THE EFFECT OF GIVING FE TABLET AND AMBON BANANA ON INCREASING HEMOGLOBIN LEVELS OF THIRD TRIMESTER PREGNANCY WOMAN WITH ANEMIA

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ABSTRACT

Introduction : Anemia in pregnancy is the condition of the mother with Hb levels below 11 g% in the first and third trimesters or levels < 10.5 g% in the second trimester. The aim is to give tablets of Fe and Ambon bananas to increase hemoglobin levels in pregnant women with anemia in the third trimester. Methods: Analytical design approach Quasy Experiment, the independent variables are Fe tablets and Ambon banana, dependent on the increase in hemoglobin levels. The population of pregnant women with anemia in the third trimester at Polindes Mondokan was 18 people and a sample of 16 respondents. Simple random sampling technique and collection of pre-post test Hb data, McNemar statistical test. Result&Analysis : The results of the study using SPSS for windows with a significance level of = 0.005 obtained p value = 0.031. Discussion : It was concluded that there was an effect of giving added tablets of Fe and Ambon bananas to the increase in hemoglobin levels in pregnant women with anemia in the third trimester. Giving of Fe tablets together with Ambon Banana was more effective in increasing hemoglobin levels.

Keywords: Tablets of Fe; Hemoglobin; Ambon Banana; Pregnant; Anemia

1. INTRODUCTION

Pregnancy is a process of fertilization in order to continue the naturally occurring offspring, producing a fetus that grows in the mother's womb (Ministry of Health RI, 2018). Pregnancy is also a unique natural condition because although it is not a disease, it often causes complications due to various anatomical and physiological changes in the mother's body.

Hemoglobin is a protein rich in iron, has an affinity for oxygen and with oxygen it forms oxyhemoglobin in red blood cells. Through this function oxygen is carried from the lungs to the tissues throughout the body, if the Hb level is <12 gr% it is called anemia (Anggraeni, 2020).

Anemia during pregnancy can cause several negative effects on mother and child such as fatigue, impaired immune function, poor work capacity and increased risk of heart disease. In addition, anemia during pregnancy will increase the risk of premature birth and low birth weight (LBW), which are the main causes of death in neonates (Stephen et al, 2018).

The results of the 2018 Riskesdas stated that in Indonesia 48.9% of pregnant women had anemia. As much as 84.6% of anemia in pregnant women occurs in the age

group of 15-24 years. To prevent anemia, every pregnant woman is expected to receive iron tablets (TDD) of at least 90 tablets during pregnancy (Indonesian Health Profile, 2020).

Based on data from the 2020 Indonesia Health Profile report, the administration of Fe-3 in Indonesia in 2018 was 81.16%, in 2019 it was 64.0%, in 2020 it was 83.6%, there was an increase even though it had not met the target of 98%. The provision of Fe-3 in East Java Province in 2018 amounted to 90.8%, the achievement in 2019 was 95% there was an increase even though it had not met the target of 98%, but in 2020 it decreased to 88.9%.

There are two efforts made to prevent and treat anemia, namely pharmacology by consuming Fe tablets and non-pharmacological therapy. Ambon banana is a non-pharmacological therapy which is consumed as a staple food in the tropics. Consuming bananas can be a solution for pregnant women who experience anemia. By consuming 2 bananas every day is very beneficial for pregnant women, the point is to help overcome anemia. Moreover, bananas contain folic acid which is easily absorbed by the fetus through the uterus. Folic acid (Vitamin B6) 0.4 mg is a type of vitamin that dissolves in water and is naturally contained in food (Hardiani, 2020).

Prevention of anemia during pregnancy is carried out by administering Fe tablets for 90 days at a dose of 60 mg from the government. However, fulfilling iron needs with oral iron causes many side effects, such as nausea, dyspepsia, and constipation which cause discomfort in pregnant women (More, 2014). Therefore, dietary adjustments are no less important because iron is more easily absorbed from direct food than oral iron. Thus, it needs to be supported with a nutritional pattern that contains several intermediate compounds needed in the synthesis of hemoglobin (Adriani and Wirjatmadi, 2016).

