

## THE EFFECT OF COMPLIANCE WITH Fe TABLET CONSUMPTION ON Hb LEVELS OF PREGNANT WOMAN

Evita Widyawati<sup>1</sup>, Poppy Farasari<sup>2</sup>, Friska Oktaviana<sup>3</sup>

<sup>1,2,3</sup>Program studi DIII Kebidanan, STIKES Utama Abdi Husada

### ABSTRAK : PENGARUH KEPATUHAN KONSUMSI TABLET FETERHADAP KADAR Hb IBU HAMIL

Latar belakang: Defisiensi zat besi pada ibu hamil dapat mengakibatkan penurunan kadar hemoglobin, yang berdampak pada berkurangnya pasokan oksigen untuk organ-organ vital baik bagi ibu maupun janin. Oleh karena itu, asupan zat besi yang cukup sangat penting untuk mencegah anemia di kalangan ibu hamil. Tujuan: Penelitian ini bertujuan untuk mengeksplorasi pengaruh kepatuhan dalam mengonsumsi tablet besi terhadap peningkatan kadar hemoglobin. Metode: Penelitian ini dilakukan dengan pendekatan kuantitatif menggunakan desain survei analitik dan pendekatan cross-sectional. Penelitian ini dilaksanakan di wilayah kerja Puskesmas Pule Kabupaten Trenggalek, pada bulan November 2024 dengan sampel ibu hamil sejumlah 38 orang. Hasil: penelitian menunjukkan adanya pengaruh yang signifikan dari kepatuhan konsumsi tablet Fe terhadap peningkatan kadar hemoglobin dengan nilai p-value 0.003 (<0.05). Kesimpulan: Kepatuhan dalam mengonsumsi tablet besi (Fe) dapat berdampak signifikan pada kadar hemoglobin. Oleh karena itu, disarankan agar Puskesmas Puskesmas Pule, serta tenaga kesehatan lainnya, lebih mengoptimalkan pengawasan terhadap konsumsi tablet zat besi, khususnya bagi ibu hamil yang mengalami anemia.

Kata Kunci: haemoglobin, kepatuhan, tablet fe

### ABSTRACT

Background: Iron deficiency in pregnant women can result in decreased hemoglobin levels, which results in reduced oxygen supply to vital organs for both the mother and the fetus. Therefore, adequate iron intake is very important to prevent anemia among pregnant women. Objective: This study aims to explore the effect of compliance in consuming iron tablets on increasing hemoglobin levels. Method: This study was conducted with a quantitative approach using an analytical survey design and a cross-sectional approach. This study was conducted in the working area of the Pule Health Center, Trenggalek Regency, in November 2024 with a sample of 38 pregnant women. Results: The study showed a significant effect of compliance in consuming Fe tablets on increasing hemoglobin levels with a p-value of 0.003 (<0.05). Conclusion: Compliance in consuming iron (Fe) tablets can have a significant impact on hemoglobin levels. Therefore, it is recommended that the Pule Health Center, as well as other health workers, optimize supervision of iron tablet consumption, especially for pregnant women who experience anemia.

Keywords: compliance, tablet Fe, haemoglobin

### INTRODUCTION

In pregnancy, the occurrence of anemia is often associated with increasing gestational age. This condition occurs because the iron in the mother's blood must be divided to support the growth of the fetus in the womb, thus reducing the availability of iron in the mother's body (Nadiya et al., 2023). Increasing gestational age also triggers physiological changes in pregnant women, such as increasing blood plasma volume, which begins in the 6th week and peaks in the 26th week. This increase in plasma volume causes hemodilution, so that hemoglobin levels decrease. In some cases, hemoglobin levels can drop below 11 gr/dl, leading to anemia (Rizki et al., 2018).

The World Health Organization (WHO) in 2023 reported that the global prevalence of anemia reached 29.9%, with more than half a billion women aged 15–49 years experiencing anemia during pregnancy, and 29.6% among non-pregnant women of childbearing age. In pregnant women, iron deficiency anemia is also associated with negative impacts on pregnancy outcomes, such as premature birth, low birth weight, and decreased iron stores in infants, which can lead to developmental disorders (Wulan et al., 2021).

The 2023 Indonesian Health Survey (SKI) showed that 27.7% of pregnant women in Indonesia experienced anemia. This figure was highest in women of childbearing age, especially in the 15–34

age group, where 46% of them experienced anemia (Putri, 2019). Data from East Java Province shows that the coverage of pregnant women who received Fe<sub>3</sub> tablets (90 tablets) ranged from 94% in Trenggalek Regency to an average of 81%. This low coverage was caused by several factors, including inaccurate target data for pregnant women and the side effects of Fe tablets, such as nausea and vomiting (Dinas Provinsi Jawa Timur, 2022). In a study conducted by Norfai (2017) on pregnant women with anemia, it was stated that there was a significant relationship between compliance in consuming Fe tablets and the incidence of anemia, namely with a p value of 0.001.

