



CHAYOTE WATER (*Sechium edule*) LOWERING CHOLESTEROL LEVELS IN WOMEN OF CHILDBEARING AGE IN THE WORK AREA FROM SUKORAME HEALTH CENTER, KEDIRI CITY

Alfika Awatiszahro*¹, Dessy Lutfiasari ², Betanuari Sabda Nirwana³, Khofidhotur Rofiah⁴, Anis Nikmatul Nikmah⁵

^{1,2,3,4,5}Midwife Study Program , Faculty of Health Sciences, Kadiri University Kediri
Email: *alfika90@unik-kediri.ac.id

ABSTRACT

Cholesterol levels in the blood are essential for building healthy cells, hormones, digestive bile, and brain function. Cholesterol levels can be a problem if they exceed 200 mg/dL. The purpose of this study was to determine the effect of chayote water on cholesterol levels in women of childbearing age. The study method uses a semi-experimental approach. The population in this study is women of childbearing age in the Sukorame Community Health Center Work Area by 2025. The number of respondents in this study was 20 respondents with a simple random sampling technique. The instrument in this study was the cholesterol screening tool "Easy Touch". Respondents who were measured for cholesterol were then given treatment by drinking 200 ml of grated chayote water for 14 days, then their cholesterol levels were checked. The results of the study showed that the respondents experienced an average decrease in cholesterol levels by 13.7 mg/dl. A statistical test using the Wilcoxon scoring test obtained a p-value of 0.000, which means that there is an effect of chayote administration on cholesterol levels in women of childbearing age. Chayote can lower cholesterol levels in women of childbearing age because chayote contains a complex of Flavonoids, Vitamin C, pectin, and B vitamins..

Keywords: Chayote, Cholesterol, Women Of Childbearing Age

INTRODUCTION

Cholesterol is an important lipid because it plays many roles in the normal functioning of cells. In the blood circulation, cholesterol is divided into several fractions, namely LDL (Low Density Lipoprotein) which is called bad cholesterol, and HDL (High Density Lipoprotein) as good cholesterol.(Marks.DB, Marks. AD, 2012) Cholesterol serves as a precursor molecule in the synthesis of vitamin D, steroid hormones (cortisol and aldosterone as well as adrenal androgens), and sex hormones (testosterone, estrogen, and progesterone). Cholesterol is also a component of bile salts used in digestion to facilitate the absorption of fat-soluble vitamins A, D, E, and K.(By Ciaula and others., 2017) In other words, cholesterol in the blood has an important function for the metabolism of the body's cells, building healthy cells, producing hormones (such as sex hormones and cortisol), producing vitamin D, as well as producing bile acids for fat digestion and absorption of vitamins. Cholesterol in the blood can rise beyond normal limits which will lead to serious complications in the long term. High cholesterol (Institute of Quality and Efficiency in Healthcare, 2025) i.e. LDL and triglyceride levels are much higher than HDL which more than 200 mg/dL can cause health problems such as plaque

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buildup in blood vessels (atherosclerosis) that constricts blood flow, triggering the risk of heart disease (heart attack, angina), stroke, and peripheral artery disease. When there is an increase in LDL levels, atherosclerosis plaques will form. Unoxidized LDL causes LDL to build up in the blood vessels because it cannot return to the bloodstream and form plaques. These atherosclerosis plaques react with proteins and calcium causing stiffness and blockage of blood vessels.(Kholif, 2025)(J.D., 2023) High levels of cholesterol or LDL fat will lead to the formation of foam cells which can also be aggravated when people with hypercholesterolemia develop complications of diabetes (Houses and others., 2021) So LDL is the main type of cholesterol that increases heart and cardiovascular disease. High cholesterol levels can trigger cardiovascular disease. Cardiovascular disease is the leading cause of death and accounts for 31% of all deaths in the world (Patel and others., 2024). High cholesterol levels are the leading cause of ischemic heart disease and stroke.(Kaimudin and others., 2025) Excess cholesterol in the blood can cause narrowing of the arteries and trigger a heart attack.(Muhammad, 2025) The incidence of cholesterol is quite large. According to the World Health Organization (WHO) in 2021, the prevalence of hypercholesterolemia in the world is around 45%, in Southeast Asia it is 30%, and in Indonesia it is 30%.(Muhammad, 2025)

