IRON TABLET SIDE EFFECTS AND ROLE OF HEALTH WORKERS IN IMPROVING ADHERENCE AMONG PREGNANT WOMEN

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ABSTRAK: EFEK SAMPING TABLET ZAT BESI DAN PERAN TENAGA KESEHATAN DALAM MENINGKATKAN KEPATUHAN IBU HAMIL

Latar Belakang: Anemia pada ibu hamil merupakan ancaman serius bagi kesehatan ibu dan bayi baru lahir dan merupakan masalah kesehatan masyarakat yang utama. Selama kehamilan normal, tubuh wanita mengalami perubahan fisiologis dan menyebabkan anemia fisiologis. Namun, anemia fisiologis jika tidak ditangani dengan baik dapat berkembang menjadi anemia patologis yang ditandai dengan kadar hemoglobin < 10 mg/dl.

Tujuan: menganalisis pengaruh efek samping pemberian tablet zat besi dan peran petugas kesehatan terhadap konsumsi tablet zat besi lengkap pada ibu hamil.

Metode: Penelitian ini merupakan penelitian kualitatif dengan pendekatan cross sectional. Sampel pada penelitian ini berjumlah 115 ibu hamil dengan Teknik pengambilan sampel simple random sampling. Pengumpulan data dilakukan dengan kuesioner. Test statistic used Chi Square test.

Hasil: Dibandingkan dengan ibu yang tidak mengalami efek samping Fe, ibu yang mengalami efek samping Fe memiliki kemungkinan 15 kali lebih besar untuk tidak mengkonsumsi Fe sesuai petunjuk. Selain itu, ibu yang memiliki persepsi negatif terhadap peran petugas kesehatan terkait penggunaan zat besi memiliki kemungkinan 30 kali lebih besar untuk melanggar pedoman konsumsi zat besi dibandingkan dengan ibu yang memiliki persepsi positif terhadap peran petugas kesehatan terkait penggunaan zat besi.

Kesimpulan: Terdapat hubungan positif efek samping dan peran petugas terhadap kelengkapan konsumsi tablet Fe pada ibu hamil di wilayah Puskesmas Kota Karang Bandar Lampung.

Saran: Untuk meningkatkan cakupan konsumsi tablet Fe secara lengkap pada ibu hamil, petugas kesehatan diharapkan dapat memberikan edukasi terkait pentingnya mengkonsumsi tablet Fe dan cara mengatasi efek samping tablet Fe. Selain itu, peran petugas yang mendorong ibu hamil untuk mengkonsumsi tablet Fe akan meningkatkan kepatuhan konsumsi.

Kata Kunci : Efek Samping, Ibu Hamil, Peran Petugas, Tablet Fe

ABSTRACT

Background: Anemia in pregnant women is a serious threat to maternal and newborn health and is a major public health problem. During normal pregnancy, a woman's body undergoes physiological changes and causes physiological anemia. However, physiological anemia if not treated properly can develop into pathological anemia characterized by hemoglobin levels < 10 mg/dl.

Purpose: To analyze the effect of side effects of iron tablet administration and the role of health workers on the consumption of complete iron tablets among pregnant women.

Methods: This research is a qualitative study with a cross-sectional approach. The sample in this study amounted to 115 pregnant women with simple random sampling technique. Data collection was done by questionnaire. Test statistic used Chi Square test.

Results: Compared to mothers who did not experience Fe side effects, mothers who experienced Fe side effects were 15 times more likely to not consume Fe as directed. In addition, mothers who had a negative perception of the role of health workers related to iron use were 30 times more likely to violate iron consumption guidelines compared to mothers who had a positive perception of the role of health workers related to iron use.

Conclusion: There is a positive relationship between side effects and the role of officers on the completeness of Fe tablet consumption among pregnant women in the Kota Karang Health Center area in Bandar Lampung.

Suggestions: To increase the coverage of complete Fe tablet consumption among pregnant women, health workers are expected to provide education related to the importance of consuming Fe tablets and how to overcome

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the side effects of Fe tablets. In addition, the role of officers who encourage pregnant women to consume Fe tablets will increase consumption compliance.

