ISAR Journal of Medical and Pharmaceutical Sciences
Vol-2, Iss-7 (July- 2024)
Abbriviate Title- ISAR J Med Pharm Sci
ISSN *(Online)*- 2584-0150
https://isarpublisher.com/journal/isarjmps

OPEN ACCESS

The Effect of Giving Chicken Liver and Red Bean Nuggets (HATKAM) with Red Guava Fruit Juice Probiotics on Hemoglobin Levels in Adolescent Girls with Anemia at Ma Hidayatul Qomariah Bengkulu City in 2024

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Article History
Received: 27.06.2024
Accepted: 11.07.2024
Published: 29.07.2024

Abstract: - Anemia is a condition where the number of red blood cells or hemoglobin concentration in it is lower than normal. The group design of this research subject is anemia patients with Systolic hemoglobin levels <12 mg/dL which are divided into 4 treatment groups, namely groups P0, P1, P2, P3. The doses given were P0 leaflet education, P1 100gr hatkam nuggets and leaflet education, P2 100ml probiotic red guava juice and leaflet education, P3 100gr hatkam nuggets and probiotic red guava juice and leaflet education. The intervention was conducted for 7 days. Hemoglobin levels were measured using easy touch, checking hemoglobin levels before and after the intervention. Normality test was conducted using Shapiro-Wilk. Statistical analysis using ANOVA test and followed by Duncan test. The results showed that the average hemoglobin levels before intervention P0 11g/dL, P1 10g/dL, P2 10g/dL, P3 9g/dL. The average hemoglobin levels in the anemia group after intervention P0 12g/dL, P1 13g/dL, P2 14g/dL, P3 17g/dL with Systolic hemoglobin levels P-value = 0.000. Of the 4 treatments, the best treatment is the P3 treatment. It can be concluded that there is an effect of giving chicken liver and red bean nuggets (hatkam) and probiotic red guava juice on hemoglobin levels in anemic adolescent girls with anemia at Ma Hidayatul Qomariah Bengkulu City.

Keywords: Anemia, chicken liver, kidney bean, Red Guava Fruit Juice Probiotics, Hemoglobin Level.

Cite this article:
Sari, I. P., Maigoda, T. C., Kamsiah., (2024). The Effect of Giving Chicken Liver and Red Bean Nuggets (HATKAM) with Red Guava Fruit Juice Probiotics on Hemoglobin Levels in Adolescent Girls with Anemia at Ma Hidayatul Qomariah Bengkulu City in 2024, 2024. *ISAR Journal of Medical and Pharmaceutical Sciences*, *2*(7), 64-70.

Introduction

Anemia is a condition where the number of red blood cells or the concentration of hemoglobin in them is lower than normal. Hemoglobin is needed to carry oxygen and if you have too few or abnormal red blood cells or not enough hemoglobin, there will be a decrease in the blood's capacity to carry oxygen to the body's tissues. (Kementrian Kesehatan Republik Indonesia, 2021). Adolescent girls who go on to become pregnant women with anemia are at risk of giving birth to premature babies (<37 weeks) or low birth weight (<2,500 grams). The growth of these LBW babies can then be disrupted and become stunted children (short) who then become adolescent girls who then become pregnant women with malnutrition and give birth to a generation that is also stunted, not just pregnant women. short, but also have a lower level of intelligence, psychological disorders and are at risk for diseases such as diabetes, hypertension, and various other chronic diseases in the future (Taufiqa, Ekawidyani, & Sari, 2020).

World Health Organization (WHO) in (2019) reported that the prevalence of adolescent girls experiencing anemia in the world is 35.5%. In Southeast Asia, the prevalence of anemia among adolescent girls is 55% (Chalise *et al*,2018). Based on the results of the 2018 Riskesdas, it is known that there was an increase in anemia in Indonesia in 2018 reaching 48.9%. (Riskesdas,2018). According to the 2018 Riskesdas data, the national prevalence of anemia in the age group of 15-24 years was 32%, an increase from 22.7% in 2013 (Badan Penelitian dan Pengembangan Kesehatan RI, 2018).

