Analysis Of Factors Influencing The Incidence Of Anemia In Pregnant Women At The Maternal And Child Health (Kia) Polyclinic, Pasar Masurai Community Health Center, Lembah Masurai District, Merangan Regency

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ABSTRACT

The incidence of anemia can be caused by several factors, including age, parity, frequency of ANC visits, economic status, level of education, and compliance with consuming Fe tablets. This study aims to analyze the factors that influence the occurrence of anemia in pregnant women at the Maternal and Child Health Polyclinic at the Pasar Madurai Community Health Center, Merangin Regency. This type of research is cross-sectional. The sample in this study was the number of patient visits, namely 100 respondents. Data were analyzed using Chi-Squere and Logistic Regression. The results showed that there was a significant relationship between age, parity, ANC visits, and consumption of Fe tablets. There is no relationship between education level, economic level, and culture. After carrying out multiple logistic tests from 3 models, it was found that the most dominant factor influencing the incidence of anemia in pregnant women was the variable consumption of Fe tablets with a p-value of 0.000.

Keywords: Incidence of anemia, influencing factors

INTRODUCTION

Maternal mortality is a problem that is still a priority in the health sector, especially for mothers and children. The Maternal Mortality Rate (MMR) is a benchmark for the success of government intervention efforts for maternal health (Ministry of Health of the Republic of Indonesia, 2020). According to WHO data, in 2017, 295,000 women died during pregnancy, after pregnancy and childbirth. Most of these deaths (94%) occurred in areas with low resources (World Health Organization, UNICEF, UNFPA, 2019). Indonesia's maternal mortality rate (MMR) ranks high compared to ASEAN countries, namely 305 per 100,000 live births. Based on the Sustainable Development Goals (SDGs), the MMR target is 70 per 100,000 live births in 2030 (Sustainable Development Goals (SDGs), 2017; WHO,

2022a).

Although the government has implemented a program to combat anemia in pregnant women by providing 90 Fe tablets during pregnancy, the incidence of anemia in pregnant women is still high, namely 44.2% (Central Statistics Agency, 2020; WHO, 2021). Based on WHO data, 40% of pregnant women worldwide experience anemia. 4 out of 10 ASEAN countries are in the severe category with a prevalence of ≥40%, including Cambodia (51.5%); Laos (47%); Myanmar (47.8%); and Indonesia (44.2%) (WHO, 2021). The percentage of anemia in pregnant women in Indonesia has continued to increase from 2015 to 2019, from 42.1% to 44.2% (WHO, 2021).

Based on the 2018 Health Data Research (Riskesdas), the prevalence of anemia in pregnant women is categorized according to age; the number of pregnant women with anemia aged 15-24 years is 84.6%, aged 25-34 years 33.7%, aged 35-44 years 33.6%, and aged 45-54 years is 24% (Central Statistics Agency, 2020).

The coverage of pregnant women who received iron tablets (Fe3) in the last five years has tended to stagnate with a figure above 90%, and in 2021 it was 96.09%. The district/city with the highest coverage is Jambi City, which is 94.3%, while the lowest coverage is Tebo Regency at 84.5%. And Merangin Regency reached 92.47%.

Research by Sinawangwulan et al. (2018) with subjects of pregnant women in the first, second, and third trimesters stated that there is an indirect relationship between culture and anemia. This relationship occurs through dietary patterns, where mothers who diet during their pregnancy have a "poor" diet compared to mothers who have no food restrictions or diets at all during their pregnancy. Ekwere et al. (2015), in their study on maternal knowledge, food restrictions, and prevention strategies related to anemia in pregnancy, explained that the practice of food restrictions during pregnancy was carried out by 97.5% of the 121 study respondents. Respondents experienced malnutrition during pregnancy, which was influenced by customs (50.8%) and religious beliefs (28%) regarding food restrictions during pregnancy. Foods that are restricted during pregnancy include foods rich in carbohydrates (27.3%) and protein (14.9%).

