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THE EFFECT OF CONSUMING RED GUAVA ON INCREASING HEMOGLOBIN LEVELS IN PREGNANT WOMEN

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ABSTRACT

One of the global targets is the effort to reduce maternal mortality rates. In 2020, there were 4,627 maternal deaths recorded, caused by bleeding (28.29%), hypertension (23%), and circulatory system disorders (4.94%). The primary cause of maternal death is bleeding. This study aims to determine the effect of consuming red guava seeds on the increase in hemoglobin levels in pregnant women. The research method used is a quasi-experimental design with a one-group pretest-posttest design. The study was conducted at the KIA Clinic of UPTD Seunuddon Health Center in North Aceh Regency from June 3, 2024, to June 14, 2024, with a sample size of 47, using non-probability sampling, specifically accidental sampling. The results obtained from the paired sample test before and after consuming red guava seeds showed a sig (2-tailed) value of $0.000 < 0.05$, indicating that there is an effect of consuming red guava seeds on increasing hemoglobin levels in pregnant women at the KIA Clinic of UPTD Seunuddon Health Center, North Aceh Regency. The researcher concludes that consuming red guava seeds can increase hemoglobin levels in pregnant women.

Keywords: *Guava Seeds, Anemia, Hemoglobin, pregnant Women*

INTRODUCTION

Anemia is a condition where red blood cells function to carry oxygen into the bloodstream so that the body's physiological processes are disrupted. The hemodulation process in pregnancy causes a decrease in HB levels during pregnancy to <11mg/dL.

The incidence of anemia in pregnancy can increase the risk of death during the birth process and have an impact on the fetus, such as being susceptible to infection, low birth weight, and the risk of premature birth. Efforts to prevent this can be done by checking the HB levels of pregnant women at gestational age entering the third trimester. The occurrence of anemia in pregnancy causes the muscles of the uterus to weaken so that after delivery it takes a long time to close again.

One of the global targets is efforts to reduce maternal mortality (MMR). The World Health Organization (WHO) states that the maternal mortality rate that occurs during pregnancy, childbirth and postpartum is an indicator of women's health status (WHO, 2019). In 2020, 4,627 maternal deaths were recorded which were caused by bleeding (28.29%), hypertension (23%), and circulatory system disorders (4.94%).

The number of maternal deaths compiled from family health program records at the Ministry of Health in 2020 showed 4,627 deaths in Indonesia. This number shows an increase compared to 2019 of 4,221 deaths. Based on causes, the majority of maternal deaths in 2020 were caused by bleeding with 1,330 cases, hypertension in pregnancy with 1,110 cases, and circulatory system disorders with 230 cases (Ministry of Health of the Republic of Indonesia, 2020)

The Maternal Mortality Rate (MMR) in Aceh province in 2017-2021 is 223 per 100,000 live births, while the MMR in Banda Aceh City in 2021 is 6 per 100,000 live births. This occurs due to other causes in pregnant, giving birth and postpartum women at high risk over the age of 35 years (Wahyuni, & Sari 2023).

Research by Winarni, et al (2020) shows that there is a difference in the increase in Hb levels after being given red guava juice combined with blood supplement tablets compared to spinach and guava juice. There is a positive relationship regarding the increase in Hb after being given red guava juice. This is supported by research by Yulyana (2019) showing that there was an increase in the average HB levels of pregnant women after being given guava juice compared to red spinach juice.

A preliminary study conducted by researchers at the Tunas Harapan Community Health Center in 2021 of 182 pregnant women who were checked for Hb, there were 78 pregnant women who experienced anemia, namely 42.8%. The aim of the research was to determine whether there was an effect of consuming red guava on increasing hemoglobin levels in pregnant women at the KIA UPTD Polyclinic, Seunuddon Health Center, North Aceh Regency.

METHODS

The type of research used is quasi-experimental research, namely research by carrying out experimental activities, which aims to determine the symptoms or effects that arise as a result of certain treatments or experiments (Notoatmodjo, 2017). The design used is "One Group PreTest Post Test Design".