Cases of adolescent anemia in Indonesia in the age group of 15-24 years have increased from 37.1% in 2013 to 48.9% in 2018. (Siyami, Achyar, & Kusuma, 2023). The prevalence of iron nutritional anemia among adolescent girls in Bengkulu City was 43%.(Khobibah, Nurhidayati, Ruspita, & Astyandini, 2021).

The problem of anemia is of great interest to the government to be addressed immediately. There are two kinds of anemia treatment, namely through pharmacological and non-pharmacological methods, pharmacological treatment can be done by taking one iron tablet every day during menstruation. Meanwhile, non-pharmacological treatment can be done by consuming foods such as chicken liver, red beans and red guava fruit which contain iron, folic acid, vitamin C and vitanim B12(Resmi & Setiani, 2020).

Chicken liver is a source of high heme iron iron source that is easily found, and is quite widely sold in the market and the price is relatively affordable by the community than chicken meat (Krismaputri, Hintono, & Pramono, 2009). Chicken liver protein plays a role in iron metabolism to form new hemoglobin in the

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body, in addition, vitamin B12 also plays a role in the synthesis of Hb and red blood cells through the metabolism of fat, protein, and cholesterol. folic acid. Fat iron, protein and folic acid. The heme iron in chicken liver can be absorbed completely for the formation of red blood cells. Chicken liver contains a high iron content of 8.99 mg/100gr. In addition, minerals derived from chicken liver are more easily absorbed because they contain less mineral binding material. Chicken liver is a storage place for iron so it contains high levels of iron needed to prevent anemia.(Santosa, Handayani, Nuramelia, & Sukma, 2016). Chicken liver contains large amounts of iron which is used for the formation of red blood cells Animal protein in chicken liver also plays a role in the process of hemopoesis, the formation of red blood cells with hemoglobin (Riskesdas, n.d.).

Red Beans or the Latin name Phaseolus Vulgaris contains iron which reactivates and regenerates red blood cells and supplies oxygen which is useful for the health of red blood cells. Red beans also contain Vitamin C as an antioxidant in the body, the content of vitamin C can increase the absorption of iron in the body by reducing ferric iron to ferrous in the small intestine so that it is easily absorbed(Hariya Fitri, Susilowati, & Kurniarum, 2022). The benefits of kidney beans are that it can be used as a treatment or as a prevention of anemia in people with iron deficiency. The benefits of kidney beans are that they can be used as a treatment or as a prevention of anemia in people with iron deficiency.(Novi Wulan Sari & Rahyuda, 2020).

Nugget is a technique of processing Restructured Meat products made from low quality meat by using small and irregular pieces of meat which are finally reshaped into a larger size.(Krismaputri et al., 2009). Chicken liver and red bean nuggets are a processing to improve the taste and consumer preference for chicken liver and red beans, the price of chicken liver is cheaper so that it can be reached by the community and as an alternative food to prevent anemia, especially adolescent alternative foods to prevent anemia, especially adolescent girls where chicken liver nuggets contain protein and iron chicken liver nuggets contain protein and high heme iron which plays a role in the formation of hemoglobin hemoglobin formation in the body(Krismaputri et al., 2009).

Functional foods differ from medicine in that they are not used for treatment, and cannot replace medicine for patients. (Chen *et al.*, 2023). Probiotic drinks are one of the functional food products produced from the fermentation process of milk with the help of lactic acid bacteria (BAL)(Journal, Rahayu, Nasution, & Al-hikmah, 2023)

One form of probiotics on the market is yogurt. Yoghurt is known to play a role in health such as immunostimulants that can increase the body's immune system(Muchlisa, Citrakesumasari, & Indriasari, 2021). In addition, yogurt is also known to increase hemoglobin levels because yogurt contains probiotic bacteria that can encourage the release of proteins that can reduce hemoglobin levels. (Roja, Eswarudu, Ravishankar, & Srinivasu, 2022). dengan berkembangnya jaman *yoghurt* memiliki beberapa tipe, salah satunya adalah *fruit yoghurt*. With the development of the times yogurt has several types, one of which is fruit yogurt. Fruit yoghurt is yoghurt that is added with fruit juice. (Jasmine, Fadhilla, Melani, Ronitawati, & Angkasa, 2020).

