THE EFFECT OF CONSUMPTION OF DRAGON FRUIT JUICE AND FE TABLETS ON THE INCREASE IN HB FOR POSTPARTUM MOTHERS

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ABSTRAK : PENGARUH KONSUMSI JUICE BUAH NAGA DAN TABLET FE TERHADAP PENINGKATAN HB PADA IBU PASCA PERSALINAN

Latar Belakang: Hemoglobin (HB) adalah suatu protein yang mengandung senyawa besi henim. Hemoglobin mempunyai daya ikat terhadap oksigen dan karbondioksida. Dalam menjalankan fungsinya membawa oksigen keseluruh tubuh, hemoglobin dalam SDM mengikat oksigen melalui ikatan kimia khusus. (Yuni, 2015). Anemia merupakan suatu keadaan adanya penurunan kadar hemoglobin, hematokrit dan jumlah eritrosit dibawah nilai normal. Jus buah naga merupakan sumber vitamin c dan kaya akan zat besi didalamnya, akan tetapi penggunaannya tidak pernah dilakukan untuk mencegah terjadinya anemia masa nifas. Tujuan penelitian ini adalah diketahui pengaruh konsumsi jus buah naga dan FE dengan kenaikan Hb ibu nifas di Puskesmas Bangunrejo Kabupaten Lampung Tengah Tahun 2023.

Metode Penelitian: Jenis penelitian ini merupakan jenis penelitian kuantitatif. Rancangan penelitian yang digunakan adalah rancangan penelitian Quasi Eksperimental dengan pendekatan pretest – posttest with control group design. Populasi dalam penelitian ini adalah ibu nifas sebanyak 52 orang di Puskesmas Bangunrejo Kabupaten Lampung Tengah, pada 3 bulan terakhir, yaitu bulan Januari-Maret tahun 2023. Cara pengambilan sampel dalam penelitian ini adalah menggunakan teknik accidental sampling. Analisa data menggunakan univariate dan bivariate menggunakan uji t-tes independen.

Hasil Penelitian: Didapatkan nilai rata-rata meningkatnya HB pada kelompok intervensi sebesar 1.04 dan pada kelompok kontrol sebesar 0,8.Analisis bivariate mendaPatkan perbedaan rata-rata meningkatnya HB pada kelompok intervensi yang diberi jus buah naga sebesar 1.04 dengan kelompok kontrol yang tidak diberi jus buah naga sebesar 0,8. Hasil uji statistik didapatkan nilai P-value = 0,000 yang artinya terdapat pengaruh konsumsi jus buah naga dan FE dengan kenaikan Hb ibu nifas di Puskesmas Bangunrejo Kabupaten Lampung Tengah Tahun 2023.

Kesimpulan dan Saran: Pemberian jus buah naga dengan tablet FE dapat meningkatkan HB pada ibu Nifas yang mengalami anemia sedang. Diharapkan bagi ibu nifas agar selalu mengkonsusmsi jus buah naga ditambah tablet FE agar tidak terjadi anemia di masa nifasnya karna alat-alat kandungan baru pulih selama 6 minggu untuk mencegah perdarahan post partum dan dapat mempengaruhi kegiatan sehari-hari

Kata Kunci : HB, Ibu Nifas, Jus Buah Naga

ABSTRACT

Background: Hemoglobin (HB) is a protein that contains heme zinc compounds. Hemoglobin has a binding capacity for oxygen and carbon dioxide. In carrying out its function of carrying oxygen throughout the body, hemoglobin in SDM binds oxygen through special chemical bonds. (Yuni, 2015). Anemia is a condition where there is a decrease in hemoglobin levels, hematocrit, and the number of erythrocytes below normal values. Dragon fruit juice is a source of vitamin C and is rich in zinc, but its use has never been done to prevent anemia during the puerperium. The aim of this research was to find out the effect of consumption of dragon fruit juice and FE on the increase in Hb for postpartum women at the Bangunrejo Health Center, Central Lampung, in 2023.