Bananas are the best food because they contain vitamins needed by pregnant women. Bananas are sufficient to meet the iron intake of anemic patients. Bananas contain a lot of folic acid or water-soluble vitamin B6, which is needed to make nucleic acids and hemoglobin in red blood cells. Bananas enriched with vitamin B6 can neutralize stomach acid and improve digestion. In addition, bananas contain 467 mg of potassium, and pregnant women need 2000 mg of potassium every day. Leg cramps, one of the most unpleasant symptoms during pregnancy, can be relieved by increasing your potassium intake. By consuming 2 bananas every day is very beneficial for pregnant women, the point is to help overcome anemia (Sunarjono, 2015).

Ambon banana (Musa Paradisiaca AAA/Pisang Ambon) has many advantages that are beneficial to humans. The most popular fruit around the world after apples and oranges and can be found in Asia, including Indonesia (Yuliarti, 2011). Ambon banana is the most preferred banana because it has a sweeter taste, better texture and sharper aroma when compared to other bananas that can be eaten directly. Ambon bananas have been widely consumed by the public without having side effects, apart from that, Ambon bananas have a higher

potassium content and lower sodium than other bananas (Almatsier in Kurnia, 2019).

Musa Paradisiaca AAA (Pisang Ambon) is one type of food that can be consumed because it is rich in iron and also vitamin C. Vitamin C is needed in the absorption of iron, thus vitamin C plays a role in the formation of hemoglobin, thereby accelerating the healing of anemia (Mahardika1, N and Zuraida, R, 2016). Ambon banana is a snack that can be consumed at all ages without having side effects, besides being easy to obtain and relatively cheap compared to other fruits.

Seeing this phenomenon, the researchers concluded that treating anemia in pregnancy is not enough by simply administering iron tablets. Collaboration is needed between the government, health workers and the community to maximize the iron provision program. Besides that, the role of the family is also very important in supervising pregnant women in their families in consuming iron tablets (Nugraha etc, 2020).

Based on the description above, a study was carried out on "The effect of giving Fe tablets and Musa Paradisiaca AAA (Pisang Ambon) on ncreasing hemoglobin levels in anemic pregnant women in the third trimester (at the Mondokan Polindes, Tuban Regency)"

2. METHOD AND ANALYSIS

This research is an experimental research with pre-post control group design. The research was conducted at the Mondokan Polindes, Tuban Regency. The population in this study were all pregnant women with anemia in their third trimester who checked at the Mondokan Polindes, Tuban Regency, August 10 - September 10, 2022, as many as 17 people. The sample size in this study used simple random sampling calculated using the formula obtained. Some pregnant women with anemia in their third trimester at the Mondokan Polindes, Tuban Regency, 10 August - 10 September 2022, as many as 16 people who met the inclusion criteria.

The independent variable in this study was giving Fe Tablets and Ambon Banana. The dependent variable in this study was an increase in hemoglobin levels.

Data analysis in this study used computer aids with the SPSS for Windows program consisting of univariate analysis and bivariate analysis. Univariate analysis was carried out by making a frequency distribution of each variable and the characteristics of the respondents. Bivariate analysis was carried out to examine the effect between two variables, namely each independent variable and the dependent variable. The statistical test used is the Wilcoxcon test by calculating the OR. The confidence level was determined by p = 0.05 with a 95% CI.

3. RESULT AND DISCUSSION

Table 1 Distribution of Respondents Based on Age at the Mondokan Polindes, Tuban Regency in 2022

Age of Pregnancy Woman on Third Trimester	N	%
< 20 years old	2	12,5
21-35 years old	12	75,0
> 35 years old	2	12,5
Total	16	100

Source : Primary Data, 2022

Table 1 shows that most pregnant women with anemia in their third trimester at the Mondokan Polindes, Tuban Regency, are aged 21-35 years, namely 12 respondents (75.0%), while a small proportion are >35 years old, namely 2 respondents (12.5%).

Table 2. Distribution of Respondents Based on Education Level at the Mondokan Polindes, Tuban Regency in 2022

Education	N	(%)
Elementary	0	0
Junior High School	6	37,5
Senior High School	7	43,8
College	3	18,8
Total	16	100

Source : Primary Data, 2022

Table 2 shows that almost half of pregnant women with anemia in their third trimester at the Mondokan Polindes, Tuban Regency, have high school education, namely 7 respondents (43.8%), while a small proportion have higher education, namely 3 respondents (18.8%).