Yoghurt is a form of milk with a high concentration of calcium and protein, as well as iron and vitamin c, which have been linked to hemoglobin-lowering effects. The nutritional composition of dairy products is one of several mechanisms that may be beneficial to hemoglobin levels, dairy products are a source of vitamin c which is found in dairy products. Red guava fruit also contains iron, vitamin A, calcium, and secondary metabolites such as anthocyanins, quercetin, carotenoids, polyphenols, flavonoids, lycopene, saponins, catechins, guajaverin, and guavin. (Naseer, Hussain, Naeem, Pervaiz, & Rahman, 2018). Red guava is useful as an antianemia, antioxidant, anti-inflammatory, maintaining the cardiovascular system and digestive tract (Bello, Ayanda, Aworunse, & Olukanmi, 2018). The high vitamin C content in guava greatly helps the absorption process of non-heme iron by converting ferric form into iron, making it easier for the body to absorb iron. The high iron and vitamin C content in guava fruit causes iron to be absorbed by the body 4 times faster than without vitamin C. (Rahmawati et al., 2019).

that the vitamin C content in guava is able to meet the daily needs of children aged 13 to 20 years which reaches 80 to 100 mg per day, or the daily vitamin C needs of adults which reaches 70 to 75 mg per day, proving that red guava has the potential to increase hemoglobin levels. hemoglobin levels after consuming red guava are higher and meaningful than before consuming guava. This happens because red guava contains quercetin compounds that can increase hemoglobin levels in the .

Many studies have used chicken liver, red beans, and red guava fruit and yogurt separately as alternatives in reducing hemoglobin levels, but currently no researchers have examined whether the combination of these ingredients can provide a better effect in reducing hemoglobin levels. Based on this description, researchers are interested in examining the effect of giving chicken liver nuggets and red beans (hatkam) and probiotic red guava juice on hemoglobin levels in adolescent girls with anemia at Ma Hidayatul Qomariah Bengkulu City in 2024..

Methods

This study used experimental research with a Randomized Group Design (RAK) research design with a combination of 4 treatments, namely P0 leaflet education, P1 100gr of hatkam nuggets, P2 100ml of red guava juice probiotics, P3 100gr of hatkam nuggets and red guava juice probiotics for 7 days in anemia patients at Ma Hidayahtul Qomariah. The samples in this study were anemia patients with hemoglobin levels < 12 g/dL. The technique used in sampling is total sampling based on the number of samples, meaning that the sample is taken based on the inclusion and exclusion criteria that have been determined.

The sample size required in this study was calculated using the formula Federer (1991) :

$$(n-1)\ (t-1) \geq 15$$

Description :

n = number of samples sought

t = number of treatments

In this study, it is known that there are 4 treatments (t) = 4, namely 1 control group and 3 treatment groups, so the value of n is obtained as follows :

(n-1)(t-1) = 15
(n-1)(4-1) = 15
(n-1)(3) = 15
3n-3 = 15
3n = 18
n = 6

The sample size according to the data above is 6 respondents, which means that the minimum number of respondents for each is 6 respondents. As for the drop out calculation, namely 1 respondent, the sample size in this study was 7 people in each group so that a total of 28 respondents were obtained..