Keywords: Side Effects, Role of Health Workers, Fe Tablets, Pregnant Women

INTRODUCTION

Anemia in pregnant women poses a serious threat to maternal and neonatal health and is a major public health problem. Anemia in pregnancy is known to be a major risk factor for maternal and neonatal complications such as postpartum hemorrhage, cesarean section, hysterectomy, preterm birth, and infectious diseases (Zhang et al.). One of the most common causes of anemia in pregnant women is iron deficiency anemia, especially in developing countries where diseases related to red blood cell disorders such as malaria are quite high To reduce the adverse maternal and neonatal effects of anemia in pregnant women, adequate iron intake is needed, one of which is through blood supplementation (Fe) tablets (Georgieff et al.).

According to WHO, the prevalence of anemia in women of childbearing age globally in 2019 was 29.9% and the prevalence of anemia is highest in developing countries with the most common types of anemia among women of childbearing age being nutritionally induced anemia and anemia in chronic diseases (Pamela et al.). Meanwhile, in Indonesia, based on the results of the Basic Health Research (Riskesdas), the prevalence of anemia in pregnant women was 48.9% in 2018 (Basrowi et al.). To prevent anemia in pregnant women, the government has launched a program to provide blood supplementation tablets and become one of the elements of 10 standards in antenatal care (ANC) services. However, based on research by Noptriani & Simbolon (2022) using data from the 2017 Indonesian Health Demographic Survey (IDHS), it is known that only 48.47% of pregnant women in Indonesia consumed blood supplement tablets as recommended (≥ 90 tablets). This coverage is still far from the target set by the Indonesian government in the 2017 Health Development Strategic Plan, which is a target of 90%, in 2018 of 95%, and in 2019 of 98%.

Adherence to iron tablet ingestion is crucial for the efficacy of the iron supplementation program in young women (Apriani and Syafiq). The low compliance of blood supplement tablets consumption in pregnant women can be caused by several things including dislike, nausea / vomiting due to pregnancy, boredom, forgetfulness, and the side effects of taking iron tablets (Noptriani and Simbolon). The side effects felt by pregnant women due to taking iron tablets include nausea, constipation, and other digestive disorders even though constipation is also a physiological complaint in pregnancy due to hormonal changes (Williams et al.). The existence of these things increases the non-compliance of pregnant women in taking blood supplement tablets.

In addition to the side effects of iron tablets, the role of health workers is also important to the compliance of pregnant women in taking iron tablets. Giving blood supplement tablets (TTD) to pregnant women who have low hemoglobin can be used as a reference for interventions to prevent stunting in toddlers (Sari). Health workers play a role in providing counseling/education about the importance of taking iron supplements for pregnant women to maintain maternal and fetal health. In addition, the attention given by health workers such as providing services with a smile, and providing feedback on previous visits can increase satisfaction with the services provided so that it is hoped that compliance of pregnant women in taking iron tablets can be improved (Noptriani and Simbolon).

During normal pregnancy, the female body undergoes physiological changes in almost every organ system to accommodate the growing fetoplacental unit. The hematological system of the pregnant woman's blood undergoes changes both in quantity and consistency. Prominent hematological changes in pregnant women are physiological anemia, increased plasma volume, mild thrombocytopenia, mild prothrombotic state, and in some individuals, mild neutrophilia. In addition to the above changes, maternal blood also contains a large number of other clinically significant antigens, proteins and hormones. However, physiological anemia if not treated properly can progress to pathological anemia characterized by hemoglobin levels < 10 mg/dl (Georgieff et al.). Furthermore, Iron deficiency has also been proven to impair cognitive function and physical capacities, and decrease the immune system (Aspuru et al.).

Based on the Health Belief Model theory, this theory explains that a person's health behavior is influenced by their perceptions of susceptibility to disease, the seriousness of the disease, the benefits of preventive measures, and the obstacles faced (Janz and Becker). In the case of consumption of blood supplement tablets for pregnant women, incomplete consumption can be influenced by

pregnant women's perceptions of the side effects of consuming these tablets. While in Social Cognitive Theory, a person's behavior is emphasized on the influence of the interaction between the individual, the environment, and the person's behavior. Health workers can influence the behavior of pregnant women by setting examples, providing social support, and increasing self-efficacy through education and training (Glanz et al.).

