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Analysis Of Factors Influencing Anemia In Pregnant Women In Surabaya

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Abstract
Anemia of pregnancy is a global health problem that affects nearly half of pregnant women. The World Health Organization (WHO) defines anemia of pregnancy as hemoglobin (Hb), 11 g/dL, or hematocrit, 33%, at the time of pregnancy. According to the World Health Organization (WHO) in 2019, an estimated 303,000 maternal deaths or around 216/100,000 live births worldwide. The purpose of this study was to analyze the factors that influence the incidence of anemia in pregnant women in Surabaya, and to analyze the factors that most dominantly influence the incidence of anemia in pregnant women. The research design used a cross sectional study. The population in this study were all pregnant women who were controlling their pregnancy. The sample in this study were 125 pregnant women who were taken using simple random sampling. The research instrument used a questionnaire about intake of iron tablets, nutritional status, gravidity, age of pregnant women, Knowledge, socioeconomic status, and family support. Data analysis used logistic regression test. The results of the analysis found that intake of iron tablets, age of pregnant women, knowledge, and socioeconomic status had an effect on the incidence of anemia in pregnant women. As for nutritional status. gravidity and family support had no effect. Intake of iron tablets is the most dominant factor in the incidence of anemia in pregnant women with an OR of 18.937. The conclusion of this study is that pregnant women's intake of iron tablets is the most dominant factor affecting the incidence of anemia in pregnant women

Keywords: *Anemia, pregnancy*

1. Introduction

Anemia of pregnancy is called "potential danger to mother and child" (potentially harmful to mother and child) so that anemia requires special attention from all parties involved in terms of health services (N. vita Sari et al., 2022). Anemia of pregnancy in which the hemoglobin level is below 11 g% in the first and second trimesters or <10.5 g% in the third semester (Wulandari, Sutrisminah & Susiloningtyas, 2021). The incidence of anemia in pregnancy can h a negative impact on the mother, such as postpartum bleeding and infection. While the negative impacts on the fetus are Intra Uterine Growth Retardation (IUGR), Low Birth Weight Babies (LBW), premature birth and abortion (Sjahriani & Faridah 2019).

The prevalence of anemia in pregnant women in Indonesia has continued to increase from 2015 to 2019 with a percentage of 42.1% to 44.2% (WHO, 2021). The prevalence of anemia in pregnant women in East Java is 28% (Mutiara, 2021). Based on data from the Surabaya City Health Office, the results showed that the number of anemia in pregnant women was 3,569 cases (7.5%) in 2016 and increased in 2017 to 7,847 people

(16.65%). The increase occurred by 54.5% from 2016 (Pangastuti, 2020). According to previous researchers, there were 27 pregnant women who were at risk of anemia in Surabaya or 23%.

Anemia is caused by various factors including socioeconomic status, inadequate or irregular intake of iron tablets, nutritional status, parity, mother's age, Knowledge and husband's support (Koerniawati, 2022). The nutritional status in question is that inadequate nutritional intake can cause red blood levels in the body to decrease so that it can cause anemia in pregnant women and poor nutritional status can have a high risk of miscarriage, stillbirth, neonatal death, defects and low birth weight. The complications that are quite severe during pregnancy are anemia and pre-eclampsia/eclampsia (Kamaruddin et al., 2019). The impact of anemia on pregnant women has a high risk of miscarriage, stillbirth, newborn death, defects and low birth weight. The complications that are quite severe during pregnancy are anemia and pre-eclampsia/eclampsia (Koerniawati, 2022).

Nurses in this case can become counselors or educators in preventing or reducing the incidence of anemia in pregnant women by providing Knowledge and information about efforts to prevent anemia in pregnant women by improving nutritional intake, and administering Fe tablets to pregnant women, so that the incidence of anemia in pregnant women pregnant women can prevent and reduce the prevalence of anemia in pregnant women

2. Materials and methods

2.1 Materials

The type of research used in this research is cross sectional. The population in this study were all pregnant women whose pregnancies were controlled at the BKIA polyclinic in the Surabaya area of the health center. The sample in this study were 125 pregnant women who were taken by simple random sampling. The independent variable in this study was the incidence of anemia in pregnant women which included intake of iron tablets, nutritional status, gravidity, age of pregnant women, Knowledge, socioeconomic status, and family support. While the dependent variable in this study is the incidence of anemia in pregnant women. The location of the research was carried out at the Surabaya regional health center. When the research was conducted in April - May 2023.

2.2 Data collection procedures

The research instrument used a questionnaire consisting of socioeconomic status, intake of iron tablets, nutritional status, gravidity, age of pregnant women, Knowledge, family support, and the incidence of anemia in pregnant women. The procedures for collecting and collecting data carried out in the research were: Permission was made after obtaining a letter of application for permission from the Faculty of Nursing and Midwifery, Nahdlatul Ulama University, Surabaya to conduct research aimed at health centers in the Surabaya area, and having received a letter of recommendation of ethical merit. In this study data was collected and collected by giving questionnaires to respondents. The researcher first explained the aims and objectives of the research. If the respondent agreed, it would be proven by a signed informed consent. Performing measurements and connecting between variables with variable data that has been collected, SPSS analysis is carried out.

