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THE EFFECTIVENESS OF IRON SUPPLEMENTATION WITH GREEN BEAN SOURCE ON ENHANCEMENT OF HEMOGLOBIN LEVELS IN ADOLESCENT

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ABSTRAK
EFEKTIVITAS SUPLEMENTASI ZAT BESI DENGAN SARI KACANG HIJAU TERHADAP PENINGKATAN KADAR HEMOGLOBIN PADA REMAJA PUTRI

Latar belakang Anemia merupakan suatu keadaan yang dapat terjadi pada laki-laki dan perempuan, namun jika anemia dialami oleh remaja puteri akan menimbulkan efek yang lebih buruk daripada remaja putra. Jika remaja puteri mengalami anemia akan berpengaruh terhadap kehamilan, persalinan dan bayi, karena remaja puteri yang akan melahirkan generasi penerus. Anemia yang terjadi dimasa kehamilan, persalinan dapat meningkatkan resiko mortality maternal, persalinan sebelum wakunya, BBLR serta kematian perinatal. Kejadian anemia pada remaja sebesar 43% diantaranya disebabkan pola konsumsi makanan yang kurang baik sebesar 79,2%. Remaja puteri berasumsi bahwa postur tubuh yang kurus dianggap cantik, sehingga mempengaruhi pola makan.

Tujuan penelitian untuk mengetahui efektivitas dari suplementasi besi/tablet fe dengan sari kacang hijau pada remaja sebagai upaya untuk meningkatkan kadar hemoglobin.

Metode desain quasy eksperimen rancangan penelitian two group pre test post test control dengan jumlah responden 30 orang, dengan kriteria inklusi yaitu remaja yang berusia 13-20 tahun mengalami anemia dan bersedia mengikuti intervensi yang diberikan, sedangkan kriteria eklusi adalah memiliki penyakit khusus yang berhubungan dengan darah. Responden dikelompokkan menjadi 2 yaitu kelompok intervensi dan control. Dimana kelompok intervensi diberikan tablet Fe dan sari kacang hijau sebanyak 250 ml, kemudian pada kelompok kontrol hanya diberikan tablet penambah darah. Setelah 14 hari dilakukan pengukuran kembali kadar Hb untuk tiap kelompok

Hasil penelitian menunjukkan bahwa kenaikan Hb pada kelompok Intervensi lebih tinggi daripada kelompok kontrol, dimana selisih kadar Hb pada responden kelompok intervensi -2.7200 sedangkan pada kelompok kontol sebesar -1,1200 dengan P-value adalah sebesar 0,0001.

Kesimpulan terdapat pengaruh yang lebih efektif pemberian tablet penambah darah dengan pemberian sari kacang hijau secara bersamaan pada kelompok intervensi, dibandingkan dengan pemberian tablet penambah darah saja terhadap kenaikan kadar Hb.

Saran peningkatan pengetahuan melalui penyuluhan dan pemeriksaan Hb pada remaja harus dilakukan secara berkesinambungan sebagai upaya deteksi dini dan upaya preventif kejadian anemia pada remaja puteri.

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Kata kunci :Anemia, Sari Kacang Hijau, Zat besi

ABSTRACT

Background. The impact of anemia on adolescent girls is higher than that of boys. Anemia experienced by young women will have a more serious impact because young women are prospective mothers who will become pregnant and give birth to a baby, complications in pregnancy and childbirth, thereby increasing the risk of death, premature delivery, low birth weight (LBW) and perinatal mortality. The prevalence of anemia in adolescents is 43% with a poor diet of 79.2%. One of the causes of low levels of hemoglobin in the blood is inadequate intake of nutrients. Young women in Indonesia still have the view that a thin body image is considered beautiful, thus affecting their diet

Purpose of the study was to determine the effectiveness of iron/fe tablet supplementation with mung bean juice in adolescents as an effort to increase hemoglobin levels

Method uses a quantitative study, a quasi-experimental design, a two-group pre-test post-test control research design with a total of 30 respondents, with the inclusion criteria being that adolescents aged 13-20 years have anemia and are willing to take part in the given intervention, while the exclusion criteria are having a disease. specifically related to blood. Respondents were divided into 2 groups, namely the intervention and control groups. Where the intervention group was given 250 ml of Fe tablets and mung bean extract, then the control group was

only given blood-enhancing tablets. After 14 days, the Hb levels were measured again for each group.

