

COMPLIANCE OF PREGNANT WOMEN CONSUMING IRON TABLETS TO ANEMIA EVENTS; A CROSS- SECTIONAL STUDY IN DARUL IMARAH ACEH BESAR DISTRICT

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ABSTRACT

The prevalence of anemia in pregnant women in Indonesia is still high. The main program to prevent anemia in pregnancy can be done by giving iron tablets to pregnant women, but this program is constrained by the low compliance of pregnant women to consume iron tablets. This study aims to determine the relationship between the adherence of pregnant women to consume iron tablets with the incidence of anemia. This design is cross-sectional. The research location is in Darul Imarah District, Aceh Besar. The research sample was 52 pregnant women in the third trimester of pregnancy. The sampling technique was carried out by consecutive sampling, namely all pregnant women entering the third trimester of pregnancy and meeting the inclusion and exclusion criteria were taken as samples until the required number of samples was met. Data analysis using Chi-Square test. The results showed that there was a relationship between adherence to consuming iron tablets and the incidence of anemia in pregnant women with a p-value of 0.000. In conclusion, adherence to taking iron tablets can increase hemoglobin levels so as to prevent the risk of anemia in pregnant women.

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1. Introduction

Iron deficiency anemia in pregnancy is a health problem for women worldwide, especially in developing countries (Abujilban et al., 2019). Iron deficiency is one of the most common nutritional deficiencies affecting more than 2 billion people worldwide and pregnant women are a high-risk group in both developed and developing countries (Friedrich & Friedrich, 2017). Iron deficiency is considered the most common cause of anemia and globally accounts for more than half of anemia cases in pregnancy (Lyoba et al., 2020).

The prevalence of anemia in Indonesia is also very high, reaching 48.9% and it was has increased compared to the previous year, which was 37.1% (Research Center for Health Development, Ministry of Health, 2018). Anemia is a public health issue that has major consequences for health (Fouelifack et al., 2019). The bad consequences of anemia are an increased risk of stillbirth, newborn mortality, and low birth weight (Patel et al., 2018).

Anemia is a condition where the hemoglobin level is lower than the normal limit. A pregnant woman is categorized as anemic, if the lower limit of hemoglobin in the first and third trimesters is <11 g/dl and <10.5 g/dl in the second trimester (Brannon & Taylor, 2017). During pregnancy, the risk of anemia increases because pregnant women's bodies need more iron to produce hemoglobin which will carry oxygen to the baby. Seorang perempuan hamil yang tidak memiliki cukup persediaan zat besi dalam tubuhnya maka ia akan mengalami anemia defisiensi zat besi.

Prevention of iron deficiency anemia in pregnant women is carried out by iron supplementation through the basic health care system. The iron and folic acid supplementation program is a major global intervention for the control of anemia in pregnancy (Kamau et al., 2019). The Indonesian government has implemented a program of routinely giving iron tablets to

pregnant women to reduce the high incidence of anemia. Iron tablet supplementation for pregnant women is one of the standards in antenatal care. Every pregnant woman should take 1 tablet of iron every day. Every pregnant woman should take 1 iron tablet per day and at least 90 tablets during pregnancy (WHO, 2012). The Provision of iron tablets in Indonesia through public health centers, Posyandu, and village midwives. This program has been going on for a long time but until now the prevalence of anemia is still high. The target of reducing the incidence of anemia through iron tablet supplementation has not been successful, possibly due to the low compliance of pregnant women. The same thing also happens in other countries, where iron supplementation has been going on for years but the compliance of pregnant women is low (Kamau et al., 2020)

According to the results of Indonesian basic health research in 2018, the compliance of pregnant women in consuming iron tablets according to the rules, namely 90 tablets during pregnancy was only 38.1%, and the remaining 61.9% < 90 tablet (Research Center for Health Development, Ministry of Health, 2018). In Aceh Province, maternal compliance was also low, where pregnant women who received iron tablets reached 81.61% and of that number only 20,53% complied with the drinking rules, namely 90 tablets, the remaining 79,47% were less than 90 tablets (Indonesian & Ministry of Health Republic, 2018).

Aceh Besar District, Aceh Province is reported to have a fairly high distribution coverage of iron tablets, reaching 91.2%. This is not directly proportional to the data on the number of pregnant women suffering from anemia, which reached 3,132 out of 9,071 pregnant women whose hemoglobin was checked. One of the sub-districts that accounts for the highest number of anemia cases is Darul Imarah. Of the 1154 pregnant women whose hemoglobin levels were checked, 686 people (59.45%) suffered from anemia. Of these, 579 people (50.17%), 6-9 gr/dl (8.58 gr/dl) and 8 gr/dl 8 gr/dl were reported.,69%). In addition, this number continues to increase compared to the previous year, which was 3,132 people (34.5%). Therefore, this study wanted to find out whether there is a relationship between adherence to consuming iron tablets and the incidence of anemia in pregnant women in Darul Imarah District, Aceh Besar.

