Relationship between Knowledge about Fe Tablets and the Incidence of Anemia in Pregnant Women in the Third Trimester at the Bumi Aji Health Center, Central Lampung

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ABSTRACT

Iron deficiency anemia in mothers can harm the fetus/baby's growth and development during and after pregnancy. To prevent this, every pregnant woman should take at least 90 blood supplement tablets (TTD). Iron tablets are crucial for fetal growth, as pregnancy increases the mother's blood volume, requiring more iron for nutrition and oxygen supply to the fetus. A quantitative cross-sectional design is used in this study, targeting all TM III pregnant women at the Bumi Aji Community Health Center in Central Lampung. A total of 46 individuals were selected through total sampling. Univariate analysis utilized a table of frequency distribution, and bivariate analysis was conducted using the Chi-Square test. The research results, categorized by inclusion and exclusion samples, highlighted the respondents' age and education level. A questionnaire was used to assess maternal knowledge regarding Fe tablets and their link to anemia. The study found a relationship between knowledge of Fe tablets and anemia among third trimester pregnant women at the Bumi Aji Community Health Center, Central Lampung, in 2024, using the ChiSquare method for calculations. There is a link between knowledge of Fe tablets and anemia in pregnant women in the third trimester at the Bumi Aji Health Center, Central Lampung in 2024, with an ap value of 0.008.

Keywords: Knowledge, Fe tablets, incidence of anemia, pregnant women TM III

INTRODUCTION

Anemia in pregnancy is a condition in which the mother has a hemoglobin (Hb) level below 11 gr% in the first and third trimesters, while in the second trimester the hemoglobin level is <10.5 gr%. Pregnancy anemia is called "potential danger to mother and child", therefore, anemia must receive serious attention from all parties involved in health services. (Sari et al, 2023).

Based on the data, anemia in Indonesia remains high. Riskesdas 2018 recorded a 48.9% increase, while the anemia rate in Lampung in 2012 was 35.89% and in Central Lampung 15.39%. In September 2023, out of 32 pregnant women at the Bumi Aji Health Center, 18 (56.25%) experienced anemia even though 100% received iron tablets.

Globally, 41.8% of pregnant women suffer from anemia, while in Asia, the figure is higher, at 48.2%. The rate of anemia cases in Indonesia increased from 37.1% in 2013 to 48.9% in 2018, according to Basic Health Research conducted in 2018 (Indonesian Health Office, 2019).

The prevalence of anemia in pregnant women in Lampung Province is still considered high, reaching 33.29%.(Lampung Provincial Health Office, 2019). This province ranks first in Sumatra in terms of the number of anemia cases. The incidence of anemia among pregnant women reaches 67%, which is higher than the national average of 63.5%. Factors that cause anemia include lack of food intake, infection, inadequate diet, poor sanitation, and low levels of education and economy.

Pregnant women who experience iron deficiency anemia can have a negative impact on the growth of their fetus and baby. During pregnancy, pregnant women are advised to consume at least ninety iron tablets (TTD) every day., These tablets are very important for fetal development because during pregnancy the mother's blood volume increases. Higher iron requirements are needed to meet the mother's needs and provide nutrients and oxygen to the fetus. In 2019, 64% of pregnant women in Indonesia received TTD, with North Sulawesi recording the highest figure at 100.1%. (Indonesian Health Office, 2019).

The impact of anemia on pregnant women can increase the possibility of premature birth, as well as increase the risk of death for both mother and child, and also increase the chances of infectious diseases. In Indonesia, the maternal mortality rate has decreased from 4,226 cases in 2018 to 4,221 cases in 2019. In 2019, the main causes of maternal death were bleeding, hypertension that occurs during pregnancy, and infection. In Lampung province, maternal deaths in 2019 increased from 102 to 110 cases, with the main causes being bleeding, hypertension, infection, and other health disorders(Lampung Provincial Health Office, 2019).

The trend of Ferrum (Fe) tablet use among pregnant women in Lampung Province in 2019 showed an increase compared to the previous year. In 2017, the coverage reached 89.1%, increased to 90.1% in 2018, and reached 98.7% in 2019, which has met the target of more

than 95% for Fe3. The provision of Ferrum is highly dependent on the compliance of pregnant women in consuming it, which is influenced by family support and the role of health workers. The highest achievement for Fe3 was recorded in Pringsewu, Pesawaran, and Metro City Regencies, while the lowest achievement was in Way Kanan Regency(Lampung Provincial Health Office, 2019).

The low knowledge of pregnant women about Ferrum (Fe) tablets is one of the many factors associated with the emergence of anemia during pregnancy. This study found that out of 32 pregnant women in the third trimester, only 10% had a deep understanding of anemia and the use of iron tablets. As many as 46.7% had poor knowledge. Analysis Chi-square analysis confirmed a significant relationship between knowledge and compliance in taking Fe tablets ($p = 0.000$), confirming that low knowledge contributes to low compliance and a higher risk of anemia(Rosnidar et al, 2025).