The results showed that the increase in Hb in the intervention group was higher than the control group, where the difference in Hb levels in the intervention group respondents was -2.7200 while in the control group it was - 1.1200 with a P-value of 0.0001.

The conclusion is that there is a more effective effect of giving blood-enhancing tablets with the administration of mung bean juice simultaneously in the intervention group, compared to giving blood-enhancing tablets alone on the increase in Hb levels.

Suggestions for increasing knowledge through counseling and Hb examination in adolescents must be carried out continuously as an effort to detect anemia in adolescent girls early.

Keywords: Anemia, Green Bean Extract, Iron,

INTRODUCTION

Adolescence is a life cycle where at this on the time adolescents are faced with complex problems even though they are considered a healthy age group. Health problems experienced by adolescents are micronutrient nutritional problems of 12% that occur in male adolescents and 23% of female adolescents experience anemia in adolescent girls due to iron deficiency (Kementerian Kesehatan Republik Indonesia, 2018a)

The age group of 10-24 years is included in the age group in poor condition. Approximately 22.7% of anemia occurs at the age of 15 years and over, and the incidence of anemia during pregnancy is around 37.1%. The adolescent age group often suffers from iron deficiency anemia due to iron loss during the menstrual period and lack of iron intake. The need for iron during pregnancy increases threefold due to an increase in red blood cells which are used for the formation of the placenta and fetal growth. To overcome anemia in adolescence and during pregnancy by consuming iron regularly (Kementerian Kesehatan Republik Indonesia, 2018b). Adolescents experience anemia by 43%, the incidence of anemia is due to poor food consumption patterns which result in low levels of hemoglobin in the blood due to inadequate nutritional needs of adolescents (Suryani, Hafiani and Junita, 2017)

There are several factors that influence the occurrence of anemia in adolescent girls which include the level of nutritional knowledge, consumption patterns, socioeconomic status, health status, physical activity, and menstrual cycle patterns (Fadila and Kurniawati, 2019) Globally, the main cause of anemia is iron deficiency. 50% of anemia is caused by iron deficiency that occurs in the world. The nutritional content of the food consumed is influenced by the diet and food (Mariana, 2013) habits consumed by adolescents. Unhealthy eating patterns and malnutrition is influenced by an unhealthy diet, where young women have a perspective that a thin and slim body is an ideal body and see is beautiful, this is a consideration for teenagers to go on a strict diet to get the ideal body without Paying attention to the consumption of healthy food is an important thing that must be fulfilled every day.

Riskesdas data in 2018 showed that the group with the proportion of anemia was in the age group 15-24 years and 25-34 years, the two groups belonged to the adolescent age group and the productive age group with various activities carried out on a daily basis where nutritional intake, especially iron, was lacking (Kemenkes RI, 2018) in daily fulfillment causes young women and women of childbearing age to be vulnerable to iron absorption deficiency which causes anemia to occur (Mariana, 2013)

Anemia in adolescents is influenced by the food consumed by adolescents, from the results of Kirana's research in 2011 conducted on adolescents by looking at the relationship between nutrient intake and the incidence of anemia, it was found that 36.7% of respondents were included in the category of anemia. The higher the intake of nutrients, both protein, vitamin A, vitamin C, and iron, the higher the hemoglobin level, which means the lower the incidence of anemia (Kirana, 2011). The results of Jaelani's 2017 research on risk factors related to the incidence of anemia using logistic regression showed that nutritional status is one of the most dominant factors influencing the incidence of anemia in adolescent girls with 6.33 times the chance for adolescent girls with abnormal nutritional status (Jaelani, Simanjuntak and Yuliantini, 2017)

In Indonesia, the incidence of anemia is mostly caused by iron deficiency. Lack of consuming iron obtained from animal and vegetable food sources. Iron obtained from animal and vegetable foods can be absorbed in the body as much as 20-30%, so it is very necessary to consume iron from food, but the consumption pattern of adolescents is contrary to what must be met every day. Currently, teenagers prefer food that is practical, such as