2. Research Methods

This study used a cross-sectional design. The research location is in Darul Imarah District, Aceh Besar. As many as 52 respondents were calculated as part of the sample size using the Taro & Yamane formula. The sampling technique was consecutive sampling, namely all pregnant women who met the inclusion criteria, namely pregnant women living and carrying out pregnancy checks at the Darul Imarah Public Health Center, entering the 3rd trimester of pregnancy, healthy (low risk pregnancy), received iron tablets (Fe) from the health center, and profiled First trimester health and hemoglobin levels are recorded in the maternal cohort register/MCH book. Exclusion criteria were mothers who did not go to private clinics, were sick or had pregnancy complications, did not take iron tablets, and whose health profile and hemoglobin levels were not recorded in the maternal cohort register/MCH book.

Collect data using a questionnaire. The data collected included the characteristics of the respondents, adherence to taking iron tablets (drinking regularly/routinely, 1 tablet per day, drinking with water, never drinking at the same time that inhibits absorption (tea, coffee, and milk), continuing to take iron tablets even though the mother feels healthy, does not stop when experiencing complaints of dizziness, nausea, or mild vomiting, and the number of pills received and taken until the third trimester is calculated and reduced by the remaining tablets. The measurement of anemia in the third trimester is carried out by the health center staff and the results are compared to the first trimester hemoglobin recorded in the MCH book or register maternal cohort. Data analysis using the Chi-Square test.

3. Result And Discussion

3.1. Result

An overview of the characteristics of respondents, can be seen in table 1 below:

Table 1
Description Of Respondents Characteristics

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Number	Respondents's Characteristics	n	%
1	Age		
	20-35 years	44	84,6
	< 20 and >35 years	8	15,4
2	Occupation		
	Employe	8	15,4
	Not Employe	44	84,6
3	Education		
	ELeментарy	2	3,8
	Secondary	36	69,2
	Heigher	14	26,9

Table 1 shows the characteristics of pregnant women respondents based on age, mostly in the age group 20-35 years, 84.6%, and as many as 15.4% in the age group <20 and 35 years. Most of the respondents did not employe reaching 84.6%, with the level of education being mostly in the middle category, namely the namely junior high school and high school levels as much as 69.2%.

Tabel 2
Compliance With Taking Iron Tablets And The Incidence Of Anemia

No	Anemia in pregnant women	Compliance		Not compliance		Σ	%	P Value
		n	%	n	%			
1	Anemic	1	4.3	22	95.7	23	100	0,000
2	Not Anemic	18	62.1	19	63.3	29	100	
	Amount	19	36.5	33	63.5	52	100	

Table 2 shows that respondents who are obedient to taking iron (Fe) tablets suffer less anemia than those who are not compliant (4.3%: 95.7%), on the other hand, respondents who are not anemic are less compliant to take iron (Fe) tablets than those who are not. disobedient (62.1% : 63.39%). Based on the results of statistical tests using the chi-square test, the value of P = 0.000 means that it is smaller than = 0.05, thus there is a significant relationship between the incidence of anemia in pregnant women and adherence to taking iron tablets (Fe) with a p-value of 0.000 (P < 0.05).

3.2. Discussion

The results of the study on the relationship between adherence to taking iron (Fe) tablets with the incidence of anemia in pregnant women in the Darul Imarah sub-district, Aceh Besar district, showed that the majority of respondents who did not have adherence to consuming iron (Fe) tablets suffered from anemia compared to those who obeyed. The majority of them are anemic, and the majority of them take iron (Fe) tablets as directed. The results of the chi-square test showed that the p-value was 0.000, which means it is smaller than 0.05. This means that there is a relationship between the incidence of anemia in pregnant women and adherence to consuming iron tablets (Fe) in the working area of the Darul Imarah Public Health Center, District Aceh Besar.

The results of this study are in line with research conducted in Ballabgarh, India, which concluded that pregnant women who have good adherence to consuming iron tablets do not suffer from anemia and have better hemoglobin levels (Kassa et al., 2019). The relationship between iron supplementation in pregnant women and an increase in HB levels has been proven by other studies which also concluded that iron supplementation given in capsule form showed an increase in blood hemoglobin levels among pregnant women (Srivastava R, Kant S, Singh AK & Yadav K, 2019).