2.3 Data analysis

The research was analyzed using SPSS 22 software, using the multivariate logistic regression test method. The variable is said to be influential if the significance value is <0.05.

3. Results and discussion

3.1 Results and discussion

The research variables consisted of 1) Fe intake, 2) Nutritional status, 3) Gravidity, 4) Maternal age, 5) Knowledge, 6) Social economic status, 7) Family support, 8) Incidence of anemia in pregnant women.

Description of maternal characteristics variables will be presented below:

Table 1 Frequency distribution of respondents including Fe intake, Nutritional status, Gravidity, Maternal age, Knowledge, Socioeconomic status, Family support and Anemia incidence (n=125).

Pregnant Women	f	%
Fe intake		
Teratur	91	78,8
Tidak teratur	34	27,2
Nutritional status		
Tidak beresiko	85	68
Beresiko	40	32
Graviditas		
Tidak beresiko	114	91,2
Beresiko	11	8,8
Maternal Age		
Tidak beresiko	72	57,6
Beresiko	53	42,4
Knowledge		
Baik	35	28
Kurang	90	72
Socioeconomic status		
Tinggi	90	72
Rendah	35	28
Family support		
Baik	60	48
Kurang	65	52
Anemia incidence		
Tidak terjadi anemia	81	64,8
Terjadi Anemia	44	35,2

Table 1 shows that almost all 91 (78.8%) Fe intake was regular, the nutritional status of most 85 (68%) was not at risk, almost all 114 (91.2%) gravidity was not at risk, the age of pregnant women was mostly 72 (57, 6%) are not at risk, knowledge is mostly 90 (72%) have insufficient knowledge, socioeconomic status, most 90 (72%) have high economic status, and family support most 65 (52%) have poor family support. The incidence of anemia in pregnant women mostly 81 (64.8%) did not experience anemia.

3.2 Results and discussion

Tabel 2: Results of logistic multivariate analysis.

Variabel	Koefisien	S.E	df	Nilai p	OR	IK 95%	
						Min	Max
Fe intake	2,941	0,657	1	**0,000**	**18,937**	5,222	68,673
Nutritional status	0,822	0,703	1	0,243	2,275	0,573	9,031
Graviditas	1,668	0,992	1	0,093	5,302	0,758	37,060
Maternal Age	1,330	0,564	1	**0,018**	3,782	1,252	11,430
Knowledge	1,904	0,760	1	**0,012**	6,715	1,513	29,798
Socioeconomic status	2,121	0,627	1	**0,001**	8,338	2,441	28,477
Family support	0,282	0,611	1	0,644	1,326	0,400	4,393

Based on table 2 the results of the analysis show that there is a relationship between the Fe intake factor and the incidence of anemia (p 0.000), there is a relationship between the factor of pregnant women's age and the incidence of anemia (p 0.018), there is a relationship between knowledge of the incidence of anemia (p 0.012), and there is relationship between socioeconomic status to the incidence of anemia (0.001). Meanwhile, nutritional status, gravidity and family support are not related to the incidence of anemia in pregnant women.

From the table above it is also known that the strength of the relationship can be obtained from EXP (B) or also called ODDS RATIO (OR). So that from the results of the multivariate analysis test using the multiple logistic regression test, it was obtained that the greatest or most dominant strength of the relationship was the factor of Fe intake (OR 18.937), then people who consumed FE had more influence on the incidence of anemia as much as 18.937 times compared to people who did not consume FE. Value B = Natural Logarithm of 18.937 = 2.941. Because the value of B is positive, consuming FE has a positive relationship with the incidence of anemia compared to age, gravidity, nutritional status, economy, and family support.

Iron is essential in pregnancy and infancy to meet the high demands on hematopoiesis, growth and development. Much attention has been paid to iron deficiency conditions and iron deficiency anemia due to the high estimated global prevalence of this vulnerable life stage. Emerging and preliminary evidence suggests, however, the risks in low and high iron status for adverse birth and health outcomes including growth, preterm birth, gestational diabetes, digestive health, and neurodegenerative diseases during aging. Such evidence raises questions about the effect of high iron intake through supplementation or food fortification during pregnancy and infancy on iron-consuming individuals. Fe tablets are a way to prevent anemia, in the case of iron deficiency anemia (Brannon & Taylor, 2017).

The main problem with Fe tablet supplementation in pregnancy is adherence, and this may be a potential driver for the high prevalence of anemia in pregnant women (Ugwu, Olibe, Obi, & Ugwu, 2014). This is in line with Sarah & Iriyanto's research (2018), most pregnant women respondents had low adherence of 15 people (50%) with the reasons of experiencing nausea, not returning to control at health services and forgetting to take medication. If pregnant women do not have adherence to taking blood-boosting drugs, they will experience anemia and disturbances to the fetus (Gebre, Mulugeta, & Etana, 2015)

4. Conclusion

The conclusion of this study is Fe intake, maternal age, knowledge, and socioeconomic status affect the incidence of anemia in pregnant women. While nutritional status, gravidity and family support had no effect. Fe intake is the most dominant factor affecting the incidence of anemia. Nurses are expected to be able to provide health knowledge about the importance of consuming Fe regularly, so that the incidence of anemia in pregnant women can be prevented.

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Conflict of interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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