This research was carried out at the UPTD of the Seunuddon Community Health Center, North Aceh Regency, 3-14 June 2024. The sample used in this study was 47 people with inclusion criteria 1) Pregnant women with low hemoglobin levels in the blood. 2) Willing to participate and willing to fill out the questionnaire. And the exclusion criteria are 1) Pregnant women who have other illnesses or limitations in the form of psychology. 2) Not willing to participate and not willing to fill out the questionnaire. Data collection in this research was a questionnaire. The data analysis used in this research was the Paired T-test.

RESULTS AND DISCUSSION

Research entitled the effect of consuming red guava on increasing hemoglobin levels in pregnant women at the KIA UPTD Polyclinic, Seunuddon Community Health Center, North Aceh Regency, was conducted from 03 June 2024 to 14 June 2024. The sample in this study consisted of 47 pregnant women.

A. Univariate Analysis

1. Respondent Characteristics

Table I
Distribution of Age Characteristics of Pregnant Women at the UPTD KIA Polyclinic Seunuddon Community Health Center, North Aceh Regency

No	Characteristics	Frekuensi	Persentase (%)
1	Age		
-	21 - 30 year	36	76,6

- 31 - 40 year	11	23,4
Amount	47	100

Based on table 1, most of the respondents were aged 21-30 years, namely 36 respondents (76.6%), while those aged 31-40 years were 11 respondents (23.4%).

2. Frequency Distribution Before Consuming Red Guava by Pregnant Women

Table 2
Frequency Distribution Before Consuming Red Guava
by Pregnant Women at the KIA Poly UPTD Seunuddon Health
Center North Aceh Regency

No	HB levels	F	%
1	Normal	10	21,3
2	Mild Anemia	28	59,6
3	Moderate Anemia	9	19,1
4	Severe Anemia	0	0
Amount		47	100

Based on table 2, the results showed that hemoglobin levels in pregnant women before consuming red guava were in the normal category as many as 10 respondents (21.3%), mild anemia as many as 28 respondents (59.6%), moderate anemia as many as 9 respondents (19.1%). %).

3. Frequency Distribution After Consuming Red Guava by Pregnant Women

Table 3
Frequency Distribution After Consuming Red Guava
by Pregnant Women at the KIA Poly UPTD Seunuddon Health
Center North Aceh Regency

No	HB levels	F	%
1	Normal	35	74,5
2	Mild Anemia	12	
3		0	

4	Moderate Anemia	0	25,5
	Severe Anemia		0
			0
Amount		47	100

Based on table 3, the results show that hemoglobin levels in pregnant women after consuming red guava are in the normal category for 35 respondents (74.5%), with mild anemia for 12 respondents (25.5%).

B. Bivariate Analysis
1. Normality

Table 4
Normality

	N	Mean	Std. Deviasi	Asymp Sig (2-tailed)
Table	94	10,95	,74	0.973

Based on table 4, it can be seen that Asymp Sig (2-tailed) is 0.973 > more than 0.05, which means the data is normally distributed.

Table 5
Increased Hemoglobin Levels in Pregnant Women After Consuming Red Guava

	N	Mean	Std. Deviasi	P Value
Pretest	47	10,45	,521	0.000
Posttest	47	11,45	,571	

Based on table 4.5, it can be concluded that the results of the paired sample test before and after consuming red guava, obtained a sig value (2-tailed) = 0.000 < 0.05, which means that there is an effect of consuming red guava on increasing hemoglobin levels in pregnant women at the Polyclinic. KIA UPTD Seunuddon Community Health Center, North Aceh Regency.

CONCLUSION

The effect of consuming red guava on increasing hemoglobin levels in pregnant women at the KIA UPTD Polyclinic, Seunuddon Health Center, North Aceh Regency

Based on the research results, the results of paired sample tests were obtained before and after consuming red guava. The sig value (2-tailed) = 0.000 < 0.05, which means that there is an effect of consuming red guava on increasing hemoglobin levels in pregnant women at the UPTD KIA Polyclinic. Seunuddon Community Health Center, North Aceh Regency.

