

NASKAH PUBLIKASI

ANALISIS FAKTOR RISIKO KEJADIAN ANEMIA PADA IBU HAMIL

***PREVALENCE OF RISK FACTOR ANALYSIS OF ANEMIA IN
PREGNANCY***

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ABSTRACT

Anemia is a condition in which the total amount of iron in the body is reduced. If iron deficiency is severe enough it can cause interference with the reproduction of red blood cells and cause anemia. This condition will cause weakness, become obstacles to activity and will also hinder the growth and development of children. This research aims to describe prevalence of anemia during pregnancy and determine the risk factors that can influence it. This research is included in the analytic descriptive study using a cross-sectional approach design. The target was pregnant women who had an examination at the Hasanah Clinic in September-November 2022. The data were collected by face-to-face interviews and information in medical record. The results showed that there were no variables related to the incidence of anemia in pregnancy, such as gestational age (p value = 0.074), number gravidity (p value = 1.000), and MUAC (p value = 0.495). **Conclusion:** There are no factors that influence the gestational age of the mother, number gravidity, MUAC on the incidence of anemia in pregnant women at the Hasanah Clinic in Samarinda.

Keywords : anemia, risk factors, pregnancy, pregnant women

INTRODUCTION

Nutritional status during pregnancy has a significant impact. The development of the fetus will be affected by poor nutrition during pregnancy. Anemia is a nutritional problem that frequently affects pregnant women.¹ According to the Ministry of Health of the Republic of Indonesia, the number of maternal deaths per province in Indonesia in 2018-2019 increased from 4,226 to 4,221 deaths of pregnant women. The top three causes of maternal death in 2019 were infection (207 cases), gestational hypertension (1,066 cases) and bleeding (1,280 cases).²

As reported by the East Kalimantan Provincial Data Program, the maternal mortality rate is 113 based on live births in year 20. ³ Just keep in mind that further cross-sectoral collaboration and efforts are still needed to achieve the 2030 SDG target of less than 70 per 100,000 live births. ³

A condition known as anemia occurs when the total iron stores in the body are reduced. Anemia can be caused by severe iron deficiency, which interferes with red blood cell production. This condition will make people weak, make life difficult, hinder the growth and development of children. ⁴ The negative effects of anemia on pregnant women can lead to miscarriage, premature birth, impaired fetal growth and development, susceptibility to infections, premature rupture of membranes, and bleeding. Anemia during childbirth can affect physical activity, which is directly related to postpartum problems. Anemia during pregnancy can affect the health of the baby after birth, including growth retardation in infants with poor nutritional status, as iron deficiency affects the hemoglobin concentration during pregnancy. ⁵ Anemia in pregnant women can increase the risk of premature birth, maternal and child mortality, and infectious diseases. The results of the Riset Kesehatan Dasar survey in 2018 indicated that 48.9% of Indonesian pregnant women were anemic. Anemia in pregnant women can affect 84.6% of people aged 15-24 years. Every pregnant woman should take at least 90 iron tablets (additional iron supplements) during pregnancy to prevent anemia. ² As for several researchers who conducted research on statistically significant risk factors that have a significant relationship with the incidence of anemia in pregnant women. Stephen's research in Ethiopia shows that women with low incomes are more at risk of developing anemia than women with high incomes. ⁶ Amalia's research found that 97% of the incidence of anemia in pregnant women was influenced by age, parity, and education. Parity was the most dominant factor. ⁷ Apriliana's research showed that parity, distance between pregnancies, occupation, income, adherence to iron supplement consumption during pregnancy and frequency of prenatal check-ups were factors in the incidence of anemia in third trimester pregnant women. ⁸ Some of these studies show that there are several factors that are a risk factor for anemia, namely maternal age, gestational

age, nutritional status, level of adherence to consuming iron (Fe) tablets, parity, and education.

Many research findings have revealed that the determinants of anemia differ from place to place. Judging from the importance of determining problem-based factors associated with the incidence of anemia using a robust study design to obtain local data in at-risk areas. Based on this background, researchers are interested in conducting this research.