The research location was carried out at Ma Hidayatul Qomariah which was carried out in May 2024. The research implementation stage begins with data collection which began in April 2024, the research data taken in the form of primary data, namely, the identity of the respondent and hemoglobin levels. Respondent identity includes name, age, and address data collected through interviews, while hemoglobin level data is taken using an easy touch tool. Furthermore, the intervention group P0 leaflet education, P1 100gr hatkam nuggets, P2 100ml red guava juice probiotics, P3 100gr hatkam nuggets and red guava juice probiotics for 7 consecutive days.

During the intervention, iron and vitamin c intake was also observed using food recall 3x24 hours during the intervention. After the intervention, measurements were taken again on day 7 using the easy touch tool.

The analysis used was univariate analysis for numerical data used to find the mean, median, maximum and minimum values and standard deviation. For bivariate analysis using the ANOVA test and followed by Duncan's test to see differences between four groups of data.

Results and Discussions

1. Respondent Characteristics

Based on the research that has been conducted, the following results are shown :

Tabel 1: Distribution of Characteristics of Anemia Patients

No	Variables	Frequency	Percentage (%)
1.	**Age**		
	15	7	25,0
	16	21	75,0
	Jumlah	28	100
2.	**Gender**		
	Female	28	100
	Total	28	100

Source: *Data Penelitian*, 2024

Judging from Table 1, the characteristics based on the age of the respondents were mostly 15 years old 25% (7 people). At the age of 16 years, the risk of anemia shows that adolescents aged 15-16 years have a 2.81 times greater chance of experiencing anemia compared to adolescents aged 20-24 years(Adhi & Asmin, 2024)**,** This is because at the age of 15-16 adolescent girls experience iron (Fe) loss during menstruation so they need more iron intake**.** (Budiarti, Anik, & Wirani, 2021) **.** In line with research (Sandy, Tamtomo, & Indarto, 2021) who conducted research on anemia in adolescent girls related to body weight with knowledge, said that the most respondents in the study were 16 years old. Characteristics of respondents based on gender mostly occurred in women as many as 28 people with a percentage of 100%. Most of the respondents' gender (100%) were female**.**

2. Hemoglobin Level before and after Intervention

Table 2 shows the average hemoglobin levels before and after the intervention.

Table 2: Average Hemoglobin Level of Anemia Patients before and After the Intervention

Variables	Group P0	Group P1	Group P2	Group P3
	Mean± Std.dev	**Mean± Std.dev**	**Mean± Std.dev**	**Mean± Std.dev**
HB Before	11.629± 0.6701	10.114± 1.2335	10.043± 1.2381	9.729± 1.9491
Hb After	12.514± 0.5242	13.186± 0.7058	14.657± 0.9537	17.229± 1.2645

Source: *Data Penelitian*, 2024

Table 2 shows that the average hemoglobin level before the intervention was in the P0 group 11 g/dL, P1 10g/dL, P2 10g/dL, P3 9g/dL, and the average after the intervention was in P0 12g/dL, P1 13g/dL, P2 14g/dL, P3 17g/dL. The results showed an increase in the hemoglobin level of the respondents after being given the intervention of chicken liver nuggets and probiotic red guava fruit salad at least 7 times per 100ml because of the iron and vitamin c content in chicken liver, red beans, red guava fruit, one of the factors that affect hemoglobin levels is the consumption and absorption of iron in the body. Iron absorption is closely related to the consumption of certain nutrients such as vitamin c as a supporting substance for absorption..(Waldvogel-Abramowski et al., 2014). Vitamin C has a role in the formation of hemoglobin in the blood, where vitamin C helps the absorption process of iron and food so that it can be processed into red blood cells. (WHO, 2012).

Iron has an influence in increasing hemoglobin levels because iron is the main component in blood formation, namely for hemoglobin synthesis. The increase in hemoglobin levels is not only influenced by iron intake but also influenced by enchancer factors and iron absorption inhibitor factors. (Rieny, Nugraheni, & Kartini, 2021).