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contemporary food and junk food. Where the food is lacking in protein, fiber, fat, vitamins and minerals. Breakfast is also important in meeting the daily needs of energy and nutrients, but there are still many teenagers who skip this habit, resulting in reduced iron in the blood which causes anemia (Kalsum and Halim, 2016). The reason why teenagers skip breakfast is that they don't have time and are not used to having breakfast. In addition, the habit of drinking tea and coffee by teenagers is the cause of the inhibition of the process of absorption of iron in the body, as well as the intake of several nutrients such as energy, protein, and vitamin C which is less than the number of nutritional needs (Budiarti, Anik and Wirani, 2021).

Anemia deficiency has a long-term and short-term impact on adolescents if it is not treated properly. Decreased concentration in learning, decreased immunity and affects body fitness and productivity. Where anemia causes symptoms of weakness, fatigue, and lethargy felt by the body, but symptoms that are felt to decrease body fitness are considered normal because of the many activities carried out by teenagers. The long-term impact of anemia on young women will have an even more serious impact on their reproductive health. Young women are prospective mothers who will give birth to the next generation. Anemia will affect the process of pregnancy, childbirth, postpartum and babies born. A woman who is anemic will be at risk for postpartum bleeding, premature birth and giving birth to babies with low birth weight and stunting (Kementerian Kesehatan Republik Indonesia, 2018b)

Promotive and preventive efforts are the main things that can be done. Efforts to overcome anemia are carried out starting from the school level through promotions using various media as teaching aids to convey health messages (Bertalina, 2015). Healthy food movements are also carried out by consuming foods high in iron, folic acid, vitamin A, vitamin C and zinc. Prevention programs are also carried out by giving Fe tablets directly to schools, providing education regarding consuming Fe tablets every day during the menstrual period. In addition, the way that can be done to increase Hb levels is to consume green beans.

Mung bean is one of the foodstuffs that have components of substances needed for the formation of red blood cells which contain phytochemicals in green beans which are very complete so that they can help the process of hematopoiesis. Green bean juice can increase hemoglobin levels in the blood significantly because it contains iron, vitamin C, vitamin A, amino acids, carbohydrates, proteins, and fats which play a very important role in the absorption of iron and the formation of red blood cells. Green beans not only work when there is a disturbance or lack of iron in the body but also can maintain the stability or balance of iron. Green beans are also very beneficial for growth (Santoso, Mochamad Budi, 2018)

The results of community service activities through checking hemoglobin levels and giving blood-boosting tablets to adolescents with anemia showed that was an increase in Hb levels, where adolescents with anemia showed better results than before. After giving Fe tablets, adolescents in the mild and moderate anemia group experienced an increase in Hb levels, while non-anemic girls experienced an increase in Hb levels. The results of community service concluded that there was an effect of giving blood-boosting tablets on hemoglobin levels in adolescents of 1,01 gr% (Nuraeni et al., 2019).

Research conducted by (Carolin et al., 2021) proves that there is an effect of giving green bean juice to young women, showing an increase in hemoglobin levels in the blood of young women, namely (p = 0.000). The same study also showed the effect of increasing hemoglobin (Hb) levels before and after giving green beans (Amalia, 2016). Both studies showed that there was an effect of giving mung bean juice to increase Hb . levels.

The results of previous research that the administration of Fe and mung bean tablets were carried out to increase Hb levels, so in this study how for to see the effectiveness of supplementation of Fe tablets with mung bean juice using two groups, namely the control group and the intervention group on increasing Hb levels in young women, so that this research can increase knowledge related to how to prevent and treat anemia both pharmacologically and non-pharmacologically.

This research has received ethical approval number 229/KEPK-POLKESMA/2021 from the Health Research Ethics Commission of the Health Polytechnic of the Ministry of Health of Malang.