MATERIALS AND METHODS

The type of research design used is a cross sectional study. This research was conducted in September – November 2022, in the working area of the Samarinda Hasanah Clinic involving 78 pregnant women who met the sample criteria. The sampling procedure was carried out using a random sampling system procedure in which the sample criteria in this study were pregnant women who had their hemoglobin (Hb) levels checked. A pregnant woman considered anemic if Hb was < 11 g/dl. Severity of anemia was measured as follows: mild (Hb 9.0 – 10.9 g/dl), moderate (Hb 7.0 – 8.9 g/dl), and severe (Hb < 7.0 g/dl). The data were collected by face-to-face interviews and information in medical record. The data obtained was analyzed through SPSS ver. 24 with Chi-Square test. The Odds Ratio (OR) with 95% Confidence Interval (CI) was used to measure the strength of association between anemia and risk factors associated obstetric and medical history (gestational age, number of gravidity, and mid-upper arm circumference).

RESULTS

This research was conducted in September - November 2022 at the Hasanah Clinic in Samarinda with a total sample of 78 people. Based on the research conducted, the results are as follows.

Table 1. Socio-demographic Characteristics

Variable	Total (n = 78)	Percentage (%)
Age in years		
15 – 19	7	9.0
20 – 29	43	55.1
30 – 39	26	33.3
≥ 40	2	2.6

Mean (\pm SD)	27.9 (\pm 6.5)	
Educational status		
Primary school	7	9.0
Secondary school	59	75.6
Above secondary school	12	15.4

Based on the results in table 1, the mean age (\pm standard deviation, SD) of the pregnant women was 27.9 (\pm 6.5), most of which were in the age category 20 – 29 years (55.1%). Educational status shows that the pregnant women have various educational backgrounds, the most recent education being secondary school, and those with the above secondary school having a bachelor's degree.

In this study, it was found that 15% of respondents had anemia, all of whom had mild anemia, no respondents had moderate or severe anemia. As many as 85% of respondents did not experience anemia at the time of examination (figure 1). The mean Hb level (\pm SD) was 11.97 (\pm 1.11).

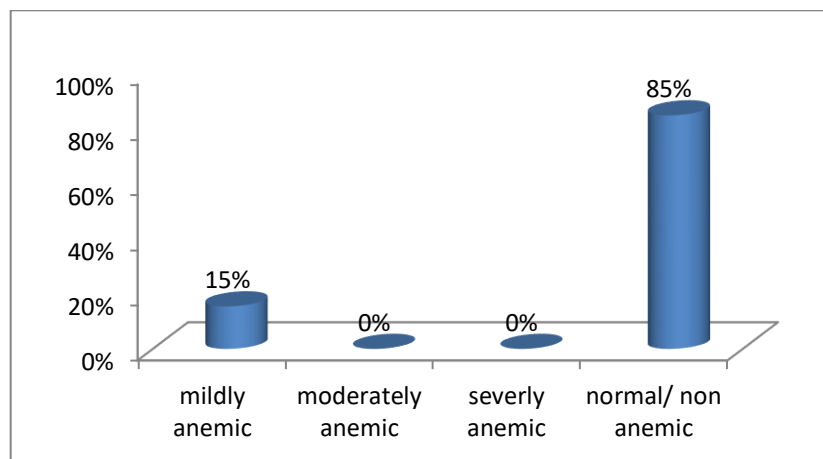


Figure 1. Prevalance of Anemia

Bivariate analysis used to determine the relationship between factors and anemia that showed in table 2. All factors analyzed did not show a significant effect on the incidence of anemia, but it can be seen that respondents with gestational age in 3rd trimester (\geq 28 weeks) and multigravida experienced anemia more than respondents with 1st – 2nd trimester of gestation and primigravida.