The increase in hemoglobin levels after taking tablets is also influenced by the number of pills taken. As per the results of a study in Malawi, which reported that the number of iron tablets taken during pregnancy was positively associated with an increase in hemoglobin levels. Pregnant women who took iron tablets 45, 45-89, and 90 pills, the average Hb level increased and the standard deviation was 10.7 (1.6), 11.3 (1.8), and 11.7 (1.6) gr/dl. In addition, it was also reported

that the prevalence of LBW was 20.1%, 13.5%, and 5.6% for pregnant women who consumed iron tablets kurang dari 45, 45-89, and 90 iron tablets. It can be concluded that consuming > 60 pills of iron tablets can reduce the risk of LBW birth (OR (95%CI) = 0.15 (0.03-0.70), $p = 0.033$, compared to taking 30 pills (Chikakuda et al., 2018). This shows that if a pregnant woman complies with consuming iron tablets regularly, 90 tablets during pregnancy with a single daily dose of 1 tablet, it will have an impact on changes in hemoglobin levels, which will increase, preventing the risk of anemia for the mother and giving birth to a LBW baby.

The need for iron in pregnant women has increased and is a physiological and hormonal change due to the needs of the fetus.(Garzon et al., 2020). Peningkatan kebutuhan zat besi ini terjadi sangat cepat, untuk memenuhi kebutuhan fetoplacenta, menambah jumlah sel-sel eritrosit ibu dan kompensasi kehilangan darah saat diedarkan untuk kebutuhan janin (S., Siabani, H., Moeini Arya, M., Rezaei, F., & Babakhani, 2018). Pregnant women who suffer from anemia cannot meet the need for iron for themselves and their fetuses, therefore iron supplementation in pregnancy is very important because it can reduce the incidence of iron deficiency anemia in pregnant women (Zhao et al., 2015).

Another effort that needs to be made is to overcome the problem of the low adherence of mothers to consuming iron tablets during pregnancy, which is influenced by various factors. A study in Kiambu County, Kenya on factors that influence the adherence of pregnant women to consuming iron folate tablets, stated that the factors of knowledge, counseling about iron folate tablets, first pregnancy, and management of side effects of iron tablets, are known to affect the adherence of pregnant women to consuming iron tablets (Kamau et al., 2018). In another study, it was stated that the common reasons for poor adherence were forgetfulness and side effects, and educational status, age, and history of anemia were also significantly positively related to folate adherence. From this study, it is known that although pregnant women have received iron supplementation, some women do not consume it regularly at the right time due to forgetfulness and perceived side effects. Therefore, it is recommended that health workers who serve pregnant women focus on the initial standard of prenatal supervision, then iron compliance, and promote ways to reduce side effects. They should also implement strategies to remind pregnant women to take iron tablets on time. This will improve adherence (S., Siabani, H., Moeini Arya, M., Rezaei, F., & Babakhani, 2018)

In this study, it was also known that the overall level of compliance of the respondents in consuming iron (Fe) tablets was still low (63.5%) and the consumption of Fe had not reached 90 grains, which was consumed until the third trimester. can be influenced by the lack of knowledge of the mother about the benefits of iron-fe tablets for mothers in pregnancy. This is supported by research that has been conducted in Ethiopia (Arega Sadore et al., 2015), which stated that efforts to reduce iron deficiency anemia during pregnancy have not been successful due to low adherence to consuming iron tablets. One of the influencing factors is knowledge about the benefits of iron supplementation for the health of pregnant women. In line with the results of this study, it was reported that women with good knowledge of iron supplementation in pregnancy were six times more likely to adhere to iron supplementation compared to those with poor knowledge (Ugwu et al., 2014).

Research in Sub-Saharan Africa found that other factors, namely antenatal visits more than four times, the mother's education at middle and above, and level of family wealth, influenced adherence. The results of the combined method study in Tanzania, based on the findings of a qualitative study, found that the first ANC visit was delayed, nothing reminded the mother to take iron tablets, low awareness about the negative effects of anemia, knowledge about iron tablets, and negative perceptions of their use and management of side effects and follow-up. It is suggested that strengthening the system to create public awareness through health promotion, counseling, and reminder mechanisms is an important step to increasing adherence to iron tablet supplementation (Lyoba et al., 2020).

Considering that anemia in pregnancy can have negative effects on the mother and fetus, it is necessary to carry out various strategies to increase the compliance of pregnant women, including by providing clear counseling about the benefits of consuming iron tablets for pregnant women and fetuses, both for mothers who are pregnant for the first time and during pregnancy. Second, and so on, explaining that if side effects arise, it can be consulted with local health workers in an open way,

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and no less important is implementing reminders to take medication for pregnant women as an alternative option to increase compliance.

4. Conclusion

Compliance with taking iron tablets during pregnancy can increase hemoglobin levels in pregnant women and prevent the risk of iron deficiency anemia. It is recommended that further research be conducted on effective and efficient strategies to improve compliance, including overcoming the forgetting factor.

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