

Differences In The Effectiveness Of Date Juice And Beet Juice In Increasing Hemoglobin Levels In Anemia Pregnant Women In The Work Area Of The Tirtamulya Health Center In 2023

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Abstract.

Background: beets and dates can increase hemoglobin for those who have anemia. The nutritional composition of dates is that they are rich in natural sugars, fiber, potassium, magnesium and B vitamins, iron, calcium and phosphorus in fairly high amounts, while beets also contain nitrates, compounds that can help improve blood flow and performance. brain so that it can be known to increase hemoglobin levels in the blood. Purpose of writing: to find out the difference in the effectiveness of giving date juice and beet juice in increasing hemoglobin levels in anemic pregnant women in the working area of the Tirtamulya Health Center in 2023. Research method: Pre-experimental study with type one group pre test – post test design by means of relationships cause and effect by involving a group of subjects. the subject group was observed before the intervention was carried out and then observed after the intervention was carried out. The sampling technique is non-probability sampling with a purposive method. The study was divided into 2 variables, namely the independent variable, namely the consumption of date juice and beetroot juice. Results: Assessment before and after administration of date palm juice obtained a value of Sig 0.000, sig value <0.05 which can be concluded that there is effectiveness of giving date juice in increasing Hb levels in anemic pregnant women. While the assessment before and after giving beetroot juice obtained a Sig value of 0.000, a sig value <0.05 which can be concluded that there is effectiveness of giving beetroot juice in increasing Hb levels in anemic pregnant women. Conclusions and Suggestions: The results of this study are expected to provide information that giving date palm juice and beetroot juice is a type of natural food that can increase Hb levels.

Keywords: Dates Juice, Beetroot Juice and Hemoglobin Levels.

I. INTRODUCTION

According to the World Health Organization (WHO) anemia in pregnant women occurs when the hemoglobin level in the blood of pregnant women is less than 11.0 g/dl. This condition is caused by a lack of iron in a pregnant woman's body which is needed for the healthy production of hemoglobin. Anemia in pregnant women can cause various complications in pregnancy such as premature birth, low birth weight babies and other health problems for both mother and baby. Therefore, it is important for pregnant women to pay attention to a balanced nutritional intake including consumption of iron-rich foods, as well as to carry out regular pregnancy checks. Hemoglobin is a protein in red blood cells that functions to carry oxygen from the lungs to the rest of the body. A deficiency in hemoglobin can cause anemia, a condition in which the body does not have enough red blood cells to carry oxygen throughout the body. During pregnancy, the amount of blood in the body increases to provide sufficient oxygen and nutrients for the developing fetus (Hasanan, 2018). Hb deficiency will cause a shortage of red blood cells (erythrocytes), generally as a result of iron deficiency from food consumption or excessive blood loss and cannot be replaced from food consumption. (Fauziah, 2020) Based on Riskesdas data (2018), the prevalence of anemia in Indonesia has increased from 37.1% in 2013 to 48.9% in 2018 with the proportion of anemia in the age group 15 to 24 years and 25 to 34 years.

One of the causes of the high prevalence of anemia in pregnant women is the increased need for iron due to changes in physiology and metabolism in the mother, inadequate intake (especially iron, folic acid and vitamin B12), impaired absorption, infection (malaria and worms), recurrent pregnancy, thalassemia and sickle cell disease, social, economic, cultural and educational conditions of the mother (Rahayu, 2017). Pregnant women must consume Fe tablets at least 1 tablet every day up to 90 tablets. However, this method

is often frowned upon because it causes nausea and vomiting caused by the smell of iron. Therefore, a healthy and safe breakthrough is needed through non-pharmacological therapy, one of which is by consuming beets (Setyianingsih, Widayati & Kritiningrum, 2020) dizziness, fatigue, decreased appetite, and have never consumed beets. Hb increase can be done with non-pharmacological consumption. According to Sitiyaro, 2020 which states that the type of treatment is divided into 2 categories, namely pharmacological and non-pharmacological treatment, but in his research he focuses more on non-pharmacology, namely acupuncture, aromatherapy, exercise, consumption of natural and traditional foods. Apart from beets, there have also been previous studies that carried out non-pharmacological treatment by consuming date juice which explained that the iron requirement of pregnant women increases so that an additional 700-800 mg is needed, including 500 mg to increase hemopoiesis, 300 mg for the needs of the fetus for the hemopoiesis process. while in utero, 200 mg to reserve losses due to postpartum hemorrhage.

