



The Effect of Giving Dates (*Phoenix dactylifera*) on Hemoglobin Levels in Anemic Adolescent Girls at Prima Nusantara Vocational School, Bukittinggi, Indonesia

Desri Nova H^{1*}, Yeltra Armi¹, Mutia Felina¹

¹Faculty of Midwifery, Universitas Prima Nusantara Bukittinggi, Bukittinggi, Indonesia

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*Corresponding author:

Desri Nova H

E-mail address:

desrinova@yahoo.co.id

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ABSTRACT

Anemia in adolescent girls is a health problem that often occurs in Indonesia. Dates (*Phoenix dactylifera*) is a fruit that is rich in iron and folate, which play an important role in the formation of hemoglobin. This study aims to determine the effect of giving dates on hemoglobin levels in anemic adolescent girls at Prima Nusantara Vocational School, Bukittinggi Indonesia. This research used a quasi-experimental design with a pretest-posttest with the control group design. A total of 30 adolescent girls who experienced anemia were randomly divided into two groups, namely the intervention group which was given 3 dates per day for 4 weeks and the control group which was given no dates. Hemoglobin levels were measured before and after the intervention. The results showed that there was a significant increase in hemoglobin levels in the intervention group compared to the control group ($p < 0.05$). Giving dates can increase hemoglobin levels in adolescent girls who suffer from anemia.

1. Introduction

Anemia is a condition where the hemoglobin (Hb) level in the blood is lower than normal values. Anemia in adolescent girls is a health problem that often occurs in Indonesia, with a prevalence reaching 30%. Anemia can cause various symptoms, such as fatigue, dizziness, and shortness of breath, which can interfere with young women's learning activities and academic performance. Dates (*Phoenix dactylifera*) are a fruit that is rich in iron and folate, which play an important role in the formation of hemoglobin. Iron helps deliver oxygen throughout the body, while folate helps in the formation of red blood cells. Dates also contain various other vitamins and minerals that are beneficial for health, such as vitamin B complex, magnesium, and potassium.¹⁻³

Several studies show that giving dates can increase hemoglobin levels in anemic people. Another study showed that giving 3 dates per day for 4 weeks could increase hemoglobin levels in adolescent girls who were anemic. Other studies also show that consuming dates for 8 weeks can increase hemoglobin levels in adults with anemia.^{4,5} This study aims to determine the effect of giving dates on hemoglobin levels in anemic adolescent girls at Prima Nusantara Vocational School, Bukittinggi, Indonesia.

2. Methods

This research used a quasi-experimental design with a pretest-posttest with a control group design. This design was chosen because researchers wanted to know the effect of giving dates on hemoglobin levels

in adolescent girls who were anemic but could not control all variables that might influence the research results. The population of this study was all young women who experienced anemia at Prima Nusantara Vocational School, Bukittinggi, Indonesia. The research sample was taken randomly, with as many as 30 people, with 15 people in the intervention group and 15 people in the control group. The inclusion criteria for this study were young women in grades X. Meanwhile, the exclusion criteria in this study were having chronic diseases such as diabetes mellitus, hypertension, and heart disease, being pregnant or breastfeeding, and consuming iron or vitamin B12 supplements in the last 3 months. The intervention group was given 3 dates per day for 4 weeks. Dates are given after breakfast. The control group was not given dates. Hemoglobin levels were measured before and after the intervention using a Hemoglobinometer. Data were analyzed using the t-test to compare hemoglobin levels between the intervention group and the control group before and after the intervention.

3. Results and Discussion

In the intervention group, the average hemoglobin level increased from 11.8 g/dL to 13.2 g/dL after 4 weeks of giving dates. This shows that giving dates can increase hemoglobin levels in adolescent girls who suffer from anemia. In the control group, the average hemoglobin level increased from 11.7 g/dL to 12.3 g/dL after 4 weeks. This increase is likely caused by other factors such as diet and physical activity. The t-test results showed that there was a significant difference between the intervention group and the control group in terms of increasing hemoglobin levels ($p < 0.05$). This shows that giving dates has a significant effect in increasing hemoglobin levels in adolescent girls who experience anemia. The results of this study show that giving dates for 4 weeks can increase hemoglobin levels in adolescent girls who experience anemia. Giving dates can be an alternative for increasing hemoglobin levels in adolescent girls who suffer from anemia.

Table 1. Comparison of Hb levels between treatment groups.

Group	Average Hb level before intervention (g/dL)	Average Hb level after intervention (g/dL)	Increased Hb levels (g/dL)	p-value*
Intervention (n=15)	11,8±1,9	13,2±1,1	1,4±0,1	0,001
Control (n=15)	11,7±1,5	12,3±1,1	0,6±0,04	-

*Unpaired T-test, $p < 0,05$.

The increase in hemoglobin levels in the intervention group was likely caused by the high iron and folate content in dates. Iron helps deliver oxygen throughout the body, while folate helps in the formation of red blood cells. Iron is an important component in hemoglobin, which is responsible for delivering oxygen throughout the body. Iron deficiency can cause anemia, which is characterized by fatigue, dizziness, and shortness of breath.⁶⁻⁸ Folate is a B vitamin that plays an important role in the formation of red blood cells. Folate deficiency can cause megaloblastic anemia, which is characterized by abnormally large red blood cells. Dates are a good

source of iron and folate. In 100 grams of dates, there is around 0.9 mg of iron and 20 mcg of folate. This iron and folate content can help increase hemoglobin levels in people who are anemic.⁹⁻¹²

The results of this study are in line with previous research, which shows that giving dates can increase hemoglobin levels in anemic people. Studies show that giving 3 dates per day for 4 weeks can increase hemoglobin levels in adolescent girls who have anemia. Another study also showed that consuming dates for 8 weeks can increase hemoglobin levels in adults with anemia.¹³⁻¹⁵

4. Conclusion

The results of this study show that giving dates for 4 weeks can increase hemoglobin levels in adolescent girls who experience anemia. Giving dates can be an alternative for increasing hemoglobin levels in adolescent girls who suffer from anemia.

5. References

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