Vitamin C influences hemoglobin levels. Vitamin C is an enchancer factor in iron absorption. Consuming vitamin C increases iron absorption so that hemoglobin levels in the blood increase.(Rieny et al., 2021).

Vitamin C from red guava can help the absorption of iron from chicken liver and kidney beans more optimally because vitamin C is one of the iron substances that can increase the absorption of non-heme iron. Vitamin C increases iron absorption because vitamin C is needed for reductase activity which will

reduce ferric iron (Fe3 +) to ferrous iron (Fe2 +) so that it can increase the absorption of non-heme iron in the small intestine. (Roziqo & Nuryanto, 2016).

3. The Effect of Giving Hatkam Nugget with Probiotic Red Guava Fruit Juice on Hemoglobin Levels in Adolescent Girls with Anemia at Ma Hidayatul Qomariah Bengkulu City

This research was divided into 4 groups of perlalkualn, malsing-malsing dialntalralnyal groups namely group P0 (control group given education), group P1 (100 gr of hatkam nuggets) lealflet, P2 (100 gr of probiotics (100 gr of red guava)) lealflet, P3 (100 gr of hatkam nuggets, and 100 gr of probiotics (100 gr of red dragon)) lealflet. Each group of malsing-malsing perlalkualn consisted of 7 respondents.

Table 3: Test Results i *One Way ANOVA*

	n	Mean	Min	Max	±SD	P-value
Hb Before	28	10.379	7,2	13,0	1,4781	0,064
Hb After	28	14.396	12,1	19,1	2,0310	0,000

Source: *Data Penelitian*, 2024

Based on the One Way ANOVA Statistical Test, it shows that the combination of giving hatkam nuggets and probiotic red guava juice to hemoglobin levels for 7 days has a significant effect on increasing anemia patients in Ma Hidayatul Qomariah. Seen in Table 3 in the Sig (P-value) column, that there is a significant difference in hemoglobin levels P-value 0.000 (<0.05) indicates that each treatment group after the intervention there is a significant difference.

Table 4: Test Results *Duncan*

Hb After				
Group	N	1	2	3
Control treatment	7	12.514		
Treatment 1	7	13.186		
Treatment 2	7		14.657	
Treatment 3	7			17.229
Sig.		178	1.000	1.000

Source: *Data Penelitian*, 2024

Duncan's further test results to find out in detail which data groups are significantly different. Based on the research, it shows that treatment group 3 is the best, which is 100 grams of hatkam nuggets and 100 ml of probiotic red guava juice and educational leaflet). This research is in line with research (Dewi Nurlaela Sari, Yuliani, & Anri, 2022). giving red guava yogurt and beetroot to 30 respondents as much as 100 cc / day for 7 days the respondents experienced a significant improvement.

There are differences in hemoglobin levels in the 4 groups that have been given the intervention. In hemoglobin levels in the P0 intervention group after being given intervention for 3 times in 7 days in the form of education using leaflet media about the TETP diet, there were changes in hemoglobin levels. Providing education can increase a person's awareness so that they can behave according to their knowledge.(Pareek, 2015). In line with research conducted (John et al., 2019) shows that during adolescence, adolescents will acquire knowledge and skills that will help them to become independent and successful, but iron deficiency anemia can affect their learning, growth and development.

Judging from the iron intake from the average recall results of 3.09mg is lower than the daily iron adequacy rate of 26 mg. Vitamin C intake obtained from the average recall results of 10.11mg is lower than the daily potassium nutrient adequacy rate of 65-75mg.

