



The Effect of Giving Dates (*Phoenix dactylifera*) on Increasing Hemoglobin Levels in Adolescent Girl

Syafitri Aulia¹, Winda Maulinasari Nasution², Nirma Surya Utami³

^{1,2,3} STIKes Widya Husada Medan, Jl. Williem Iskandar, Medan, Indonesia

Email : syafitriauliabiologi@gmail.com

Article details:

Published: 30th December 2022



Abstract

Women have the highest risk of developing anemia, especially in adolescents. This is because young women experience menstruation every month, low food intake, increased iron needs due to the accelerated growth process (growth spurt), and limit food consumption so that the concentration of iron in the blood can be reduced and the levels of hemoglobin or red blood cells decrease cause anemia (Kemenkes RI, 2018). The purpose of this study was to see the effect of giving dates (*Phoenix dactylifera*) on increasing hemoglobin levels in young women at Yayasan Pendidikan SMP Swasta Pertiwi Medan Jl. Budi Kemasyarakatan No.4 Pulo Brayan Kota, Medan City, and can collect and provide

information for young women about the Effect of Giving Dates (*Phoenix dactylifera*) on Increased Hemoglobin Levels in Young Girls so they can take action or prevention as early as possible so it doesn't impact health sufferer. The main problem in this study is when viewed from the prevalence of anemia which continues to increase every year, to prevent this increase information about how to use Fe tablets should be further improved, but among adolescents there is less adherence to consuming Fe tablets because there is nausea, constipation, colored stools black and diarrhea, do not like the smell or taste and there is a feeling of laziness because they feel unnecessary and there is a feeling of discomfort when consuming it. This research method is Quasi Experimental with Pretest and Posttest one Group Design. The population in this study were all female students in grades VII and VIII of 50 respondents. The sampling technique was random sampling. Data analysis was bivariate, univariate with paired t-tests. The results of this study are expected to be input for young women at Yayasan Pendidikan SMP Swasta Pertiwi Medan Jl. Budi Kemasyarakatan No.4 Pulo Brayan, Medan City, in order to take the necessary actions to reduce the incidence of anemia in adolescents as early as possible so that the prevalence of anemia in adolescents does not increase. The result shown that giving dates has an effect on increasing hemoglobin levels in young women, this is because processed dates have an iron content.

Keywords : Dates, :hemoglobin, :adolescent girl, :anemia

To cite this article :

Syafitri Aulia, Winda Maulinasari Nasution, N. S. U. (2022). The Effect of Giving Dates (*Phoenix dactylifera*) on Increasing Hemoglobin Levels in Adolescent Girl. *International Journal of Health, Education and Social (IJHES)*, 5(12), 1–10.



Introduction

Anemia is a condition when the number of red blood cells or the amount of hemoglobin in the red blood cells is below normal. Red blood cells contain hemoglobin which allows them to transport oxygen from the heart, which is obtained from the lungs, and delivers it to all parts of the body. Anemia is a blood disease that is often found, especially in young women, the normal Hb level in young women is 12gr/dl. Adolescent girls are said to be anemic if their Hb levels are less than 12 gr/dl. Adolescent girls are more susceptible to anemia than male adolescents because the need for iron in female adolescents is 3 times greater than that of males, female adolescents experience menstruation every month where iron loss is ± 1.3 mg/day.

Adolescence or puberty is the age between 10 and 19 years and the transition period between childhood and adulthood. The high incidence of anemia in young women is caused by intake of wrong diet, irregular and unbalanced with the adequacy of the nutritional sources needed by the body including energy intake, carbohydrate intake, fat intake, protein intake, vitamin C and especially the lack of food sources containing iron, and folic acid. Efforts to overcome the problem of anemia in adolescents are related to the intake of foods that contain iron.