RESEARCH METHODOLOGY

This study uses a quasi-experimental design using a two-group pretest-posttest control research design, namely an experimental research design that uses two groups of subjects, namely the intervention group and the control group and takes measurements before and after giving treatment (intervention) to research subjects, with several samples. in each group as many as 15 people. The inclusion criteria are adolescents aged 13-20 years who are anemic and are willing to be respondents and participate in the intervention, while the

exclusion criteria are having a special disease/ history of blood disease and not completing the intervention control.

The first step before intervening with prospective respondents is to screen adolescents to see hemoglobin levels using a digital hemoglobinometer. The results of the screening are recorded on the examination result form sheet. Adolescents with Hb measurement results <12 g% and willing to participate in the intervention were respondents in this study. The next stage is to conduct interviews related to the existing questionnaires in research about anemia, where prospective respondents are asked to fill out questionnaires that have been prepared at the beginning and end of the intervention. Furthermore, respondents in the intervention group were given Fe tablets and 250 ml of mung bean juice for two weeks. Then the control group was only given blood-boosting tablets for 14 days. Both groups were monitored every day. After 14 days, both groups were checked for Hb levels. The results of the two measurements were then compared to measure the comparison of the increase in Hb levels in each group with a bivariate analysis test using a parametric test: T-Test Dependent.

RESEARCH RESULTS

Univariate analysis in the control and intervention groups

Based on the table, the results were obtained from 30 respondents, the mayority of respondents with normal body mass index as many as 19 respondents (63.3%), and a minority with excess body weight with a risk of 2 respondents (6.7%). as many as 2 respondents (6.7%) minority with excess body weight with a risk of 2 respondents (6.7%).Characteristics of respondents based on Body Mass Index.

Tabel 1.
Characteristics of respondents based on Body Mas Index

Klasifikasi	IMT	Frekwensi (N)	Persentase (%)
Underweight	< 18,5	9	30
Normal	18,5-22,9	19	63,3
Overweight	23-24,9	2	6,7
Obesitas I	25-29,9	0	0
Obesitas II	≥30	0	0
Total		30	100

Tabel 2.
Distribution of the frequency of occurrence of anemia, history of anemia, history of Hb examination, the habit of consuming blood-booster tablets during menstruation, consumption of blood boosting tablets in the control group

Variabel	Frekwensi	Persentase %
Anemia classification		
Mild Anemia	5	33,3
Moderate Anemia	10	66,7
History of anemia		
Ever	4	26,7
Never	11	73,3
Hb Check History		
Ever	9	60
Never	6	40
Consuming Fe during menstruation		
Yes	2	13,3
No	13	86,7
Previous history of taking Fe tablets		
Ever	2	13,3
Never	13	86,7

Based on table 2, it was found that from 30 respondents the majority of respondents were in the

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moderate anemia category as many as 10 respondents (66.7%), The majority of respondents had never experienced anemia as many as 11 respondents (73.3%), where the majority 9 respondents (60%). The majority of respondents did not consume blood enhancing tablets as many as 13 respondents (86.7) and the majority of respondents had never consumed blood enhancing tablets before as many as 13 respondents (86.7%).

Tabel 3.
Distribution of the frequency of occurrence of anemia, history of anemia, history of Hb examination, the habit of consuming blood-booster tablets during menstruation, consumption of blood boosting tablets in the intervensi group

Variabel	Frekwensi	Persentase %
Anemia classification		
Mild Anemia	6	60
Moderate Anemia	9	40
History of anemia		
Ever	4	26,7
Never	11	73,3
Hb Check History		
Ever	8	53,3
Never	7	46,7
Consuming Fe during menstruation		
Yes	1	6,7
No	14	93,3
Previous history of taking Fe tablets		
Ever	7	46,7
Never	8	53,3

Based on table 3, it was found that of the 15 respondents in the intervention group, it was found that the majority of respondents were in the moderate anemia category as many as 9 respondents (60%), with the history of anemia the majority of respondents had never experienced anemia as many as 11 respondents (73.3%), where the majority of respondents had checked Hb as many as 8 respondents (53.3%). The majority of respondents did not take blood-enhancing tablets during menstruation as many as 14 respondents (93.3) and the majority of respondents had never consumed blood-enhancing tablets before as many as 8 respondents (53.3%).

