



RELATIONSHIP BETWEEN PARITY AND ANEMIA INCIDENCE IN PREGNANT WOMEN IN THE THIRD TRIMESTER AT SOUTH BOLAANG MONGONDOW REGIONAL HOSPITAL

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ABSTRACT

According to the World Health Organization (WHO), the prevalence of anemia among pregnant women is 48.9% in Indonesia and 41.8% globally. The condition of anemia can harm both pregnant women and their unborn offspring. The causes of anemia are closely associated with nutritional intake and other risk factors, such as maternal age and parity. This study aims to ascertain the relationship between parity and the prevalence of third-trimester anemia at the South Bolaang Mongondow General Hospital. A quantitative cross-sectional analytical observational design was used in this investigation. Women at the South Bolaang Mongondow Hospital who were in the third trimester of pregnancy participated in the study. Seventy third-trimester pregnant women were selected as the sample, which was selected using data from medical records from January to March 2025. To determine the characteristics of the respondents and the frequency distribution, univariate analysis was conducted. Meanwhile, the Pearson correlation test was used to conduct bivariate analysis. According to the study's findings, the relationship between parity and the incidence of anemia in third-trimester pregnant women at South Bolaang Mongondow Regional General Hospital yielded a Pearson's correlation coefficient (r) of -0.404 and a significance value (p) of 0.001. In summary, the correlation is -0.404. Therefore, it can be said that there is a relationship between parity and the prevalence of anemia in pregnant women in the third trimester at the South Bolaang Mongondow Regional General Hospital.

KEYWORDS

Anemia; Parity; Third-Trimester Pregnant

INTRODUCTION

Pregnancy is the growth and development of the intrauterine fetus that begins at conception and ends at childbirth. Pregnancy lasts from ovulation to delivery for 280 days (40 weeks) and can be up to 300 days (43 weeks). A healthy mother gives birth to a healthy baby. Maternal nutrition is among the factors that affect the health of both mother and baby. One of the nutritional problems often faced by pregnant women is anemia (Marlina et al., 2024).

Anemia continues to be a global health challenge that can increase the rate of disease and death in both mothers and children. The danger of a possibly fatal hemorrhage during delivery is increased by anemia during pregnancy. Anemia during pregnancy is often referred to as a 'threat to mother and child'. Therefore, every individual who plays a role in the health sector needs to consider this issue with great concern (Efendi et al., 2024).

The World Health Organization (WHO) reports that between 35 and 37 percent of pregnant women suffer from iron deficiency anemia, and this percentage tends to increase as pregnancy progresses. The global prevalence of anemia in expectant mothers is 41.8%. In Asia, the rate of anemia in pregnant women reaches 48.2% according to basic health research, while in Indonesia, the incidence of anemia is still relatively high at 37.1% (WHO, 2017). With 36% of the population, or around 1.4 billion individuals, out of a total population of around 3.8 billion, In developing countries, iron deficiency anemia is more common than in industrialized countries. About 100 million people, or 8% of the 1.2 billion people living in developed countries, have this condition. In Indonesia, around 40.1% of

pregnant women are still affected by pregnancy-related anemia (Ministry of Health, 2019).

In addition to its impact on the mother, anemia during pregnancy has a negative impact on fetal growth and development, neural tube formation, and body cell production. Due to weak uterine contractions. Anemia can significantly increase the likelihood of miscarriage, prolong labor, increase the likelihood of bleeding and be susceptible to infection. Shock, even risks of congenital anomalies, infant anemia, early infant mortality, mother death during childbirth, and fetal death during pregnancy can result from oxygen deprivation in pregnant women with anemia (Anggreni, 2020).

Compared to the first and second trimesters, pregnant women often have higher levels of anemia in the third trimester. This is because each trimester, the need for iron increases while iron stores in the body are insufficient, which causes many women to experience anemia in the third trimester of their pregnancy. Mothers should consume at least 90 iron (Fe) pills and have a balanced diet throughout the third trimester of pregnancy to ensure proper iron intake (Nugraheni & Kartika, 2023).

Pregnant women's anemia can be caused by a number of factors, including age of pregnancy, number of prior pregnancies, maternal age, time between pregnancies, type of employment, and social standing, nutritional level, economic situation, educational background, attitude, support system, worm infection, bleeding, increased blood flow, problems in iron absorption, infection and disease, nutritional intake, and environmental factors (Sari et al., 2022).

The number of births has an impact on anemia in pregnant women due to iron deficiency. A woman will become more anemic and lose more iron the more times she becomes pregnant and gives birth (Sari et al., 2022). Pregnant women with low parity are in the best possible health for both the mother and the unborn child. Parity between 1 to 3 is considered the safest, while parity more than 3 has a high risk of maternal death (Nugraheni & Kartika, 2023). Mothers with multiparity have a higher incidence of anemia compared to mothers with primiparity according to research by Jarsiah (2020).

