The Effct Consumtion Of Red Beans (*Phaseolus Vulgaris L*) Boiled On Hemoglobin Levels In Adolescent In Institute Of Health Science STRADA Indonesia

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Abstract: Anemia in general is a condition where hemoglobin and erythrocyte levels are lower than normal Anemia that is occurred by many adolescents due to Fe deficiency and can be called Fe deficiency anemia (Tarwoto, 2014). The purpose of this study was to determine the effect of consumption ofred beans (Phaseolus Vulgaris L) boiled on hemoglobin levels in adolescent in institute of health science STRADA Kediri. The research design used was pre-experiment with one group pre-post test design. The population in this study were all third semester students in Institute of health Science STRADA who experienced anemia with a sample of 18 respondents. The sampling technique used was Purposive sampling. The results showed that all (100%) had mild anemia before treatment, after the treatment, the results of all respondents (100%) experienced a change to non-anemia. Based on the results statistically using test, Wilcoxon the obtained p value 0.005 <α 0.05 then H_0 is rejected and H_1 accepted, which means there is the effect of red beans (PhaseolusvulgarisL) boil on hemoglobin levels in adolescent in institute of health science STRADA Kediri. It can be concluded that boiled red beans (Phaseolus Vulgaris L) contain iron which is useful for increasing hemoglobin levels in the blood. It is recommended for respondents to use boiled red beans as food to prevent anemia.

Keywords--- Red beans, Hemoglobin levels, Adolescent

I. INTRODUCTION

Adolescent anemia is more common than children and adults, especially for adolescent girls. This is because teenage girls experience menstruation, low food intake, increased iron requirements due to the process of *growth spurt*and limiting to eat so that the body deficiencies nutritional such as iron [2] . Anemia in general condition where hemoglobin and erythrocyte levels are lower than normal. Iron deficiency anemia itself is a state of decreased iron concentration in the body, both in storage, circulation and in the form of bonds with heme so that it can cause a decrease in red blood cell concentration. Iron deficiency anemia is a stage of severe iron deficiency [22][31].

Based on WHO data (2014) organization states that anemia affects 1.62 million people in the world (24.8%). Based on Basic Health Research [18].It is known that the prevalence of anemia in adolescents aged 15-24 years is 18.4% and in the fertile age group of women is 16.9%, so it can also be categorized as moderate health problems. Data from the East Java Provincial Health Office in 2017 states that 50-60% of young women in East Java suffer from anemia or red blood deficiency. From Riskesdas, the prevalence of national nutritional anemia among adolescents 13-18 years was 22.7% [25] Based on the results of a preliminary study conducted on March 29, 2019 at Institute of health science STRADA, a midwifery midwifery study program student, it was found that 7 (70%) of 10 female students were anemic, 4 (40%) were due to sleep patterns and 3 (30%) people because of unhealthy eating patterns.

The prevalence of anemia in 2017 is caused by various factors such as economic, socio-cultural and the direct cause is an imbalance between food intake and nutritional needs. Anemia can be caused by a lack of food sources that contain iron, because iron is an important compound as a constituent of hemoglobin and this occurs because of poor dietary care, irregular and does not balance the nutritional adequacy needed [22][28]. The symptoms that often arise include dizziness, weakness, fatigue, fatigue and lethargy. Sometimes anemia does not cause obvious symptoms such as fatigue when exercising, difficulty concentrating and easily forgetting. The unfortunate situation is that most sufferers do not know and do not realize it. In general, someone has begun to suspect anemia if the condition is getting worse, so that the symptoms are more obvious, such as pale skin, palpitations, dizziness, easy to run out of breath when climbing stairs and exercise. With the occurrence of anemia in adolescents can have an impact on decreased work productivity or academic ability in school, due to the lack of enthusiasm for learning and concentration. Anemia can disturbs growth where height and weight become imperfect. In addition, the immune system will decrease so it is susceptible to disease [13][29].

Anemia can be overcome by means of pharmacological therapy and non-pharmacological therapy. Pharmacological therapy to overcome anemia is by consuming blood booster tablets or Fe tablets. While non-pharmacological therapy to overcome anemia is to consume foods that are high in iron content. Foods that contain lots of iron are chicken, dried fruits, egg yolks, lean meat, spinach, liver, and beans. Nuts that contain lots of iron include soybeans, green beans and red beans. Red beans have a content that can overcome anemia, the content is iron (Fe). The iron content in red beans can help control the amount of hemoglobin in the blood [9][30].

II. METODE

This study included a *Pre Experiment* with approach *one group pre posttest control group with design* subjects were assessed before being treated and after being treated. Based on the scope of the study it was type of *inferential* research, based on the place of research it was type of field research, based on the presence or absence of treatment it was *experimental*, based on data collection it was observational research and based on the data source it was primary research design. Statistical test results using *Wilcoxon test.*

The population in this study were 37 semester students of D III Midwifery Program. Technique sampling used was "*purposive sampling*" . The sample in this study were 18 students on the semester III of Midwifery program who experience anemia. The instrument used in this study was the observation sheet, all respondents observed hemoglobin levels before and after treatment Checking Hemoglobin levels of anemia with HB elektrik / Haemometer.

