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Determinants of Iron Supplementation (Fe) Adherence among Pregnant Women at Puskesmas Sugio Lamongan

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Abstract

Background and Aim: Anemia during gestation is a complication that often occurs in pregnant women. This condition can be controlled by providing iron (Fe) supplementation; therefore, the government has set a policy of minimum service standards for the coverage of 90 tablets of iron (Fe) supplementation for the period of pregnancy. However, pregnant women's adherence to iron (Fe) supplementation is still low. The objective of this research was to determine the factors that influence pregnant women's adherence to iron (Fe) supplementation.
Methods: The design of this study used a cross-sectional study approach. The sample was used for all pregnant women who were recorded at the Sugio Lamongan Health Center on April 2021 totaling 36 respondents, the data was taken using a structured questionnaire and analyzed using chi-square and Fisher's Exact Test.
Results: The findings revealed that the factors that influence pregnant women's adherence to iron (Fe) supplementation are knowledge, family support, regularity of the ANC. Pregnant women (66.6%) were obedient in taking iron (Fe) supplements (PR=0.227) is a factor of pregnant women's adherence to taking iron (Fe) supplements.
Conclusion: Therefore, all access that affects antenatal care services and follow-up ANC services is an important element to improve the Adherence of pregnant women in taking iron (Fe) supplementation.

Keywords: Anemia; Antenatal care; Family; Iron; Knowledge; Pregnant Women

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INTRODUCTION

Anemia during pregnancy is a condition where there is a decrease in hemoglobin or the number of red blood cells less than 11g% in the I trimester and III trimester or levels of less than 10.5g% in the II trimester (Novitasari et al., 2019). Pregnancy anemia occurs due to an increase in body fluids (plasma fluids) that are not comparable to the addition of blood cells so that blood dilution (Hemodilution) occurs. Pregnant women are susceptible to anemia. Iron insufficiency causes anemia in 41.8 percent of pregnant women around the world (Ministry of Health, 2014).

The prevalence of pregnant women with anemia in Indonesia was 37.1% while in 2018 the number increased by 48.9%. This number exceeds severe public health problems whose prevalence limit as 40%. The average coverage of national iron supplementation is 85.1% and the average coverage of iron supplementation in East Java Province in 2018 is still below the average of 90.82% with a target 90% this means there is still a gap of 2.9%. Based on data from the Nutrition Section of the Lamongan District Office in 2018, the average coverage of iron supplement in Lamongan District is still low. While the results of the preliminary study interview with 21 pregnant women for 2 days on February 04-05, 2021 who checked their pregnancy and who live around Sugio Health Center, obtained the results that only 9 (45%) of pregnant women obey to consume iron supplementation (Fe), while 12 (55%) of pregnant women do not comply to consume iron supplementation. Anemia may result from several causes, with the most significant contributor being iron deficiency (World Health Organization, 2015). Iron deficiency anemia can cause adverse perinatal outcomes, such as miscarriage, bleeding, stillbirth, fetal growth retardation, low birth weight, premature birth, and neonatal death (Beckert et al., 2019; Hare et al., 2013; Tunkyi & Moodley, 2018). Similarly, Begum, (2012) and Ibrahim et al., (2013) stated that anemia for the period of pregnancy has fetal and neonatal risks, which include prematurity, low birth weight, and fetal distress, which contribute to illness and perinatal mortality.

Pregnant woman needs a large iron (1000 mg) during pregnancy is not enough if obtained from food only, therefore, it should be helped by iron (Fe) supplementation (Ministry of Health, 2014). Therefore, the central government set a minimum service standard of iron supplementation coverage (Fe) during pregnancy as much as 90 tablets for the prevention of anemia in pregnancy. Iron supplementation is an effective way due to the content of iron is equipped with folic acid that can prevent anemia, but the adherence of pregnant women to consuming iron supplements is still low. Non-adherence of pregnant women consuming iron supplements (Fe) can have a great chance of developing anemia (Kautshar & Jafar, 2013). Several factors could influence pregnant women's willingness to take iron supplements (Fe) including knowledge, motivation, family support, and antenatal *care* visit (Kamidah, 2015). The condition of non-adherence in consuming iron tablets is one of the causes of anemia in pregnant women (Hidayah & Anasari, 2012). Pregnant women are one of the groups at high risk for nutritional problems, especially iron deficiency anemia, because the pregnant women need for iron (Fe)