LITERATURE REVIEW

Anemia is a condition in which the number and size of red blood cells, or hemoglobin concentration, falls below the established limit value, resulting in impaired blood capacity to transport oxygen to the surrounding body. Anemia is an indicator of malnutrition and poor

health (WHO, 2020). Meanwhile, according to Astutik & Ertiana (2018), anemia is a condition in which red blood cells (erythrocytes) in the blood circulation or hemoglobin (Hb) decrease so that they are unable to fulfill their function as oxygen carriers to all tissues.

Hemoglobin is a component in red blood cells (erythrocytes) that functions as an oxygen binder and delivers it to all body tissue cells. Oxygen is needed by body tissues to be able to carry out their duties properly (Suryani et al., 2021). A low number of red blood cells or a decrease in the amount of hemoglobin results in reduced oxygen-carrying capacity for the needs of vital organs (Dai, 2021).

The main cause of anemia is iron deficiency, especially in women of childbearing age and pregnant women who experience increased iron requirements, other causes of anemia are lack of iron intake and large blood loss (Yona & Nurulhuda, 2022). The most common cause of anemia is malnutrition, especially iron deficiency; on the other hand, folate, vitamin B12, and A deficiencies are also important causes (WHO, 2022b).

The pathophysiology of anemia varies greatly depending on the underlying cause. For example, in acute hemorrhagic anemia, blood volume is restored with intracellular and extracellular fluids that dilute the remaining red blood cells (RBCs), leading to anemia. Red blood cells are produced in the bone marrow with the help of nutrients (iron, B12, folate), cytokines, erythroid-specific GF, and EPO (erythropoietin, produced by the kidneys). Once red blood cells are released into the blood, they have a lifespan of about 110 to 120 days. About 1% of red blood cells are removed from the circulation each day. Under normal conditions, there is a balance between the number of red blood cells released into the circulation by the bone marrow and the number removed from the circulation. An imbalance in production and release by the bone marrow to the point of loss of red blood cells causes anemia (Badireddy & Baradhi, 2022).

Anemia in pregnancy is a condition of pregnant women with hemoglobin (Hb) levels <11 g/dL in the first and third trimesters, while in the second trimester the hemoglobin (Hb) level <10.5 g/dL. Anemia in pregnancy requires serious attention from parties involved in health services (Astutik & Ertiana, 2018). Anemia in pregnancy is a condition of decreased red blood cells or decreased Hb levels so that the oxygen-carryingå capacity for the needs of vital organs in the mother and fetus is reduced (Astutik & Ertiana, 2018).

Causes of anemia in pregnancy include an increase in blood volume during pregnancy for the formation of the placenta, fetus, and iron reserves in breast milk. Hemoglobin levels in pregnant women decrease in the first trimester and are lowest in the second trimester (Ministry

of Health of the Republic of Indonesia, 2020). Anemia in pregnancy is mostly caused by iron deficiency (iron deficiency anemia), which is caused by reduced intake of iron-rich foods, impaired reabsorption, impaired use, or because too much iron is lost from the body, for example, due to bleeding (Astutik & Ertiana, 2018). In addition to being caused by iron deficiency, other causes of anemia are excessive destruction of red blood cells in the body prematurely (hemolysis), blood loss or chronic bleeding, and suboptimal production of red blood cells (Astutik & Ertiana, 2018).

Common symptoms experienced by pregnant women with anemia include paleness that is easily seen in the conjunctiva, oral mucosa, palms, and tissue under the nails, feeling tired quickly, frequent dizziness, blurred vision, sore tongue, decreased appetite, loss of concentration, shortness of breath, and complaints of nausea and vomiting that are more severe in early pregnancy (Astutik & Ertiana, 2018).

METHODS

This research design is descriptive-analytic. The method used is cross-sectional. The location of the study was the Pasar Masurai Health Center, Merangin Regency. This research was conducted in October-December 2023. The sample in this study were mothers who had given birth at the Pelompek Health Center. In determining the sample size in this study using the Lameshow formula The sampling technique in this study was accidental sampling, where the sampling determination technique was by selecting samples among the population according to what the researcher wanted (the purpose of the problem in the study) so that the sample could represent the characteristics of the population that had been previously known. The inclusion criteria in this study were: pregnant women, Visiting the Pasar Masurai Health Center, and Willing to be respondents. Exclusion criteria Not willing to be respondents, Mothers who are not postpartum, Not receiving treatment at the Pasar Masurai Health Center.

