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Research Article

The Effect of The Combination of Dragon Fruit Juice and Anemia Exercises (BuNga SaNemi) in Teenager Girls With Anemia: Case Study

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Abstract

Background: Teenager girls who have experienced menstruation are at high risk of suffering from anemia. Anemia is a level of hemoglobin or the number of red blood cells that is less than normal. One strategy that can be done to overcome the problem of anemia is by giving dragon fruit juice therapy and anemia exercises. This study aims to increase hemoglobin levels in teenage girls with anemia.

Objectives: This study aims to evaluate the effect of dragon fruit juice and anemia exercises (BuNga SaNemi) in teenage girls with anemia.

Methods: This research used a quantitative approach with the case study method. The research design was a quasi-experimental pretest-posttest without a control group design. Respondents were 2 teenager girls. The intervention was given for 7 days, namely 3 times exercise with a duration of 4-5 minutes and dragon fruit juice every day. Data analysis used the Wilcoxon test.

Results: Provision of dragon fruit juice and anemia exercise (BuNga SaNemi) was proven to increase hemoglobin with an average increase of 7.5gr/dl. The results of the Wilcoxon test analysis are Sig. (2-tailed) of 0.001 <0.05 which indicates a significant difference in the hemoglobin value of the two clients before and after the intervention.

Conclusion: Giving dragon fruit juice and anemia exercise (BuNga SaNemi) can be used as an alternative method to increase hemoglobin in teenager girls with anemia.

Keywords: anemia, anemia exercise, dragon fruit, teenager girls

Introduction

Adolescence is a period of developmental transition from childhood and adulthood starting from the age of 12 or 13 years to the age of 20 years, which is characterized by changes in growth and development.¹ One of the developmental processes of teenager girls is menstruation. Menstruation or menstruation is periodic bleeding through the vagina with an endometrial release that occurs for 3-7 days with about 50-150 milliliters of blood loss. Teenager girls who have experienced menstruation are at high risk of suffering from anemia. Anemia is a level of hemoglobin or the number of red blood cells that is less than normal (12.0 gram/100 ml).² Signs and symptoms of adolescents who experience anemia such as paleness, weakness, fatigue, and dizziness, which cause decreased ability to concentrate on learning, inhibition of physical growth and intellectual development of the brain, and decreased endurance due to increased infectious diseases.³

Anemia is still a public health problem in Indonesia that needs special attention. Riskesdas data in 2018, the prevalence of anemia in adolescents is 32%, meaning that 3-4 out of 10 adolescents suffer from anemia.⁴ One strategy that can be used to overcome the problem of anemia is to provide therapy in the form of physical activity. Doing physical activities such as gymnastics can increase blood volume. Anemia gymnastics is a part of reproductive health gymnastics to deal with teenager girls who have anemia. Reproductive health gymnastics is believed to be a good choice of physical activity, especially for teenager girls to overcome anemia problems such as hemoglobin levels and physical fitness for teenager girls.⁵ This is proven by proprietary research by Fitria and Susianty⁶ which stated that the implementation of reproductive health gymnastics affected the fitness of teenager girls in particular to increase hemoglobin levels in teenage girls.

In addition, nutritious food or drinks can also increase Hb, such as consuming fruit or juice, for example, dragon fruit juice. Dragon fruit is a fruit that is rich in nutrients, each content of dragon fruit has benefits for the body.⁷ Dragon fruit is a food ingredient that contains the complete nutrition needed by the body, where the content of protein, iron, vitamin A, vitamin B2, and vitamin C contained in dragon fruit can increase hemoglobin levels in the blood.⁸ This is also proven by Wahyuningsih et al⁹ who explained that dragon fruit can increase hemoglobin in teenager girls by comparing the increase in Hb when given dragon fruit juice of 200 grams and 500 grams.

The results of the study on the 2 teenager girls, they rarely took Fe medicine which should be taken regularly. The reason the client doesn't take Fe medicine regularly is because they forget or don't like the drug. Therefore, researchers are interested in introducing another method that can increase Hb, namely giving dragon fruit juice combined with anemia exercise modality therapy to find out whether there is an effect on increasing Hb in teenager girls.