Based on this, this study aims to analyze the effect of side effects of giving iron tablets and the role of health workers on the consumption of complete iron tablets in pregnant women. Thus, the results of this study can be a recommendation to improve the quality of ANC services, especially in the implementation of blood supplementation tablets. Improving the quality of ANC services is expected to increase the coverage of complete consumption of iron tablets among pregnant women.

RESEARCH METHODS

This study is a qualitative study with a cross sectional approach to analyze the relationship between side effects of iron tablet consumption and the role of health workers with the completeness of iron tablet consumption in pregnant women in the working area of the Karang City Inpatient Health Center Bandar Lampung.

The population in this study were all pregnant women in the working area of the Inpatient Health Center of Karang City Bandar Lampung as many as 160 pregnant women. While the sample in this study were trimester 3 pregnant women in the working area of the Karang City Inpatient Health Center with a total of 115 samples. Determination of the number of samples in this study using the slovin formula with a confidence level of 5% which resulted in 114.28 and rounded up to 115 respondents. the sampling technique used was simple random sampling.

For data collection, this study used a questionnaire regarding respondents' demographic data, side effects of iron tablets, the role of health workers, and consumption of iron tablets. After data collection, data processing was carried out using SPSS. Data analysis used univariate analysis to describe data on respondents' characteristics and bivariate analysis to see the relationship between two independent variables (side effects of iron tablets and the role of health workers) with the dependent variable (consumption of complete iron tablets (90 tablets)).

RESEARCH RESULTS

After collecting the data, the following results were obtained:

Table 1
Respondent Characteristics

Respondent Characteristics (n=115)	N	%
Completeness of Fe Tablet Consumption		
Incomplete	58	50.4
Complete	57	49.6
Age		
At risk (<20 years or >35 years)	46	40
Not at risk (20-35 years)	69	60
Education		
Low (elementary and middle school)	69	60
Higher (high school and university)	46	40
Side Effects		
Yes	64	55.7
No	51	44.3
Role of Health Workers		
Poor	62	53.9
Good	53	46.1

From the table above, it can be seen that most pregnant women did not consume Fe tablets completely, as many as 58 people (50.4%). Of all respondents, 40% (46 people) of pregnant women were at high risk and 60% of pregnant women had low education, as many as 69 people. In addition, most mothers experienced side effects, as many as 64 people (55.7%) and most of the role of health workers on Fe tablet consumption in pregnant women was poor, as many as 62 people (53.9%).

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Table 2
Relationship between Side Effects and Completeness of Fe Consumption

Fe side effects	Completeness of Fe Consumption				Total		P-Value	OR
	Incomplete		Complete					
	n	%	n	%	n	%		
Yes	49	76,6	15	23,4	64	100	0.000	15,24 (6,054-38,385)
No	9	17,6	42	82,4	51	100		

From table 2. above it can be seen that out of 64 mothers experiencing Fe side effects, who consumed Fe incompletely, as many as 49 people (76.6%), while those who consumed Fe completely, as many as 15 people (23.4%). In addition, out of 51 mothers who did not experience Fe side effects, who consumed Fe incompletely, as many as 9 people (17.6%), while those who consumed Fe completely, as many as 42 people (82.4%).

The results of the analysis using chi-square, obtained P-Value = 0.000, so the P-Value < α (0.000 < 0.05) then Ho is rejected. So, it can be concluded that there is a relationship between Fe side effects and maternal compliance in the consumption of complete Fe tablets (90 tablets) in pregnant women. Based on the calculation, the Odds Ratio (OR) value = 15.24. Because the OR value (15.24) is greater than 1, it can be concluded that mothers who experience Fe side effects are 15 times more likely to be non-compliant in consuming Fe than mothers who do not experience Fe side effects.

