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ORIGINAL ARTICLE

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THE INFLUENCE OF CONSUMPTION OF BOILED BANANA CEPATU (MUSA PARADISIACA L.) WATER ON THE REDUCTION OF CHOLESTEROL LEVELS IN HYPERCHOLESTEROLEMIC PATIENTS IN PALE VILLAGE KUPA-KUPA HEALTH CENTER WORKING AREA SOUTH TOBELO DISTRICT NORTH HALMAHERA REGENCY

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ABSTRACT

Hypercholesterolemia is a disorder of blood fat levels in which blood cholesterol levels are more than 240 mg / dL. The beta sitosterol and vitamin E content of cepatu banana (musa paradisiaca L.) which can emulsify fat also as an antioxidant is predicted to reduce cholesterol levels in hypercholesterolemic patients. This study aims to determine the effect of Cepatu (Musa Paradisiaca L.) Banana stew water consumption on the reduction of cholesterol levels in patients with hypercholesterolemia. The type of research used is the research "Quasy experiment desing with pre-post test control group". With a large sample of 20 respondents in Pale Village sampling by non-probability sampling type of saturated sampling. Based on the results of the statistical test (SPSS) obtained a significant value = 0,000 <0,05, or the calculated T value (48,324> T table (2,776), the results of the statistical test analysis (SPSS) showed that the cepatu banana stew water had an effect on the decrease cholesterol levels, therefore in the experimental group Ho was rejected and Ha was accepted (where sig <0.05), while in the control group it was obtained sig = 0.504 so that it was proved that Ho was accepted because of the sig value > 0.05. cepatu banana can effectively reduce cholesterol levels in patients with hypercholesterolemia.

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Besides controlling cholesterol levels of hypercholesterolemic patients can make cepatu banana hump as a traditional medicine that can reduce cholesterol levels.

INTRODUCTION

Bananas are native to Southeast Asia including Indonesia. Bananas belong to the family Musaceae from the order Scitamineae and consist of two genera, namely Musa and Ensete. Genus Musa is divided into four groups, namely Rhodochlamys, Callimusa, Australimusa and Eumusa. Australimusa and Eumusa groups are bananas that can be consumed, both fresh and oleahan. Bananas that are eaten fresh mostly come from the Eumusa group, namely Musa acuminata and Musa balbisiana

Cholesterol is a fatty substance that circulates in the blood, is yellowish in the form of wax, which is produced by the liver and is needed by the body. Cholesterol belongs to a group of lipids that are not hydrolyzed and is the main sterol in the tissues of the human body. Cholesterol has an important meaning because it is a major element in plasma lipoproteins and plasma membranes and is a precursor to a large number of steroid compounds. (1)

Death data according to the World Health Organization (WHO) shows that out of 57 million deaths in the world in 2008, 36 million were caused by PTM. Cardiovascular disease is a PTM the biggest cause of death is 39%. Deaths from PTM will continue to increase worldwide. The biggest increase will occur in middle and poor countries. As much as 70% of the global population will die from PTM such as heart disease, stroke, diabetes mellitus, cancer. Based on the World Health Organization (WHO) report in 2002, there were 4.4 million deaths due to hypercholesterolemia or 7.9% of the total number of deaths. (2)

Hypercholesterolemia sufferers in women in Indonesia are higher at 37.2% compared to men who only 32.8%. The prevalence of hypercholesterolemia in the 25-34 year age group was 9.3%. (3)

data from the North Maluku provincial health office in 2016 reports on the number of non-communicable cases from ages 28 to > 60 years recorded in hospitals or health facilities in the province of North Maluku with hypertension and cholesterol 9,306 people. (4)

Based on data from Kupa-Kupa Health Center from January to May 2018 hypercholesterolemia patients were 445 people.

METHODS

The type of research used in this study is quantitative research, namely the type of research that produces discoveries that can be achieved (obtained) by using statistical procedures or other ways of quantification. Where the researchers tried to find out the effect of consuming decoction of cepatu banana (Musa paradisiaca L.) boiled water against decreasing levels of hypercholesterolemia by using the Quasy Experiment Design Group design research, there were two groups in this study namely the experimental group and the control group which each group was selected randomly or randomly using the pre test and post test control group design. (13)

The two previous groups were pre-tested first, then treated and only the experimental group received treatment, while the control group was not given treatment. After that, the two groups were tested again, the purpose of this study was to see the differences in the results of the two groups and look for the influence of the cepatu banana's boiled water in the treatment group. (13)

SAMPLE

In this study the sampling technique used is using caranon probability sampling by using saturated sampling, namely this sampling technique takes all members of the population into a sample.

So the number of samples used were 20 samples with sample distribution, 10 samples for the intervention group and 10 samples for the dick group.

RESULTS

a. Description of Research Results

This research is an experimental study using the Quasy Expansion Design Control design with the Pre test and Post test control group designs, namely there are two groups consisting of 20 respondents and each chosen randomly or randomly.

