Research Paper

Adolescents' Needs About Consumption of Phoenix Dactylifera and Lime Against Increased Hemoglobin Levels in Gorontalo City

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ABSTRACT: *Generally, women take iron supplements in overcoming problems related to anemia. Treatment of natural ingredients, one of which is date fruit. Date fruit (Phoenix dactylifera) has a variety of nutrients. The purpose of the study was to find out the effectiveness of the consumption of date fruit (Phoenix Dactylifera) and lime against increased levels of hemoglobin in adolescents with anemia. This study uses a pre-experimental one-group pre-post test design research design. Researchers involved a group of adolescent girls who were anemic then given an infusion of water that contained 45 grams of Sukari Dates fruit inserted into 600 ml of mineral water that had been filled before into a bottle with a volume of 1000 ml and lime measuring 0.7cm with a weight of about 10gr given for 14 days. The study was conducted from July to November 2021. The results showed a significant value of 0,000 (<0.05) which means there is an influence between infused water of date fruit and lime to increase hemoglobin levels in adolescents. The conclusion of the study shows that there is a significant influence between the infused water of date fruit and lime in increasing hemoglobin levels in adolescents in the working area of Dungingi Health Center in Gorontalo.*
KEYWORDS: *Lime, Hb Level, Phoenix Dactylifera, Adolescents*

I. INTRODUCTION

Date fruit is a fruit that is often consumed by Muslims and is identical to the month of Ramadan. Dates fruit (Phoenix dactylifera) belong to the Palmae family and are often called date palms, which have a wide variety of nutrients and can serve as medicine (Rakhmawan, 2006). Date fruit also contains vitamins that can help strengthen nerves, smooth blood circulation, cleanse the intestines, and maintain inflammation and infection caused by bacteria (Satuhu, 2010). According to the results of research by Abu Dhabi scientists, date fruit has been shown to suppress bacterial activity through cell membranes and prevent infection and be resistant to storage for long periods of time.

Hemoglobin is a protein compound with Fe that is needed by the body that serves to transport oxygen (O_2) into the tissues and take gas (CO_2) from the tissue to the lungs. If hemoglobin levels are reduced below normal it will interfere with activity in the body, if the hemoglobin levels are lower than the normal price it is called anemia (Irianti, et al, 2015). Adolescence is a critical stage of life, so the period is categorized as a vulnerable group and has high health risks. Anemia is most susceptible to occur in young women this is because young women menstruate every month and are in their infancy. Anemia in adolescents can result in decreased reproductive health, impaired cognitive function, low academic ability, and decreased physical capacity (Suryani, et al., 2015; Sari, et al, 2016).

To overcome the problem of anemia pharmacologically generally women consume iron supplements, but as for other alternatives, namely by providing pharmacological therapy from natural ingredients, one of which is date fruit, where date fruit contains important minerals such as calcium, phosphorus, potassium, sodium, iron, magnesium, and copper, with these contents can make haemoglobin levels increase (Islamiyah, et al. 2017).

The World Health Organization (WHO) says anemia is the 10th biggest health problem of the modern century, with the groups at high risk of anemia being women of childbearing age, pregnant women, school-age

children, and adolescents. According to 2013 WHO data, the prevalence of world anemia ranges from 40-88%. The number of adolescent girls with anemia (10-19 years) in Indonesia by 49.1% (Kemenkes RI, 2013; Choiriyah, 2015). The state of health and nutrition of the age group of 10-24 years in Indonesia is still concerning. Riskesdas data 2013 incidence of anemia in children aged 5-14 years by 26.4%, children aged 15-24 years by 18.4%. Based on data from the Gorontalo Provincial Health Office in 2017, the number of junior high school girls who are anemic, namely, in Gorontalo Province as many as 269 people (3.8%) from the number of junior high school students in Gorontalo Province, Boalemo Regency as many as 89 0rang (5.9%), then for Gorontalo City as many as 72 people (3.5%), Bone Bolango Regency as many as 58 people (4.9%), Pohuwato Regency as many as 46 people (4.6%), and then the next one in North Gorontalo Regency as many as 4 people (0.4%), Gorontalo Regency was not found anemia (Gorontalo Provincial Health Office, 2017).

Based on data from the Gorontalo City Health Office in 2017 there are data on the number of adolescent girls with anemia who visit each Health Center, and the number of young women with anemia who visited the highest was in the South City Health Center, which is as many as 7 people, then the next Dumbo Raya Health Center is as many as 4 people, Puskesmas Dungingi amounted to 1 person, as well as in Hulontalangi Health Center amounting to 1 person, Then for the West City Health Center, Central City, Eastern City, Pilolodaa Health Center, and Sipatana Health Center, no young women with anemia visited (Gorontalo City Health Office, 2017).