Table 3 Distribution of Hemoglobin Levels Before Treatement on Intervention Group at the Mondokan Polindes, Tuban Regency in 2022

Hb Levels	Intervention Group	
	Pre test	%
Light Anemia	6	75
Moderate Anemia	2	25
Total	8	100

Source : Primary Data, 2022

Based on table 3, it shows that most of the hemoglobin levels of third trimester pregnant women experienced mild anemia as many as 6 respondents (75%) and a small proportion of hemoglobin levels in third trimester pregnant women experienced moderate anemia as many as 2 respondents (25%).

Table 4. Distribution of Hemoglobin Levels Before Treatment In The Control Group At The Mondokan Polindes, Tuban Regency in 2022

Hb Levels	**Control Group**	
	Pre test	**%**
Light Anemia	7	87,5
Moderate Anemia	1	12,5
Total	**8**	**100**

Source : Primary Data, 2022

Table 4 shows that most of the hemoglobin levels of third trimester pregnant women experienced mild anemia as many as 7 respondents (87.5%) and a small proportion of hemoglobin levels in third trimester pregnant women experienced moderate anemia as many as 1 respondent (12.5%).

Table 5 Distribution of Hemoglobin Levels After Treatment in The Intervention Group At The Mondokan Polindes, Tuban Regency In 2022

Hb Levels	Intervention Group	
	Post test	Presentase (%)
Increased	8	100
Total	8	100

Source : Primary Data, 2022

Based on table 5, it shows that all hemoglobin levels in third trimester pregnant women increased by 8 respondents (100%).

Table 6 Distribution of Hemoglobin Levels After Treatment In The Control Group At The Mondokan Polindes, Tuban Regency In 2022

Hb Levels	Control Group	
	Post test	%
Unincreased	2	25
Increased	6	75
Total	8	100

Source : Primary Data, 2022

Table 6 shows that most of the hemoglobin levels in third trimester pregnant women increased by 6 respondents (75%) and a small proportion of hemoglobin levels in third trimester pregnant women did not increase by 2 respondents (25%).

Table 7 Cross-Tabulation of Hemoglobin Levels In Third Trimester Anemic Pregnant Women Before And After Treatement At The Mondokan Polindes, Tuban Regency In 2022

Hb Levels Before Treatement		Hb Levels After Treatement				Total	
		Unincreased		Increased			
		N	%	N	%	N	%
Intervention	Mild Anemia	2	28,6	6	100	6	100
	Moderate Anemia			2	100	2	100
Control	Mild Anemia			5	71,4	7	100
	Moderate Anemia			1	100	1	100
	Total	2	28,6	14	87,5	16	100

McNemar Test; pre-post control p=0,062 dan *pre-post* intervention p=0,031

Source : Primary Data, 2022

Based on table 7, it shows that all intervention groups of pregnant women with anemia in the third trimester had mild anemia and after being given iron tablets plus vitamin C increased by 6 respondents (100%) and almost half of the control group had mild anemia and after being given iron tablets did not increase as much as 2 respondents (28.6%).

The results of the analysis of the McNemar test pre-post control p = 0.062> 0.05 and pre-intervention p = 0.031 <0.05, which means that H0 is rejected and H1 is accepted. So it can be concluded that statistically there is an effect of giving iron tablets plus vitamin C on increasing hemoglobin levels in pregnant women with anemia in the third trimester.

The results of the McNemar test analysis, the effect of Fe tablets and Ambon bananas on increasing hemoglobin levels in third trimester anemic pregnant women showed that the significant value was pre-post control p=0.062 more than α=0.05 and pre-intervention p=0.031 less than α=0.050. So, it can be concluded that statistically there is an effect of giving Fe tablets and Ambon Bananas more effectively than just giving Fe tablets.

DISCUSSION

Hemoglobin Levels on Third Trimester of Pregnancy Women with Anemia in the Treatment Group Before Intervetion

The results showed that most of the hemoglobin levels of third trimester pregnant women experienced mild anemia as many as 6 respondents (75%) and a small proportion of hemoglobin levels in third trimester pregnant women experienced moderate anemia as many as 2 respondents (25%).