Bivariat Analisis

The Bivariate table in the control group.

Based on table 4. above, it is found that the significant value (p) in the Kolgomorov-Smirnov test is 0.2 (p > 0.05), which means the data is normally distributed. The Shapiro-wilk test also found a significant value (p) of 0.1, which means the data is normally distributed. Prior to bivariate analysis, the data collected were tested for normality. The result is p-value (0,1) which is interpreted as a normal data distribution, therefore, in conducting bivariate analysis using parametric test: T-Test Dependent.

Tabel 4.
Normality Test of HB Level Data Control group

Variabel	Kolgomorov-Smirnov (p-value)	Shapiro-Wilk (p-value)
Hb The Control group	0,2	0,1

Tabel 5.

Analisa Bivariat control group

Variabel	Mean	St Deviasi	P – Value	CI (95%)
Kadar Hb (Pre)	10,660	0,9077	0,0001	-1,5150 sampai 0,7250
Kadar Hb (Post)	11,780	0.3968		

Based on table 5, it can be seen that the mean HB levels for young women before being given the intervention of Fe blood enhancing tablets was 10,660 while the mean HB levels for young women who had been given the intervention was 11,780. The difference in Hb levels in adolescent girls between before and after being given the Fe table is 1.1200 P-Value obtained from the analysis results is 0.0001, which means that there is a significant effect between the Hb levels in female adolescents before and after being given the Fe Tablet intervention.

The Bivariate table in the intervensi group.

Berdasarkan tabel 6 diatas didapati bahwa nilai signifikan (p) pada uji kolgomorov-smirnov adalah 0,84 (p > 0,05) yang berarti data berdistribusi normal. Pada uji Shapiro-wilk juga didapati nilai signifikan (p) 0,15 yang berarti data berdistribusi normal. Sebelum dilakukanan alisis bivariat data yang dikumpulkan di uji kenormalitasannya. Hasilnya p-value > 0,05 yang diartikan sebagai distribusi data normal maka dari itu, dalam melakukan analisis bivariat menggunakan uji parametric: T-Test Dependen

Tabel 6.
Normality Test of HB Level Data Control group

Variabel	Kolgomorov-Smirnov (p-value)	Shapiro-Wilk (p-value)
Hb Intervensi Group	0,84	0,15

Tabel 7.
Analisa bivariat intervensi group

Variabel	Mean	St Deviasi	P – Value	CI (95%)
Kadar Hb (Pre)	10,667	0,7734	0,0001	-3,5118 sampai 0,9282
Kadar Hb (Post)	13,387	1.3907		

Based on tabel 7, it is known that the mean HB levels of adolescent girls before being given the intervention of Fe tablets and mung bean extract was 10.667, while the mean HB levels of adolescent girls who had been given the intervention of Fe tablets and mung bean extract was 13.387. The difference in Hb levels in adolescent girls between before and after being given the Fe table and mung bean extract was -2.7200 P-Value obtained from the analysis was 0.0001, which means that there was a significant effect between the Hb levels in adolescent girls before and after being given the tablet intervention. Fe blood enhancer and green bean juice

DISCUSSION

In the results of the Bivariate analysis, the mean value of Hb levels for adolescent girls before being given the intervention of Fe tablets and mung bean extract was 10.667, while the mean HB levels for female adolescents who had been given the intervention of Fe tablets and mung bean extract was 13.387. The difference in Hb levels in adolescent girls between before and after being given the Fe table and mung bean extract was -2.7200 P-Value obtained from the analysis was 0.0001, which means that there was a significant effect between the Hb levels of adolescent girls before and after the tablet intervention was given. Fe blood enhancer and mung bean extract.