The research procedures by measuring level hemoglobin before giving red beans, then given boiled kidney beans that is 450 grams per day for 3 days and measuring level hemoglobin after giving red beans [4]. Before study, researchers follow procedures ethical clearence on campus and have obtained a certificate of ethics, then conducted research. Before the study, the researcher explained the research procedure to prospective respondents and filled out the inform.consent.

III. RESULTS

• Univariate Analysis

Table 1. Frequency Distribution Characteristics of Respondents by Age inInstitute of health science STRADA

Age	n	%
Early Adolescents	0	0
Mid adolescents	0	0
Late Adolescents	18	100
Total	18	100

Based on table 1. above can be interpreted that all of them are late teens (19-21) years, that is 18 respondents (100%).

• Analysis of Bivariate

Table 2. Frequency Distribution Based on Hemoglobin Levels Before giving Red Beans (*Phaseolus Vulgaris L*) Boil in Adolescent Girls in Institute of health science STRADA

Before being given red beans (*Phaseolus Vulgaris L*)	n	%
Severe Anemia	0	0
Moderate Anemia	0	0
Mild Anemia	18	100
No Anemia	0	0
Total	18	100

Based on table 2 above, it can be interpreted that all of them have mild anemia which is 18 respondents (100%).

Table 3. Frequency Distribution Based on Hemoglobin Levels after Being Given Red Beans (Phaseolus Vulgaris L) Boil in Adolescent Girls in Institute of health science STRADA

After Given Red Beans (*Phaseolus Vulgaris L*)	n	%
Severe Anemia	0	0
Moderate Anemia	0	0
Anemia Mild	0	0
No Anemia	18	100
Total	8	100

Based on table 3 above, it can be interpreted that all of them did not experience anemia as many as 18 respondents (100%).

IV. DISCUSSION

Based on table 3 above it can be interpreted that all (100%) experienced a change from mild anemia to not anemia, as many as 18 respondents. Based on the statistical test results

using *Wilcoxon test*, it can interpreted that the *p-value*<α is 0.005 <0.05 so that $H_{0\ is}$ rejected and $H_{1\ is}$ accepted, meaning that there is an effect of giving red beans (*Phaseolus Vulgaris L*) Boiled on hemoglobin levels in adolescent in institute of health science Strada Indonesia.

The result above is suitable with the results of research conducted by Faridah and Indraswari [7] which states that consuming nuts can help increase hemoglobin levels in adolescent girls. Anemia that occurs in adolescents can occur due to consumption patterns of Indonesian people who are still dominated by vegetables as a source of iron (non-heme iron). In addition, the cause of iron deficiency anemia is influenced by increased body needs, due to suffering from chronic disease, blood loss due to menstruation and parasitic infections [17].

Boiled red beans have a variety of ingredients that are beneficial to health, one of which is the content of iron or Fe [4]. The content of iron in boiled red beans can help increase hemoglobin levels in the body. The mechanism of iron can help increase hemoglobin levels in the body by means of biochemical reactions in the body, from the biochemical process iron is able to produce hemoglobin [8]. Biochemical reactions in the form of inorganic complexes $Fe3 +$ are broken down during digestion and some are converted from $Fe3 +$ to $Fe2 +$ which is more readily absorbed. The conversion of $Fe3 +$ to $Fe2 +$ is facilitated by the presence of endogenous factors such as HCl in gastric secretory fluids, components of nutrients derived from food such as vitamin C or meat and fish. This mechanism plays a role in increasing hemoglobin in the body [17].

Lack of protein intake will result in obstructed transportation so that iron deficiency will occur. Absorption of substances that occur in the small intestine is carried out by means of protein transport namely transferrin and ferritin. Iron-containing transfer which functions to transport iron into the bone marrow to form hemoglobin. Many protein sources are found in spinach, liver, fruit, nuts. Protein is important for DNA synthesis. one deficiency can increase cellular regeneration and cause anemia, the size of red blood cells is larger than normal [26].

Based on the results of the research, researchers believe that the majority of respondents experienced a change from mild anemia to not anemia. Changes in hemoglobin levels occur because of the iron content in boiled red beans. The content of iron in boiled red beans can help increase hemoglobin levels in the body. The mechanism of iron can help increase hemoglobin levels in the body by means of biochemical reactions in the body, from the biochemical process iron is able to produce hemoglobin.

V. CONCLUSION

Conclution this research is boiled red beans (Phaseolus Vulgaris L) can increase hemoglobin levels in young women because one of which is the content of iron or Fe. Hemoglobin levels are also influenced by many factors, nutrition status, activity, stressors, illness etc.

VI. CONFLICT OF INTEREST

No conflicts of interest have been declared.

VII. ACKNOWLEDGEMENTS

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APPENDIX

Table 1. Standard Operational Procedures Consuntion Of Red Beans Boiled [27]

Item of SOP		
Ingredient	Red Beans	150 gr
	Water	500 ml
Countains	Every 150 gr red beans :	
	water	14.40 %
	ash	2.19 %
	protein	2.23 %
	fat	2.10 %

	carbohydrate	79.09 %
Process	Boil red beans in boiling water until softer or about 15 - 20 minutes	
Dosage	Take 150 gr red beans boiled, repeat tree times in a-24 hours. Giving red beans boiled for three days	