Research Method: It was quantitative research that used a quasi-experimental research design with a pretest-posttest approach and a control group design. The population in this study was 52 postpartum mothers at the Bangunrejo Health Center, Central Lampung, in the last 3 months, namely January– March 2023. The sampling method used in this research was an accidental sampling technique. The univariate and bivariate data were analyzed using an independent t-test.

Research results: The researcher obtained an average value of increasing HB in the experimental group of 1.04 and in the control group of 0.8. Bivariate analysis found that the average difference in HB increase in the experimental group that was given dragon fruit juice was 1.04, compared to the control group that was not given

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dragon fruit juice, which was 0.8. The results of the statistical test obtained a P-value of 0.000, which means that there is an effect of consumption of dragon fruit juice and FE on an increase in Hb for postpartum women at the Bangunrejo Health Center, Central Lampung, in 2023.

Conclusions and Suggestions: Administering dragon fruit juice with FE tablets can increase HB in postpartum women who experience moderate anemia It is hoped that postpartum mothers will always consume dragon fruit juice and FE tablets so that anemia does not occur during the puerperium because the obstetrical organs have only recovered for 6 weeks to prevent postpartum hemorrhage and can affect daily activities.

Keywords: HB, Postpartum Mother, Dragon Fruit Juice

INTRODUCTION

Anemia is a condition where there is a decrease in hemoglobin levels, hematocrit and the number of erythrocytes below normal values. In people with anemia, more commonly known as anemia, the level of red blood cells (hemoglobin) is below normal. The reason could be due to lack of nutrients for blood formation, such as iron, folic acid and vitamin B12. But what often happens is anemia due to iron deficiency (Utami, & Wulandari, 2021).

Anemia is a nutritional problem that affects millions of people in developing countries. The prevalence of anemia is estimated at 9% in developed countries, while in developing countries the prevalence is 43%. Children and women of childbearing age (WUS) are the group most at risk, with an estimated prevalence of anemia in under-fives of 47%, 42% in pregnant women, and 30% in non-pregnant women aged 15-49 years. The World Health Organization (WHO) targets to reduce anemia in WUS by 50 percent by 2025 (World Health Organization, 2021).

The number of maternal deaths compiled from family health program records at the Ministry of Health in 2020 shows 4,627 deaths in Indonesia. This number shows an increase compared to 2019 of 4,221 deaths. Based on the causes, the majority of maternal deaths in 2020 were caused by 1,330 cases of bleeding, 1,110 cases of hypertension during pregnancy, and 230 cases of circulatory system disorders (Kemenkes RI Profile, 2020). Based on the causes, the majority of maternal deaths in 2021 are caused by disorders of the circulatory system in 154 cases (Profile of the Republic of Indonesia Ministry of Health, 2021). Referring to the causes of maternal death in Lampung Province in 2019, there were 29 cases (26.3%) of bleeding, 31 cases of hypertension (28.1%), 3 infections, 4 circulatory system disorders (3, 6%), metabolic disorders in 1 case (0.9%) and others in 42 (38.1%). Central Lampung district has the highest cases of maternal death with 16 cases, while the lowest is in Tulang Bawang Barat district with 2 cases (Lampung Provincial Health Office, 2020). Based on data at the Bangunrejo Health Center in 2020-2021 the maternal mortality rate is 1% of people per 100,000 live births. 100% postnatal care, 100% administration of vitamin A to postpartum mothers, 100% handling of obstetric complications. 82.4% active family planning services and 17.6% family planning services (Central Lampung Provincial Health Office, 2021).

Data on the incidence of anemia in postpartum mothers in Central Lampung Regency in 2020 reached 56.7% (Central Lampung Health Office, 2020). Data on the incidence of anemia in postpartum mothers in Central Lampung Regency in 2021 reached 58.2% (Central Lampung Health Office, 2021). Data on the incidence of anemia in postpartum mothers in Central Lampung Regency in 2022 reached 62.9% (Central Lampung Health Office, 2022).

