growth failure, LBW (Low Birth Weight), premature stillbirth, congenital defects and miscarriage. The influence on the mother is premature delivery, abortion, postpartum hemorrhage. Nutrition monitoring can describe nutritional status, pregnant women can pay attention to and plan a balanced menu that varies and has a variety of nutrients needed during pregnancy (Sari et al., 2020).

Upon reviewing the findings from a preliminary research conducted on August 22, 2023 conducted at the Kelua Health Center, the results of interviews with ten pregnant women. It was obtained that six pregnant women with anemia (Hb < 11 gr%), two pregnant women with anemia and poor nutritional status with UAC (<23.5 cm) and two normal pregnant women. This gives rise to the author's desire to investigate "The relationship between nutritional status and the incidence of anaemia in pregnant women at the Kelua Health Centre, Tabalong Regency in 2024" in the scientific literature.

2. Research Methods

A quantitative methodology with a cross-sectional design was employed for the investigation. In this study, which is *Dependent variable* is anemia in pregnant women using *Spearman Rank Rho* While *independent variable* are the nutritional status of pregnant women. In this study, the population was pregnant women in the first trimester who visited the health center of Tabalong Regency. Women in their first trimester of pregnancy made up the sample, and as many as 42 of them participated. *Total Sampling* was used to do the sampling. The inclusion criteria in this study are pregnant women who check their pregnancy in the working area of the Kelua Health Center, Tabalong Regency, pregnant women who are fully registered at the KIA Poly, pregnant women in the first trimester. Second- and third-trimester pregnant women. Observation using a record book and a Spearman rank test was the method of data collection. The research instrument used a register book and using an Observation Sheet The measurement of anemia in pregnant women was carried out by looking at HB in the respondent's register book. This research has received ethical approval from the Research Ethics Commission of the University of Muhammadiyah Banjarmasin No. 0128226371.

3. Results And Discussion

Data from Statistical Tests and Respondent Personality Traits The age of the respondents is one of the parameters that have been explored.

Table 1. Frequency Distribution of Pregnant Women's Characteristics

No	Characteristic	Category	F	%
1	Age	<20 years	1	2.4
		<20 years	27	64.3
		>35 years	14	33.3
2	Education	Poor	16	38.1
		Intermediate	24	57.1
		High	2	4.8

Source: Secondary Data, 2023

The results of the observation sheet according to the characteristics of pregnant women by age showed that most of the respondents were 27 people aged 20-35 years (64.3%).

Findings from this study are in line with those of Mutiarasari (2019), who found that 85.2% of respondents were in the post-reproductive age group of 20–35, that 75.4% of pregnant women had good nutritional status, and that 59.0% of pregnant women suffered from anaemia.

Pregnant women often fall into the productive age bracket, which spans from 20 to 35 years old. A pregnant woman's age is the sum of her years since birth plus the current gestational age. People tend to trust older, more experienced individuals more than younger, less experienced ones because of the correlation between a person's cognitive capacity and the degree of maturity they exhibit in their job and thought processes. As you grow older, you undergo more changes.

It can be explained that pregnant women who are poorly educated, lack experience and insight that will have an impact on knowledge to prevent anemia and malnutrition during pregnancy, a person's ability to absorb information and, ultimately, their level of knowledge are both enhanced by their level of education. Conversely, a lack of education will impede a person's capacity to shape their attitude towards the incorporation of new knowledge and principles. Most pregnant women are highly educated, so the incidence of anemia is less than in pregnant women with low education. It's more common for people to spend more time reading between the ages of 25 and 35, get more involved in their communities, and plan ahead for the challenges of old age. At that age, one's intelligence, capacity to solve problems, and fluency in speech have not diminished. Thinking power at the age of 25-35 years is very good so that at this age many respondents want to find out about health-related things during pregnancy.

As many as 24 pregnant respondents (57.1%) had a secondary education, while just 2 pregnant respondents (4.8%) had a bachelor's degree or beyond, according to the study's findings.

Higher education makes it simpler to receive information, leading to increased experience and understanding (in this example, about anaemia) (Fauziah et al., 2020). The way a person thinks is affected by their level of experience. The provision of everyday life experiences through education is a crucial component in influencing their cognition. The level of education will affect a person's attitude about cognition. A person who is highly educated also has high reasoning and vice versa, a person who is poorly educated often follows the habits of their parents without thinking about the consequences that will be caused.

Studies conducted by Mudyawati et al. corroborate the findings of the current investigation. (this year) With 12 respondents (40.0%) having completed senior high school, 30.0% having earned a

bachelor's degree (S1), 16.7% having completed elementary school, and 13.3% having completed junior high, the most common level of education among the 30 respondents.

It can be explained that pregnant women who are poorly educated, lack experience and insight that will have an impact on knowledge to prevent anemia and malnutrition during pregnancy, a person's ability to absorb information and, ultimately, their level of knowledge are both enhanced by their level of education. However, a person's attitude towards the reception of freshly supplied knowledge and ideals will be stunted if they have a poor degree of education. The prevalence of anaemia during pregnancy is lower in educated women compared to those with lower levels of education.