Interviews with several pregnant women who visited the Johan Pahlawan Health Center showed that out of 10 respondents, 7 of them were not compliant in taking Fe tablets, and 6 respondents had hemoglobin levels below normal. Many pregnant women also tend to be lazy to consume iron-rich foods because they are bored or do not like the type of food. This shows that the factors of awareness and compliance in consuming Fe tablets play an important role in preventing anemia in pregnant women. The correct dosage, method, and time of consuming Fe tablets every day are the basis for compliance. Effective prevention of anemia requires the intake of Fe tablets enriched with folic acid, making it an efficient solution to increase hemoglobin levels in pregnant women (Sari & Djannah, 2020).

The main cause of anemia is iron deficiency. This condition can be caused by inadequate intake, inadequate iron absorption, increased iron requirements (growth period and pregnancy), and increased iron loss during menstruation and worm infections (Stevens et al., 2014). The high incidence of anemia in Indonesia is closely related to factors of lack of nutritious food intake and non-compliance in consuming iron supplements. The disturbing side effects of consuming iron supplements cause people to tend to reject the tablets given. This rejection stems from the lack of knowledge that during growth and pregnancy additional iron is needed, so a good approach is needed (KEMENKES, 2018). Efforts that can be made to increase compliance in consuming iron supplements include providing socialization at the beginning of activities, consuming iron supplements directly in front of officers, and sending short messages as reminders (Putri et al., 2015).

Anemia prevention can be done by consuming foods rich in iron and vitamin C, consuming TTD, and avoiding consuming foods that interfere with iron absorption (Rahmadi, 2019). Blood Supplement Tablets contain 60 mg of iron and 400 µg of folic acid, while Healthy Breakfast meets 25%

of daily needs by following a balanced nutritional pattern, namely carbohydrates (60-68%), fat (15-25%), protein (12-15%), and vitamins/minerals (UNICEF, 2019). Nutritious breakfast content is needed for sustainable energy release (Vibhute, 2019). Nutrient intake such as carbohydrates, protein, vitamin C, iron, and folic acid have their respective functions that can increase hemoglobin levels (Damayanti, 2017).

## RESEARCH METHODS

This study is a quantitative study using an analytical survey design and a cross-sectional approach. The study was conducted in the Pule Health Center Work Area, Trenggalek Regency in November 2024. The population in this study were pregnant women with inclusion criteria, namely pregnant women in Trimester 2 and 3 who checked themselves in the Pule Health Center work area, Trenggalek Regency, totaling 38 people. While the exclusion criteria in this study were pregnant women who were not willing to be respondents. The sampling technique in this study was Convenience sampling. In Convenience sampling, all subjects who came during the study and met the criteria were taken as research samples. The questionnaire in this study is a technique for collecting data on respondent characteristics and compliance of pregnant women in consuming Fe tablets. And to measure hemoglobin levels, the Esy Toch tool is used, which is a way to determine hemoglobin visually.

## RESEARCH RESULTS

**Table 1.**  
**Frequency Distribution of Age of Pregnant Women in the Working Area of Pule Health Center, Trenggalek Regency**

Age	Frequency	Percentage
17-25 tahun	11	28,9
26-35 tahun	16	42,2
36-45 tahun	11	28,9

Based on the table above, the majority of pregnant women are in the age range of 26-35 years, as many as 16 people (42.2%). Meanwhile, pregnant women with an age range of 17-25 years and 36-45 years each number 11 people (28.9%).

Based on the table above, it is known that the majority of pregnant women's education level is high school graduates, as many as 19 people (50%), while the minority are mothers with a minimum education of junior high school, as many as 5 people (13,2%).

**Table 2**  
Frequency Distribution of Pregnancy Age in the Work Area of Pule Health Center, Trenggalek Regency

Education for Pregnant Woman	Frequency	Percentage
Bachelor	8	21
Senior high school	19	50
Junior high school	6	15,8
Elementary school	5	13,2
No school	0	0

**Table 3**  
Frequency Distribution of Pregnant Women's Occupations in the Work Area of Pule Health Center, Trenggalek Regency

Education for Pregnant Woman	Frequency	Percentage
Government employees	3	7,9
Farmer	10	26,3
self-employed	8	21
Housewife	17	44,7

Based on the table above, it is known that the majority of pregnant women are unemployed or housewives (IRT), as many as 17 people (44.7%), while the minority of pregnant women work as civil servants, namely 3 people (7.9%).

**Table 4**  
Frequency Distribution of Compliance with Consumption of Fe Tablets in the Work Area of Pule Health Center, Trenggalek Regency

Category	Frequency	Percentage
obedient	15	39,5
not obey	23	60,5

Based on table 4, it can be seen that some samples are compliant, namely 15 people (39.5%), and some samples are not compliant in consuming Fe tablets, namely 23 people (60.5%). This illustrates that the consumption of iron tablets is still mostly low.

**Table 5**  
Frequency Distribution of Hb Levels in Pregnant Women in the Working Area of Pule Health Center, Trenggalek Regency

Category	Frequency	Percentage
Normal	9	23,7
Abnormal	19	76,3

Based on the table above, it is known that the iron levels in pregnant women who are classified as lacking reach 19 people (76.3%), while pregnant women with good hemoglobin (Hb) levels number 9 people (23.7%).