Case Illustration

Monday, May 15, 2023, an assessment was carried out on An. A and An. P, they are 14-year-old grade 2 junior high school students. Clients A and P are junior high school students who are active in organizations within the school environment. The father of client A works as a tailor and the mother does not work. Client P's father works as an elementary school caretaker and the mother does not work. The fathers of the two clients only graduated from high school. When studied, health management in the family was quite good, namely when the client was sick, the family provided several drug stalls or pharmacies such as paracetamol and took them to the health service that was frequently visited, namely the Health Center.. Clients A and P have received blood booster tablets from schools or PKK officers around their homes. However, both of them disobeyed taking the drug and left it at home. When checking Hb, client A has a Hb of 11.4gr/dl while client P has a Hb of 11.3gr/dl. The tool used to measure hemoglobin is EasyTouch

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GCHb.

When examined, the two clients looked normal, healthy, fit, and not limp. After being asked about their menstrual periods, both clients said that their last menstruation was in early May. The study was continued by looking at the condition of the home environment. Clients A and P are the 2nd child of 3 siblings and the condition of their house is neat and clean. Both clients have no problems or allergies to food and drink. System elimination for both clients runs smoothly and does not hurt at all. After studying physical activity, they rarely do physical activities such as sports outside of school hours. Not only that, they rarely eat fruits, especially fruits that can increase hemoglobin.

Before administration, the client is examined first to ensure that there is no history of allergies to the client so that this intervention can be approved and is running well. The researcher will explain the mechanism of providing therapy to a predetermined client.

The method used in writing scientific papers uses a quantitative approach with the case study method. Respondents were 2 teenager girls with anemia in RT04 RW13 Rawamangun. The intervention was given for 7 days, i.e. exercise 3 times with a duration of 4-5 minutes and dragon fruit juice every day. Data analysis used the Wilcoxon test. This research was conducted in May for 7 days from 16 -22 May 2023.

The method of data collection is by pre-test and post-test of hemoglobin levels. Provision of dragon fruit juice is drunk once a day as much as 500 grams for each client. The way to make it is to peel the dragon fruit skin and cut it into small pieces. After that, the dragon fruit is put into a blender machine until it is crushed and has a soft texture. This dragon fruit juice is 100% pure dragon fruit without the addition of mineral water or sugar as a flavor enhancer to the juice. For gymnastics, given 3 times 4-5 minutes a week. After giving dragon fruit juice or gymnastics, the two clients checked their hemoglobin again. The tool used to measure hemoglobin is EasyTouch GCHb.

Table 1. Hemoglobin after being given BuNga SaNemi intervention

Date	Client	Juice	exercise	Pre	Post
16 Mei 2023	Client A	√		11.4	11.9
	Client P	√		11.5	12.0
17 Mei 2023	Client A	√	√	12.0	12.7
	Client P	√	√	11.9	12.3
18 Mei 2023	Client A	√		11.8	12.4
	Client P	√		12.2	12.7
19 Mei 2023	Client A	√		12.9	13.6
	Client P	√		11.9	12.4
20 Mei 2023	Client A	√	√	12.4	13.1
	Client P	√	√	12.0	12.8
21 Mei 2023	Client A	√		12.3	12.7
	Client P	√		12.8	13.5
22 Mei 2023	Client A	√	√	12.0	12.6
	Client P	√	√	12.7	13.8
Average				12.1	12.7

Table 1 is the results of hemoglobin on clients A and P after being given dragon fruit juice and anemia exercise for 7 days. The results of hemoglobin on both clients increased and stabilized. Hemoglobin before the intervention was given to client A had an Hb of 11.4gr/dl while client P had an Hb of 11.3gr/dl. After the intervention was given, the increase was for client A by 12.6gr/dl and client P by 13.8gr/dl.

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Table 2. Effect of BuNga SaNemi Therapy on Client's Hemoglobin

Variable	Median	Min-Max	N	Z	Sig.(2-tailed)
Pre-test	12.0	11.4-12.9	2	-3,314	001
Post-test	12.7	11.9-13.9	2		

Table 2 shows the results of the pre-test and post-test analysis using the Wilcoxon test, the Sig. (2-tailed) has a value of 0.001 where the value is <0.05 which means that there is a significant difference in the client's hemoglobin value before and after being given the BuNga SaNemi intervention. The average increase in hemoglobin in both clients was 7.5gr/dl.

Observation results before the second therapy was carried out, the client never took the Fe medicine given by the school and left it at home due to forgetting or not liking the drug. After being given the intervention. The two clients say their bodies have become healthier, and fitter, and their hemoglobin has increased.