Efforts to overcome anemia in adolescents are currently being carried out by giving blood-added tablets (TTD) given to adolescent girls and pregnant women. The provision of iron tablets is a routine program carried out by the government as a form of prevention and control of anemia. Promotive efforts through education and promotion about anemia are also carried out to overcome anemia in adolescents. Nutrition education provided by the method of question and answer lecture with the help of a booklet potential to increase knowledge adolescent girls about anemia Consuming blood-enhancing tablets can increase hemoglobin in the body (Silalahi, Aritonang and Ashar, 2016) from the results of this study it was found that there was an increase in

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hemoglobin levels in respondents both in the intervention group and in the control group where both groups consumed blood-enhancing tablets (Kementerian Kesehatan Republik Indonesia, 2018b). TTD in adolescent girls is <52 items, which is 96.8% and 52 items is 1.4% (Kemenkes RI, 2018). The number of young women who experience anemia in adolescence due to non-compliance in consuming iron tablets. Compliance with taking iron tablets is related to several factors, such as knowledge of young women about anemia and the benefits of iron tablets that are lacking, so there are still many young women who do not comply with consuming 1 tablet in 1 week continuously for 1 year.

Consuming blood-boosting tablets in adolescent girls is necessary to meet their nutritional needs, where young girls are prospective mothers who will give birth to the next generation, so consuming Fe tablets is useful as pre-marital preparation and pregnancy to prevent stunting (Tonasih, Rahmatika and Irawan, 2019). In this study, it was found that the majority of respondents, 93.3%, had never consumed Fe tablets regularly, either during menstruation or once a week on a regular basis. In addition, from the results of this study, it was found that the majority of respondents in this study, both in the intervention and control groups, had never tested hemoglobin levels, so screening to detect anemia in adolescents was still lacking. The results of this study indicate that overcoming anemia in adolescents can be done by giving blood-boosting tablets as a first step to overcome anemia, this can be seen by the results of the comparison of Hb levels before and after giving blood-enhancing tablets, there is an increase in Hb levels. This is in accordance with the government's recommendation that to overcome anemia, blood-boosting tablets can be given because anemia in adolescents can occur due to several factors such as blood loss during menstruation and decreased red blood cell production, excessive destruction of red blood cells. ompliance with taking blood-boosting tablets is important. The more young women who are obedient in consuming Fe tablets, the lower the chance of anemia. On the other hand, if the non-compliance with the consumption of Fe tablets is low, the chances of anemia will continue to increase among young women (Putri, Simanjuntak and Kusdalinah, 2017). Family support affects adherence to taking blood-boosting tablets. The existence of family support will form a normative belief and young women will tend to form a positive perception of the consumption of blood-added tablets, so that a strong intention is formed to consume these tablets in order to avoid the risk of anemia (Savitry, Arifin and Asnawati, 2017). Positive habits and attitudes have the possibility of consuming blood-added tablets 2.2 times greater than respondents with bad attitudes (Risva, Suyatno and Rahfiludin, 2016).

In addition, anemia can also be caused due to low knowledge about anemia, social economic, and food intake (Atikah Proverawati, 2011)

Knowledge and family economy influence food choices and the variety of food consumed in the family. In the (Habtegiorgis et al., 2022) study conducted in Ethiopia, families with poor diets were 47% times more likely to develop anemia in adolescents compared to families with good diets. The results of this study showed that consuming 250 ml of blood-enhancing tablets and green bean juice regular basis and routinely for 14 days could increase Hb levels. Where the increase in Hb levels in the intervention group showed a more significant increase than in the control group (the group that was only given fe tablets).

Green beans contain vitamins and minerals needed. One of the minerals found in green beans is iron. The iron content in green beans is 6.7 mg/100 g. The element iron which is classified as a micro mineral is the main component of the synthesis of hemoglobin. Green beans can be used as an additional iron intake in increasing blood hemoglobin levels (Made Astawan, 2009). One of the most effective forms of serving green beans is with green bean juice, where the water and the pulp are filtered and separated so that the drink is nutrient-dense (Retnorini, Widatiningsih and Masini, 2017).