**Table 6**  
Frequency Distribution of the Relationship between Compliance with Consumption of Fe Tablets and Hb Levels in Pregnant Women in the Working Area of Pule Health Center, Trenggalek Regency

Compliance	Hb Level				Total		P-Value
	Normal		Abnormal		Frequency	Percentage	
	Frequency	Percentage	Frequency	Percentage			
obedient	7	46,7	8	53,3	15	39,5	0,003
not obey	1	4,3	22	96,6	23	60,5	

The results of the analysis using the Chi Square test showed that there was a relationship between Pregnant Women's Compliance in Consuming Fe Tablets and Hemoglobin Levels with the categories of compliant, non-compliant, p value = 0.003 <  $\alpha$  = 0.05.

## DISCUSSION

The results of this study indicate that there are still many pregnant women who are not compliant in consuming iron-fortified tablets, totaling 23 people (60.5%). while those who are compliant are 15 people (39.5%). If this continues to happen, it can

affect the fetus and the condition of the pregnant woman. There should be family support and consultation by health workers so that pregnant women can be compliant in consuming iron-fortified tablets. The results of Sarah and Irianto's (2018) study concluded that there is a significant relationship between the role of health workers and the behavior of pregnant women in consuming iron tablets.

Iron tablets as a supplement given to pregnant women according to the rules must be consumed every day. However, due to various reasons, for example, knowledge, attitudes,

forgetting to take TTD, and poor practices of pregnant women, side effects of iron tablets, and lack of motivation from health workers, pregnant women often do not comply with taking iron tablets. This can result in the purpose of giving iron tablets not being achieved (Izzati et al., 2021).

The results of this study indicate that there are still many pregnant women who have hemoglobin (Hb) levels <11 gr/dL and are categorized as anemia, totaling 23 people (60.5%). and levels (Hb) > 11 gr/dL totaling 15 people (39.5%). The low levels of hemoglobin can be influenced by the compliance of pregnant women, most of whom are not compliant and the consumption of foods that contain low iron and can be at risk of anemia. Anemia in pregnant women increases the risk of having Low Birth Weight (LBW), the risk of bleeding before and during childbirth and can even cause death of the mother and her baby if the pregnant woman suffers from severe anemia. The high levels of Hb <11 gr/dL in the Pule health center work area are caused by the presence of pregnant women who often consume tea/coffee, we all know that tea and coffee can inhibit the absorption of iron tablets. This is comparable to the results of a study conducted by Purnamasari et al. (2016) which showed a relationship between the habit of drinking tea and the incidence of anemia, it was seen that the proportion of anemia was higher in the elderly group who always drank tea every day (83%) compared to the elderly group who only sometimes or never drank tea (the incidence of anemia was only 15% and 11%), from the odds ratio value it can be seen that the risk of elderly who drink tea every day to suffer from anemia is 36 times greater than elderly who never drink tea. Meanwhile, in elderly who sometimes drink tea, the incidence of anemia is not significantly different from elderly who never drink tea.

The results of this study showed that pregnant women who were compliant with Hemoglobin Levels >11 gr/dL were 7 people (46.7%). and pregnant women who were not compliant with hemoglobin levels <11 gr/dL were 22 people (96.6%). Pregnancy is a time when pregnant women need additional nutrition in the form of vitamins and minerals, while the need for calories and protein is very necessary in the eighth week until birth. In addition to the pregnancy period which requires a lot of additional nutrition, mothers also need even greater additions before birth and breastfeeding. A pregnant woman who experiences malnutrition, then the baby who is born will have a low weight, get sick easily, and affect intelligence.

Based on the results of statistical tests with Chi Square  $p = 0.003 < \alpha 0.05$   $H_0$  is rejected,

meaning that there is an effect of compliance in consuming Fe tablets on hemoglobin levels in pregnant women at the Pule Health Center, Trenggalek Regency. Therefore, pregnant women are advised to comply with the consumption of Fe tablets to meet the iron needs that are not met from daily food. Lack of iron in the body can cause anemia, which has the potential to endanger the mother and fetus (Zaliyanti et al., 2024).

## CONCLUSION

The results of this study indicate a significant relationship between compliance with Fe tablet consumption and hemoglobin (Hb) levels in pregnant women in the Pule Health Center, Trenggalek Regency. A good level of compliance with Fe tablet consumption contributes positively to the Hb levels of pregnant women, thereby reducing the risk of anemia that can endanger the health of the mother and fetus. This study emphasizes the importance of awareness and discipline in consuming Fe tablets as an effective step to meet iron needs during pregnancy.

## SUGGESTION

To improve the effectiveness of the Fe tablet supplementation program, it is recommended that the Health Centers develop a more intensive educational program on the importance of Fe tablets and their impact on maternal and fetal health. In addition, monitoring of consumption compliance can be improved through a community-based approach and collaboration with families. In addition, pregnant women are expected to be more obedient in filling out the KIA book, which contains a checklist (✓) that must be filled in while consuming Fe tablets.

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