Table 2. Factors Associated with Anemia

Variable	Frequency (%)	Anemia		OR (95% CI)	p value
		Yes (n)	No (n)		
Gestational age in weeks					
< 28	38 (48.7)	3	35	3.387 (0.841-	0.074
\geq 28	40 (51.3)	9	31	13.642)	

Mid-upper arm					
circumference					
< 23 cm	4 (5.1)	1	3		0.495
≥ 23 cm	74 (94.9)	11	63	0.524 (0.050-5.504)	
Number of gravidity	25 (32.1)	4	21		1.000
Primigravida	53 (67.9)	8	45		
Multigravida				0.933 (0.253-3.450)	

DISCUSSION

The study findings showed that prevalence of anemia during pregnancy in one of antenatal care in Samarinda was 15%. The prevalence of anemia in this clinic was lower compared to 43.9% as reported by Fathoni and colleagues (2021) who collected their data in another health care in Samarinda. It can be caused by the uneven incidence of anemia in each region and that previous research was carried out in areas that have the highest incidence of anemia in Samarinda. However, the severity of anemia found in this study was similar, most of pregnant women who visited the clinic did not experience anemia and there were no pregnant women with severe anemia. The existence of the government program that requires pregnant women to consume iron tablets at least 90 tablets during pregnancy have proven to be effective in preventing severe anemia.⁹ In the data mentioned by Samarinda Health Office in 2016 – 2020, it was found that more than 80% of pregnant women had received iron tablets.¹⁰

Anemia has multiple causes, and the associated risk factors vary widely across populations and communities. The current study identified three predictors of anemia among pregnant women, such as gestational age, number of gravidity, and mid-upper arm circumference. All of these factors did not show significant results in influencing the incidence of anemia, which is not theoretically appropriate.

This study indicates that gestational age does not have a significant relationship with anemia, this result is similar to studies conducted by Budiana and colleagues and Derso and colleagues.^{11 12} This can be caused by various factors that can prevent anemia even though the need for iron during pregnancy continues to increasing according to gestational age.¹³ Apart from iron supplements, pregnant women can also meet their iron needs from food intake. The dietary intake during pregnancy looks significant with the presence of anemia in pregnant women

which has been observed by Osman and colleagues (2020). The odds of developing anemia were significantly higher in pregnant women who consumed red meat 1 – 2 times a month or not at all, in comparison to pregnant women who consumed it every day. Red meat is rich in iron that enhances the hemoglobin level, especially during pregnancy where iron demand is high.¹⁴

Good nutrition in pregnant women can be shown in the value of mid-upper arm circumference (MUAC). In this study, 94.9% of pregnant women had normal MUAC (≥ 23 cm). MUAC is a measure widely used for the assessment of nutritional status, and 23 cm is the threshold circumference considered to determine the level of nourishment of an adult female, and circumferences less than this signifying undernourishment. Nutritional deficiencies not only result in anemia but can also have a negative impact in late pregnancy, because women are not able to meet with the demand from the growing fetus, resulting in harm to the mother and ultimately loss of the fetus.¹⁴

Another factor that is also predicted to have a relationship with anemia is the number of gravidity.

Based on the results of this study, it was found that 67.9% of pregnant women were in the multigravida category (more than one pregnancy). Although the results shown do not have a significant relationship, it appears that multigravida pregnant women are more anemic than primigravida pregnant women. In previous studies it was stated that the more often the mother gave birth, the higher the risk of anemia. This is because the iron reserves of pregnant women have not recovered, eventually being depleted for the needs of the fetus they are carrying. Women need more iron than men because menstruation occurs with heavy bleeding. In addition, pregnancy requires additional iron to increase the number of red blood cells and form fetal red blood cells and the placenta.¹⁵

CONCLUSION

Based on data analysis from the 78 samples studied, it was found that 15% pregnant women experienced anemia and another 85% did not anemic at Hasanah Clinic Samarinda. All of the incidence anemia were mild anemic. Factors

associated obstetric history (gestational age, number gravidity, and MUAC) did not significant relationship with the incidence of anemia in pregnant women. Further research needs to involve a wider range of risk factors in order to detect factors that can independently influence anemia in pregnancy.

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Abstract

Anemia is a condition in which the total amount of iron in the body is

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