Or you could say you need extra iron around 30-60 mg per day. Small amounts of iron are found in fruits, vegetables, whole grains, and meat in the daily diet. Dates contain real sugar in the form of glucose and fructose, rich in protein, fiber, minerals, such as iron, calcium, sodium and potassium (Sendra et al., 2016). This fruit, which is the hallmark of the Middle Eastern nation, turns out to contain many benefits for pregnant women, childbirth, and the postpartum period. Several studies have been conducted to test the effectiveness of giving date juice and beetroot juice in increasing hemoglobin levels. A study published in the journal Food and Nutrition Research in 2016 found that giving date juice increased the number of red blood cells in the body. Meanwhile, another study published in the journal advances in traditional medicine in 2020 found that giving beetroot juice can increase hemoglobin levels. The nutritional composition of dates is a fruit that is rich in natural sugars, fiber, potassium, magnesium and B vitamins. high amounts of iron, calcium and phosphorus, while beets also contain nitrate, a compound that can help increase blood flow and brain performance so that it is known to increase hemoglobin levels in the blood. Based on the description which states that beets and dates can increase hemoglobin for those who have anemia, therefore researchers want to conduct a study entitled Differences in the Effectiveness of Giving Dates Juice and Beet Juice in Increasing Hemoglobin Levels in Anemia Pregnant Women in the Work Area of the Tirtamulya Health Center.

II. METHODS

This research was conducted in the Working Area of the Tirtamulya Public Health Center. Pre-experimental research with the type of one group pre test - post test design by means of a causal relationship by involving one group of subjects. the subject group was observed before the intervention was carried out and then observed after the intervention was carried out. The sampling technique is non-probability sampling with a purposive method. The study was divided into 2 variables, namely the independent variable, namely the consumption of date juice and beetroot juice, and the dependent variable, namely increasing hemoglobin levels. The instrument used in this study, namely the observation sheet, was used to determine hemoglobin levels and standard operating procedures for consumption of date juice and beetroot according to standards. The data used is primary data obtained from observations.

The analytical method used is the normality test and the different test (t test) using the SPSS statistical test. Provision of Dates Juice and Beet Juice in Increasing Hemoglobin Levels in Pregnant Women Anemia in the group given date juice will be assessed for hemoglobin levels before the date juice intervention and pregnant women are given date juice routinely 2x a day for 14 days, then on the 15th day in reassess the hemoglobin level whether there is an increase in hemoglobin levels or whether or not there is an increase in hemoglobin levels. Likewise, the same was done for the beetroot juice group. It should be noted that when giving date juice and beetroot juice, it is given in the morning and evening. In addition, pregnant women are also given blood boosters, namely FE tablets at night which are taken once a day. To assess the comparison of date juice and beetroot juice, the value is based on the day with the fastest increase in HB and the fastest increase in HB.

III. RESULT AND DISCUSSION

A. Univariate Analysis

1. Distribution of HB Levels in Pregnant Women in the Date Juice Group

No	Hb levels	Amount	Percentage
1	There is Ascension	12	80%
2	No Ascension	3	20 %
Total		15	100%

Table 1 shows the results that pregnant women before and after giving date juice obtained the majority of the results, there was an increase in hemoglobin (HB) levels by 12 people (80%) and there was no increase in HB levels by 3 people (20%).

2. Distribution of HB levels in pregnant women in the beetroot juice group

No	Kadar Hb	Jumlah	Persentase
1	Ada kenaikan	15	100%
Total		15	100%

Table 2 shows the results that pregnant women before and after giving beetroot juice obtained the majority of the results, there was an increase in hemoglobin (HB) levels by 15 people (100%).

3. The average value of HB levels of pregnant women before and after giving date juice.

Variable	n	Assessment of HB Levels		
		M	SD	Min-Max
Pre-test	15	10,527	0,2463	10,1-10,9
Post-test		11,000	0,3946	10,2-11,5

In table 3 it is known that of the 15 pregnant women the average results before giving date juice were obtained an average Hb level of 10.527, the standard deviation was 0.2463, an assessment of Hb levels was a minimum of 10.1 gr/dl and a maximum of 10.9 gr/dl. Then after giving date juice, the average value was 11,000, the standard deviation was 0.3946, the Hb level was assessed at least 10.2 gr/dl and a maximum of 11.5 gr/dl.

4. The average value of HB levels of pregnant women before and after giving beetroot juice

Variable	n	Assessment of HB Levels		
		M	SD	Min-Max
Pre-test	15	10,540	0,2354	10,0-10,8
Post-test		11,313	0,3739	10,6-12,1

Table 4 shows that, out of 15 pregnant women, the average results before giving beet juice were given an average Hb level of 10.540, a standard deviation of 0.2354, an assessment of a minimum Hb level of 10.0 gr/dl and a maximum of 10.8 gr/dl. Then after giving beetroot juice, the average value was 11.313, the standard deviation was 0.3739, the Hb level was assessed at least 10.6 gr/dl and a maximum of 12.1 gr/dl.