Table 3
Relationship Between The Role of Health Workers and The Completeness of Fe Consumption

Role of Health Workers	Completeness of Fe Consumption				Total		P-Value	OR
	Incomplete		Complete					
	n	%	n	%	n	%		
Poor	51	82,3	11	17,7	62	100	0.000	30,4 (10,889-85,173)
Good	7	13,2	46	86,8	53	100		

From table 3. above, it can be seen that out of 62 mothers with the role of health workers on the consumption of Fe tablets in pregnant women is less, who consume Fe incompletely, as many as 51 people (82.3%), while those who consume Fe completely, as many as 11 people (17.7%). In addition, out of 53 mothers with the role of health workers towards the consumption of Fe tablets in pregnant women is good, who consume Fe incompletely, as many as 7 people (13.2%), while those who consume Fe completely, as many as 46 people (86.8%).

The results of the analysis using chi-square, obtained P-Value = 0.000, so the P-Value < α (0.000 < 0.05) then Ho is rejected. So it can be concluded that there is a relationship between the role of health workers and the consumption of complete Fe tablets (90 tablets) in pregnant women in the Working Area of the Karang City Inpatient Health Center Bandar Lampung. Based on the calculation, the Odds Ratio (OR) value = 30.4 was obtained. Because the OR value (30.4) is greater than 1, it can be concluded that mothers whose role of health workers towards the use of Fe was poor were 30 times more likely to be non-compliant in consuming Fe than mothers whose role of health workers towards the use of Fe was good.

DISCUSSION

Based on the results of the study in table 1, it is known that more than half of the pregnant women respondents (50.4%) did not consume Fe tablets completely. This shows that there is still a problem of compliance in consuming Fe tablets among pregnant women. This non-compliance behavior can have a negative impact on the mother and fetus in preventing complications in pregnancy, childbirth, and postpartum caused by anemia. The results of this study are in line with the research of Pant et al., (2024) which states that only 50% of pregnant women in Chepang, Nepal consumed Fe tablets. Meanwhile, only 22% took calcium tablets. In line with this study, the results of research from Dhiny Easter Yanti (2016) showed that only 50% of pregnant women at the Bernung Health Center were obedient to consume Fe tablets completely. Of the 43 pregnant women with non-compliant Fe tablet consumption, 29 (70.7%) experienced anemia. While

out of 43 pregnant women with compliant Fe tablet consumption, there were 12 (29.3%) who experienced anemia. In the other study, it states that the risk of anemia is 5.096 times in pregnant women who are not compliant in taking Fe tablets compared to those who are compliant (Chalik). There are many factors that can influence the behavior of pregnant women in consuming Fe tablets, one of which is the lack of access to health services.

In addition, the results showed that 40% (46 people) of pregnant women were included in the at-risk category. Pregnant women who are at risk if they are < 20 years old and > 35 years old. According to research by Cavazos-Rehg et al., (2015), mothers who become pregnant in this age range increase the risk of complications in pregnancy, labor, and postpartum periods such as premature birth, chorioamnionitis, endometritis, preeclampsia, hypertension, postpartum hemorrhage, stunted fetal growth, and fetal distress. Pregnancy at risk and aggravated by anemia, will increase the risk of complications that can be experienced by pregnant women. Meanwhile, a study from Wijayanti and Fitriani (2019) women of reproductive age (WORA) who suffer from anemia have an average consumption level of iron, folic acid, and zinc less than the Recommended Dietary Allowance. This study is reinforced by a study from Prihatini (2012) stating that there are significant association between anemic and frequency food consumption <=2 times for a week for meat (OR=2.819; CI=1.968-4.038), fresh fish (OR=1.641 ; CI=1.180-2.284), vegetables (OR=1.930; CI=1.360-2.739) and fruits (OR= 1.527; CI=1.161-2.437).

Seen from the level of education, as many as 60% of pregnant women have a low level of education, namely 69 pregnant women. this shows that low education contributes to the lack of knowledge about the importance of Fe supplementation and how to deal with Fe side effects that may occur. This is in line with the research of Pant et al., (2024) which states that education will empower women and increase knowledge about their reproductive health so that it will increase access to health services. The mother's level of education greatly influences how a person acts and looks for causes and solutions in their life. A highly educated person will usually act more rationally. Therefore, educated people will more easily accept new ideas. Likewise, a highly educated mother will check her pregnancy regularly to maintain the health of herself and the child in her womb (Chandra et al.). With good education, anemia in pregnant women can be prevented (Sasono et al.). In a quasi-experimental study conducted by Ekayanthi and Purnamasari found that there was a significant difference in the compliance of Fe tablet consumption and Hb levels of pregnant women in the intervention group with control after education. Another study on pregnant women at the Jambukulon Community Health Center, Klaten, stated that there was a relationship between the level of knowledge and compliance with taking iron tablets (Lutfita and Pratiwi). Fe tablets taken regularly will have a positive impact on increasing Hb levels.