In the P1 treatment with the provision of 100gr of chicken liver nuggets and red beans and leaflet education for anemia sufferers consumed for 7 consecutive days provides changes to hemoglobin levels, an increase in hemoglobin levels in respondents it is because chicken liver contains heme iron and has a higher biovalidity value than other iron sources. Chicken liver is a good source of protein for the body which contains a lot of iron, vitamin A and various minerals needed for the formation of red blood cells and hemoglobin. Iron sourced from animal foods (heme iron) has a relatively higher absorption rate of 37% compared to plant food sources (nonheme iron) such as green leafy vegetables whose absorption rate is only 5% that can be absorbed by the body.(Adriani & Wijatmadi, 2018). Chicken liver contains large amounts of iron which is used for the formation of red blood cell formation Animal protein in chicken liver also plays a role in the hemopoesis process, namely the formation of red blood cells with hemoglobin. In line with research (Merlin Kurnia, Eliza, Yuli Hartati, & Nathasa Weisdania Sihite, 2023). In line with research conducted by (Nurlinda, Nusu, Zarkasyi, & Sar, 2022) The results of the paired simple t test showed a p value of (0.000), meaning that there was a significant effect on the value of hemoglobin levels of adolescent girls before and after giving chicken liver.

Red kidney beans (Phaseolus Vulgaris L) can increase adolescent Hb levels by 0.79 g/dL. Red bean has a high iron content (ferritin), increased iron absorption is described by increased iron binding capacity (Jamil, Daryanti, & Marlina, 2023). Red beans also contain folic acid, calcium, carbohydrates, protein and antioxidants which are quite high, stating that the consumption of red beans has an effect on the treatment of anemia in pregnant women at the sendana health center in Palopo city with an average hemoglobin level before being given is 9.7 g/dL and hemoglobin levels after treatment are 12.5 g/dL.(Nurlinda, Ishaq Nusu, Rahmat Zarkasyi, & Rasidah Wahyuni Sari, 2022).

In the P2 treatment with the administration of 100ml probiotic red guava fruit salri and educational leaflets on anemia sufferers consumed for 7 consecutive days provides a change in hemoglobin levels, an increase in hemoglobin levels in respondents it is due to the presence of bacteria in probiotics from yogurt that can encourage the release of proteins that can increase hemoglobin levels.

Red guava Red guava contains vitamin C which is quite high at 87.0 grams of red guava fruit. Red guava is useful as an antianemia, antioxidant, anti-inflammatory, maintaining the cardiovascular system and digestive tract.(Bello et al., 2018). The vitamin C content of red guava can help the absorption of iron

from red beans more optimally because vitamain C is one of the nutrients that can increase the absorption of non-heme iron.(Nurlinda, Ishaq Nusu, et al., 2022). The high vitamin C content in guava seeds greatly helps the absorption process of non-heme iron by converting ferric form into iron, making it easier for the body to absorb iron. The high iron and vitamin C content in dragon fruit causes iron to be absorbed by the body 4 times faster than without vitamin C (Rahmawati et al., 2019).

Vitamin C from red guava can help the absorption of iron from chicken liver and kidney beans more optimally because vitamin C is one of the iron substances that can increase the absorption of non-heme iron. Vitamin C increases iron absorption because vitamin C is needed for reductase activity which will reduce ferric iron (Fe3 +) to ferrous iron (Fe2 +) so that it can increase the absorption of non-heme iron in the small intesti(Roziqo & Nuryanto, 2016). vitamin C as a strong promoter of iron absorption from food and can counteract the inhibitory effects of phytates and tannins (Damayanti, Novianti, & Astuti, 2012). In line with research conducted by (Damayanti et al., 2012) proved that red guava has the potential to increase hemoglobin levels. hemoglobin levels after consuming red guava are higher and meaningful than before consuming guava. This happens because red guava contains quercetin compounds that can increase hemoglobin levels in the blood. Vitamin C is related to iron pharmacokinetics, as a promoter that helps the absorption of non-heme iron in the small intestine through the process of reducing ferric iron (Fe3 +) to ferrous (Fe2 +) so that it is easily absorbed and helps the release of iron from transferrin into body tissues and inhibits the formation of hemosiderin (blood protein) which is difficult to mobilize in iron liberation and increases blood formation Meanwhile, antioxidants play a role in maintaining the resistance of erythrocyte membranes that are vulnerable to free radicals (Utami & Farida, 2022).