MATERIALS AND METHODS

This study is a quantitative study using an analytical observational design with a cross-sectional approach. All pregnant women in their third trimester who visited at South Bolaang Mongondow Regional Hospital between January and March 2025 were the population of this study. The sample used in this study consisted of 70 pregnant women in their third trimester, selected based on medical record data, including first-time pregnant women, those who had given birth more than once, and those who had given birth to many children. The incidence of anemia, which was divided into three groups—moderate anemia (Hb levels 7–9.9 g/dL), mild anemia (Hb levels 10–10.9 g/dL), and no anemia (Hb levels ≥ 11 g/dL)—was the study's dependent variable. The independent variable in this study was the parity of pregnant women. To determine the relationship between parity and Hb levels in pregnant women, bivariate analysis using the Pearson correlation univariate analysis, which gave a summary of respondent characteristics and the distribution of anemia incidence, was followed by the test.

RESULTS

1. Univariate Analysis

The following table will provide an explanation of the distribution of respondent characteristics in this study, which includes the number of parities and Hb levels of pregnant women at South Bolaang Mongondow Regional Hospital:

Table 1. Frequency Distribution of Respondent Characteristics Based on Age, Education Level, Occupation And Pregnancy Spacing

Variables	Frequency (n)	Percentage (%)
Age		
20-35 years old	61	87.1
>35 years	9	12.9
Total	70	100.0

Level of education		
Elementary School	4	5.7
Junior High School	22	31.4
Senior High School	33	47.1
PT	11	15.7
Total	70	100.0
Work		
Housewife	61	87.1
Honorary	2	2.9
Private employee	1	1.4
PNS/ ASN	6	8.6
Total	70	100.0
Pregnancy Spacing		
<2 years	13	18.6
2-4 years	27	38.6
>5 years	30	42.9
Total	70	100.0

According to the frequency distribution of respondents by age in table 4.1, most mothers were between 20 and 35 years old with 61 respondents (87.1%), while women over 35 years old numbered 9 respondents (12.9%). 33 women (47.1%) had a high school diploma, followed by junior high school (22 respondents or 31.4%), college (11 respondents or 15.7%) and elementary school (4 respondents or 5.7%). Housewives (61 respondents, or 87.1%), government servants (6 respondents, or 8.6%), honorary staff (2 respondents, or 2.9%), and private employees made up the majority of moms by occupation (1 respondent or 1.4%). Thirteen respondents (42.9%) indicated that the pregnancy interval was less than 5 years, 27 respondents (38.5%) indicated that the pregnancy interval was 2 to 4 years and 13 respondents 18.6% of respondents said that the time between pregnancies was shorter than two years.

Table 2. Frequency Distribution of Respondent Characteristics Based on HB Levels or Anemia Incidence

Variables	Frequency (n)	Percentage (%)
Parity		
Primipara	36	51.4
Multipara	28	40.0
Grand multipara	6	8.6
Total	70	100.0
HB levels		
Hb level 7-9.9 g/dl (Moderate Anemia)	17	24.3
HB level 10-10.9 g/dl (mild anemia)	34	4.6
HB level ≥ 11 g/dl (Not Anemic)	19	27.1
Total	70	100.0

The majority of mothers were primipara (36 respondents, or 51.4%), multipara (23 respondents, or 32.9%), and grandmultipara (6 respondents, or 8.6%), as indicated by table 4.2, which displays the frequency distribution of respondents based on parity. In comparison, 34 women (48.6%) said they had mild anemia, 17 mothers (24.3%) said they had moderate anemia, and 19 mothers (27.1%) said they did not have anemia, based on the respondents' traits as revealed by their hemoglobin levels.

2. Bivariate analysis

Table 3 Relationship between Parity and the Incidence of Anemia in Pregnant Women

	Parity Number	HB levels
Parity Number	1	-.404**
Pearson Correlation		.001
Sig. (2-tailed)	70	70
N		
HB levels	-.404**	1
Pearson Correlation		
Sig. (2-tailed)	.001	
N	70	70

Based on the research findings using the Pearson correlation test, Table 3 shows that the correlation coefficient (r) is -0.404 with a significant value (p) of 0.001. This indicates a significant negative relationship between the number of births and hemoglobin levels in pregnant women at the Bolaang Mongondow Selatan Regional Hospital who are in the third trimester. In other words, a higher birth rate is associated with lower hemoglobin levels in pregnant women. Since the p value is less than 0.05, it indicates that the relationship between the number of births and the risk of anemia in pregnant women in the third trimester is statistically significant, so the hypothesis about this relationship can be accepted.

DISCUSSION

Anemia during pregnancy is a condition in which there is a deficiency of red blood cells during this period, which is measured by Hemoglobin (Hb) levels. Based on information from WHO, the prevalence of anemia in pregnant women ranges from 20% with Hb levels below 11 gr/dl. Numerous factors, such as the age of the pregnancy, the number of previous pregnancies, the mother's age, the interval between pregnancies, the type of occupation, and social standing, might contribute to anemia in pregnant women, environmental factors, worm infection, bleeding, increased blood flow, problems with iron absorption, infection and illness, nutritional state, socioeconomic situation, educational background, attitude, support system, and other components (Sari et al., 2022).