Based on the monthly report of the Bangun Rejo Health Center from June to December 2021 there were 323 mothers giving birth at the Bangun Rejo Health Center in Central Lampung Regency with more than half experiencing post partum anemia, namely 129 people (39.9%). Based on the monthly report of the Bangun Rejo Health Center from June to December 2022 there were 387 mothers giving birth at the Bangun Rejo Health Center in Central Lampung Regency with more than half experiencing post partum anemia, namely 248 people (64.1%).

The result of anemia during the puerperium is the occurrence of uterine subvolution which can cause post partum bleeding, facilitating puerperal infection, reduced milk production and easy mammary infection. Anemia during the puerperium is a continuation of anemia suffered during pregnancy, which causes many complaints for mothers and reduces the percentage of work, both in daily housework and in caring for babies (Wijarnarko, 2010; Amanda, 2018).

Efforts to prevent and treat anemia in postpartum women such as giving Fe tablets for 4 weeks. Several researchers found that absorption of iron with a combination of Vitamin A can increase Hb levels (Permaesih et al, 2011) as well as giving Fe

with Vitamin C has a significant increase (Pradanti et al, 2015; Amanda, 2018)

Whereas non-pharmacologically to treat anemia can be done by consuming dates, beets, Ambon bananas, mas bananas, spinach juice, long bean stew and dragon fruit. Dragon fruit has properties for human health, dragon fruit contains nutrients such as vitamin C, vitamin B1, vitamin B2, vitamin B3, protein and so on. Dragon fruit includes balancing blood sugar levels, cleansing the blood, strengthening the kidneys, nourishing the liver, reducing cholesterol, preventing bleeding, and as a remedy for complaints of leucorrhoea (Tusiana, 2021).

The Fe content of dragon fruit is 0.55 - 0.65 mg/100gr. This shows that dragon fruit has a higher Fe content than beets. The content of dragon fruit is not only iron and carbohydrates folates. There are many other compounds that can be obtained from this brightly colored fruit, including Vitamin C, phytochemicals, protein, potassium, fiber, carbohydrates (Jamilah, 2018).

The results of the Prasurvey conducted at the Bangunrejo Health Center in Central Lampung, in January 2023 there was 1 post partum mother who died due to insufficient Hb, and 2 people experienced blood transfusions during the post partum period, of 10 postpartum mothers by carrying out Hb checks at the postpartum visit, 6 were obtained mothers had mild anemia with Hb below 11gr/dl, and 4 mothers had moderate anemia, namely Hb below 10.5 gr/dl. After conducting free interviews, it was found that during the postpartum period the mother abstained from eating as recommended by the family. Dragon fruit juice is a source of vitamin C and is rich in iron in it, but its use has never been done to prevent anemia in the puerperium.

RESEARCH METHODS

This type of research is a quantitative research. The research design used was a quasi-experimental research design with a pretest-posttest approach with a control group design. The population in this study were 52 postpartum women at the Bangunrejo Health Center, Central Lampung , in the last 3 months, namely January-March 2023. The measuring instruments in this study were HB observation sheets, dragon fruit juice consumption checklist sheets and test kits. HB namely haemo check or digital HB check. Prepare dragon fruit juice and Fe tablets with a dose of 250 ml once a day for 14 days, remind the intervention group via whatsapp group/sms to drink dragon fruit juice at 21.00 WIB. The sampling method in this study was using accidental sampling technique. Data analysis using univariate and bivariate using independent t-test.

RESEARCH RESULTS

Characteristics of Respondents

From table 1 based on the data above that the characteristics of the respondents based on age are mostly those who are not at risk of 20-35 years, as many as 10 respondents (66.7%) in the intervention group, 12 respondents (80.0%) in the control group. High school education as many as 10 respondents (66.7%) in the intervention group, 7 respondents (46.7%) in the control group. The work of housewives was 9 respondents (60.0%) in the intervention group, 9 respondents (60.0%) in the control group. Primipara parity was 9 respondents (60.0%) in the intervention group, 10 respondents (66.7%) in the control group.