B. Data Normality Test

Table 5. Normality test

	Kolmogorov - smirnov			Shapiro - wilk		
	statistic	df	sig.	statistik	df	sig.
Before date juice	.190	15	.149	.932	15	.290
After the date juice	.227	15	.036	.891	15	.069
Before beetroot juice	.166	15	.200*	.910	15	.137
After beetroot juice	.125	15	.200*	.979	15	.961

Table 5 shows the results of the normality test assessment in the group giving the date palm juice the Shapiro-wilk value of 0.290 (before) and 0.069 (after) so that the Shapiro-Wilk value with P-value > 0.05, it can be concluded that the normality test is normally distributed. Meanwhile, in the beetroot juice administration group, the Shapiro-Wilk value was 0.137 (before) and 0.961 (after), the Shapiro-Wilk value

with a P-value > 0.05, it can be concluded that the normality test is normally distributed. The results are normally distributed, so the normality test statistical test is used paired sample T test.

C. Analisa Bivariat

1. Differences in the Effectiveness of Giving Date Juice and Beet Juice in Increasing Hemoglobin Levels in Anemia Pregnant Women in the Work Area of the Tirtamulya Health Center

Variable	Mean	Mean difference	Sig(2-tailed)
Before giving date juice	10,527	0,473	0,000
After giving date juice	11,000		
Before giving beetroot juice	10,540	0,773	0,000
After giving beetroot juice	11,313		

Assessing the difference in average values in the date palm juice group, the average difference before and after was 0.473, while in the beetroot juice group the average difference before and after was 0.773. So that the difference in the increase in Hb levels before and after the groups given date juice and beetroot juice was not too different. So it can be concluded that in the assessment before and after giving date juice, a Sig value of 0.000 was obtained, a sig value <0.05 which could be concluded that there was effectiveness of giving date juice in increasing Hb levels in anemic pregnant women. While the assessment before and after giving beetroot juice obtained a Sig value of 0.000, a sig value <0.05 which can be concluded that there is effectiveness of giving beetroot juice in increasing Hb levels in anemic pregnant women. The conclusion was obtained that the administration of date juice and beetroot juice was equally effective in increasing hemoglobin (Hb) levels in pregnant women in the working area of the Tirtamulya Health Center.

Discussion

A. Assessment of Hemoglobin Levels of Anemia Pregnant Women in the Date Juice and Beet Juice Administration Group

The results showed that pregnant women before and after giving date juice obtained the majority of the results, there was an increase in hemoglobin (HB) levels by 12 people (80%) and there was no increase in HB levels by 3 people (20%). Meanwhile, pregnant women before and after giving beet juice, the majority of the results showed an increase in hemoglobin (HB) levels in 15 people (100%). Anemia in pregnant women is a condition in which the body cannot produce enough red blood cells to distribute oxygen to the body's tissues during pregnancy. Pregnant women are said to have anemia if their hemoglobin level in the first and third trimesters is <11 gr/dL or Hb is <10.5 gr/dL in the second trimester due to hemodilution. Hemodilution is a hemodynamic change in which there is an increase in blood volume but the number of erythrocytes decreases so that the blood becomes dilute. This blood dilution is a compensation for pregnant women (Simbolon et al., 2018) According to Pratimi (2016) mentions how to deal with anemia in pregnant women according to government recommendations, usually through 2 ways, namely pharmacology and non-pharmacology.

Consumption of Fe tablets (60 mg) and folic acid (50 nanograms) during pregnancy is the pharmacological therapy, while non-pharmacological therapy is in the form of eating green vegetables, consuming dates and beets. Pregnant women must consume Fe tablets at least 1 tablet every day up to 90 tablets. However, this method is often frowned upon because it causes nausea and vomiting caused by the smell of iron. Therefore, a healthy and safe breakthrough is needed through non-pharmacological therapy, one of which is by consuming beets (Setyianingsih, Widayati & Kritiningrum, 2020) The ingredients contained in beetroot herbal plants (*Beta Vulgaris L*) are levels of folic acid (108 mg), calcium (27.0 mg), phosphorus (43.0 mg), vitamin C (43.0 mg), magnesium (23.0 mg), carbohydrates (9.6 mg), and iron (1.0 mg) (KemenKes RI, 2016). These beets are also a recommendation from naturopathic experts as a colon cleanser. Besides that, beets also contain copper and folic acid which are very good for helping the formation of the baby's brain and helping to overcome the problem of anemia. Wijayanti, I., et al (2022). Calcium and iron content. The iron content in dates is 1.5 mg per 100 grams of dates. Dates contain high amounts of iron which can function to increase hemoglobin levels in red blood cells (Yuviska and Yuliasari, 2019).