Many pregnant women get fe tablets but there are still pregnant women who suffer from anemia even though they have been given fe tablets, this is due to several factors, one of which is the last education factor for pregnant women at the Mondokan Polindes. Nearly half of the mothers have junior high school education, so it is a little difficult for mothers to understand the education

provided midwives or health workers about how to consume fe tablets.

Anemia is a condition of decreased hemoglobin, hematocrit and red blood cell counts below the normal value set for individuals (Arisman, 2010). Anemia is a condition where the hemoglobin level is low due to a pathological condition. Iron deficiency is one of the causes of anemia but not the only cause of anemia.

Iron deficiency anemia is anemia that occurs due to lack of iron in the blood. The treatment is for pregnant, non-pregnant and lactating women who require iron intake, it is recommended to be given Fe tablets. To establish the diagnosis of iron deficiency anemia is done by anamnesis. The need for iron in pregnant women is on average close to 800 mg.

Many pregnant women get Fe tablets but there are still pregnant women who suffer from anemia even though they have been given Fe tablets, this is due to several factors, including mothers who do not understand how to take Fe tablets. It is better if Fe tablets are consumed after eating and drinking, Fe tablets are not recommended together with taking supplements containing calcium or high-calcium milk, coffee and tea because iron absorption will be disrupted because it can bind Fe thereby reducing the amount of absorption (Amperaningsih, 2011). Consuming iron can cause constipation and discoloration of feces to darken. Suggest consuming iron followed by vegetables to increase iron absorption. Giving iron should not be more than 6 months if done without a doctor's supervision.

From these factors, according to the researchers, what pregnant women can or should do to prevent anemia during pregnancy is raising awareness to consume nutritious food, take Fe tablets regularly, seek information (sharing) with family, experienced friends or consult health workers.

Hemoglobin Levels on Third Trimester Pregnant Women with Anemia in the Control Group Before Intervention

The results showed that most of the hemoglobin levels of third trimester pregnant women experienced mild anemia as many as 7 respondents (87.5%) and a small proportion of hemoglobin levels in third trimester pregnant women experienced moderate anemia as many as 1 respondent (12.5%).

Hemoglobin is a protein in erythrocytes that functions as a carrier of oxygen from the lungs throughout the body. Hemoglobin also transports carbon dioxide back to the lungs to be removed from the body. In pregnant women there is an increase of 30% to 40% of plasma volume in the blood, resulting in blood dilution (hemodilution) (Hoffbrand, 2018).

The increase in blood plasma volume occurs before the production of red blood cells. This condition causes a decrease in Hb and hematocrit levels in the first and third trimesters (Wiknjosastro, 2016). An increase in blood plasma volume in pregnant women causes hemodilution which physiologically aims to increase the work of the mother's heart. Hemodilution occurs from 10 weeks of gestation and reaches its peak at 32-36 weeks of gestation. If the mother's hemoglobin before pregnancy was around 11 gr/dl, then

the occurrence of hemodilution will result in anemia and the mother's hemoglobin will be 9.5-10 gr/dl, resulting in a decrease in hematocrit of 20-30% which results in hemoglobin and hematocrit levels lower than in the non-pregnant state.

Factors of age, diet, disease can affect hemoglobin levels in the third trimester of pregnant women. Lack of information, mental readiness in the pregnancy process that pregnant women will face triggers hemoglobin levels which are influenced by fear, worry about complications, and even other possibilities that can occur. Therefore, midwives must provide education or information on the importance of consuming fe tablets so that the possible impact of anemia does not occur or utilize digital technology such as cellphones to find out information other than what is provided by the midwife.

Hemoglobin Levels on Third Trimester of Pregnany Women in the Intervention Group After Intervention

The results showed that all hemoglobin levels in third trimester pregnant women increased by 8 respondents (100%).

This is in accordance with the results of the study where patient I initially had Hb 9.7 g/dl and after administration it became 11.3 g/dl with a difference in increase of 1.6 g/dl, and patient II Hb was originally 8.8 g/dl and after administration to 9.9 g/dl with a difference in increase of 1.1 g/dl. This is in line with previous research which concluded that consuming 2 bananas every day is very beneficial for pregnant women, the point is to help overcome anemia (A.A Luthbis, et al, 2020).

