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Giving Green Bean Spice Juice as an Alternative Therapy for Anemia to Young Women in The Working Area of Puskesmas Kota Selatan, Gorontalo City

Endah Yulianingsih[1], Ika Suherlin[2], Sri Sujawatty[3]

[1,2,3]Department of Midwifery, Health Polytechnic of the Gorontalo Ministry of Health

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ABSTRACT

The health of a young woman as a prospective mother and as the nation's successor needs to be a major concern. Adolescents are an age group that is prone to anemia. Anemia in young women will have an impact on reproductive health. Mung beans are plants that can grow almost everywhere in Indonesia. Green bean spice juice is one of the preparations that can help increase hemoglobin levels in the blood. The purpose of this study was to analyze the administration of green bean spice juice as an alternative therapy for adolescent girls who experience anemia. This type of research is pre-experimental with a one-group pretest-posttest design approach. The results of this study showed that the mean hemoglobin before giving green bean spice juice (pretest) was 8.73 and the average after giving green bean spice juice (posttest) was 11.03. This means that giving green bean spice juice can increase the hemoglobin level of the respondent with an Asym Sig value of 0.000 (p <0.05), thus Ho is rejected, meaning that there is an effect of giving green kajang spice juice on increasing hemoglobin levels in young women in the work area of the Kota Selatan City Health Center. Gorontalo. The conclusion is that there is a significant effect of giving mung bean spices juice on increasing blood hemoglobin levels in adolescent girls with anemia in the working area of Puskesmas Kota Selatan Kota Gorontalo.

E-mail:
endahyulianingsih@poltekkesgorontalo.ac.id

1. Introduction

Adolescence is the second most rapid growth period until childhood. The physical and physiological changes that occur in adolescents place a lot of demand on their nutritional needs and make them more susceptible to anemia(Gedefaw et al., 2015).

Anemia is a reduced concentration of hemoglobin in the blood due to disruption of the formation of red blood cells due to a lack of iron levels in the blood. This iron deficiency anemia can affect babies, children, and even adults(Yulianingsih, 2020)

Anemia has a big impact on health, especially for pregnant women, pregnant women with anemia will cause bleeding in pregnant women, premature babies, LBW, heart, kidney, and brain disorders can even cause the mother to die during childbirth, while anemia in adolescents can inhibit psychomotor development, impairing cognitive performance, and scholastic performance. Therefore, this problem of anemia must be prevented and overcome during adolescence because adolescents will become pregnant women later. (N. Amir, 2019)

According to the World Health Organization (WHO), anemia is the 10 biggest health problem in this modern century, where the groups at high risk of anemia are women of childbearing age, pregnant women, school age children, and adolescents. Anemia is a serious global public health problem that mainly affects children and pregnant women. WHO estimates that 42% of children under 5 years of age and 40% of pregnant women worldwide are anemic(WHO, 2017).

This is in line with the 2018 Riskesdas data, it is known that the prevalence of anemia in Indonesia has increased from 2013 of 37.1 to 48.9 in 2018. The proportion of anemia incidence by age is 15-24 years as many as 84.6, 25- 34 years of 33.7, 35-44 years of 33.6 (Indonesian Ministry of Health, 2018)

The data above illustrates that young women are a group that is prone to anemia, anemia that often occurs in young women is caused by young women who are still in their infancy and experience menstruation every month which causes iron loss. In addition, an imbalance in nutritional intake also causes adolescent anemia

Young women are usually very concerned about body shape, thus limiting food consumption and many food restrictions. When food intake is lacking, many iron reserves are dismantled. This situation can accelerate the occurrence of anemia. Another cause is a lack of adequate food and a lack of consumption of food sources that contain iron, in addition to adequate food consumption, but the

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food consumed has low iron bioavailability so that the amount of iron absorbed by the body is less.(Wahyuningsih and Uswatun, 2019)

The prevalence of anemia in Indonesia is iron anemia at the age of 5-14 years which is quite high as many as 26.4 in young women, the impact of anemia is very dangerous on adolescent health, however, the special government program for treating anemia in adolescents focuses more on prevention through counseling. Unlike the iron supplementation program, the supplementary feeding program, nutrition education is only intended to control anemia in pregnant women(Kemenkes RI, 2013)

Based on the results of interviews and data from the South City Health Center, the adolescent reproductive health service program was carried out in schools in the working area of the South City Puskesmas in the form of counseling and provision of Blood Plus Tablets. Based on data obtained in April 2018, the number of blood-supplemented tablets given to young girls was 88 people.