Initial study at Dungingi Health Center of Gorontalo City, during 2018 of 182 adolescents with the number of visits K1 182 adolescents and K4 134 adolescents occurred 2 cases of bleeding that is the impact of anemia. Meanwhile, in 2019, out of 175 adolescents, 37 were found to be with anemia. Efforts to overcome the incidence of anemia carried out by puskesmas are starting to apply and focused on giving blood plus tablets (Fe) but because of the routine consumption of the drug, causing haemoglobin levels have not reached normal values.

II.   RESEARCH METHODS

The research design used is to use a pre-experimental research design (one group pre-post test design) which is a treatment group observed or done pre-test and after intervention with post-test. After treatment was given to the group, the values before and after the treatment were compared. The instrument used in this study was an observation sheet of Hb levels before and after being given date fruit and lime designed by researchers. This research was conducted at Dungingi Health Center in Gorontalo City and was held in July - September 2021. The population in this study was all young women who suffered from anemia in the working area of Dungingi health center. Using nonprobability sampling technique is a sampling technique by selecting samples among populations according to what the researcher wants so that the sample can represent the characteristics of the population. The number of samples in the study was 30 respondents.

Data collection using primary data and secondary data. The primary data in this study is data obtained directly through observation of Hb levels in adolescents. Secondary data obtained by researchers from Dungingi Health Center.

Data processing is done manually and electronically using calculators and computerization with statistical data processing programs, with the following steps: Editing, Coding, Data entry, Data cleaning. The processed data is presented in the form of tables and narratives to discuss the results of the study.

III.   RESULTS AND DISCUSSIONS

Results

This study has been conducted in July - September 2021. The sample in this study amounted to 30 people, the results of the study are as follows:

a.   Distribution Based on Respondent's Age Characteristics

Table 1. Distribution Based on Respondent's Age Characteristics

Age	Frequency	Percentage (%)
Early Teens (11-14 years old)	17	56,66
Middle Teens (15-17 years old)	11	36,66
Late Teens (18-21 years old)	2	6,66
Total	30	100

Source: Primary Data

In the table above, you can see there are 3 categories of respondents' ages, namely early, middle and late adolescence. It can be concluded that the adolescents with the most anemia are 17 years old.

b. Distribution of Respondent Frequency Based on The Menarche Cycle

Table 2. Distribution of Respondent Frequency Based on The Menarche Cycle

Age	Frequency	Percentage (%)
Normal	28	93,33
Abnormal	2	6,67
Total	30	100

Source: Primary Data

In the table above, there are categories 2 of menarche cycles that are normal and abnormal. It can be concluded that respondents who have a normal menarche cycle the most 28 respondents.

Statistical Tests

Table 3. Paired t test in treatment group

		Paired Differences							
					95% Confidence Interval of the Difference				
		Mean	Std. Dev	Std. Error Mean	Lower	Upper	t	df	Sig. (2-tailed)
Pair 1	HB Control	-2.44333	.67450	.12315	-2.69520	-2.19147	-19.841	29	.000

The results of the pre-test and post-test data in the treatment group showed a significant value of 0,000 (<0.05) which means, there is an influence between the infused water of date fruit and lime and the value of adolescent hemoglobin levels.

Discussions

Characteristics of adolescents suffering from anemia based on age

The results showed that the age group did not have a significant association with the incidence of anemia in adolescent Health Centre Dungingi. The results of the study are following the research of Jaelani, Simanjuntak, & Yuliantini (2015) in Priyanto (2018) that age has no association with the incidence of anemia. Age is the age of the individual that is calculated from the time of birth to the present. The older the age, the level of capture and mindset of a person will be more mature in thinking so that the knowledge gained is getting better.

Characteristics of adolescents suffering from anemia based on the menarche cycle

The results showed that the menarche cycle had a significant association with the incidence of anemia in adolescent Health Centre Dungingi. The results of the study are following Kristianti, Wibowo, and Winarsih (2013) research that anemia can affect the menstrual cycle in a woman. Adequate hemoglobin levels or a person is not anemic will help regularity of the menstrual cycle in women. Conversely, iron deficiency in the body can lead to low levels of hemoglobin, which eventually leads to many complications in women.