increases significantly during pregnancy. One of the factors causing the high iron deficiency anemia in pregnant women is the low adherence of pregnant women in consuming Fe tablets (Kadir, 2019). Iron tablets are mineral tablets needed by the body for the formation of red blood cells or hemoglobin. If humans lack iron in the food they eat every day, it can cause nutritional anemia (lack of blood). Iron (Fe) tablets are needed by pregnant women, so pregnant women are required to take at least 60 tablets of Fe during pregnancy. Iron (Fe) acts as a component that forms myoglobin, a protein that distributes oxygen to muscles, forms enzymes, and collagen. In addition, iron also plays a role in the body's resistance. Iron (Fe) tablets are important for pregnant women because they have several functions, including: Increasing nutritional intake to the fetus, Preventing iron deficiency anemia, Preventing bleeding during childbirth, Reducing the risk of death in the mother due to bleeding during childbirth (Nugraheni, 2020).

This condition of iron deficiency will increase the risk of anemia which can cause bleeding, attached placenta, uterine tears that loosen due to frequent childbirth (Abu-Ouf & Jan, 2015). Therefore, it is necessary to increase the compliance of pregnant women in consuming iron (Fe) supplements, this can be done in various ways, among others by conducting counseling about the importance of consuming iron (Fe) supplements, optimizing Maternal and Child Health Services in every community service such as posyandu and puskesmas in each region, surveying mothers' knowledge about the importance of consuming iron (Fe) supplements, intervening in pregnant women, improving the skills of health workers in each area, and empowering cadres or community shops to know the importance of consuming iron supplements. iron (Fe) during pregnancy. In addition, effective interaction or communication between health workers and pregnant women is very important. This determines success in solving health problems. This effective interaction can reduce patient doubts, and increase patient compliance in taking supplements iron (Fe) (Endang Fourianalistyawati, 2012).

METHODS

The research design was used a cross-sectional study with the population being pregnant women who had a pregnancy check-up at the Sugio Health Center, Sugio District, Lamongan Regency during April 2021. Furthermore, the sampling in this study was used a consecutive sampling technique with 36 respondents. Data retrieval using questionnaires that have been tested for validity and reliability then analyzed with chi-*square* test. The data was analyzed using the program statistical package of socio science (SPSS) version 24.0 with a value of 0.05.

This research has been reviewed and received approval from the Health research ethics commission of Muhammadiyah Lamongan University with Number 121 / EC /KEPK - S2 / 01 / 2021.

RESULTS

Table 1 shows that the majority of pregnant women aged 20-35 years (69.4%), while based on education most pregnant women have a high school education background (91.7). While based on gestational age the majority of pregnant women are still entering pregnancy Trimester II (63.9%).

Table 1. Demographic Characteristics of Pregnant Women in Sugio Lamongan Health Center

Characteristic	Frequency	Percentage %
Age (year)		
<20	6	16.6
20-35	25	69.4
>35	5	13.8
Total	36	100
Education		
Junior high school	0	0
Senior high school	33	91.7
Bachelor	3	8.3
Total	36	100
Occupation		
Factory workers	8	22.2
Teacher	2	5.5
Housewife	15	41.7
Self-employed	11	30.6
Total	36	100
Gestational Age		
0-12 weeks	3	8.3
13-28 weeks	23	63.9
29-40 weeks	10	27.8
Total	36	100

Table 2. Determining Factors of Adherence of Pregnant Women in taking Iron (Fe) Supplements

Characteristic	N	%	PR	95%CI	*p*-value
Adherence					
Obedient	24	66.6			
Disobedient	12	33.3			
Knowledge					
Good	26	72.3	4.857	1.096 - 21.517	0.031
Less	10	27.7			
Motivation					
Good	33	91.7	1.222	0.863 - 1.731	0.307
Less	3	8.3			
Family support					
Good	17	47.2	0.292	0.156 - 0.544	0.000
Less	19	52.8			
Regularity of ANC					
Regular	20	55.6	0.227	0.102 - 0.505	0.000
Irregular	16	44.4			

Table 2 shows that the majority (66.6%) of pregnant women comply with consuming iron supplements (Fe). Pregnant women with good knowledge have 4.85 times more possible to comply with iron supplements (Fe) for

90 days (PR=4,857; [95%CI:1.096-21.517]), while pregnant women who have good family support are 0.292 times more obedient in taking iron supplements (Fe) for 90 days (PR=0.292; [95%CI:0.156-0.544]). Similarly, pregnant women who regularly visited the ANC had a 0.227 chance of complying with iron supplement consumption (Fe) for 90 days compared to irregular pregnant women in ANC visits (PR=0.227; [95%CI: 0.102-0.505]). Based on the results above, it can be concluded that the factors of knowledge, family support, and regularity in an ANC visit are the determining factors of adherence of pregnant women in taking iron supplements (Fe) for 90 days. As for the motivation, a factor is known not to be a factor that affects Adherence in iron supplements (Fe) for 90 days (P-value = 0.307; [95%CI: 0.863 - 1.731]).