Most (55.7%) pregnant women reported experiencing side effects after taking Fe tablets. Side effects experienced such as nausea and constipation caused pregnant women to be non-compliant with taking Fe tablets. This is in line with the literature which states that side effects of Fe tablet consumption are one of the main barriers to adherence to Fe tablet consumption (Williams et al.). Mothers who experience Fe side effects are an unpleasant experience. The experience will cause reluctance to repeat taking Fe tablets. This is in line with research that states that the side effects of Fe tablets have a negative relationship with the compliance of pregnant women (p=0.007). The more side effects, the less adherent the respondents tended to be (Baharini et al.).

It is known that the role of health workers on the Fe tablet consumption behavior of pregnant women is also not good, namely 53.9% (62 people) of pregnant women do not get good support from health workers. this shows the need to improve the quality of education and services by health workers. education from effective health workers can help pregnant women understand the importance of Fe supplementation during pregnancy, how to reduce the side effects of Fe tablet consumption, and strategies to improve compliance in taking Fe tablets. Another study stated that there was a significant relationship between the mother's perception of the role of health workers and the compliance of pregnant women in taking iron tablets with a p-value of 0.004 and a correlation coefficient of 0.874 (Mansoben). Another study mentioned that the role of health workers is still not optimal because some officers provide counseling without using tools or leaflets. Health workers have not recorded well in terms of recording and reporting Fe consumption, lack of monitoring by health workers about the running of the Fe program so that there are still few pregnant women who receive and consume Fe (Septiani). Furthermore, Another study stated that health education carried out by health workers in pregnant women's classes had an effect on pregnant women's compliance in consuming TTD at the UPT BLUD Meninting Health Center (Setiawati and

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Rumintang). The individualized instruction provided via a graphic guidebook on anemia, alongside the counseling intervention program, positively influenced hemoglobin and hematocrit levels in anemic pregnant women during their third trimester (Nahrisah et al.).

Mothers who have access to health care and support, for example, have been given counseling on Fe consumption during pregnancy will have better knowledge so that they will apply it in their daily behavior. In addition, pregnant women who are exposed to the role of health workers are less likely to get less information about the importance of consuming complete Fe tablets (90 tablets) during their pregnancy. So the community is expected to be more active in digging up information about their health to health workers who can help them, especially pregnant women in obtaining information about the consumption of complete Fe tablets (90 tablets). Research related to the program for providing iron supplement tablets at community health centers also shows a positive correlation between providing education through leaflets and direct explanations regarding iron supplement tablets and increasing knowledge of pregnant women (Mardiati et al.). In addition, the use of reminder boxes can increase the amount of iron tablet consumption in pregnant women (Nurbaiti).

Consuming iron tablets during pregnancy is important to support the health of placental function. Dietary iron greatly enhances reproductive success, including litter and fetal weight (Guo et al.). Daily oral iron supplementation throughout pregnancy may mitigate maternal anemia and iron insufficiency at term (Finkelstein et al.). Thus, the role of health workers in providing education about the importance of Fe tablets and its side effects is needed to raise awareness of pregnant women in increasing their health status.

CONCLUSION

From the study, it can be concluded that there is a relationship between Fe side effects and the role of health workers with complete Fe tablet consumption (90 tablets) in pregnant women. Compared to women who do not suffer Fe side effects, mothers who do are 15 times more likely to not consume Fe as directed. Furthermore, moms who perceived a negative role model for health workers in relation to the use of iron were 30 times more likely to violate iron consumption guidelines than mothers who saw a positive role model for health workers in relation to the use of iron.

SUGGESTION

To increase the coverage of complete Fe tablet consumption in pregnant women, health workers are expected to provide education related to the importance of consuming Fe tablets and how to overcome the side effects of Fe tablets. In addition, the role of officers who encourage pregnant women to consume Fe tablets will increase consumption compliance.

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