Table 1
Average Characteristics of Respondents at the Bangunrejo Health Center Central Lampung in 2023

Variable	Intervensi		Control	
	F	P (%)	F	P (%)
Age				
At risk	5	33,3	3	20,0
No risk	10	66,7	12	80,0
Education				
Associate degree	2	13,3	2	13,3
Bachelor degree	1	6,7	-	-
Senior high school	10	66,7	7	46,7
Junior high school	2	13,3	6	
Work				
Laborer	3	20,0	-	-
housewife	9	60,0	9	60,0
Civil servant	2	13,3	1	6,7

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Enterpreneur	1	6,7	5	33,3
Parity				
Multipara	6	40,0	5	33,3
Primipara	9	60,0	10	66,7

Univariate analysis

Postpartum Mother's Hb Before Being Given Dragon Fruit Juice and FE Tablets

Table 2
Increased HB Levels for Postpartum Mothers Before Given Dragon Fruit Juice and FE at the Bangunrejo Health Center, Central Lampung in 2023

Hb	N	Mean	Std. Dev	Std, Eror	CI-95%
Pretes	15	10,180	0,4902	0,1266	0,3321-0,3188

From table 2 based on the data above that the increase in HB levels for postpartum women before being given dragon fruit juice and FE at the Bangunrejo Health Center in Central Lampung in 2023 with a Mean of 10.180 gr/dl, which means that the respondent has mild anemia.

Postpartum Mother's Hb After Being Given Dragon Fruit Juice And FE Tablets

From table 3 based on the data above that the increase in HB levels for postpartum women after being given dragon fruit juice and FE at the Bangunrejo Health Center in Central Lampung in 2023 with a Mean of 11.100 gr/dl, which means that the respondents experienced improvement from mild anemia to normal.

Table 3
Increased HB Levels for Postpartum Mothers After Given Dragon Fruit Juice and FE at the Bangunrejo Health Center, Central Lampung in 2023

Hb	N	Mean	Std. Dev	Std, Eror	CI-95%
Postes	15	11,100	0,1890	0,0488	0,1680-1,5786

Hb Pretes Control Group

Table 4
Average Hb of Nifas Mothers in the Control Group Day 1 at the Bangunrejo Health Center, Central Lampung in 2023

Hb	N	Mean	Std. Dev	Std, Eror	CI-95%
1 Hari	15	10,187	0,3720	0,0960	0,3332-0,3199

From table 4 based on the data above that the HB levels of postpartum mothers who are only given FE tablets on day 1 at the Bangunrejo Health Center, Central Lampung in 2023 with a mean of 10.187 gr/dl, which means that respondents have mild anemia.

Hb Postes Control Group

From table 5 based on the data above that the HB levels of postpartum mothers who are only given FE tablets on day 14 at the Bangunrejo Health Center, Central Lampung in 2023 with a mean of 10.727 gr/dl, which means that respondents have mild anemia.

Table 5
Average Hb of Nifas Mothers in the Control Group on Day 14 at the Bangunrejo Health Center, Central Lampung in 2023

Hb	N	Mean	Std. Dev	Std, Eror	CI-95%
14 Hari	15	10,727	0,3390	0,0875	0,1680-1,5786

Bivariate Analysis

Table 6
The Effect of Dragon Fruit Juice and FE Consumption with an Increase in Hb Ibu Nifas at the Bangunrejo Health Center, Central Lampung in 2023

Variabel	N	Mean	Std. Dev	Uji t	P -Value	CI-95%
Jus Buah Naga	15	11,100	0,1890	3,725	0,001	0,1654-0,5812
Tablet FE	15	10,727	0,3390			

From table 6, based on the data above that the increase in HB levels of postpartum mothers after being given dragon fruit juice and FE at the Bangunrejo Health Center, Central Lampung in 2023 with a Mean of 11,100 gr/dl, which means that respondents have improved from mild anemia to normal. While the HB levels of postpartum mothers who were only given FE tablets on day 14 with a mean of 10.727 g / dl which means that respondents have mild anemia.