Effect of infused water of date fruit and lime on adolescent hemoglobin levels

The results of the pre-test and post-test data in the treatment group showed a significant value of 0,000 (<0.05) which means, there is an influence between the infused water of date fruit and lime and the value of adolescent hemoglobin levels. Date fruit has a very high iron content so it is suitable to increase HB levels. Dates fruit are known to have antioxidant, antimicrobial, antitumor, antimutagenic, antidiabetic, and anti-inflamantori effects (Vayalil, 2002; Saddiq and Bawazir, 2010; Rahmani et al., 2015) in (Muzaifa, Lubis, & Amirullah, 2019). The content of 100 g of dates fruit is carbohydrates 74.97 g, Protein 0.81 g, total fat 0.15 g, dietary fiber 6.7 g, folic acid 25 mg, pyridoxine 0.249 mg, vitamin A 149 IU, vitamin K 2.7 mg, sodium 1 mg, calcium 64 mg., copper 0.362 mg, Iron 0.90 mg (Jahroni, 2007) in (Muzaifa, Lubis, &Amirullah, 2019). The addition of lime is thought to increase vitamin C levels and can add freshness to infused water dates fruit. One

fruit that has a high vitamin C and compounds useful for health is thin. The content of lime in 180 mg is 24.66 mg of vitamin C, 0.49mg of Iron, and 27 mcg of folic acid.

Hemoglobin Levels Before Consuming Infusion of Water Date fruit and Lime

Based on the results of research before the intervention of water infusion of date fruit and lime showed that respondents had hemoglobin levels below normal amounted to 30 adolescent respondents with the most anemia aged 17 years. According to the assumption of researchers that the infusion of water of date fruit and lime contains a lot of nutrients that the body needs in carrying out activities.

Infused water is water whose depth is added fresh fruits or herbs by immersion and quiet in a certain time (Muzaifa, et al). Infused water can be a recommendation for those who do not like to consume water or mineral water because of the taste and aroma.

The results of the study are following the research of Jaelani, Simanjuntak, & Yuliantini (2015) in Priyanto (2018) that age has no association with the incidence of anemia. Age is the age of the individual that is calculated from the time of birth to the present. The older the age, the level of capture and mindset of a person will be more mature in thinking so that the knowledge gained is getting better.

Hemoglobin Levels After Consuming Infusion of Water Of Date and Orange Fruit

The results showed that after being given an infusion of water infusion of date fruit and lime obtained a significant effect on hemoglobin levels that increased after consuming the infusion of water. According to researchers, the increase in hemoglobin levels occurred because respondents were conscious and followed the recommendations of the team to consume every morning and evening.

The results of the pre-test and post-test data in the adolescent group showed a significant value of 0,000 (<0.05) which means, there is an influence between the infused water of date fruit and lime and the value of adolescent hemoglobin levels. Date fruit has a very high iron content so it is suitable to increase Hb levels. Dates fruit are known to have antioxidant, antimicrobial, antitumor, antimutagenic, antidiabetic, and anti-inflamantori effects (Vayalil, 2002; Saddiq and Bawazir, 2010; Rahmani et al., 2015) in (Muzaifa, Lubis, & Amirullah, 2019). The content of 100 g of dates fruit is carbohydrates 74.97 g, Protein 0.81 g, total fat 0.15 g, dietary fiber 6.7 g, folic acid 25 mg, pyridoxine 0.249 mg, vitamin A 149 IU, vitamin K 2.7 mg, sodium 1 mg, calcium 64 mg., copper 0.362 mg, Iron 0.90 mg (Jahroni, 2007) in (Muzaifa, Lubis, &Amirullah, 2019). The addition of lime is thought to increase vitamin C levels and can add freshness to infused water dates fruit. One fruit that has a high vitamin C and compounds useful for health is thin. The content of lime in 180 mg is 24.66 mg of vitamin C, 0.49mg of iron, and 27 mcg of folic acid.

IV.   CONCLUSION

There was an influence between infused water of date fruit and lime and the value of adolescent hemoglobin levels with a significant value of 0,000 (<0.05). This proves that infused water of date fruit and lime is more effective at increasing hemoglobin levels in adolescents. Some advice can be given from this study, including for health center expected, in the provision of nursing care to adolescents with anemia to combine infused water of date fruit and lime as a complementary therapy in addition to the use of drugs. For nursing institutions, it is expected that the results of this study can be used as a reference or evidence-based practice in providing nursing care to adolescents with anemia. For Mitra researchers: this study can add to the scientific characteristics in the field of maternity nursing, especially in cases of anemia experienced by adolescents.

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