The results of this study are in line with the theory that bananas are the best food because they contain vitamins needed by pregnant women. Bananas are sufficient to meet the iron intake of anemic patients. Bananas contain a lot of folic acid or water-soluble vitamin B6, which is needed to make nucleic acids and hemoglobin in red blood cells. By consuming 2 bananas every day is very beneficial for pregnant women, the point is to help overcome anemia (Sunarjono, 2015).

Ambon banana (Musa Paradisiaca AAA/Pisang Ambon) is used as a traditional medicine which is known for its properties to make skin appear whiter. Empirically, Ambon bananas are efficacious for preventing heart disease, lowering high blood pressure, treating intestinal and liver sufferers and consuming Ambon bananas is also very good for pregnant women, because the folic acid content found in Ambon bananas is easily absorbed through the fetus, and is good for consumption. by diabetics. It is also efficacious for blood booster for people with anemia. Where in bananas there is quite high iron, so consuming bananas will help stimulate the production of hemoglobin in the blood (Effendi, 2009).

Iron deficiency, can be done with treatment easily and inexpensively. Consuming two bananas a day is an alternative that can meet the needs of iron intake for anemic patients. Giving iron (Fe) tablets and Ambon bananas is more effective in increasing Hb levels in pregnant women than just giving Fe tablets (Aisya, 2019). Pregnant women need the best food that contains lots

of vitamins needed by the body by consuming bananas.

Thus, nutritionist, midwives or health workers give fe tablets and direct them to consume Ambon bananas so that iron absorption can be maximized, it is recommended to eat Ambon bananas 2 times in the morning and evening so that they can help the absorption process.

Hemoglobin Levels on Third Trimester of Pregnany Women with Anemia in the Control Group After Intervention

The results showed that most of the hemoglobin levels in third trimester pregnant women increased by 6 respondents (75%) and a small proportion of hemoglobin levels in third trimester pregnant women did not increase by 2 respondents (25%).

This is consistent with the theory that giving Fe supplementation will improve oxygenation in cells for the better, metabolism will increase and cell function will be optimal so that food absorption becomes better (Gutri, 1989 in Jukarnain, 2013).

This is consistent with the theory that giving Fe supplementation will improve oxygenation in cells for the better, metabolism will increase and cell function will be optimal so that food absorption becomes better (Gutri, 1989 in Mulyawati, 2003). Iron has several essential functions in the body, namely as a means of transporting oxygen from the lungs to the body's tissues, as a means of transporting electrons within cells, and as an integrated part of various enzyme reactions in the body's tissues. Even though there is a lot of it in food, many of the world's population suffer from iron deficiency, including in Indonesia. This iron deficiency can affect work productivity, cognitive performance and the immune system. Iron in food is in the form of heme iron such as hemoglobin and myoglobin in animal foods. Heme iron is absorbed into the cell mucosa as an intact porphyrin complex. The porphyrin ring in the mucosal cells is then broken down by special enzymes (hemoxygenases) and iron is released. Heme and non-heme iron then pass through the same pathway and leave the mucosal cells in the same form using the same conveyance. Absorption of heme iron is not much affected by food composition and gastrointestinal secretions as well as by a person's iron status. Hem iron is only a small part of the iron obtained from food (approximately 5% of total food iron), especially in Indonesia, but that can be absorbed up to 25%, while non-hem is only 5% (Almatsier, 2001).

According to the researchers, there are several factors that affect hemoglobin levels, namely iron adequacy and iron metabolism in the body. Therefore, in fulfilling nutrition in pregnant women for iron adequacy, sufficient iron intake is needed, this iron can be obtained from Ambon bananas and for iron metabolism, especially for iron absorption, fruits that contain vitamin C are needed, namely Ambon bananas which are very good to help increase the absorption of iron in the body so that hemoglobin levels in pregnant women will increase.

Based on the results of this study, the researchers assumed that giving fe tablets had been proven effective in helping to increase hemoglobin levels in anemic pregnant women within 14 days. However, increasing the hemoglobin level of anemic pregnant women using Fe

tablets is still too slow in increasing the hemoglobin level of pregnant women.