The results of the statistical test obtained a value of P-value = 0.001, which means that there is an influence on the consumption of dragon fruit juice and FE with an increase in the Hb of postpartum mothers at the Bangunrejo Health Center, Central Lampung Regency in 2023.

DISCUSSION

Univariate Analysis

Increased HB levels of postpartum mothers before being given dragon fruit juice and FE at the Bangunrejo Health Center, Central Lampung in 2023

Increased HB levels of postpartum mothers before being given dragon fruit juice and FE at the Bangunrejo Health Center, Central Lampung in 2023 with a Mean of 10,180 gr/dl, which means that respondents have mild anemia.

In line with Yuni's theory (2015) hemoglobin is an oxygen-carrying protein inside red blood cells, which gives red blood cells their red color. Hb has an important role in delivering oxygen to all parts of the body for consumption and bringing carbon dioxide back to the lungs, exhaling out of the body. If the hemoglobin level is too low, this process is disturbed, so the body has a low level of oxygen.

According to researchers A low Hb content may indicate anemia, depending on the method used, the Hb value becomes accurate to 2-3%. Symptoms of anemia include weakness, lack of appetite, lack of energy, decreased concentration, headache, easy infection of disease, firefly eyes, besides that eyelids, lips, and nails look pale. Handling pregnant and postpartum women can be done by giving iron tablets and improving the quality of daily food.

The results of this study, the lowest Hb level value before treatment was 9.5 g / dl which entered into moderate anemia, it affected the activities of postpartum mothers in carrying out household activities, such as cooking, and cleaning the house, and the highest 10.9 g / dl which means that the mother had mild anemia, from all respondents there were 15 postpartum mothers who had moderate anemia with a range of Hb values of 9 to 10 g / dl.

Increased HB levels of postpartum mothers after being given dragon fruit juice and FE at the Bangunrejo Health Center, Central Lampung in 2023

Increased HB levels of postpartum mothers before being given dragon fruit juice and FE at the Bangunrejo Health Center, Central Lampung in 2023 with a mean of 10,180 gr/dl, which means that respondents have mild anemia

In line with the theory of Manuaba (2010) it is said that anemia if Hb levels in pregnant women in the first trimester < 11 g / dl, the second trimester < 10.5 g / dl and the third trimester < 10 g / dl. Hb levels of pregnant women occur if red blood cell production increases, normal values of hemoglobin (12 to 16 g / %) and normal values of hematocrit (37% to 47%) decrease markedly. . The decline is more pronounced during the second trimester, when there is a rapid expansion of blood volume. When the hematocrit value drops to 35% or more, the woman is anemic (Benson, 2009). Hb levels in the blood are said to be anemic if the baseline Hb levels in men <13 g / %, women < 12 g / % and in postpartum mothers < 11 g / % (Saifuddin, 2008).

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This study, Hb levels were obtained after being treated using dragon fruit juice and FE tablets for 14 days, increased which means that the mother succeeded in carrying out the therapy taught by the researcher and in accordance with standard procedures, besides that respondents also consumed foods per day containing iron such as, spinach, cassava leaves, salted fish, processed types of fresh fish, and also regular consumption of dragon fruit juice. While the results of this study there are some people who still experience mild anemia, caused by a trial time of only 14 days so it takes longer. According to researchers, the increase in Hb levels in postpartum mothers is strongly influenced by food intake as well as supplement intake that can increase Hb levels.

Apart from work, age is also caused by culture or from the advice of parents who cannot eat anything other than clear vegetables, tofu and tempeh, should not rest or sleep in the morning because last night the mother stayed up late because the baby was fussy so that the mother experienced fatigue.