Anemia in young women is something that needs proper attention. Anemia that occurs during this period often results in adverse effects on adolescents, including decreased achievement caused by decreased IQ, the body during the growth period is easily infected, resulting in reduced fitness or body fitness, decreased enthusiasm for learning and achievement, and if not treated immediately will continue until pregnancy so that at the time of becoming a mother-to-be with high-risk conditions (Anemia in young women is something that needs to be paid close attention to). Anemia that occurs during this period often results in adverse effects on adolescents, including decreased achievement caused by a decrease in IQ, the body during the growth period is easily infected, resulting in reduced fitness, decreased enthusiasm for learning and achievement, and if it is not immediately addressed it will continue into pregnancy so that when it will become a mother-to-be with high-risk conditions affect the process growth and development of brain cells so that the body's resistance decreases, easily weak, easy to feel hungry, disrupted learning concentration and low work productivity.

Methods

Location and time of Research

The research was located at Yayasan Pendidikan SMP Swasta Pertiwi Medan Jl. Budi Kemasyarakatan No.4 Pulo Brayan, Medan City. The time for this research starts in 2022.

Population

The population of this study were all female students of class VII and VIII



Sample

The sample of this research used random sampling technique.

Types of research

This research is a quasi-experimental study with a pretest and posttest one group design.

Method of collecting data

Primary data

Primary data was obtained through observation (using a checklist sheet containing questions at the pretest and posttest).

Secondary Data

Secondary data was obtained from the Health Service Reports and Profiles which included the population situation and other data relevant to the aims and problems of the research.

Variables And Operational Definitions

Independent Variable

Independent Variables are variables that influence or cause changes or the emergence of the dependent variable. The dependent variable in this study is the Effect of Giving Dates (*Phoenix dactylifera*).

Dependent Variable

The dependent variable is the variable that is affected or causes the change or emergence of the independent variable. The dependent variable in this study is the increase in hemoglobin levels in female adolescents

Results and Discussion

Table 1 Frequency Distribution Based on the Characteristics of Young Girls at Yayasan Pendidikan SMP Swasta Pertiwi Medan in 2022

Characteristics of Respondents	f	%
Class		
Class VII	23	46.0
Class VIII	27	54.0
Age		
12 Years old	13	26.0
13 Years old	22	44.0
14 Years old	15	30.0
Menarche		
10 years old	5	10.0
11 years old	16	32.0
12 years old	23	46.0
13 years old	6	12.0



Body Mass Index (BMI)		
Skinny Weight	14	28.0
Light Skinny	5	10.0
Normal	29	58.0
Light Fat	2	4.0
Heavy Fat	0	0.0
Total	50	100

Based on Table 1 above, it is known that the majority of class VIII girls are 27 people (54.0%) and class VII are 23 people (46.0%). The majority of young women are 13 years old as many as 22 people (44.0%) then as many as 15 people (30.0%) are 14 years old and as many as 13 people (26.0%) are 12 years old. The majority of menarche at the age of 12 were 23 people (46.0%), 16 people (32.0%) menarche at 11 years old, then 6 people (12.0%) menarche at 13 years old and 5 people (10.0%) menarche at the age of 10 years old. For Body Mass Index (BMI) the majority of young women have BMI in the normal category as many as 29 people (58.0%), 14 people (28.0%) young women have BMI in the category of underweight, then the category of light underweight as many as 5 people (10.0%) and the category of light fat as many as 2 people (4.0%).

Early adolescents are divided into 3 groups, namely early adolescents (10-13 years), middle adolescents (14-16 years) and late adolescents (17-19 years). Most sufferers of anemia are in their teens. This is because adolescents experience menstruation every month which will affect iron loss during menstruation, while adolescents at this age do not pay attention to the intake of nutrients consumed to restore the iron lost due to menstruation (Adriani, et. al., 2021).

Most female students experience the normal age of menarche, anemia contributes to the delay of menarche for 1.5 to 2 years and the body's response becomes disturbed. Anemia in adolescents is caused by several factors including heavy bleeding and menstruation every month, lack of iron levels in the body, deficiency of folic acid, vitamin B12, chronic disease, malaria, hereditary or genetic hookworm infection (Putra, et. al., 2020). The age of menarche has no effect on the incidence of anemia because anemia can be caused by heavy menstrual bleeding and a lack of iron levels in the body (Cia, et. al., 2021).

