Nutrizione
Nawala Education
https://jurnal-ilcaagam.com/index.php/JN/index
Volume XX Issue XX, XXXX
e-ISSN : xxxx-xxxx
DOI : https://doi.org/10.62872/jn.

THE EFFECT OF GIVING DRAGON FRUIT JUICE ON HB LEVELS IN PREGNANT WOMEN IN THE TAMBUSAI UTARA II PUBLIC HEALTH CENTER AREA, ROKAN HULU REGENCY

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ABSTRAC

Anemia is the most common hematological problem encountered during pregnancy. World Health Organization (WHO), 42% of pregnant women worldwide suffer from anemia. Anemia in pregnancy is a condition where pregnant women have Hb levels < 11.00 gr% in the first, second and third trimesters or Hb levels < 10.50 gr% in the second trimester. One way to treat anemia non-pharmacologically is by giving dragon fruit juice. Dragon fruit is rich in minerals, iron and vitamin C which are very important in the formation of red blood cells. The aim of this research was to determine the effect of giving dragon fruit juice on hemoglobin (Hb) levels in pregnant women in the working area of North Tambusai II Community Health Center, Rokan Hulu Regency. This research method is Pre-Experiment with a one group pre test and post test approach. The research results showed that the average Hb level of pregnant women before being given dragon fruit was 9.9600 and after being given dragon fruit juice the average Hb level of pregnant women was 11.420. Based on the results of the T-dependent statistical test, it was found that there was an effect of giving dragon fruit on hemoglobin levels in pregnant women, p value = 0.000. It is recommended that the Tambusai Utara II Community Health Center provide education to pregnant women that dragon fruit juice can be used as an alternative to increase hemoglobin levels in pregnant women.

Keywords: *Hb levels, pregnant women, North Tambusai II Public Health Center*

INTRODUCTION

Anemia remains one of the most prevalent public health problems affecting pregnant women worldwide. According to the World Health Organization (WHO), approximately 42% of pregnant women globally suffer from anemia, with higher prevalence observed in developing countries. In Indonesia, the prevalence of anemia among pregnant women continues to increase, indicating a serious public health concern. Anemia during pregnancy is defined as a condition in which hemoglobin (Hb) levels are below 11 g/dL in the first and third trimesters, or below 10.5 g/dL in the second trimester. This condition can lead to serious complications for both mother and fetus, including preterm birth, low birth weight, infection, hemorrhage, and even maternal and neonatal mortality.

The primary cause of anemia in pregnancy is iron deficiency due to increased nutritional demands and physiological changes during gestation. Iron plays a crucial role in hemoglobin synthesis, which is essential for oxygen transport throughout the body. Inadequate intake of iron and supporting nutrients such as vitamin C can impair hemoglobin production, thereby

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increasing the risk of anemia. Although pharmacological interventions such as iron supplementation are commonly used, they are sometimes insufficient or associated with side effects, leading to the need for alternative non-pharmacological approaches.

One potential alternative is the consumption of nutrient-rich foods, such as dragon fruit (Hylocereus polyrhizus). Dragon fruit is known for its high content of iron, vitamin C, and antioxidants, which are beneficial in enhancing iron absorption and supporting red blood cell production. Several previous studies have reported that the consumption of dragon fruit can significantly increase hemoglobin levels in pregnant women. However, limited studies have been conducted in the Tambusai Utara II Community Health Center area, Rokan Hulu Regency.

Preliminary observations in this area revealed that many pregnant women still experience low hemoglobin levels and lack knowledge regarding non-pharmacological methods to manage anemia. Therefore, this study aims to analyze the effect of dragon fruit juice consumption on hemoglobin levels in pregnant women in the working area of Tambusai Utara II Community Health Center. The findings of this study are expected to provide scientific evidence and contribute to the development of effective, affordable, and accessible interventions for preventing and managing anemia in pregnancy.

RESEARCH METHODOLOGY

This study employed a quantitative analytical design using a pre-experimental approach with a one-group pre-test and post-test design. The purpose of this design was to evaluate the effect of dragon fruit juice consumption on hemoglobin (Hb) levels in pregnant women by comparing measurements taken before and after the intervention.