Bivariate Analysis

The Effect of Dragon Fruit Juice and FE Consumption with an Increase in Hb Ibu Nifas at the Bangunrejo Health Center, Central Lampung in 2023

Increased HB levels of postpartum mothers after being given dragon fruit juice and FE at the Bangunrejo Health Center, Central Lampung in 2023 with a Mean of 11,100 gr/dl, which means that respondents have improved from mild anemia to normal. While the HB levels of postpartum mothers who were only given FE tablets on day 14 with a mean of 10.727 g / dl which means that respondents have mild anemia.

The results of the statistical test obtained a value of P-value = 0.000, which means that there is an influence on the consumption of dragon fruit juice and FE with an increase in the Hb of postpartum mothers at the Bangunrejo Health Center, Central Lampung in 2023.

According to the theory of Rahmawati et al. (2019), the high content of vitamin C in dragon fruit greatly helps the process of absorption of non-heme iron by changing the ferry form into iron, making it easier for the body to absorb iron. The high content of iron and vitamin C in dragon fruit causes iron to be more easily absorbed by the body 4 times faster than without vitamin C.

According to researchers, anemia in postpartum mothers can be reduced by providing adequate and good nutritional intake, such as consuming foods that contain lots of vitamin C such as dragon fruit juice. Red dragon fruit is one fruit that has been widely studied for its benefits in increasing hemoglobin levels. One of the studies that has been conducted is a study that uses dragon fruit juice as much as 200g for 3 days as a treatment product able to increase hemoglobin levels from 10.7 g / dl to 11.4 g / dl because iron in dragon fruit can help in the formation of hemoglobin to carry oxygen throughout the body, vitamin A in red dragon fruit can help hemoglobin to bind oxygen (Wahyuningsih et al., 2021). In this study, the intervention group using dragon fruit juice and FE tablets experienced an overall increase in the Hb of puerperal mothers. In contrast to the control group given FE tablets alone, there were 2 postpartum mothers who did not experience mild changes in Hb status. According to respondent researchers who experienced a decrease in Hb levels, this is because mothers have a history of less body weight, and like to consume coffee or tea in the morning during pregnancy to reduce nausea, consumption of tea and coffee continuously will still interfere with iron absorption, both in tablets and food intake, Mothers who do not experience elevated HB levels, can be caused by the influence of stress, resting patterns, and poor diet, such as eating small portions during pregnancy, because it can affect the absorption of iron contained in Fe foods and tablets or giving dragon fruit juice

The Fe content in dragon fruit plays a role in the process of maturation of erythrocyte cells, the spinal cord needs many other precursors for effective erythropoiesis. These precursors include iron (Fe), vitamin C, vitamin E, vitamin B12, thiamine, riboflavin and oxygen (O2) needed by the hormone erythropoietin (Rahmawati et al., 2019).

According to researchers, the average value of increasing HB levels in the intervention group was 1.04 and in the control group increased HB levels by 0.8 so that there was a difference in increasing HB levels of postpartum mothers who took Fe tablets alone with those given dragon fruit juice. Increased Hb levels in postpartum mothers in the control group is due to the adherence of mothers consuming Fe tablets and consuming them using the right way, causing absorption of this iron. And increased in the treatment group that consumed dragon fruit juice due to the content of one of them such as protein, vitamin B1, and vitamin C which can help iron absorption.

CONCLUSION

Increased HB levels of postpartum mothers before being given dragon fruit juice and FE with a Mean of 10,180 gr/dl which means respondents have mild anemia.There are some postpartum mothers who say they are dizzy after drinking dragon fruit

juice, some say they don't like the smell of langu and don't like dragon fruit seeds.The results of the statistical test obtained a value of P-value = 0.000 which means that there is an influence on the consumption of dragon fruit juice and FE with an increase in the Hb of postpartum mothers at the Bangunrejo Health Center, Central Lampung in 2023.

SUGGESTION

Expected for postpartum mothers to always consume dragon fruit juice plus FE tablets during pregnancy From TM II to TM III and Puerperium and continue to consume Fe tablets, to prepare for childbirth, because during labor the mother needs energy, and quite a lot of blood after childbirth.

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