Hemoglobin according to Herlina and Djamilus (2018) is an oxygen-carrying metalprotein containing iron in red cells in the blood of mammals and other animals. The hemoglobin molecule consists of globin, apoprotein and four heme groups, an organic molecule with one iron atom. Hemoglobin examination and monitoring can be done using the Sahli tool. Blood tests are carried out at least twice during pregnancy, namely in the first trimester and third trimester.

A pregnant woman who has an Hb level of less than 10 gr% according to Herlina and Djamilus (2018) is said to suffer from anemia in pregnancy. Anemia in pregnancy or lack of hemoglobin levels in the blood can cause more serious complications for the mother in pregnancy, childbirth and postpartum, namely it can result in abortion, premature parturition, prolonged labor due to uterine inertia, post partum bleeding due to uterine atony, shock, intra partum infection. or post partum. Severe anemia with Hb less than 4 gr% can result in decompensation cordis. Meanwhile, complications can occur in the products of conception, namely early death, perinatal death, prematurity, congenital defects and insufficient iron reserves.

Efforts to increase hemoglobin levels in pregnant women and administering Fe tablets can also be combined with complementary therapies derived from herbs, one of which is consuming red guava juice. In terms of vitamin C concentration, guava fruit is unmatched. Ascorbic acid levels in guava are approximately 87 milligrams per 100 grams, making it much higher than oranges. Guava has 49 calories, 0.9 grams of protein, 0.3 grams of fat, 12.2 grams of carbohydrates, 14 milligrams of calcium, 28 milligrams of phosphorus, 1.1 milligrams of iron, 25 IU of vitamin A, 0.05 milligrams of vitamin B1 and 86 grams of air per 100 grams. Furthermore, the vitamin C contained in guava increases the absorption of iron by the body. Therefore, the body is expected to be able to absorb iron optimally and increase hemoglobin levels (Yusnaini, 2014).

Red guava juice which is rich in iron can treat anemia in pregnant women and helps iron absorption. Vitamin C helps iron absorption by converting iron (Fe^{3+}) to iron (Fe^{2+}) in the small intestine, making foods high in iron more easily absorbed. A further decrease in pH will occur if gastric pH decreases. Iron absorption can be increased by as much as 30% thanks to vitamin C's ability to increase gastric pH. Furthermore, L-ascorbic acid helps transport by suppressing plasma transferrin to liver ferritin. According to Augustina, Indrayani, and Suralaga (2022), most of the transferrin in the blood is responsible for transporting iron to the bone marrow for storage and use by the body.

This is in accordance with the results of research conducted by Tyastuti (2019) entitled giving guava on hemoglobin levels in adolescent girls who experience anemia at SMAN 1 Bergas, Semarang Regency. The results showed changes in hemoglobin levels between the 3 treatment groups, the positive control group and the negative control group ($p= 0.022$) using the Krustall Wallis Test. The highest change in hemoglobin levels in the treatment group was that before the intervention the average hemoglobin level was 10.92 g/dl to 12.27 g/dl ($t= 4.768$, $p= 0.001$) with the paired t-test, so there was an effect giving guava juice to the hemoglobin levels of adolescent girls who suffer from anemia. One fruit that can increase hemoglobin levels is guava. The chemical content in guava is amino acids (tryptophan, lysine), calcium, phosphorus, iron, sulfur, vitamin A, vitamin B1, and vitamin C. The mineral content is Guava fruit can treat anemia sufferers (lack of red blood) because red guava fruit also contains minerals that can facilitate the process of forming hemoglobin in red blood cells. Mineral content such as magnesium, copper and manganese. Manganese is used by the body as a co-factor for the antioxidant enzyme, superoxide dismutase. Copper is needed in the production of red blood cells, this is in accordance with the opinion of Muhlisah (2010) which is supported by the opinion of Indah (2012)

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