As health workers, midwives require government permits to carry out health actions, as stipulated in Article 1 point 1 of Law Number 36 of 2014 which defines health workers. Article 61 letter a of Law Number 4 of 2019 concerning Midwifery states that midwives must provide services according to their competence and comply with the code of ethics. The authority of midwives is regulated in Article 18 of the Minister of Health Regulation No. 28 of 2017 and the Minister of Health Decree No. 369 of 2007 which stipulates the professional standards of midwives.

Based on the results of a pre-survey in September 2023 by the Bumi Aji Health Center, Central Lampung, out of 32 pregnant women, 18 (56.25%) had anemia. The researcher is interested in raising the title "The Relationship between Knowledge of Fe Tablets and the Incidence of Anemia in Pregnant Women in the Third Trimester at the Bumi Aji Health Center, Central Lampung".

METHOD

The method consists of This study uses a quantitative design with a Cross Sectional approach and Total Sampling method. The focus of the study was 46 third trimester pregnant women at the Bumi Aji Health Center, Central Lampung, during October to December.

Inclusion in this study included pregnant women who were willing to participate as respondents, pregnant women who were willing to undergo hemoglobin (Hb) level examination, pregnant women who had a Maternal and Child Health (KIA) book, and

pregnant women in the third trimester who had undergone previous examinations. Meanwhile, exclusion in this study included pregnant women who withdrew during the research process, pregnant women who were unable to communicate effectively, and pregnant women who suffered from chronic diseases. The instrument used in this study was a questionnaire.

This study was conducted at Bumi Aji Health Center, Central Lampung, during the period of August 2023 to February 2024. Bivariate analysis in this study used the Chi Square test. This study has also received approval from the Health Research Ethics Committee of Stikes Guna Bangsa Yogyakarta with registration number 045/KEPK/VI/2024.

RESULTS AND DISCUSSION

Univariate Analysis

a. **Respondent Characteristics**

Table 1. Respondent characteristics

Characteristics	N	%
Mother's Age		
>20 years	4	8.7
20-35 years	38	82.6
>35 years	4	8.7
Total	46	100
Last education		
SD	4	8.6
JUNIOR HIGH SCHOOL	16	34.7
High School/Vocational School	21	45.6
College	5	10.8
Total	46	100

Source: Primary Data 2024

Table 1 indicates that the majority of pregnant women are in the age range of 20-35 years, with a percentage reaching 82.6%. In addition, the most common last education among pregnant women is high school/vocational school level, which covers 45.6% of the total.

b. Anemia in Pregnant Women

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Anemia	26	56.5	56.5	56.5
	No Anemia	20	43.5	43.5	100.0
	Total	46	100.0	100.0	

Table 2. Proportion of Anemia Incidence in Pregnant Women

Source: Primary Data 2024

From the table presented, it can be seen that there were 26 respondents (56.5%) of pregnant women in the third trimester who experienced anemia, while 20 respondents (43.5%) did not experience anemia.

c. Level of Understanding Regarding Iron Tablets on Anemia Incidents

Table 3. Proportion of Knowledge Level About Fe Tablets to Anemia Incidence in Pregnant Women in TM III

Variables	N	%
Not good	24	52.2
Good	22	47.5
Total	46	100

Source: Primary Data 2024

From the table presented, it can be seen that there are 24 respondents (52.2%) of pregnant women in the third trimester who have poor knowledge, while 22 respondents (47.8%) have good knowledge.

Bivariate Analysis

The bivariate analysis applied in this study aims to evaluate the relationship between the level of knowledge and the incidence of anemia in pregnant women in Trimester III, using the Chi Square test.

a. The relationship between understanding of Fe tablets and the prevalence of anemia in pregnant women in the third trimester.

Table 4. Relationship between Knowledge Level and the incidence of anemia

Anemia Knowledge	Anemia Occurrence						P Value
	Anemia		No Anemia		Total		
	n	%	**n**	%	**n**	%	
Good	8	36.4	14	63.6	22	100	
Not good	18	75.5	6	25	24	100	0.008
Total	26	56.5	20	43.5	46	100	

Source: Primary Data 2024

The data showed that among pregnant women in the third trimester with poor knowledge, 18 respondents (75.0%) experienced anemia, while 6 respondents (25.0%) did not. In the group with good knowledge, 8 respondents (36.4%) experienced anemia and 14 respondents (63.6%) did not. There was a significant relationship between knowledge about iron (Fe) tablets and the incidence of anemia in pregnant women in the third trimester, as indicated by the p value which was smaller than 0.05 from the chi square analysis.

DISCUSSION

Respondent Characteristics

The number of this study was 46 respondents with age and education characteristics. Age less than 20 years 8.7% (4 respondents), age 20-35 years 82.6% (38 respondents), age > 35 years 8.7% (4 respondents). The last education consisted of elementary school 8.6% (4 respondents), junior high school 34.7% (16 respondents), high school / vocational school 45.6% (21 respondents), college 10.8% (5 respondents).