The study was conducted in the working area of Tambusai Utara II Community Health Center, Rokan Hulu Regency, Indonesia, from February to March 2024. The population of this study consisted of all pregnant women in the area, with a total of 20 individuals. The sampling technique used was total sampling, in which all eligible participants were included as research subjects.

The inclusion criteria were pregnant women diagnosed with anemia, those who had never consumed dragon fruit juice as a treatment for anemia, those who were willing to participate, and those who were not taking iron supplements prior to the study. The exclusion criteria included pregnant women who refused to participate and those with chronic illnesses or infections.

The intervention involved the administration of pure dragon fruit juice at a dose of 250 grams per day for seven consecutive days. Hemoglobin levels were measured before (pre-test) and after (post-test) the intervention using a digital hemoglobin testing device (Easy Touch GCHb). Data collected included participants' hemoglobin levels and basic demographic information.

Data analysis was performed using Statistical Package for the Social Sciences (SPSS). Univariate analysis was used to describe the characteristics of the variables, while bivariate analysis was conducted using the dependent (paired) t-test to determine the difference in hemoglobin levels before and after the intervention. A confidence level of 95% ($\alpha = 0.05$) was applied to assess statistical significance.

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Ethical considerations were strictly observed in this study. Informed consent was obtained from all participants prior to data collection. Participants' confidentiality and anonymity were ensured by using coded data instead of personal identifiers. The study also adhered to ethical principles in research involving human subjects.

RESULTS AND DISCUSSION

A. Univariate Analysis

Based on research on the relationship between giving dragon fruit juice and Hb levels in pregnant women in the Tambusai Utara II Community Health Center, Rokan Hulu Regency, the following research results were obtained:

Table 4.1 Average Hb levels before giving dragon fruit juice

Variabel	Mean	± SD	Min – Max
Pre Test	9,9600	0,6782	8,5 – 10,9

Based on the analysis results in Table 4.1, the average Hb level before dragon fruit juice administration was 9.9600 g/dL with a standard deviation of 0.6782. The lowest Hb level was 8.5 g/dL and the highest Hb level was 10.9 g/dL.

Table 4.2 Average Hb levels before giving dragon fruit juice

Variabel	Mean	± SD	Min – Max
Post Test	11,420	0,47389	10,8 – 12,3

Based on the analysis results in Table 4.2, the average Hb level after dragon fruit juice administration was 11.420 g/dL with a standard deviation of 0.47389. The lowest Hb level was 10.8 g/dL, and the highest Hb level was 12.3 g/dL.

B. Analisis Bivariat

The results of the bivariate analysis of the statistical test on Hb levels in pregnant women in the Tambusai Utara II Community Health Center, Rokan Hulu Regency, before (pre-test) and after (post-test) are shown in Table 4.3 below.

Table 4.3 Dependent T-test of Dragon Fruit Juice Administration on Hb Levels in Pregnant Women in the Tambusai Utara II Community Health Center, Rokan Hulu Regency

Variabel	Mean	± SD	P-Value	N

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Pre Test dan Post Test	-1,4600	0,5641	0,000	15

Based on the results of statistical analysis, the average difference in Hb levels before and after dragon fruit juice administration was 1.460 with a standard deviation of 0.5641. A P-Value of 0.000 indicates a significant effect on the increase in Hb levels after dragon fruit juice administration.

CONCLUSION

1. The average Hb level of pregnant women in the Tambusai Utara II Community Health Center, Rokan Hulu Regency, before administering dragon fruit juice was 9.9600 with a standard deviation of 0.6782.

2. The average Hb level of pregnant women in the Tambusai Utara II Community Health Center, Rokan Hulu Regency, after administering dragon fruit juice was 11.420 with a standard deviation of 0.47389. The difference between the average before and after administering dragon fruit juice was 1.4600 with a standard deviation of 0.5641. This indicates an increase in Hb levels after administering dragon fruit juice.

3. There was an effect of administering dragon fruit juice on pregnant women in the Tambusai Utara II Community Health Center, Rokan Hulu Regency, with a p-value of 0.000.

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