B. Differences in the Effectiveness of Date Juice and Beet Juice in Increasing Hemoglobin Levels in Anemia Pregnant Women

The results of this study indicate that the administration of date juice and beetroot juice is equally effective in increasing hemoglobin (Hb) levels in pregnant women in the working area of the Tirtamulya Health Center. This is marked by the results between the administration of date juice and beetroot juice with a Sig value of 0.000. The results of this study are in line with the opinion of Oebroto, 2016 which states that decreased hemoglobin levels during pregnancy can affect the health of the fetus. Fe deficiency occurs in pregnancy due to an increase in the need for iron, the formation of new tissue and also the growing needs of the fetus. To overcome anemia during pregnancy can also be done in a non-pharmacological way, namely by consuming dates and beets. In addition, the results of this study are in line with previous research by Nur Khalimatussadiah. (2021). who stated that there was effectiveness in giving date juice and beetroot to increasing hemoglobin levels. This research was conducted in the administration of date palm juice according to Al-Shwyeh, (2019), namely by consuming five types of dates consumed every morning for 7 days can increase hemoglobin levels, which in every five to seven dates (100 grams)) has a high iron content (1.02 mg) and can meet the body's daily iron needs. However, in the study the difference with previous studies was made in the form of date juice for 14 days. As for how to consume beets in increasing Hb levels, researchers carried out referring to previous research by Nur Khalimatussadiah.

(2021) by giving 300 grams of beetroot juice, adding up to 250 ml of water, then blending and filtering the pulp, then putting it in a bottle and giving it to those with mild anemia for 2 weeks by giving it 1 time per day in the morning. Results The iron content in beets has a fairly high content of folic acid and iron, which reactivate and regenerate red blood cells and supply oxygen which is useful for the health of red cells. Beets also contain vitamin C which makes it easier for the body to absorb iron, which means that if iron can be absorbed properly the formation of new red blood cells will also occur properly and smoothly. Based on research results and opinions with the results between date juice and beetroot juice both have efficacy in increasing Hb levels who are anemic. So the researchers argue that date juice has the property of increasing hemoglobin levels because of its iron-rich content. Iron is an essential mineral for the production of hemoglobin in the body. By consuming date juice regularly can provide sufficient iron intake so that it can overcome the incidence of anemia. Therefore, the results of this study can be expected to be a reference in the same non-pharmacological treatment, it is known that date juice and beetroot juice are consumed regularly and the dose in which they are consumed can prevent anemia, especially in pregnant women. The drinking process is given date juice regularly 2x a day. In 100 grams of but fruit contains 1.1 mg of iron. Therefore, giving beetroot juice to pregnant women who experience mild anemia can help restore low maternal hemoglobin levels. 1.5 mg per 100 grams of dates. Yuviska and Yuliasari, 2019

IV. CONCLUSION

Based on the results and discussion of the research results, it can be concluded that:

1. Pregnant women before and after giving date juice, the majority showed an increase in hemoglobin (HB) levels in 12 people (80%) and there was no increase in HB levels in 3 people (20%). Meanwhile, pregnant women before and after giving beetroot juice obtained the majority of results, there was an increase in hemoglobin (HB) levels of 15 people (100%).
2. It is known that from 15 pregnant women the average results before giving date juice were obtained an average Hb level of 10.527, the standard deviation was 0.2463, an Hb level assessment of a minimum of 10.1 gr/dl and a maximum of 10.9 gr /dl. Then after giving date juice, the average value was 11.000, the standard deviation was 0.3946, the Hb level was assessed at least 10.2 gr/dl and a maximum of 11.5 gr/dl.
3. It is known that, from 15 pregnant women, the average results before giving beet juice were given an average Hb level of 10.540, the standard deviation was 0.2354, an Hb level assessment of a minimum of 10.0 gr/dl and a maximum of 10.8 gr/dl. Then after giving beet juice, the average value was 11.313, the standard deviation was 0.3739, the Hb level was assessed at least 10.6 gr/dl and a maximum of 12.1 gr/dl.
4. Assessment before and after administration of date juice obtained a value of Sig 0.000, sig value <0.05 which can be concluded that there is effectiveness of giving date juice in increasing Hb levels in

anemic pregnant women. While the assessment before and after giving beetroot juice obtained a Sig value of 0.000, a sig value <0.05 which can be concluded that there is effectiveness of giving beetroot juice in increasing Hb levels in anemic pregnant women.

5. Provision of date juice and beet juice are equally effective in increasing hemoglobin (Hb) levels in pregnant women in the working area of the Tirtamulya Health Center.

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