This research is based on previous research findings, namelyDiamond, (2023)Most women are married and pregnant at least once in their lives, with the ideal age range for pregnancy between 20 and 35 years. Pregnancy at a young age can result in competition for nutritional fulfillment between the mother and fetus, and increase the risk of chronic energy deficiency (CED) in younger mothers by up to 3.7 times. The majority of respondents had their last education at the Senior High School (SMA) level.

According toDiamond (2023), Higher education levels are associated with better ability to filter information. Lawrence Green's theory states that education can change behavior, so that highly educated individuals tend to be better at maintaining health. Education is closely related to awareness and knowledge, while low-educated individuals often lack both in relation to health behavior.

Based on the research results and supported by several previous studies, the author concludes that age influences the incidence of anemia and education level influences the level of knowledge and lifestyle.

1. **Proportion of Anemia Incidence in Pregnant Women in the Third Trimester at Bumi Aji Health Center, Central Lampung**

Based on the results of data analysis, it is known that pregnant women in the third trimester who experience anemia are 56.6% (26 respondents). This proportion is lower compared to the results of 47.1% (16 respondents) in the study.Damanik, et al (2025).

Based on the latest data, the coverage of iron supplementation (Fe) tablets for pregnant women in Lampung Province shows a significant increasing trend. According to the Lampung Provincial Health Office, the coverage of pregnant women who received 90 Fe tablets in 2020 reached 92.02%, an increase from 93.9% in the previous year. Although there was a slight decrease, this achievement still exceeded the national target of 80% (Ayati, et al, 2024).

Looking at the percentage of pregnant women who receive iron tablets (TTD), every pregnant woman should not experience anemia. However, there are still many cases of anemia due to lack of knowledge about iron tablets. Mothers feel that knowledge can only be obtained at school, whereas knowledge can also come from the environment, media, family support, and counseling. Suggestions for health workers are to provide counseling about the importance of taking iron tablets during pregnancy.

2. **Percentage of Pregnant Women in the Third Trimester Who Understand Fe Tablets at Bumi Aji Health Center, Central Lampung**

In the study you mentioned, 52.2% (24 out of 46 respondents) of pregnant women in their third trimester had poor knowledge about anemia. This figure is lower than the results of another study involving 34 respondents, where 61.8% (21 respondents) had poor knowledge.

Research byLydia et al (2024)at the Singkawang Barat II Health Center, Singkawang City, West Kalimantan, showed that of the 54 respondents, 15% had poor knowledge, 65% sufficient, and 20% good knowledge regarding anemia in the third trimester of pregnancy.(Lydia et al, 2024).

Factors that influence knowledge can be divided into two categories, namely internal factors that include education, work, and age, and external factors that include the environment and socio-cultural aspects. Knowledge leads to the adoption of new behavior that is sustainable if it is based on knowledge, awareness, and positive attitudes.(Nisa et al, 2023).

4. There is a correlation between knowledge about iron tablets and the frequency of anemia in pregnant women in Trimester III

Based on the results of the study, there is a relationship between understanding of Fe tablets and the incidence of anemia in pregnant women in the third trimester at the Bumi Aji Anak Tuho Health Center, Central Lampung, with a ρ value of 0.008 (pv ≤ 0.05). This indicates a significant relationship between maternal knowledge and the incidence of anemia.

Healthy behavior according toHayden, (2022)Everything that affects a person's physical, mental, emotional, psychological, and spiritual aspects is referred to as a factor that influences health. Gochman defines healthy behavior as an individual's characteristics that contribute to health and the recovery process. Health behavior includes a variety of actions taken by individuals or groups to maintain and improve health, including disease prevention, early detection, treatment, pain management, and optimization of health workers. These behavioral changes can occur at the individual, organizational, community, or population level.

One of the crucial factors in health behavior is the compliance of pregnant women in consuming iron (Fe) tablets. The understanding of pregnant women about anemia and the significance of consuming Fe tablets plays a very important role in determining the level of compliance. A study at the Pemurus Baru Health Center, Banjarmasin, showed that the level of knowledge of pregnant women about anemia was closely related to their behavior in maintaining health, including compliance in consuming Fe tablets correctly to prevent anemia (Hartini et al, 2025).

Based on the study, there are still pregnant women who do not know much and experience anemia during the third trimester. Poor knowledge causes many pregnant women to not

comply with the use of Fe tablets. The advice given to health workers, especially midwives, is to increase screening and routine antenatal care examinations with 10T standards, especially laboratory examinations, and to increase health promotion programs about the importance of consuming Fe tablets.

CONCLUSION AND SUGGESTIONS

Based on research at the Bumi Aji Health Center, Central Lampung in 2024 with 46 respondents, most pregnant women were aged 20-35 years (82.6%) and had a high school/vocational high school education (45.6%). The proportion of anemia in pregnant women reached 56.5% and knowledge about Fe tablets was poor at 52.5%. There was a significant relationship between knowledge about Fe tablets and anemia with a p value of 0.008.

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