DISCUSSION

Iron is essential in pregnancy and infancy to chance the need for hematopoiesis, growth, and development (Brannon & Taylor, 2017). Adherence of pregnant women in taking iron supplementation is important in the prevention of pregnancy anemia. Adherence with iron supplements (Fe) refers to a person's consistency in taking iron supplements (Fe) as prescribed by a doctor, which is a daily dose of 1 tablet (60 mg elemental iron and 0.25 g folic acid) for at least 90 days during pregnancy (Ministry of Health, 2014).

Pregnant women who follow the recommendation of health professionals to use Fe Tablets are said to be adhering to the advice. Because iron tablets have a solid iron content and are combined with folic acid, they are regarded an efficient method of supplementing (Parulian, 2018). The results found that the majority of pregnant women adherence to the consumption of iron supplements (Fe). Crosstab results showed that mothers who have good years and have good motivation tend to be obedient in taking iron supplements (Fe), as well as pregnant women who have good family support and regularly in an ANC visit also tend to be obedient in consuming iron supplements (Fe). These results were reinforced by *the chi-square* test and Fisher's Exact Test which stated that the variable knowledge, family support, and regularity of ANC visits are the determining factors and have a significant opportunity to assess whether or not pregnant women take iron supplementation (Fe).

Knowledge of iron supplementation (Fe) and its benefits become one of the factors that encourage mothers to comply in consuming iron supplements (Fe) and the majority of pregnant women who consume iron supplements (Fe) know the benefits and purposes of consuming iron (Fe) (Wiradnyani et al., 2013). A good pregnant woman's knowledge of the importance of consuming iron supplements (Fe) will allow pregnant women to analyze and synthesize information obtained to improve their well-being and family through positive behaviors, in which case pregnant women will try to avoid the risk of anemia during pregnancy because she can predict risks that may harm herself and her fetus. Conversely, if the knowledge is low, then it is likely to refuse to take iron supplements (Fe) regularly, especially if it feels that there are annoying side effects. Knowledge is closely related to the level of education where most pregnant women are educated in high

school. A study conducted by (Ali et al., 2021) stated that educated and well-educated women are usually more concerned about the health of their future babies compared to uneducated women.

Family support is also a determining factor in adherence to consuming iron supplements (Fe). Triharini et al., (2018) stated that family support is one of the factors that affect pregnant women's Adherence to taking iron supplements (Fe). Family in advising on the problem of taking iron tablets can also be advice and encouragement so as not to consider discomfort due to iron supplementation as a hindrance. Fe tablet adverse effects, such as nausea, can make it difficult for pregnant women to take iron supplements regularly Ali et al., (2021) . The family can provide adherence support for iron supplementation by directly monitoring its pregnant relatives daily.

Regular ANC visits are also noted as a correlated factor to the adherence of pregnant women taking iron supplements (Fe). Another study from Lacerte et al., (2011) also stated that the number of prenatal visits confirmed by women in consuming iron (Fe) supplements, even Getachew et al., (2018) stated that the number of ANC visits of four times or more significantly affected adherence. Antenatal care is an important access for compliant pregnant women to consume iron supplements (Fe), this is possible because health care providers can help pregnant women during visitation so that they can discuss everything related to pregnancy anemia and its relationship with iron supplements (Fe) and encourage them to take tablets according to prescription and provide health education about the benefits of taking iron supplements (Fe) during pregnancy. and other study results also state that knowledge, family support, and the number of prenatal visits are factors that correlate to the adherence of women who pregnant to taking iron supplementation (Fe). Anggraini et al., (2018) stated that the better-quality interaction of women who pregnant with health workers, the more likely pregnant women are to obediently take iron supplements (Fe) to prevent anemia during pregnancy.

CONCLUSION

The adherence of pregnant women to consuming iron supplements (Fe) is still low. Factors of knowledge, family support, and regularity of the ANC are factors that are recorded significantly in determining the adherence of pregnant women to taking iron supplements (Fe) for the period of pregnancy.

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