The results of Anastasia's study in 2018 where giving mung bean juice to pregnant women in the intervention group were given mung bean juice and Fe tablets for 14 days. Fe with a significance value smaller than the alpha value (0.000<0.05). Another way to reduce the incidence of anemia in pregnant women is not only by giving blood supplements, but must be supported and assisted by providing nutritional intake rich in iron a complex that is soluble and easily absorbed, therefore fresh vegetables and fruits that contain lots of vitamin C are good to eat to prevent anemia (Anastasia Sitepu and Hutabarat, 2018)

The process of iron absorption too need vitamin C, vitamin C helps in the absorption of iron and helps release iron from places

storage. Vitamin C can play a role in increasing the absorption of non-heme iron to be 4 times. Vitamin C and iron form a complex iron ascorbate compound soluble and easily absorbed.there are a significant relationship between the increase in Hb levels with consumption of vitamin C, iron non heme will increase by 2-20% if consuming

vitamin C. Consuming 2 a cup of green beans in every day means have consumed 80% of vitamin needsC in every day is 75 mg (Heltty, 2008)

The results of this study are in line with research conducted Alviah 2017, where hemoglobin levels before and after administration of mung bean juice in the 250 cc dose group obtained p value = 0.0001 so that there are 49 differences in hemoglobin levels before and after administration of mung bean juice in the 250 dose group. cc. This is reinforced by the results of the average difference in hemoglobin levels before and after administration of mung bean juice in the 250 cc dose group which showed an increase of 0.84±0.02 gr/dl. Other research related to giving green bean is a study conducted on animals where the result is the administration of green beans with a dose of 18g/kg BW/day and a dose of 36g/kg BW/day effect on increasing Hb levels white rat (Maulina and Indra, 2015)

Research conducted by (Carolin et al., 2021) showed that there was an effect of giving mung bean juice to increase hemoglobin levels in the blood of adolescent girls, namely (p = 0.0001). Green bean juice can increase hemoglobin levels in the blood of adolescent girls who suffer from anemia. Rahmadita's research (2019) showed that samples with low Hb levels (<12 g/dl) increased by an average of 1.14g/dl. The results of the Linear Regression test showed that mung bean juice had a significant effect (p<0.05) and could increase hemoglobin levels 64.1% higher than those who were not given mung bean juice (Rahmadita, 2019). The results of research Mariyona, 2019 stated that there was an effect of giving green bean juice to increase hemoglobin levels in adolescent girls with anemia (Mariyona, 2019). Research conducted by Ike in 2019 showed that adolescents who were anemic and consumed mung bean juice could increase their Hb levels but decrease their Hb levels or the occurrence of anemia that occurs in adolescents is influenced by age. Young women are very concerned about body shape, so they limit their consumption of iron from animal sources, namely meat, chicken, fish, eggs (Yuviska and Armiyanti, 2019)

Green beans are needed for the formation of blood cells and to prevent anemia because the content in green beans is very complete so it can help the process of Hematopoiesis (the process of forming blood cells, erythrocytes, leukocytes, and platelets). Green beans (Phaseolus radiatus L.) are also one of the foodstuffs that contain complete nutrients needed for the formation of red blood cells so that they can overcome the effect of decreasing hemoglobin in the blood.

CONCLUSION

The administration of blood-boosting tablets simultaneously with the administration of peanut juice in the intervention group showed a higher increase in hemoglobin levels seen from the increase in Hb levels in the intervention group. Where the difference in the increase in Hb in adolescent girls between before and after being given the Fe table and mung bean extract is -2.7200 P-Value obtained from the analysis results is 0.001, while in the control group the results of the difference in Hb levels in adolescent girls between before and after being given table Fe in the intervention group was -1,1200. It was concluded that the administration of Fe tablets together with the administration of mung bean juice gave a higher increase in Hb levels.

Adolescent compliance in this case is the key to success, where not all teenagers like green beans, and the youth's low adherence to consuming blood-boosting tablets. Some teenagers do not like taking blood-enhancing tablets every day and there are complaints /effects of blood-enhancing tablets. The results of this study, it was also found that there are still many teenagers who have never done a Hb check before, so the teenager does not know that he is anemic, teenagers think that complaints of feeling weak and lethargic are normal, so no effort should be made to overcome this.

SUGGESTION

Examination of hemoglobin levels should be carried out periodically in adolescent girls as an effort to detect early prevention of anemia in adolescents. In addition, increasing knowledge through information conveyed to adolescents continuously as an effort to increase adolescent understanding to be more aware of the dangers of anemia that occurs in young women which will have an impact on health in the future if not addressed.

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