General characteristics of respondents

The following are general characteristics obtained from the results of the research data above:

a. Age

Based on the results obtained, the majority of respondents were in the age range of 20-35 years, which is included in the low-risk category with a total of 61 respondents (87.1%) from the total sample of 70 respondents. According to this research, the majority of expectant mothers at South Bolaang Mongondow Regional Hospital are in the best stage of pregnancy, which is thought to be between the ages of 20 and 35.

The results of this investigation align with the findings. 53.1% of pregnant women are between the ages of 20 and 35, according to Novianti (2022). Similarly, research conducted Isnaini (2021) also found that most pregnant women were in the 20-35 year age category (70%).

b. Level of education

Based on the results obtained, the majority of respondents had a high school education with 33 respondents (47.1%) from a total sample of 70 respondents. Better educated and knowledgeable expectant moms are more likely to comprehend the significance of routine checkups and preserving health during pregnancy. In order to meet the nutritional demands of both the mother and the fetus, they also have a better understanding of the guidelines that must be followed for their own health and the delivery process. This lowers the danger of anemia for both the mother and the fetus and, eventually, their chances of passing away. On the other hand, individuals with low levels of education

often have difficulty absorbing information and knowledge and lack of access to information makes them unable to apply the information gathered from a variety of sources, such as the media and medical professionals Efendi (2024).

This reinforces research by Efendi (2024) that lack of education hinders the ability of individuals to adopt the proposed new ideals. Individuals with limited educational background struggle to comprehend the facts and concepts being conveyed, and they are more vulnerable to illogical arguments (Teja et al., 2021).

c. Work

Based on the results obtained, the majority of respondents were housewives with 61 respondents (87.1%) from a total sample of 70 respondents. Pregnant housewives face a number of influencing variables, such as being too focused on housework and the education of their husbands and children. It leads them to disregard both the health of the fetus they are carrying and their own. Mothers also frequently disregard their food intake, the appropriate amount of rest each day, and their physical health when they are exhausted.

This is in line with the opinion Anggreni (2020) which states that if the mother feels tired, does not get enough rest and her nutritional needs are not met, it can cause anemia. Very busy mothers are less likely to monitor the pregnancy phase due to time constraints.

d. Pregnancy interval

According to the data, 30 respondents (42.9%) out of a total sample of 70 respondents had a pregnancy interval of more than five years. According to research by Ardela (2023), consecutive pregnancies do not provide adequate opportunity for the mother's physical condition to recover within nine months before the delivery process. This result is consistent with the findings. The uterus and other reproductive organs also need more time to restore their condition after the previous pregnancy. If the mother was hurt during the last delivery, she could feel anxious as the next one draws near. In addition, the mother may also face problems of malnutrition during pregnancy.

The connection between the prevalence of anemia and parity

A woman's parity is defined as the number of births she has had. In terms of maternal mortality risk, parity 2-3 is considered the safest number. According to this viewpoint, most women with parity 1-3 are still seen as being in a fairly safe parity group for getting pregnant and delivering birth. Reduced reproductive organ health potential due to previous pregnancies is associated with a higher probability of problems during pregnancy and labor at higher parities; the more births, the higher the risk of reproductive organ health problems. Because the mother and fetus in the womb share nutrients during pregnancy, a woman who gives birth frequently and neglects her nutritional intake is more prone to experience anemia in following pregnancies. In general, women with high parity are more susceptible to bleeding and malnutrition (Nugraheni & Kartika, 2023).

Parity and cases of anemia in pregnant women have a significant correlation, according to the examination of the association between the two (p -value = 0.001). This finding indicates that the incidence of anemia among pregnant women at South Bolaang Mongondow Regional Hospital has a relationship with maternal parity during pregnancy. The fact that the percentage of pregnant women with high-risk parity is greater than mothers with low-risk parity who suffer from anemia is evidence for this.

The results of Ririn's (2020) study, which found a correlation between parity and the prevalence of anemia in pregnant women (p value = 0.003), are confirmed by the findings of the study described above. The results of this study support those of Jasmi's (2016) study, which found a relationship between parity and anemia in pregnant women (p value = 0.000). The cross-sectional study by Hidayati & Andyarini (2018), which produced a p value of 0.044, is also relevant to this investigation. Pregnant women's anemia levels and the number of babies they have had are strongly correlated. The incidence of anemia among pregnant women is closely related to the total number of births they have had in a study by Astriana and Willy (2017), where the p value was 0.023 (<0.05) indicating a significant relationship between parity and the incidence of anemia in pregnant women.

CONCLUSIONS

The results of the Pearson correlation analysis, which indicated a significance value (p) of 0.001 and a correlation coefficient (r) of -0.404, provide us with a basis for interpreting the findings in this study. This indicates that there is a relationship between Hb levels and parity. In other words, as the number of parities increases, the Hb level in pregnant women decreases. Parity is associated with the incidence of anemia in pregnant women in the third trimester at the South Bolaang Mongondow Regional General Hospital, according to a p value <0.05, indicating that this association is statistically significant and the null hypothesis is rejected.

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