RESULTS

Table 1. Frequency Distribution Based on Anemia Incidence

No	Anemia incident	Total	Percentage
1	Anemia	72	72,0
2	No anemic	28	28,0
	Jumlah	**100**	**100.0**

The results of the study on 100 respondents showed that the majority of respondents

experienced anemia, as many as 72 respondents (72.0%)

Table 2. Frequency Distribution Based on Age, Parity, Education Level, Economic Level, Frequency of Antenatal Care Visits, Compliance in Consuming Fe Tablets, and Respondents' Culture

No	Variable	Total	Percentage
I	**Age**		
1	At risk	59	59,0
2	Not at risk	41	41,0
II	**Parity**		
1.	At risk	69	69,0
2.	Not at risk	31	31,0
III	**Education Level**		
1.	Low	49	49,0
2.	High	51	51,0
IV	**Economic Level**		
1.	Low	45	45,0
2.	High	55	55,0
V	**ANC Visits**		
1.	Non-compliant	67	67,0
2.	Compliant	33	33,0
VI	**Consumption of Fe tablets**		
1.	Non-compliant	68	68,0
2.	Compliant	32	32,0
VII	**Budaya**		
1.	Follows	47	47,0
2.	Does not follow	53	53,0
	Total	**100**	**100.0**

The results of the study on 100 respondents showed that most of the respondents were respondents with an age at risk of 59 respondents (59%), parity at risk of 69 respondents (69%), high education level of 51 respondents (51%), low economic level of 55 respondents

(55%), non-compliant ANC visits of 67 respondents (67%), non-compliant consumption of Fe tablets of 68 respondents (68%), respondents who did not follow the culture of 53 respondents (53%).

Table 2. Bivariate Analysis

No	Variable	Kejadian anemia						*p-value*
		Anemia		Tidak anemia		N	%	
		N	%	N	%			
I	**Age**							
1	At risk	53	89,8	6	10,2	59	100	0,000
2	Not at risk	19	46,3	22	53,7	41	100	
II	**Parity**							
1.	At risk	60	87,0	9	13,0	69	100	0,000
2.	Not at risk	12	38,7	19	61,3	31	100	
III	**Education level**							0,587
1.	Low	37	75,5	12	24,4	49	100	
2.	High	35	68,6	16	31,4	51	100	
IV	**Economic level**							
1.	High	35	77,8	10	22,2	45	100	0,347
2.	Low	37	67,3	18	32,7	55	100	
V	**ANC**							
1.	Non-compliant	63	94,0	4	6,0	67	100	0,000
2.	Compliant	9	27,3	34	72,7	33	100	
VI	**Consumption of Fe tablets**							0,000
1.	Non-compliant	64	94,1	4	5,9	68	100	
2.	Compliant	8	25,0	24	75,0	32	100	
VII	**Culture**							
1.	Follow	37	78,7	10	21,3	47	100	0,235
2.	Not following	35	66,0	18	28,0	53	100	
	Total	**72**	**72,0**	**28**	**28,0**	**100**	**100**	

DISCUSSION

Based on the results of this study, it was found that there was a statistically significant relationship between age and the incidence of anemia in pregnant women, with a p-value of 0.000, which means that the age variable has a strong correlation with the incidence of anemia. The results of this study are in line with research conducted by Dewi, and Mardiana (2021) which stated that there was a relationship between age and the incidence of anemia in pregnant women with a p-value of 0.028. The same results were also obtained in the study of Amini, Pamungkas, and Harahap (2018) which stated that there was a relationship between maternal age and the incidence of anemia in the Ampenan Health Center work area with a p-value = 0.017.

Based on the results of this study, it was found that there was no significant relationship between education level and the incidence of anemia in pregnant women with a p-value of 0.587, which means> 0.05, which means that the variable has a very weak correlation strength. This is in line with the research of Dewi and Mardiana (2021) which stated that there was no relationship between education level and the incidence of anemia in pregnant women with a p-value of 0.479.