The two groups were divided into 10 respondents, the first group was the experimental group which was given a treatment that was consuming cepatu banana cucumber boiled water and the second group was the control group which was not given treatment and the two groups were tested at the same time. Data obtained from the results of this survey are further illustrated based on the research objectives to be achieved.

b. Characteristics of Respondents

Table 5. Distribution of Frequency of Respondents by Gender in Pale Village, Tobelo District, North Halmahera Regency.

Gender	frequency	Percentage
Male	8	40%
Female	12	60%
Total	20	100%

Based on the table above, shows that out of 20 respondents, the number of male sex was 8 (40%) and female was 12 (60%).

Table 5. Frequency Distribution of Respondents by Age in Pale Village, Tobelo District, South Halmahera Regency.

Age	Frequency	Percentage
35-45	6	30%
46-55	8	40%
>56	6	30%
Total	20	100%

Source: 2018 Primary Data

Based on table 5.2 above shows that the results of research obtained from 20 respondents, the number of respondents aged 35-45 years 6 respondents (30%), 46-55 years 8 respondents (40%) and > 56 years 6 respondents (30%).

Table 5. Distribution of Frequency of Respondents by Level of Education in Pale Village, Tobelo District, South Halmahera Regency.

Education	frequency	Percentage
Not school	3	15%
Elementary school	10	50%
Junior high school	6	30%
Senior High School	-	0%
Bachelor	1	5%
Total	20	100%

Source: 2018 Primary Data

The results of the data in table 5.3 show that out of 20 respondents with no school background 3 respondents (15%), elementary school education 10 respondents (50%), and junior high school 6 respondents (30%), SMA 0 respondents (00%), Diploma and Bachelor is 1 respondent (5%).

Table 5. Distribution of Frequency of Respondents Based on Work in Pale Village, Central Tobelo District, North Halmahera Regency.

Work	Frequency	Percentage
Farmers	8	40%
housewives	11	55%
Civil servants	1	5%
Total	20	100%

Source: 2018 Primary Data

The results of the data in Table 5.4 show that the respondents who were in the IRT work were 11 respondents (55%), 8 respondents (40%) and PNS and 1 respondent (5%).

c. Univariate Analysis

Univariate analysis was carried out to see the frequency distribution of data from dependent and independent variables in the study regarding the effect of consuming cepatu banana weevil water to decrease total cholesterol levels in hypercholesterolemic patients.

a. Results of Measurement of Cholesterol Levels (Pre Test)

1. Experiment Group

Table 5. Distribution of Respondent Frequency of Experimental Groups (Pretest) in Pale Village, Tobelo Sub-district south of North Halmahera Regency.

Nilai	Frequency	Percentage
<200	0	0%
200-239	4	40%
>240	6	80%
Total	10	100%

Source: 2018

Primary Data

Based on table 5.6 shows that the results of the cholesterol level of the respondents in the experimental group (Pre Test) were in the normal category (<200) that is 0 (0%), the threshold (200-239) the number of respondents 4 people with a percentage of 40% while High (> 240) totaling 6 respondents with a percentage of 60%.

2. Control group

Table 5.6 Distribution of Respondent Frequency of Control Groups (Pretest) in Pale Village, Tobelo Sub-district south of North Halmahera Regency.

Value	Frequency	Percentage
<200	0	0%
200-239	7	70%
>240	3	30%
Total	10	100%

Source: 2018 Primary Data

Based on table 5.5 shows that the results of the cholesterol level of the respondents in the control group (Pre Test) were in the normal category (<200) 0%, threshold (200-239) the number of 7 respondents with a percentage of 70%, and the high category (> 240) 3 respondents with a percentage of 30%.

b. Results of Measurement of Cholesterol Levels (Post Test)

1. Experiment Group

Table 5. Distribution of Frequency of Respondents of Experimental Groups (Post test) in Pale Village, Tobelo District, South Halmahera Regency.

Value	Frequency	Percentage
<200	9	90%
200-239	1	10%
>240	0	0%
Total	10	100%

Source: 2018 Primary Data

From table 5.8 in the experimental group showed that the results of the percentage of cholesterol level examination (post test) on hypercholesterolemia

1. Intervention group.

Table 5. Table of T Test statistical test results In the Experiment Group.

No Respondent	Result		Value α	Calculated value T	Normal value	
	Pre	Post			α	T table
1	244	168				
2	248	188				
3	240	190				
4	242	198				
5	246	174	0.00	48.324	0.05	2.776
6	205	172				

patients after consuming cepatu banana weevil stew obtained differences with the optimal cholesterol level category (<200) 9 respondents (90%), while the threshold (200-239) 1 respondent 10% and high category (> 240) 0%. This shows that there is a decrease in cholesterol levels in patients with hypercholesterolemia after consuming decoction of cepatu banana weevil.

2. Control group

Table 5. Distribution of Frequency of Respondents in Control Groups (Post test) in Pale Village, Tobelo District, South Halmahera Regency.