In the treatment of iron anemia, women generally consume iron mineral supplements in tablet form, but it can give side effects, namely nausea, vomiting and hard and black stool. As for other alternative treatments for iron deficiency anemia can be done by fulfilling balanced nutrition

Green beans contain vitamins and minerals such as calcium, phosphorus, iron, sodium and potassium. The iron content of 6.7 mg / 100 g contained in green beans is believed to contribute to the prevention of anemia.Prevention of anemia can be done by increasing the consumption of iron in food(Mariyona, 2020)

Mung beans can play a role in the formation of red blood cells and prevent anemia because the phytochemical content in green beans is very complete so that it can help the process of hematopoiesis. Mung beans also contain vitamins and minerals. Minerals such as calcium, phosphorus, iron, sodium and potassium are abundant in green beans(Wahyuningsih and Uswatun, 2019)

Based on the results of data and reference studies, researchers are interested in updating from previous research, namely the effect of green bean spice juice, which is the basic ingredient of green beans processed using a mixture of spices, namely cinnamon, cloves, Ambon banana and palm sugar as an alternative to anemia therapy. young women in the working area of Puskesmas Kota Selatan, Gorontalo City.

2. Method and Material

This type of research is a pre-experimental study with a one-group pretest-posttest design approach, where the researcher gives treatment to one study group but the hemoglobin level is measured beforehand (pretest) then this group is assessed whether it is included in the research object or not, according to the criteria. The next sample, the group that entered the sample subject was given treatment by giving green bean spice juice as much as 250 ml consumed every morning for 5 days, study group measured or retested (posttest).

In this study, rendomization was not carried out and was carried out in one study group. This research was conducted to determine the effect green bean spice juice on the increase in hemoglobin levels in young women in the working area of Puskesmas Kota Selatan, Gorontalo City.

3. Results and Discussion

3.1 Univariate Analysis

Table 1.

Hemoglobin levels before giving green bean spice juice to young women in the working area of the South City Health Center

Hemoglobin levels	amount	Presentation
7-8gr / dl	10	30.30
9-10gr / dl	23	69.70
	33	100

Based on the results of table 1 above, respondents who have hemoglobin levels of 7-8 g / dl are 10 respondents with a percentage of 30.30%. According to WHO, 7-8gr / dl hemoglobin levels are classified as mild anemia(WHO, 2017).

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Iron deficiency anemia is anemia that occurs due to a lack of iron in the blood, meaning that the concentration of hemoglobin in the blood is reduced due to disruption of the formation of red blood cells due to a lack of iron levels in the blood. This iron deficiency anemia can affect babies, children, and even adults(Yulianingsih, 2020).

According to manuaba (2015) Mild anemia is a medical condition in which the number of red blood cells or hemoglobin is 7-8gr / dl, one of the factors that influence the incidence of anemia, namely adolescence. Young women experience increased iron needs due to accelerated growth and menstruation(Manuaba, 2015)

Teenage girls at puberty are very at risk of developing iron deficiency anemia. This is due to the large amount of iron lost during menstruation. In addition, it is exacerbated by the lack of iron intake, where iron in adolescent girls is needed by the body to accelerate growth and development(Kemenkes RI, 2016).

Girls are at a higher risk of developing anemia than boys because of the first reason young girls experience menstrual cycles and the second reason is because they have wrong eating habits. Anemia has an unfavorable impact on adolescents, which can cause physical growth delays, behavioral and emotional disorders, growth and development of the fetus in the womb and has the potential to cause pregnancy and childbirth complications, and even cause maternal and child deaths.(Yulianingsih, 2020)

This research is in line with research conducted by Sriningrat et al (2019) which found that 34 respondents (45.9%) had anemia in Denpasar. (Sriningrat, Yuliyatni, 2019)In addition, this research is also in line with the research conducted by JS Poyyamozhi et al (2018), it was found that The prevalence of anemia in adolescent girls is 41.1%. The proportions of mild and moderate anemia were 37% and 4.10%, respectively, and none had severe anemia(J.S, Poyyamozhi, R.Rushender, 2018)

Table 2.

Hemoglobin levels after giving green bean spice juice to young women in the working area of the South City Health Center

Hemoglobin levels	amount	Presentation
7-8gr / dl	1	3.03
9-10gr / dl	9	27.27
11-12gr / dl	23	69.70
	33	100

Based on table 2, it shows that respondents who experienced changes in hemoglobin levels from 9 to 10 gr / dl were 9 respondents or 27.27% and changes in hemoglobin levels from 11 to 12 gr / dl were 23 respondents or 69.70%.

Green beans are one of the food ingredients that can overcome the effects of reducing Hb, Mung beans contain substances needed for the formation of red blood cells, including vitamins and minerals such as calcium, phosphorus, iron, sodium and potassium. (Astawan, 2009). Green beans contain very complete amino acids consisting of essential amino acids, namely isoleucine, leucine, lysine, methionine, phenylalanine, threonine, valine, and also nonessential amino acids, namely alanine, arginine, aspartic acid, glutamic acid, glycine, tryptophan and tyrosine. Mung beans also contain protein, carbohydrates, and fat in green beans to support the hemoglobin synthesis process. maintain dietary iron in the form of ferrous, so that iron absorption can be increased. Iron absorption process(Sitepu, 2015).

Mung beans combined with spices, namely Ambon banana, cloves, cinnamon and palm sugar make the taste of the processed green bean spice juice attractive for consumption. Research shows that consuming Ambon bananas can prevent and overcome anemia by stimulating hemoglobin in the blood. Ambon banana has vitamin C which can help increase and absorb iron in the body(Muslikah, 2017).

