



The Relationship Between Pregnant Women's Compliance in Consuming Fe Tablets and Anemia Incidence

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ABSTRACT

Anemia in pregnant women causes various problems during pregnancy. Prevention of anemia is done through the administration of Fe tablets. This study aims to analyze the association between compliance with Fe tablet consumption and anemia incidence among pregnant women at Peneleh Health Center. The sampling method used purposive sampling. The sample of this study was 115 pregnant women. The abstract should explicitly mention the study design (cross-sectional) and key numerical results. Chi Square test was used to analyze univariate and bivariate data. The results of this study showed a significant relationship between adherence to Fe tablet consumption and the incidence of anemia in pregnancy, with a p-value of $0.002 < \alpha = 0.05$. This study found that adherence to Fe tablet consumption among pregnant women in Peneleh community health center was associated with the incidence of anemia

Keywords: CED, Food Intake, Pregnancy

INTRODUCTION

Based on data from the Indonesian Ministry of Health, the rate of anemia in pregnant women is still large at 38.3%, which needs to be investigated immediately. This causes pregnancy complications such as low birth weight (LBW), premature birth, and even maternal and infant mortality (Nadiya et al., 2023) Pregnant women often complain of fatigue, headache, shortness of breath, pallor and blurred vision. These signs indicate that the pregnant woman is suffering from anemia. This is because the hemoglobin level in the body is below normal (Agnes Kusumasari et al., 2021). A decrease in hemoglobin levels to < 11 gr/dL during the first and third trimesters or < 10.5 gr/dL during the second trimester is a sign of anemia in pregnant women. (Putri et al., 2021).

Pregnancy anemia remains a health problem in Indonesia due to its high prevalence. The 2020 Riskesdas results show that 50.9% of pregnant women in Indonesia are anemic, up from 37.1% previously. A total of 84.6% of pregnant women aged 15-24 years were anemia. Based on data from the East Java Health Office, the total maternal mortality rate (MMR) in 2022 is 499 cases of pregnancy anemia, which is much lower than the MMR in 2021 (1,279 cases), and one of the causes of the high MMR rate in East

Java in 2021 is bleeding due to anemia as much as 9.38% (Hakim, 2023).

The causes of anemia in pregnancy include age, parity, education level, socioeconomic status, Fe tablet consumption compliance, pregnancy spacing, nutritional status and knowledge (Sukmawati et al., 2021). Hemoglobin levels decrease during gestation beyond 36 weeks. At this age, iron requirements increase, and the fetus can store iron for itself during the first month after birth. As a result, this can lead to anemia. If the mother is anemic at more than 36 weeks of gestation, it may cause problems during delivery, such as the uterus not contracting properly and straining quickly. Likewise, the mother's uterus will have difficulty moving back to its normal size after labor is over (Awalamaroh et al., 2019).

The willingness of pregnant women to follow health workers' directions on how to take iron tablets is evidence of compliance in taking Fe tablets. This compliance can be measured by counting the number of iron tablets consumed, how to consume them correctly, and the frequency with which they are consumed every day. One effective method to treat anemia caused by iron deficiency is to take daily iron tablets of 60 mg, which can increase hemoglobin levels by 1 g/dL every month. Indonesia has a program to prevent anemia in pregnant women who

are given at least ninety iron tablets during pregnancy. However, anemia rates continue to rise. The program does not cover many people, and many pregnant women do not comply with the recommendation to take Fe tablets as recommended (Omasti et al., 2022).

During pregnancy, anemia can cause complications such as abortion, preterm labor, fetal growth retardation, increased risk of infection, antepartum hemorrhage, premature rupture of membranes (KPD), as well as disturbances in the delivery process such as a long first stage and prolonged parturition. Anemia in the puerperal phase results in uterine subinvolution, which causes postpartum hemorrhage and increases the risk of infection (Nadiya et al., 2023).

As a government effort to reduce and treat anemia, especially in pregnant women, 90 blood supplement tablets (TTD) should be given to pregnant women once every day and consecutively (Dinas kesehatan jawa timur, 2021). This is in line with the research of Ni Kadek Omasti, Gusti Ayu Marhaeni and Ni Made Dwi Mahayati which showed that 46.15% of mothers were not compliant with Fe tablet consumption. The sensation that respondents felt after taking Fe tablets was nausea and even vomiting. The nausea was not only due to taking Fe tablets, but could be caused by the pregnancy. Midwives

should be informed that the side effects of Fe tablets are usually mild and will disappear on their own (Kertiasih & Ani, 2019).

Based on a preliminary survey conducted in June-November 2023, there were 90 out of a total of 200 (45%) pregnant women with anemia. Based on the above data, it is known that there are many cases of anemic pregnancies in East Java and maternal adherence to Fe tablets is still low. The level of adherence to iron tablets is one of the factors that play a role in the risk of anemia in pregnant women. Being a concern for researchers, therefore, researchers are interested in conducting research on the relationship between compliance of pregnant women in taking Fe tablets with the incidence of anemia in the Peneleh Health Center area.

METHOD

Quantitative research using cross sectional method. Conducted at Peneleh Health Center in October 2023 to May 2024. The sample was determined based on criteria and purposive sampling technique so that the final number was 115 mothers.