Respondents who have normal nutritional status, they can get anemia if their eating habits are not balanced, such as if the respondent rarely consumes vegetables and it can also be caused if they often eat only foods that contain carbohydrates and fats are not balanced by consuming foods that contain minerals, protein, and vitamins. In terms of nutritional adequacy is very important, because malnutrition can cause a decrease in the formation of red blood cells which can lead to reduced red blood cells in the body and cause anemia. It is also the same as people who have very obese nutritional status or what can be called obese, they consume foods that are high in fat and carbohydrates more often than foods that contain minerals, protein and vitamins. Iron intake which is one of the causes of anemia in each person is different.



Table 2. Frequency Distribution Based on the Characteristics of Parents of Young Girls at Yayasan Pendidikan SMP Swasta Pertiwi Medan in 2020

Characteristics of Parents	f	%
1. Father		
Age		
38 - 43 Years	10	20.0
44 - 49 Years	25	50.0
50 – 55 Years	14	28.0
56 – 61 Years	1	2.0
Education		
Primary School	0	0.0
Junior High School	0	0.0
Senior High School	31	62.0
Diploma III	1	2.0
Bachelor	12	24.0
Postgraduate	6	12.0
Work		
PNS/TNI/POLRI	10	20.0
BUMN	5	10.0
Lecturer/Teacher	1	2.0
Private employees	10	20.0
Self-employed	21	42.0
Contractor	1	2.0
Businessman	2	4.0
Total	50	100

Based on Table 2 above, it is known that the age of the majority of respondents' fathers was aged 44-49 years as many as 25 people (50.09%). The education of the majority of the fathers is SMA/SMK/STM as many as 31 people (62.0%) and the majority work as entrepreneurs as many as 21 people (42.0%).

Table 3 Frequency Distribution Based on the Characteristics of the Parents of Young Girls at Yayasan Pendidikan SMP Swasta Pertiwi Medan in 2020 2

Characteristics of Parents	f	%
2. Mother		
Age		
32 - 38 Years	7	14.0
39 - 45 Years	30	60.0
46 – 52 Years	12	24.0
53 – 59 Years	1	2.0



Education		
SD	0	0.0
Junior High School	0	0.0
Senior High School	31	62.0
Diploma III	2	4.0
Bachelor	15	30.0
Postgraduate	2	4.0
Work		
civil servant	3	6.0
Teacher	2	4.0
Private employees	3	6.0
Self-employed	1	2.0
Housewife	40	80.0
Businessman	1	2.0
Total	50	100

Based on Table 3 above, it is known that the age of the majority of respondents aged 39-45 years as many as 30 people (60.0%). The majority of mothers' education is Senior High School as many as 31 people (62.0%) and the majority of mothers work as Housewife as many as 40 people (80.0%)

Parental knowledge is very important in providing food for daily consumption. Parents with a high level of education will more easily receive health information, especially in the field of nutrition, so that they can increase their knowledge and be able to apply it in life. If, parents, especially mothers who are highly educated, will pay more attention to their child's diet, because parents will always want to have sufficient intake of good nutrition for their children. The higher the level of formal education, it is hoped that the higher the level of health education, because the level of health education is a form of intervention, especially on healthy living behavior factors (Anwar, et. al., 2021) .

Table 4 Frequency Distribution Based on Hb Levels Before and After Giving Dates

Hemoglobin (Hb) Level	f	%
Before Giving Dates		
< 12 gr/dL	43	86.0
= 12 gr/dL	2	4.0
> 12 gr/dL	5	10.0
After Giving Dates		
< 12 gr/dL	8	16.0
= 12 gr/dL	10	20.0
> 12 gr/dL	32	64.0
Total	50	100



Based on the results of Table 4 above, it is known that before being given the treatment, the majority of female adolescents' Hb levels were not normal, namely <12 gr/dL as many as 43 people (86.0%). Then as many as 5 people (10.0%) had Hb levels above normal, namely >12 gr/dL and 2 people (4.0%) young women had normal Hb levels, namely $=12$ gr/dL.

Then after being given the treatment, the majority of female adolescents' Hb levels were above normal, namely >12 gr/dL in 32 people (64.0%). Then as many as 10 people (20.0%) had normal Hb levels, namely $=12$ gr/dL and 8 people (16.0%) young women had abnormal Hb levels, namely <12 gr/dL.