The cause of high cholesterol levels, including triglyceride and low-density lipoprotein levels or LDL (total cholesterol), is due to an unbalanced diet, eating too many fatty foods (Doria, Mejía dan Cifuentes, 2025) and lack of physical activity that can be affected by stress.(Hidayati and others., 2020) (Lydia Ernawati Rahayua, Lianaa, 2025) According to WHO 2024 data, risk factors for hypercholesterolemia are caused by tobacco use, unhealthy diets (high levels of salt and trans fats, as well as low intake of vegetables and fruits),(Key, Fat and Physical, 2025) air pollution, obesity, lack of physical activity, diabetes, alcohol abuse, and socioeconomic deprivation.(Kholif, 2025) Stress factors in the family can also affect maternal cholesterol levels. Stress in women of childbearing age can also be influenced by adaptation to motherhood, economic demands, maternal weight, lifestyle, and eating habits of mothers who are high in fat and do not exercise regularly. Several lifestyle causes such as diet, physical activity, and consumption of fat-lowering drugs also play a big role in determining cholesterol levels in the body.(Pradika, Rosalina and Wideani, 2025).

How to overcome high cholesterol levels so far by using chemical drugs, but some respondents did not want to use them for fear of affecting breast milk if they were still breastfeeding even though cholesterol-lowering drugs were safe to use. Some people's belief is that they do not want to use chemical drugs. Lowering cholesterol levels can be done with a non-pharmacological approach, one of which is by using boiled chayote or chayote water. When the initial study was conducted based on the results of the interviews, 6 (60%) out of 10 respondents said that drinking chayote water lowered cholesterol levels. They get information from relatives or friends to consume chayote water. Chayote is a type of plant that is easy to grow in the yard and easy to get in traditional markets(Nugraha and others., 2026). Chayote is a dietary fiber-rich vegetable, with a content of about 1.7 grams to 6.2 grams per 100 grams, depending on the type and level of maturity. Total Fiber: About 1.7-1.8 grams per 100 grams, or 4 grams in 1 whole piece (about 200g). Chayote types of fiber are soluble and insoluble fiber that helps maintain gut health and regulate blood sugar. One chayote (203 grams) can provide about 12% – 14% of a person's daily fiber needs. In addition to fiber,

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chayote is rich in water (92-93%), vitamin C, folate, potassium, saponins, peroxidase, alkaloids, saponins, phenolic acids, flavonoids, carotenoids, cucurbitane as well as low in calories and fat. Chayote can lower cholesterol due to the fiber in chayote Helps bind cholesterol in the digestive tract so that it is not absorbed by the body, then flush it out with the feces. Flavonoids & Myricetin act as antioxidants that help lower total cholesterol levels and support the activity of the lipoprotein lipase enzyme to control triglycerides, Vitamin C helps speed up the rate of excretion (excretion) of cholesterol in the form of bile acids, and Niacin (Vitamin B3) helps improve lipid profiles by lowering levels of bad cholesterol (LDL) and triglycerides (Doria, Mejía dan Cifuentes, 2025),(Scallops) and others., 2019). Therefore, it is necessary to conduct a study on the effect of chayote water on the reduction of blood cholesterol levels of women of childbearing age.

METHOD

This study was conducted in November 2025 using a quasi-experimental design of 1 group with pretest and posttest. The sampling technique with sampling is purposeful. The population in this study is women of childbearing age in the work area of the Sukorme Health Center, Kediri City in 2025. The sample in this study is women of childbearing age who experience high cholesterol levels and meet inclusion criteria such as not having other complications such as heart disease, women of childbearing age, willing to be respondents as well as exclusion criteria such as respondents who are not and respondents who drop out while the research process is ongoing. The number of samples in this study is 20 respondents. The instruments in this study use observation sheets and digital cholesterol level checkers under the easy Touch brand. The research process was to prepare chayote water by choosing chayote that was slightly old because the fiber content was higher than the young one, then grate and squeeze, drink 200 ml of water from 230 grams of fresh chayote and then drink it once a day in the morning for 14 days. After the intervention for 14 days, respondents were measured at random cholesterol levels without fasting first because it was to measure total cholesterol and did not measure triglycerides and LDL which is mandatory for fasting. The examination tool used was easy touch to take a sample of blood capillaries on the respondent's fingertips using a lancet. The data obtained was then processed using the Wilcoxon test to determine the average cholesterol level and the effect of chayote water on the respondent's cholesterol levels.