Variables included adherence to Fe tablet consumption and incidence of anemia. Data on Fe tablet consumption compliance was obtained from questionnaires and counting the remaining Fe tablet drugs using the Pill count method, The Pill

Count method is used in health research to measure patient adherence. This method involves counting the remaining medication at the follow-up visit and comparing it with the amount that should have been taken in a given period.. The compliance category was divided into two categories, namely if the calculation result was <80% including the non-compliant category and if the calculation result was 80-100% including the compliant

category. Anemia data was obtained from Hb measurement using digital Hb device.

Data were managed using univariate analysis to determine frequency distribution and bivariate analysis using Chi Square to determine whether there is a relationship between the variables studied. The ethics of this research have been approved by the ethics committee of the Surabaya kemenkes polytechnic with EA/2364/KEPK-Poltekkes_Sby/V/2024.

RESULTS AND DISCUSSIONS

Result

1. Univariate Analysis

Tabel.1 Frequency Distribution of Respondent Characteristics

Characteristic	Category	Frequency (n)	Percentage (%)
Age	< 20 years	49	42,6
	20-35 years old	46	40
	>35 years old	20	17,4
Total		115	100
Education	Basic Education Level (Elementary, Junior High)	56	48,7
	Secondary Education (SMA)	47	40,9
	Higher Education Level (D3, S1, S2)	12	10,4
Total		115	100
Work	IRT	61	53
	Self employed	42	36,5
	Civil servants	12	10,4
Total		115	100

Source: Primary Data

Tabel. 2 Frequency Distribution of Food Intake

Dietary Intake	Category	Frequency (f)	Percentage (%)
Energy	Good	46	46
	Enough	39	39
	Less	15	15
	Total	100	100
Protein	Good	81	81
	Enough	8	8
	Less	11	11
	Total	100	100
Fat	Good	76	76
	Enough	16	16
	Less	8	8
	Total	100	100
Carbohydrates	Good	13	13
	Enough	58	58
	Less	29	29
	Total	100	100

Source: Primary Data

Tabel.3 Frequency Distribution of Fe Tablet Consumption Compliance Characteristics

Fe Tablet Consumption Compliance Rate	Frequency (f)	Presentation (%)
Compliant	79	68,7
Non-compliant	36	31,3
Total	115	100

Source: Primary Data (2024)

Tabel. 4 Distribution of Anemia Incidence Frequency

Anemia	Frequency (f)	Presentation (%)
Non Anemia	50	43,5
Mild Anemia	32	27,8
Moderate Anemia	33	28,7
Severe Anemia	0	0
Total	115	100

Source: Primary Data

Table. 4 The Relationship of Pregnant Women's Compliance in Consuming Fe Tablets with the Incidence of Anemia in Pregnancy

Fe Compliance	Anemia										total	P - value
	No Anemia		Mild Anemia		Moderate Anemia		Severe Anemia					
	n	%	n	%	n	%	n	%				
Compliant	43	37,4	19	16,5	17	14,8	0	0	79	68,7	0,002	
Non-compliant	7	6,1	13	6,1	16	13,9	0	0	36	31,3		

Table 1 shows the frequency distribution of the characteristics of third trimester pregnant women at Peneleh Health Center. The results showed that respondents aged <20 years obtained 49 respondents (42.6%), basic education level (elementary

school, junior high school) obtained 56 respondents (48.7%), being a housewife obtained 61 respondents (53%).

Table 2 shows the results of the distribution of compliance of third trimester pregnant women at Peneleh

Health Center towards Fe tablet consumption, 79 respondents complied with Fe tablet consumption (68.7%).

Table 3 shows the results of the frequency distribution of anemia in third trimester pregnant women at Peneleh Health Center, 50 respondents obedient to Fe tablet consumption did not experience anemia (43.5%).

Table 4 shows that 43 respondents (37.4%) were compliant with Fe tablet consumption and not anemic, 16 respondents (13.9%) were not compliant with Fe tablet consumption and had moderate anemia.

Discussion

With a p value of 0.002, the Chi Square test results show that there is a significant relationship and has a very strong relationship strength value between Fe tablet consumption compliance with the risk of anemia in pregnant women at Peneleh Health Center.

Rahmahani et al. (2023) showed that pregnant women who adhered to taking Fe tablets had a lower risk of anemia. Conversely, non-compliant pregnant women experienced more anemia. This confirms that compliance in taking Fe tablets during pregnancy plays an important role in preventing anemia in pregnant women (Rahmahani et al. 2023). Nina Herlina et al. (2023) Anemia in

pregnancy increases the risk of preeclampsia, postpartum hemorrhage, uterine atony, and infection. In the fetus, iron deficiency anemia can lead to impaired growth, development, premature birth, congenital abnormalities, and LBW. Pregnancy anemia has the potential to harm both mother and child, so it requires serious attention in health services (Herlina et al., 2023).