Vitamin C can increase the pH in the stomach so that it can increase the absorption process of iron by up to 30%. The role of Vitamin C is iron from transferrin in the plasma to liver ferritin. Most of the blood transferrin carries iron to the bone marrow as an iron reserve and other parts of the body. (Rista Andaruni & Nurbaety, 2018).

Probiotics can either directly or indirectly affect the physiology of the gut through the production of prebiotics, such as TMAlC, SCFAl, and secondary bile acids. (Luu *et al.*, 2020). More tolerant probiotics such as adapting to extreme pH, high temperature, low temperature (Chen *et al.*, 2023). The bacterium Lalctobalcillus calsei which is found in yoghurt is one of the probiotic salts which promotes isoleucine-proline-proline (IPP) and vallin-proline-proline (VPP) fermentation of milk protein. (Robles *et al.*, 2018). It can modulate the microbiota of the intestinal tract and has properties to interact with the immune system. In clinical research, bacteria such as Lactobacillusacidophilus or Bifidobacteriumlongum have anti-inflammatory properties. (Tamaki et al., 2016). Some of these bacteria and their metabolites are important in iron absorption and affect the course of anemia. However, the ultimate effect of probiotics is strain-specific and dose-dependent. (Hill et al., 2014). Shows the positive effect of Lactiplantibacillus plantarum 299v on preventing iron deficiency anemia. This strain increases non-heme iron absorption in European Caucasians (Vonderheid et al., 2019)

In the P3 treatment with the provision of 100gr of chicken liver nuggets and red beans (Hatkam) and probiotic red guava juice and leaflet education for anemia sufferers consumed for 7 consecutive days provides a change in hemoglobin levels, the increase in hemoglobin levels in respondents is due to the combination of both ingredients that are good for the body such as iron , vitamin C and there are also active compounds that can increase hemoglobin levels, one of which is a quercetin compound that can increase hemoglobin levels in the blood as an antioxidant, flavonoids can inhibit the clumping of blood pieces, stimulate the production of nitritoxide which can dilate blood vessels. Quercetin is a flavonoid from the flavono group. Flavonoids include natural phenolic compounds that function as antioxidants. Quercetin antioxidants are stronger than vitamin C and vitamin E as the results of research conducted by the National Institute of Health Translated with DeepL.com (free version)(do Nascimento et al., 2013) which shows that red blood cells are able to resist damage by free radicals after the addition of quercetin with other compounds. (Dewi Nurlaela Sari et al., 2022). senyawa antioksidan seperti kuersetin, guajaverin, asam galat, leukosianidin dan asam elagat. Vitamin C menambah keasaman sehingga membantu penyerapan zat besi dalam lambung dengan mereduksi ferri (Fe 3+) menjadi ferro (2+). In addition, flavonoid compounds are antioxidants that play a role in increasing the erythrocyte membrane to be less prone to lysis caused by free radicals..

Increased hemoglobin levels occur due to nutritional content derived from the consumption of animal side dishes and fruits outside of daily food consumption and can also be influenced by additional education to increase knowledge and can change healthy living behavior..

Conclusions

From the results given to the 4 intervention groups where the intervention that most affected the decrease in hemoglobin levels was in the P3 intervention group with an increase before being given the intervention, P3 9g / dL and after being given the intervention, P3 17 g / dL, with a difference of raltal-raltal increase of 8, 25 paldal group P3 There is a significant effect of chicken liver and red bean nuggets (Hatkam) with probiotic salri guava juice red m paldal adolescent girls with anemia at Ma Hidayatul Qomariah Kotal Bengkulu, which means that the use of chicken liver and red bean nuggets with red guava juice probiotics in the diet has no harmful effect and is considered as a nonpharmacological treatment for anemia sufferers.

Acknowledgments

Thank you for your cooperation to all researchers involved in this study.

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