Discussion

The research results obtained, giving dragon fruit juice and anemia exercises for a week can increase the hemoglobin levels of both clients. The researchers provided 500 grams of dragon fruit juice intervention every day and anemia exercise 3 times with a duration of 4-5 minutes a week. After the intervention, the client's hemoglobin increased for a week, namely on the last day, client A's hemoglobin was 12.6gr/dl and client P's was 13.8gr/dl. Both clients said their bodies became healthier, and fitter, and hemoglobin had increased with an average increase of around 7.5g/dl with a Sig value. (2-tailed) of 0.001 or <0.05 .

The results of the study have similarities with proprietary research by Fitriyani, Aminah, and Sofianah¹⁰ who explained that giving dragon fruit juice affects hemoglobin levels, namely it can increase hemoglobin levels with a value of 0.000, where the value is <0.05 . Giving anemia exercise can also increase hemoglobin in this study and has similarities with Hutomo, Rahman, and Ruhukail⁵ who carry out anemia exercises with a duration of 4-5 minutes and are carried out 3 times a week and can increase hemoglobin levels. Besides that, research by Isnaini, Pramestigiri, and Winarsih³ also stated that anemia exercise could increase hemoglobin levels in teenager girls in the Menokwari Midwifery Diploma Study Program.

The results of this study explain that giving dragon fruit juice of 500 grams to each client can increase hemoglobin because dragon fruit contains protein, iron, vitamin A, vitamin B2, and vitamin C in dragon fruit play a role in the body's metabolism so it can increase hemoglobin level in blood.¹¹ The water content of dragon fruit is 90% high and 100 grams of dragon fruit contains 0.16 mg of iron.⁸ This is in line with Wahyuningsih, Khasanah, and Widodo.⁹ provide dragon fruit juice in a week as much as 500 grams.

The content in dragon fruit is very good for the digestive and circulatory systems.¹² Dragon fruit also provides an impressive response to reduce emotional stress and neutralize toxins in the blood.¹³ The protein content in dragon fruit can reduce the body's metabolism and maintain heart health, fiber (controlling colon cancer, diabetes, and diet), carotene (eye health, strengthening the brain, and preventing disease), calcium (strengthening bones) and phosphorous (tissue growth). . Dragon fruit also contains iron to increase blood flow, vitamin B1 (controls body heat), vitamin B2 (increases appetite), and vitamin B3 (lowers cholesterol).¹⁴

In addition, physical activity such as anemia exercises can also increase hemoglobin. Physical activity is an activity that can improve health status if done regularly, routinely, and repeatedly, one of which is gymnastics.³ Doing gymnastic movements for at least 4-5 minutes can increase the body's metabolism so that

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hemoglobin works optimally and increases.⁵ This can happen because anemia exercise is a physical activity that can increase blood volume caused by cardiovascular changes. Individuals who exercise regularly will experience an increase in hemoglobin, this is because cells or tissues need more oxygen when carrying out activities. Increased oxygen consumption during physical activity allows hemoglobin, which carries proteins in erythrocytes, to reach cells. An important function of hemoglobin is to transport oxygen from the lungs (respiratory organs) throughout the body.¹⁵

The two clients of this study had received blood booster tablets but did not take the drug and left it at home so the researchers tried to provide BuNga SaNemi therapy to overcome the problem of low hemoglobin levels, especially in teenager girls with anemia. The implementation of this therapy is carried out for a week on May 16-22 2023, namely dragon fruit juice every day and anemia exercise 3 times with a duration of 4-5 minutes a week. After being given implementation, the client feels healthier, and fitter, digestion becomes smoother and there is a significant increase in hemoglobin levels. The results of the client's observations showed he is more enthusiastic, defecation has become regular, and looks more fit and healthy. These results are in agreement with Thamrin et al¹³ and Isnaini, Pramestigiri, and Winarsih³ that dragon fruit and anemia exercises also provide an impressive response to reduce emotional stress, neutralize toxins in the blood, and improve health status. The limitations of this research are the intervention given to only 2 respondents and the difficulty of finding dragon fruit when it is not in season.

Conclusion

Based on the research results, giving dragon fruit juice and anemia exercises can increase hemoglobin. It is hoped that this research will become a reference for providing education, complementary therapy, and an alternative method for dealing with the problem of anemia, especially in young women.

Conflict of Interest Declaration

This research is independent from the conflict of interest of both individuals and organizations.

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