In this study, respondents who were compliant consumed Fe tablets but experienced anemia. As a result, poor nutritional intake and the mother's busy work schedule caused her to forget to take Fe tablets. Pregnant women with low knowledge often have negative views of adverse reactions to iron preparations, such as nausea, vomiting, diarrhea, constipation, epigastric discomfort, and facial blackening. This causes pregnant women to consistently forget or stop consuming according to WHO recommended standards. Total Fe tablet pills consumed and poor management or missed Fe supplement consumption indicate the quality of adherence in pregnant women. Side effects after taking Fe supplements can reduce adherence to taking the number of pills recommended by health workers (Cindy Narita Kusuma Astuti et al., 2023)

The success of treatment depends on the level of adherence of pregnant women to

the use of Fe tablets. Studies show that pregnant women who received Fe tablets for 12 weeks experienced an increase in hemoglobin levels from 8.45 gr/dL to 11.45 gr/dL. Proper administration of Fe tablets can help the WHO's efforts to achieve the target hemoglobin level of at least 11 gr/dL (Syari et al., 2023)

Age also affects the possibility of anemia, based on the results of the study obtained by mothers aged <20 years more, where this age has the potential to experience anemia, which is in accordance with existing theory. Due to physical and psychological factors, mothers under 20 years old and over 35 years old are at risk of anemia (Widiastini, 2023). Younger mothers or those under 20 years of age need more additional nutrients because they are not only for their own growth and development but also need to share nutrients with their future babies. Pregnant women over 35 years old need more energy because their organs are in decline and require maximum effort to support the continuity of pregnancy (Manuaba & Kebidanan, 2019)

Pregnancy is a physiological process that requires careful planning, taking into account many factors that can affect the condition of the mother and fetus, including age. According to Tanziha, Damik & Rosmiati's research analyzing risk factors for anemia in pregnant women

in Indonesia based on 2013 Riskesdas data, pregnant women aged <20 years or >35 years experience anemia more often than pregnant women aged between 20 and 35 years, both in urban and rural areas (Sari et al., 2021)

In this study, it was found that almost half of the pregnant women had an elementary/junior high school education, which affected the compliance of Fe tablet consumption during pregnancy. According to the Law of the Republic of Indonesia No. 23 Year 2003, the level of education can affect a person's level of knowledge; higher levels of education make it easier to obtain information, while lower levels of education often result in limited knowledge and lack of attention to available health programs (Azizah et al., 2023)

Ernawat's research results are in line with this: the group of respondents with low education levels experienced anemia more often than the group of pregnant women. The theory that education affects a person's thoughts, feelings, and attitudes is in line with the findings of the above study. The higher the level of education, the more realistic the way of thinking and the broader the thinking, including knowledge about anemia. The level of education can be the background of the mother's attitude towards the adoption and

change of the health information system. (Ermawati, 2019).

Pregnant women do not always experience problems due to work alone. However, working mothers will experience working conditions and a wider range of knowledge than non-working mothers, because they have a lot of information. Working means producing or helping to produce goods or services with the aim of earning income within a certain period of time. The risk of anemia increases for pregnant women who take care of the household. Many housewives depend on their husband's income to live. This condition often results in the inability of pregnant women to make ANC visits in early pregnancy, meaning not receiving timely nutrition consultation and Fe tablets from the doctor. This can lead to pregnant women reducing their consumption of nutritious foods, increasing the risk of anemia for non-working pregnant women (Ariesta & Naufalia, 2020).

The results showed that the work of pregnant women has an association with the risk of anemia, especially for working pregnant women. It is likely that mothers pay less attention to their health conditions and maintain their diet while moving. A poor diet causes an imbalance of nutrients which results in anemia. The results of the study are in line with Ariesta and Naufali's research explaining there is a relationship

between work and compliance with taking Fe tablets. Because work is one of the factors during pregnancy, working mothers must carry additional workloads as housewives and also perform other tasks at work. This causes them to lack rest, unbalanced nutritional intake, fatigue, and stress associated with their work, which can interfere with their pregnancy and cause anemia.

consuming enough iron-containing foods during pregnancy can ensure that the amount of iron necessary to prevent anemia (Arantika & Fatimah, 2019) by regulating the diet and combining foods that contain iron (green vegetables) and vitamin C (tomatoes, oranges, and guava). Drinks such as tea and coffee interfere with iron absorption (Mansjoer, 2019). Iron requirements increase during pregnancy and labor. The mother must meet the iron needs of the fetus and herself. Significant iron loss can also be caused by bleeding during childbirth. As a result, Fe tablets are highly recommended to be taken by pregnant women. Untreated anemia can harm both the mother and the unborn child. The impact can include the risk of abortion, obstacles in fetal growth, increased risk of infection, as well as the risk of complications during childbirth such as premature rupture of membranes and premature labor. Therefore, to prevent anemia during pregnancy, it is very

important to ensure adequate iron intake (Mandariska & Sarwinati, 2019).

CONCLUSION

From the research that has been done, it is concluded that pregnant women in Peneleh Health Center are obedient in consuming Fe tablets, do not experience anemia and

there is a relationship between adherence to Fe tablet consumption with the incidence of anemia in pregnancy. A significant association was found between Fe tablet compliance and anemia incidence at Peneleh Health Center, highlighting the need for improved adherence programs.

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