Table 5 Kolmogorov-Smirnov Normality Test Before and After Giving Dates

	Kolmogorov - Smirnov ^a		
	Statistics	df	Sig
Before Giving Dates	.104	50	.200 *
After Giving Dates	.090	50	.200 *

Based on the results of Table 5 above, it is known that the significant value before giving the dates was $p = 0.200$ and after giving the dates a significant value was obtained $p = 0.200$. Because all variables are > 0.05 , it can be concluded that the data is normally distributed.

Table 6 Distribution of Average Values for Increased Hb Levels Before and After Giving Dates

Variables	n	Means	SD	p-values
Before giving dates	50	10.74	1,371	0.000
After giving dates	50	14,23	2,342	

Based on the results of Table 6 above, it is known that of the 50 female adolescents observed, the average Hb level of female adolescents before being given dates was 10.74 and the average Hb level of female adolescents after being given dates was 14.23. The results of the statistical test obtained $p\text{ value} = 0.000$ ($p < 0.05$) which means that statistically there is a significant difference before and after being given dates to increased hemoglobin (Hb) levels in female adolescents.

This is caused by a lack of knowledge and understanding of young women about the incidence of anemia. Teenagers in general do not know and are not aware of the negative consequences that arise when they suffer from anemia. The adolescent's assumption is that anemia is only a matter that is not too important and does not need special attention. Therefore, efforts are needed to increase knowledge about anemia in students, especially among young women who are still classified in the high category, one of the efforts is to carry out counseling with counseling. can increase knowledge about a balanced menu and the benefits of iron tablets (blood supplement



tablets) young women will have a better understanding of how to maintain their own health, especially preventing anemia.

Date juice is a processed product of dates which has an iron content of 1.5 mg per fruit. Iron acts as a raw material for making red blood cells. In addition, date juice also contains components that can increase iron absorption or play a role in the formation of red blood cells where hemoglobin is located including vitamins, minerals, antioxidants and others. Consuming date juice regularly increases iron intake which will certainly further increase hemoglobin levels in adolescents. Dates extract also functions as a medicine and maintains body health, so for teenagers who experience complaints and discomfort from the side effects of iron supplementation such as nausea, difficulty defecating or constipation, black stools and diarrhea, they can take alternatives by consuming date palm juice regularly (Adriani, et. al., 2021) . Provision of dates to anemic adolescents results in increased hemoglobin levels. The nutritional problem that often occurs in adolescents is anemia caused by a lack of nutrients, including iron. Adequate iron intake can reduce the occurrence of anemia. Intake of nutrients can be done by consuming dates. Dates are rich in iron and iron is an essential micro-nutrient in the production of hemoglobin (Amaris et. al., 2021).

Then after being given the treatment, the majority of female adolescents' Hb levels were above normal, namely > 12 gr/dL in 32 people (64.0%). Then as many as 10 people (20.0%) had normal Hb levels, namely = 12 gr/dL and 8 people (16.0%) young women had abnormal Hb levels, namely <12 gr/dL. After giving dates there is a difference between knowledge before and after being given counseling. Teenagers in general do not know and are not aware of the negative consequences caused when they suffer from anemia. The adolescent's opinion is that anemia is only a thing that is not too important and does not need special attention. Therefore, efforts are needed to increase knowledge about anemia in students, especially among young women who are still classified in the high category, one of the efforts is to carry out counseling. One of the preventions that is carried out besides counseling is to increase knowledge about a balanced menu and the benefits of iron tablets (adddblood tablets).) young women will have a better understanding of maintaining their own health, especially preventing anemia (Nurarifah, et. al., 2022) .

This research is in line with research conducted by Dwi Apriyanti, Neneng Siti Lathifah, Vida Wira Utami entitled Giving Dates to Increased Hemoglobin Levels in Adolescent Girls Anemia (2022), this is because the consumption of nutrients eaten every day is different, so that the increase in hemoglobin levels apart from being obtained from dates, is also caused by absorption from other foods. Dates can be one of the choices for special types of food that can be used as a treatment and care for the body's health in increasing hemoglobin levels in the body, especially those needed by young women who experience anemia as a complementary treatment (Dwi & Neneng, 2022).