Cinnamon is a spice obtained from the inner bark of several trees of the genus cinnamomum which is often used in manin and savory foods. This spice is one of the oldest spices in the world. Cinnamon is also often used as an aromatic essential oil because of its distinctive smell, this aroma comes from cinnamic aldehyde or cinnamaldehyde (Deasy, 2013).

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Palm sugar is a food intake that has many benefits, including as a binder for iron to bind oxygen in the blood. Another function of brown sugar is to boost the immune system and can also be used as a substance that scavenges free radicals ..

This research is supported by the results of research conducted by Yusvika (2019) Green bean protein is rich in the amino acids leucine, arginine, isoleucine, valine, and lysine, although the protein is limited by sulfuric amino acids such as methionine and cysteine. However, compared to other types of beans, giving green bean juice has an iron content in green beans of 6.7 mg per 100 grams of green beans.(Yusvika, 2019)

3.2 Bivariate Analysis

To determine the effect of green bean spice juice on hemglobin levels in adolescent girls in the work area of P Suksesmas, South City, Gorontalo City, this study used a paired T-test with the following results:

Table 3.

Statistical analysis of Hb levels before and after the intervention was given Green Bean Spice Juice.

Variable	N	Mean	SD	Sig
Hb levels				0,000
Before	33	8.73	8.01	
After	33	11.03	1,051	

Based on the data in Table 3, it shows that the average result of hemoglobin before giving green bean spice juice (pretest) is 8.73 and the average after giving green bean juice (posttest) is 11.03. This means that after giving green bean spice juice, the respondent's hemoglobin level has increased with an Asym Sig value of 0.000 ($p < 0.05$) thus Ho is rejected, meaning that there is an effect of giving green kajang spice juice on increasing hemoglobin levels in young women in the working area of the City Health Center. South of Gorontalo City.

The results of this study are in line with research conducted by Santoso et al. (2020) that green beans have an effect on improving anemia. Research conducted by Faridah (2017) found that there was an effect of green beans on hb levels in adolescent girls who had anemia in class X SMK Al - Islam Kudus in 2016(Faridah and Indraswari, 2017)

According to Astawan, the types of beans that contain high iron are green beans (Astawan, 2009), According to Akbar, 2015 inside (Retnorini and Widatiningsih, 2017) that green beans are very beneficial for the health of pregnant and lactating women, as well as to support the growing period of children (Retnorini and Widatiningsih, 2017). The iron content in green beans is 6.7 mg / 100 grams of green beans and one of the most effective presentations is green beans by making green bean juice. Mung beans (Vigna Radiata) are very popular for us. Mung beans are included in the legume family and contain many benefits in human life, both for daily consumption which are processed in various forms of food and drink, as well as for health. (Astawan, M. (2009)(Yusvika, 2019)

Green beans contain vitamins and minerals such as calcium, phosphorus, iron, sodium and potassium. In half a cup of green beans contains 90 grams of water, 127 kcal of energy, 11 grams of protein, 10 grams of carbohydrates, 4 grams. fiber, 6 grams fat, 131 mg calcium, 2.25 mg iron, 54 mg magnesium, 485 mg potassium, 13 mg sodium, 0.82 mg zinc, 7 micrograms vitamin A, 0.23 mg thiamine, 0.14 mg riboflavin, niacin 1, 13 mg, 0.05 mg vitamin B6, 100 micrograms of folate, 15 mg of vitamin C, and 1 microgram of selenium(Anastasia S et al., 2017). Mung beans contain substances that are needed in the formation of blood cells that can overcome the effects of reducing Hb. Green beans can also play a role in the formation of red blood cells and prevent anemia because the phytochemical content in green beans is very complete to help the process of hematopoiesis.(Anastasia S et al., 2017). According to theory (Wirjatmadi, 2016) that in women the maximum iron needed is 1.5 mg / day, but actually 1.3 mg / day is sufficient, it's just that an amount of 1.5 mg / day is needed to replace the iron lost during menstruation (Wirjatmadi, 2016)

The results of this study prove that giving green bean spice juice can increase blood hemoglobin levels in female adolescents in the working area of Puskesmas Kota Selatan. From the results of the explanation above, the researcher draws the assumption that consuming green bean spice juice can significantly increase hemoglobin levels in the blood. For this reason, it is recommended for young women to consume 250 ml of green bean spice juice taken every morning for 5 days. This can meet

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the daily iron needs of 1.33 mg / day. during menstruation or after menstruation because it prevents anemia and can restore the number of blood cells.

The results of this study can be recommended to adolescents as an alternative therapy for anemia in an effort to increase and form red blood cells in young women during menstruation or after menstruation.

4. Conclusions

Giving green bean spice juice is an alternative therapy for adolescents with anemia. 250 ml of green bean spice juice consumed every morning for 5 days can increase hemoglobin levels by 1.33 mg / day.

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