The Effect of Giving Fe Tablet and Ambon Bananas (Musa Paradisiaca AAA) on Increasing Hemoglobin Levels of Third Trimester Pregnancy Women with Anemia

Based on the results of statistical test analysis on hemoglobin levels of anemic pregnant women in the third trimester before and after being given fe tablets and Ambon bananas, the respondents showed that there was a significant difference between before and after receiving treatment using the McNemar test, $p = 0.062 > \alpha$ (0.05) in control group and $p = 0.031 < \alpha$ (0.05) in the intervention group. This means that there is an effect of Fe tablets and Ambon bananas on increasing hemoglobin levels in third trimester anemic pregnant women at the Mondokan Polindes, Tuban Regency. Before being given Fe tablets and Ambon bananas, hemoglobin levels showed that all intervention groups of pregnant women with anemia in third trimester had mild anemia and after being given Fe tablets and Ambon bananas, there was an increase of 6 respondents (100%) and almost half of the control group had mild anemia and after being given blood supplement tablets did not increase by 2 respondents (28.6%). This means that giving Fe tablets and Ambon bananas is effective in increasing hemoglobin levels in anemic pregnant women.

The results of this study are in accordance with the results showing that the average hemoglobin level of pregnant women in the third trimester before being given Ambon bananas was 9.333 gr/dl and after being given Ambon bananas was 10.933 gr/dl the difference was 1.9 gr/dl and there was a significant effect of giving bananas. Ambon with hemoglobin levels of pregnant women before and after being given Ambon bananas (Achmad A. in Hardiani, 2020).

The results of the study showed an increase in Hb levels by giving Ambon bananas 2 times a day in the morning and evening together with consuming Fe tablets. Fe tablets are mineral tablets needed by the body for the formation of red blood cells. This is in accordance with the theory that one of the therapies to increase Hb levels for third trimester pregnant women with anemia is by giving bananas which are the best food because they contain vitamins needed by pregnant women. Bananas are sufficient to meet the iron intake of anemic patients and also to increase energy (Anggrianto, 2019). Bananas contain a lot of water-soluble folic acid or vitamin B6, which is needed to make nucleic acid and Hb in red blood cells. Vitamin B6 in bananas can neutralize stomach acid and improve digestion. Bananas contain 467 mg of potassium, and every day pregnant women need 2000 mg of potassium. Leg cramps are one of the most unpleasant symptoms during pregnancy, so you need to increase your potassium intake. By consuming 2 bananas every day is very beneficial for pregnant women, the point is to help overcome anemia (Sunarjono, 2015)

Increased hemoglobin levels can be helped by the strictness of pregnant women in consuming Fe tablets and vitamin C during pregnancy at least 90 tablets based

on knowledge, motivation and family assistance. In addition, counseling in the form of leaflets regarding the benefits and how to use iron tablets and vitamin C is good and right. Furthermore, pregnant women are educated about foods that can inhibit the absorption of added blood such as phytate (nuts, seeds), vegetable protein in soybeans, other legumes, calcium in milk, polyphenols such as tannic acid in tea, coffee, grain products. , oregano and red wine.

According to the researcher's assumption, the cause of the increase in hemoglobin levels in the intervention group was due to the iron content from fe tablets and vitamin C from Ambon bananas which can streamline the absorption consumed by the mother. Consumption of Ambon bananas for 14 days was carried out well and the respondents complied with the recommendations given by the researchers, so that the hemoglobin level increased.

4. CONCLUSION

Hemoglobin levels of third trimester anemic pregnant women at the Mondokan Polindes, Tuban Regency, in the intervention group before being given Fe tablets and Ambon bananas, most of them experienced mild anemia, 6 respondents (75%)

The hemoglobin level of anemic pregnant women in their third trimester at the Mondokan Polindes, Tuban Regency, in the control group before being given fe tablets, most of them experienced mild anemia, 7 respondents (87.5%)

Hemoglobin levels of third trimester anemic pregnant women at the Mondokan Polindes, Tuban Regency in the intervention group after being given Fe tablets and Ambon bananas, all hemoglobin levels increased by 8 respondents (100%)

The hemoglobin level of anemic pregnant women in the third trimester at the Mondokan Polindes, Tuban Regency, in the control group after being given fe tablets, mostly increased by 6 respondents (75%)

Giving fe tablets combined with Ambon bananas has a more significant role in increasing hemoglobin levels in pregnant women

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