3.1.Univariate Analysis

Table 2. Frequency Distribution Based on Anemia Incidence

No	Incidence of Anemia	f	%
1	Anemia	25	59.5
2	Not Anemia	17	40.5
	Total	**42**	**100**

Source: Secondary Data, 2023

There were 25 pregnant participants (59.5%) who reported anaemia, whereas only 17 (49.5%) reported no such symptoms. This finding is in line with the previous research on this topic.

Studies done by Mutiarasari (2019) corroborate the findings of this study Nearly 60% of those who took the survey, or 36 pregnant women, suffered from anaemia. In contrast, 41 percent of respondents did not suffer from anaemia; in low- and middle-income nations, inadequate nutrition is the leading cause of anaemia. Elvira et al. (2022) found that out of 90 respondents, which provide credence to the findings of this study, the number of mothers suffering from anemia was 60 people (66.7%), so that the nutritional needs were not met optimally, which caused anemia in pregnancy.

It can be explained that Signs and symptoms of pregnant women Those who suffer from anemia that can be seen include a pale face even though blood pressure is still normal, tired quickly, often dizzy, glowing eyes, loss of appetite (anorexia), nausea and vomiting, especially in pregnancy at a young age, anemia can be overcome by giving iron supplements (Fauziah et al., 2020). Researchers conducted an Hb examination using the Saari method to detect pregnant women who experience anemia.

Table 3. Frequency Distribution Based on Nutritional Status

It	Nutritional Status	f	%
1	Abnormal	22	52.4
2	Normal	20	47.6
	Total	**42**	**100**

Source: Secondary Data, 2023

By Research Results indicates that most of the respondents had an abnormal nutritional status of 22 people (52,4%) Compared to the respondents of pregnant women who had normal nutritional status, only 20 people (47.6%).

A person's nutritional status may be evaluated by taking the Universal Assessment of Capacities (UAC) test. A person's nutritional status is a measure of their health that takes into account both their dietary needs and the nutrients that they take in. Weight, height, BMI, and upper arm circumference are all part of an anthropometric assessment that can help determine a pregnant woman's nutritional status (UAC). Because maternal malnutrition can manifest in more ways than a change in upper arm circumference, assessing UAC is a useful tool for gauging a woman's nutritional health during her pregnancy (Handayani, 2017).

The results are consistent with those of Mudyawati Kamaruddin et al. (2019), who found that 56.7% of pregnant women had aberrant UAC (CED), whereas 43.3% had normal UAC (no CED). This study's findings align with those of Elvira et al. (2022), which found that out of 90 mothers surveyed, a significant percentage had low nutritional status (UAC < 23.5). With 50 participants (55.6 percent), it was determined that nutritional status significantly correlated with anemia in pregnant women.

If a pregnant woman's UAC is less than 23.5 cm, it is deemed that she has an abnormal nutritional status and puts her at risk of CED. Undernourishment occurs when a person's dietary intake is out of whack, leaving their body lacking essential nutrients (Siregar et al., 2019). A healthy and balanced diet is essential for pregnant women, according to study by Larasajeng et al. (2020). This means that pregnant women should eat the same amount of food as non-pregnant people two meals.

Due to the fact that the process of fetal growth is now the pregnancy itself, pregnant women are extremely susceptible to malnutrition. To fuel metabolic processes and fetal growth, pregnant women have an increased demand for calories, protein, vitamins, and minerals. Pregnant women often fail to meet their dietary requirements because they are unaware of this fact, according to research by Sandrayayuk et al. (2013). Achieving and maintaining good nutritional status throughout pregnancy is crucial, thus it's necessary to make sure pregnant women get what they need nutritionally. A pregnant woman's diet should support both her own requirements and those of the developing baby. Even though pregnant women have a higher nutritional requirement than the general population, they manage to maintain a healthy diet by consuming a wide variety of foods in a balanced ratio.

The results of the examination found that most of the pregnant women in Kelua Health Center, Tabalong Regency in 2023 has an abnormal nutritional status, this is because the mother does not understand the intake of good nutrients to be consumed during pregnancy. During pregnancy, nutrition is very necessary for pregnant women, including for fetal and placental growth, uterine and breast growth, increased metabolism, maternal health defense, reserves during lactation, and accelerating the healing of labor wounds during the postpartum period.

3.2. Bivariate Analysis

Table 4. Relationship Relationship Between Nutritional Status and Incidence of Anemia

Nutritional Status	Incidence of Anemia				Total		P-Value	Spearman Rank (Rho)
	Anemia		Not Anemia					
	n	%	N	%	n	%		
Abnormal	19	86.4	3	13.6	22	100	0,000	0,573**
Usual	6	30	14	70	20	100		
Total	25	59.5	17	40,5	42	100		

Source: Secondary Data, (2023)

Table 4 shows that out of the total number of responders, 19 (86.4% of the total) had anemia while pregnant due to an abnormal nutritional status; in comparison, just 3 (13.6%) did not. A healthy diet was reported by most pregnant participants and did not experience anemia were 14 people (70%) more than respondents who were pregnant with normal nutritional status and experienced anemia there were 6 people (30%).