This research is in line with the research conducted by Fatima, Vina Intan Aprilia, Kartika Pibriyanti, Lulu' Luthfiya, Hafidhotun Nabawiyah entitled The Effect of Date Fruits (*Phoenix dactylifera* L) Intervention to Increase Hemoglobin Levels in Female Adolescents (2021) Based on the research results obtained that the consumption of dates can be used as a therapy for young



female students during their menstrual periods to overcome and prevent anemia . Those who don't like Fe supplements are advised to consume dates. This is because dates contain essential nutrients, such as sugars and acids, minerals, oils, proteins, etc. Additionally, dates contain 1.2 mg/100 g of iron (Aprilia, et. al., 2022).

Conclusion and Recommendation

Giving dates has an effect on increasing hemoglobin levels in young women, this is because processed dates have an iron content of 1.5 mg per fruit. Adolescents when experiencing menstruation can cause anemia due to iron loss, while these young women do not pay attention to the intake of nutrients they consume due to various factors such as health knowledge, especially in the field of nutrition, which is expected to overcome anemia which occurs a lot in adolescence.

Acknowledgment

On this occasion, the author expresses his infinite gratitude to Allah SWT. The acknowledgments include the appreciation given by the author to those who have played a role in the research, to the Directorate of Research, Technology and Community Service (DRTPM) who have provided funds for the implementation of activities, the STIKes Widya Husada Medan and Yayasan Pendidikan SMP Swasta Pertiwi Medan which have provided assistance in the form of financial support, permits, consultants, and assist in data collection.

International Journal of Health, Education and Social (IJHES)



References

- Adriani P, Irmayanti I, Nurrahmah S. Pengaruh Sari Kurma (Phoenix Dactylifera) Terhadap Peningkatan Kadar Hemoglobin Pada Remaja Putri. J SMART Kebidanan. 2021;8(1):1.
- Adriani P, Nurrahmah S, Konawe. Pengaruh sari kurma (phoenix dactylifera) terhadap peningkatan kadar hemoglobin pada remaja putri. 2021;8(1):1–5.
- Amaris AF, Rachman HS, Andriane Y. Scoping Review: Pengaruh Pemberian Kurma (Phoenix dactylifera) terhadap Kadar Hemoglobin pada Pasien Anemia. KaryailmiahUnisbaAcId. 2021;
- Anwar IVFS, Arifin DZ, Aminarista A. Faktor-Faktor Yang Berhubungan Dengan Kejadian Anemia Gizi Besi Pada Remaja Putri Di Sman 1 Pasawahan Tahun 2020. J Holist Heal Sci. 2021;5(1):28–39.
- Aprilia VI, Pibriyanti K, Luthfiya L, Nabawiyah H. The Effect of Date Fruits (Phoenix dactylifera L) Intervention to Increase Hemoglobin Levels in Female Adolescents. 2022;
- Dea Indartanti dan Apona Kartini. Hubungan Status Gizi dengan Kejadian Anemia pada Remaja Putri. J Kebidanan Mutiara Mahakam. 2014;8(2):112–8.
- Dwi Apriyanti, Neneng Siti Lathifah VWU. Pemberian Buah Kurma Terhadap Peningkatan Kadar Hemoglobin Pada Remaja Putri. Midwifery J. 2022;2(1):31–6.
- Nur Arifah, Inna Anjalina, Andi Irna Febriana, Eka Khairunnisa, Nabilah Pratiwi Amir, Wanda Aprilisa, Zaky Muzhaffar SM. Penyuluhan Kesehatan tentang Anemia Pada Siswa di SMPN2 Galesong Selatan Kabupaten Takalar. J Altifani Penelit dan Pengabdi Kpd Masy. 2022;2(2):176–82.
- Putra KA, Munir Z, Siam WN. Hubungan Kepatuhan Minum Tablet Fe dengan Kejadian Anemia (Hb) pada Remaja Putri Di SMP Negeri 1 Tapen Kabupaten Bondowoso. J Keperawatan Prof. 2020;8(1):49–61.