RESULTS AND DISCUSSION

A. The results of a study on the effect of chayote water on cholesterol levels of women of childbearing age.

Based on the results of a study conducted on 20 respondents with high cholesterol levels, the following results were obtained.

Table 1 Characteristics of Respondents Based on Education Criteria

Education	Quantity	Prosentase
No school	0	0 %
Basics	5	25%
Intermediate	12	60%
Height	3	15%
Total	20	100%

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Based on table 1, it was found that the average respondent pursued secondary school education up to 12 (60%) of the total respondents. Respondents with basic education obtained 5 (25%) and respondents with higher education only 3 (15%).

Table 2 Characteristics of Respondents by Weight

Education	Quantity	Prosentase
Normal (IMT 18,5-24,9)	11	55.0%
Abnormal (BMI <18.5 and >25.0)	9	45%

Based on table 2, the average respondent had an ideal weight, as indicated by normal BMI, as many as 11 (55%) and 9 (45%) respondents had an abnormal BMI.

Table 3 Cholesterol Levels Before and After Being Given Chayote Water

Pre Test (Before being given Chayote Water)	Posttest (After being given Chayote Water)	Differences Before and After Giving Air Labu Siam
213 mg/dl	210 mg/dl	3 mg/dl
200 mg/dl	189 mg/dl	1 mg/dl
211 mg/dl	200 mg/dl	11 mg/dl
200 mg/dl	187 mg/dl	1 mg/dl
215 mg/dl	210 mg/dl	5 mg/dl
207 mg/dl	119 mg/dl	8 mg/dl
209 mg/dl	199 mg/dl	10 mg/dl
200 mg/dl	191 mg/dl	9 mg/dl
201 mg/dl	195 mg/dl	6 mg/dl
230 mg/dl	218 mg/dl	12 mg/dl
211 mg/dl	200 mg/dl	11 mg/dl
213 mg/dl	199 mg/dl	14 mg/dl
200 mg/dl	194 mg/dl	6 mg/dl
225 mg/dl	215 mg/dl	10 mg/dl
211 mg/dl	196 mg/dl	15 mg/dl
211 mg/dl	209 mg/dl	2 mg/dl
210 mg/dl	198 mg/dl	12 mg/dl
210 mg/dl	197 mg/dl	13 mg/dl
200 mg/dl	190 mg/dl	10 mg/dl
211 mg/dl	198 mg/dl	13 mg/dl

Data from the study showed that the respondents experienced a decrease in cholesterol levels after being given chayote water. Before being given chayote water, respondents had cholesterol levels ranging from 200 mg/dl to 230 mg/dl, after being given chayote water, the respondents' cholesterol levels dropped from 187 mg/dl to 218 mg/dl. The average difference in the respondents' cholesterol level decrease ranged from 1 mg/dl to 15 mg/dl with an average decrease of 13.7 mg/dl.

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Table 4 Data Normality Test

Before being given chayote Water	After being given Chayote Water
0.009	0.000
Conclusion of Abnormal Distributed Data	

Based on table 4, the results of the data normality test using shapiro willk before being given chayote water using chayote water obtained a *p value* of 0.009 < 0.05, which means that the data is abnormally distributed. The normality test after being given chayote water obtained a *p value* of 0.000 < 0.05, which means that the data is abnormally dispersed. The results of the normality test of abnormal distribution data, so the statistical test used is Wilcoxon.