According to the study's findings, the significance value or Sig. (2-tailed) of 0.000 is less than 0.05, indicating that there is a significant link (meaning) between nutritional status and the incidence of

anemia. It may be inferred that pregnant women with poor nutritional status are at risk for anemia during pregnancy.

A correlation value of 0.573** was found using the Spearman Rank (Rho) test in the statistical test. This indicates that there was a substantial connection (0.573) between the incidence of anemia and nutritional status factors at the Kelua Health Center in Tabalong Regency in 2023. A significant connection with a significance number of 0.05 is indicated by an asterisk (**). The aforementioned results show a positive correlation coefficient number of 0.573, indicating a unidirectional relationship between the two variables. This suggests that the more pregnant women's nutritional status is improved, the lower the incidence of anemia will be.

The study's findings are supported by research by Floridha et al. (2023) using *Spearman Rank*, which obtained a value of 0.638 with a significance of 0.00 (<0.05). From these results, Ho was declared rejected, this indicates that the incidence of anemia and the nutritional status of pregnant women are strongly and significantly correlated.

A UAC examination is one method of determining a pregnant woman's nutritional condition. A measurement of UAC can be helpful in assessing the nutritional condition of expectant mothers and identifying the presence of chronic energy deficiency (CED). Pregnant women are at risk for SEZ if their UAC is less than 23.5 cm. Compared to responders with good eating habits, anemia is more common among pregnant women with bad eating habits. Iron deficiency is, in fact, one of the causes of anemia because of poor eating practices and restrictions on the kind and quantity of iron that do not align with pregnant women's balanced diet (Siregar et al., 2019).

The findings of this study are corroborated by research by Siregar et al. (2019) which found that there is a correlation between the incidence of anemia in pregnant women in the third trimester and their nutritional status, with nearly 18 respondents (34%) having anemia in the picture of pregnant women.

Research by Mutiarasari (2019) supports the findings of this study by demonstrating that nutritional status is a riziko factor, with those in excellent nutritional condition having a 6,500-fold higher chance of avoiding anemia than those in undernourished position. The findings of this investigation run counter to those of Bria and Rohmah (2023) study. Data analysis revealed a p-value of 0.046 for the association between anemia incidence and dietary status. This indicates that it is below the $\alpha = 0.05$ critical level, indicating a substantial correlation between pregnant women's nutritional state and the prevalence of anemia.

It can be explained that Nutrition for pregnant women is obtained from a healthy and balanced diet which should be consumed twice as much as when not pregnant. Nutritional needs during pregnancy will increase by 15% compared to normal women's needs. The growth of the uterus, breasts, blood volume, placenta, amniotic fluid, and fetus all depend on this increase in nutrition.

It can be explained that UAC is one of the fastest ways to find out the nutritional status of women of childbearing age (WUS) by wrapping the UAC ribbon on the mother's left arm. The nutritional status of pregnant women is directly influenced by their diet and health status. Pregnant women whose nutritional needs are met and do not have SEZs (UAC > 23.5 cm) is less likely to develop anemia. However, anemia is more likely to occur in women with CED and low nutritional status during pregnancy. Measuring UAC is one way to find out the risk of CED in pregnant women, If the size of UAC < 23.5 cm, it tends to be malnourished so that anemia is even higher.

4. Conclusion

The nutritional status of pregnant women is directly influenced by their diet and health status. Pregnant women whose nutritional needs are met and do not have CED (UAC > 23.5 cm) are less likely to experience anemia. However, the likelihood of anemia is higher in women with CED and low maternal nutritional status throughout pregnancy. The majority of pregnant women are between the

ages of 20 and 35, when they are most prolific (64.3%), and the majority have completed secondary school (57.1%). Of the responders, 25 individuals (59.5%) had anemia, whereas only 17 individuals (40.5%) did not face anemia. Twenty pregnant respondents had normal nutritional status (47.6%), whereas 22 respondents (52.4%) had abnormal nutritional status, making up the majority of respondents. At the Kelua Health Center in Tabalong Regency, there is a correlation between the occurrence of anemia in 2023 and characteristics related to dietary status *(p-value 0.000)*. The variables pertaining to pregnant women's nutritional health and the prevalence of anemia have a substantial, unidirectional association at the Kelua Health Center, Tabalong Regency in 2023 with a correlation value of (0.573**). For future researchers, it is better to add other factors such as the accuracy of mothers consuming Fe, family income, and nutritional fulfillment of pregnant women, so that various causes of anemia in pregnant women can be known and screened.

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