Based on the results of this study, it was found that there was no significant relationship between economic level and the incidence of anemia in pregnant women with a p-value of 0.347, which means> 0.05, which means that the variable has a weak correlation strength. This is not following the research of Septiasari (2019) which showed that there was a significant relationship between economic level and the incidence of anemia in pregnant women with a p-value of 0.005. However, the results of this study are in line with the research of Sugiarsih (2013) where this study stated that economic status was not proven to affect hemoglobin levels in pregnant women. The results of this study are not in line with the theory, because even though their economic status is low, the respondents' knowledge is good so that anemia does not occur because the respondents understand and know about the foods that pregnant women should consume, so that the respondents try to meet their nutritional needs according to their purchasing power.

Based on the results of this study, it was found that there was a significant relationship between parity and the incidence of anemia in pregnant women with a p-value = 0.000, which means that the variable has a very strong correlation strength. This is in line with the research of Sukmawati et al. (2021) which stated that there was a relationship between parity and the

incidence of anemia in pregnant women with a p-value = 0.012. Another study that also supports this is the study of Astriana (2017) which states that there is a relationship between the number of parties and the incidence of anemia in pregnant women at the Kintamani 1 Health Center, Bangli Regency, Bali Province with a p-value = 0.023.

Based on the results of this study, it was found that there was no significant relationship between ANC visits and the incidence of anemia in pregnant women with a p-value = 0.000, which means <0.05, which means that the variable has a very strong correlation strength. This is in line with the research of Gazali, Arifin, and Hayatie (2020) which stated that there is a significant relationship between Antenatal Care factors and the incidence of anemia in pregnant women at the Kelayan Timur Banjarmasin Health Center with a p-value = 0.000 or p <0.5. Antenatal care services are a form of knowledge and actions of pregnant women to prevent their pregnancy from remaining healthy and prevent diseases in pregnant women and babies during pregnancy and childbirth, for example anemia (Gazali et al., 2020).

The results of this study indicate that there is no significant relationship between compliance with Fe tablet consumption and the incidence of anemia in pregnant women with a p-value = 0.000 which means <0.05 which means that the two variables have a very strong correlation strength. This is not in line with the research of Sugiarsih (2013) which shows a p-value = 0.16 which means there is no relationship between Fe consumption and Hb levels.

Based on this study, the results showed that there was a significant relationship between culture and the incidence of anemia in pregnant women with a p-value = 0.235, meaning that the variable did not have a correlation strength with the incidence of anemia. This is in line with the research of Sukmawati et al. (2021) which stated that there was no significant relationship with a p-value = 0.440 between culture and the incidence of anemia in pregnant women. Syarifuddin (2016) stated in his book that the influence of socio-culture is very clearly seen in pregnant women, for example, the holding of 3-month, and 7-month pregnancy ceremonies, childbirth, and postpartum periods with great diversity according to the customs and habits of each region. Food taboos also increase the risk of anemia in pregnant women.

The results of the multiple logistic regression test showed that the consumption of Fe tablets had a significant or most dominant relationship with the incidence of anemia in pregnant women with an OR value = 48,000, meaning that pregnant women who were not compliant in consuming Fe tablets were 48 times more likely to experience pregnancy anemia than pregnant women who consumed Fe tablets. This is in line with the research of Maritasari & Perdana (2022) which stated that compliance with iron tablet consumption (p-value = 0.0021,

OR = 5.391) is the dominant factor influencing the incidence of anemia in pregnant women in the second trimester. It is better to empower cadres who supervise the consumption of iron tablets (PMO) to increase maternal compliance in consuming iron tablets as an effort to increase maternal HB levels during pregnancy.

CONCLUSION

There is a significant influence between age, parity, ANC visits, and consumption of Fe tablets with the incidence of anemia in pregnant women at the Maternal and Child Health (KIA) Polyclinic, Pasar Masurai Health Center, Lembah Masurai District, Merangin Regency. The most dominant variable influencing the incidence of anemia in pregnant women is the variable of consumption of Fe tablets with a p-value (0.000).

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