Table 5 Wilcoxon Test Results on Chayote Water on Cholesterol Levels of Women of Childbearing Age

Category	average	Minimum	Maximum	Standard Deviation
Before applying Siamese pumpkin water	209.40	200	230	8.133
After the administration of Siamese pumpkin water	195.70	119	218	19.984
Conclusion P value 0.000 < 0.05				

Based on table 5, before giving chayote water, the minimum cholesterol level was 200 mg/dl and the maximum value was 230 mg/dl. After being given chayote water, the minimum cholesterol level dropped to 119 mg/dl and the maximum value was 218 mg/dl. The average cholesterol level of the respondents before being given chayote water was 209.40 mg/dl, after being given chayote water it dropped to 195.70 mg/dl. The results of the statistical test with Wilcoxon obtained a P value of 0.000 < 0.05, which means that there is an effect of chayote water on lowering blood cholesterol levels in women of childbearing age.

B. Discussion on the Effect of Chayote Water on Cholesterol Levels of Women of Childbearing Age in Pojok Village

Based on the results of the study, it was shown that the average respondent experienced a decrease in cholesterol levels by 13.7 mg/dl. Based on the results of a statistical test using Wilcoxon, a *p value* of 0.000 < 0.05 was obtained, indicating that there is an effect of giving chayote water on a decrease in cholesterol levels in women of childbearing age. Based on this theory, Chayote contains Flavonoids, Vitamin C, pectin, and B complex vitamins. The flavonoids in chayote serve as potential antioxidants to prevent the formation of free radicals that can re-dilute blood concentrates due to blockage of blood vessels by cholesterol and maintain normal HDL levels. The content of active compounds such as miricetin and flavonoids plays an important role as antioxidants that help lower total cholesterol levels and protect the heart. Vitamin C plays a role in cholesterol metabolism, functions to lower high cholesterol levels, increase HDL, and facilitate digestion. The pectin in chayote is 1.5-1.7 grams per 100 gr. (Doria, Mejía dan Cifuentes,

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2025), (Xiao *and others.*, 2025) Pectin as a dietary fiber that is easily soluble in water lowers cholesterol through decreased cholesterol absorption, increased bile excretion, and increased LDL by the liver.

Another active substance is Vitamin B Complex, which functions to prevent the absorption of fat and cholesterol, because fiber stimulates the secretion (secretion) of bile sap which converts fat into emulsion and is excreted with feces (feces) in order to lower cholesterol levels (Doria, Mejía dan Cifuentes, 2025). Chayote contains quite high component vitamins such as a B complex vitamin called vitamin B3, which functions to reduce the production of VLDL (very low-density lipoprotein) in the liver so that the production of LDL (low-density lipoprotein) cholesterol and triglycerides can decrease so that it can reduce the incidence of cholesterol in people with hypertension (Parmilah, 2014).

The results of this study are in line with previous research that chayote content can increase the thickness of blood vessels in white mice. (Andari, Putra and Setiawan, 2022) This indicates that the flavonoid and vitamin C content in chayote (Gavia-García *and others.*, 2023) can help thicken blood vessels. Research conducted by Meihartati 2024 found that chayote is effective in lowering blood cholesterol levels in the elderly. (Meihartati and Abiyoga, 2020) In addition, the flavonoid and polyphenol content in chayote can overcome oxidative stress where high cholesterol can trigger oxidative stress which then oxidizes LDL cholesterol causing the formation of harmful substances and damaging blood vessels (Sies, Stahl dan Sevanian, 2005) (Ordóñez *and others.*, 2006). Giving chayote water for 14 days can help lower cholesterol levels in hypercholesterolemia. (Soni Hendra S, 2014). Research results (Mohammed *and others.*, 2025) shows that chayote water is effective in lowering cholesterol levels in the elderly.

LIMITATIONS OF THE RESEARCH

This study did not use a control group so the limitations of this design in drawing causal conclusions.

CONCLUSIONS AND SUGGESTIONS

The results of the study showed that chayote water had an effect in lowering blood cholesterol levels in women of childbearing age in Pocorner village. The study suggests further by strictly controlling the respondents' diet during treatment compared to the control group.

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