Value	Frequency	Percentage
<200	0	0%
200-239	8	80%
>240	2	20%
Total	10	100%

Source: 2018 Primary Data

Based on table 5.7 shows that there is no difference between pre and post in the control group that is the group without consuming water from cepatu banana weevil which means that the results of the examination of total cholesterol reduction in hypercholesterolemia in the control group is no different. Where respondents are in the normal category (<200) 0%, threshold (200-239) the number of 8 respondents with a percentage of 80%, and the high category (> 240) 2 respondents with a percentage of 20%.

d. Bivariate analysis

Bivariate analysis is used to see whether there is no effect between independent variables and dependent variables in the experimental group and the control group with significant = 0.05.

No Respondent	Result		Value α	Calculated value T	Normal value	
	Pre	Post			α	T table
7	234	180				
8	210	170				
9	215	198				
10	240	200				

Source: Primary Data 2018

Based on table 5.9 above, there is an effect of giving cepatu banana stew water in the experimental group with significant results is $0.000 < 0.05$. And $df = n -$

$k (5 - 1 = 4; \text{two sides} / 0.025)$ where $n =$ number of respondents and $k = 1$.

2. Control group.

Table 5. Table of T Test statistical test results In the control group.

No Respondent	Result		Value α	Calculated value T	Normal Value	
	Pre	Post			α	T table
11	205	205				
12	200	244				
13	206	248				
14	222	220				
15	236	222	0.504	2.188	0.05	2.776
16	205	236				
17	244	205				
18	248	200				
19	220	222				
20	244	234				

Source: 2018 Primary Data

Based on table 5.10. it can be concluded that there is no effect on the control group with significant results is $0.504 > 0.05$. And $df = n - k (5 - 1 = 4; \text{two sides} / 0.025)$ where $n =$ number of respondents and $k = 1$.

DISCUSSION

Gender is one of the factors that can affect the increase in cholesterol levels, the results of a study of 20 respondents found that most respondents who suffer from hypercholesterolemia were female compared to men, where women (60%) and men (40%). This is similar to the results of a study by Nurlaila hi said (2017) (11) stating that there is a meaningful relationship between sex with an increase in cholesterol levels, where women have a high risk of cholesterol due to hormonal factors, women are higher in consuming foods that contain fat because they are more affordable and better. While other factors that influence age.

In this study showed that respondents aged 46-55 years suffered more hypercholesterolemia 8 respondents (40%) and at least 35-45 years 6 respondents (30%), and > 56 years 6 respondents (30%). The results of the study were not in line with the results of a study conducted by Santi Martini at the Mulyorejo Public Health Center in July 2017 showing that the characteristics of respondents based on age in the study were mostly respondents > 45 to 75 years (73.2%) The remaining amounted to 26.8% of respondents aged 40-45 years.2 In older age, total cholesterol levels are relatively higher than total cholesterol levels at a young age, this is because the older a person the LDL receptor activity may decrease.

For research based on the level of education, hypercholesterolemia patients are mostly respondents with primary education level of 10 respondents (50%) while the least is the undergraduate education level of 1 respondent (5%). This is because the higher the

respondent's education, the more knowledge and information the respondent will receive in living a healthy lifestyle.

From the results of research conducted shows that the majority of respondents were in the work of the IRT that was 11 respondents (55%) and the least were in the work of civil servants 1 respondent (5%). This is because that work is not a barrier to someone coming and checking health into health services. one of the factors of social structure, namely work will affect the utilization of health services, one's work can reflect a little amount of information received, the information will help someone in making decisions to utilize existing health services.

The results of the statistical test analysis (SPSS) obtained significant value = 0,000 <0,05 or the calculated T value (48,324) > T table (2,776), this shows that the cepatu banana stew water has an influence on the reduction of cholesterol levels in hypercholesterolemic patients in the village Pale District of Tobeloh Selatan. North Halmahera Regency. This is in line with research conducted by Bela Sabi (2017) in Mawea Village, East Tobelo District. The results of the T-Test analysis showed that there was an effect of laor consumption on decreasing total cholesterol levels in hypercholesterolemic patients with a T value of 3,364 (greater than the T table value of 2.776) with a value of $\alpha = 0.028$. 9

CONCLUSION

The average cholesterol level in the experimental group before consuming the dried cepatu banana leaf (*Musa Paradisiaca L*) (pre-test) found there were 3 respondents in the threshold category (200-239 mg / dL) and 2 respondents in the high category (> 240 mg / dL).

Cholesterol level measurement results (post test) in the experimental group showed that there was a decrease in cholesterol levels in all hypercholesterolemic patients after consuming dried cepatu banana leaf decoction (*Musa Paradisiaca L*) where the average cholesterol level was in the normal category (<200 mg / dL).

From the results of the study, there were differences in the average cholesterol levels in the experimental group and the control group, where in the experimental group there were differences in pre and post test, namely a decrease in cholesterol levels in hypercholesterolemic patients due to the influence of consumption of dried cepatu banana leaf water (*Musa*

Paradisiaca L) while the measurement results of cholesterol levels (pre and post test) in the control group were relatively the same above the normal category (> 200 mg / dL).

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