Original Article

The Effect Of Giving Okra Fruit-Infused Water On Recreasing Cholesterol Levels In Hypercholesterolemia Patients In Payan Pabean Sidoarjo Village

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ABSTRACT

Background: In such a modern era, many experiencing society _ an inclined shift _ push for a change in the pattern of a healthy life, where many vote society _ for consuming food ready eat, eating fatty foods, and rarely sport. This _, if done in a manner that keeps going continuously for a period of long time _, will have an impact on the body, one of them i.e., the buildup of cholesterol. Study this aim to identify the influence of giving okra fruit-infused water to decline cholesterol in patients with hypercholesterolemia in hamlets pay customs

Methods: The design study is a quasi-experiment with design non-equivalent control group design. With the use taking sample purposive sampling for one month. The population in the study is patients with hypercholesterolemia, with a sample study of as many as 32 people with 16 groups of treatment and 16 groups of control. Data collection using sheet observation and data analysis using paired t-tests. Infused water is given in 1 week.

Results: A significance mark p 0.000, more diminutive than 0.05, is appropriate, with the base deciding the paired t-test.

Conclusion: it concluded that there is an effect of okra fruit-infused water on a decline in cholesterol in patients with hypercholesterolemia in hamlets Payan Customs Sidoarjo

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Introduction

In such a modern era, many experiencing society _ an inclined shift _ push for a healthy life pattern, where many vote society _ for consuming food ready eat, eat fatty foods, and rarely sport. This _ if done in a manner that keeps going continuously for a long time _ will impact the body, one of them is, i.e., accumulation of bad fat . one _ of many diseases _ caused by the accumulation of harmful fat is heart disease (Lasanuddin et al., 2022).

One of the causes of coronary heart disease (CHD) is people with a high-cholesterol diet, such as coconut milk and fatty (saturated) foods. Consuming high-fat foods has a risk of developing degenerative diseases, including coronary heart disease (CHD). This occurs because buildup occurring plaque _ in a manner keeps going managed (*Waiqotul*, n.d.). The more low

rate cholesterol in the blood, the more the risk also decreases caught heart disease. (Suarsih, 2020)

Data from the World Health Organization (WHO) for 2017 shows 17.7 million deaths due to cardiovascular disease in 2015. This means that the number above reaches 31% of the 56.5 million causes of death worldwide. According to data from the Ministry of Health of the Republic of Indonesia (2018), the prevalence of heart disease according to doctors' diagnoses in Indonesia is 0.5% or an estimated 883,447 people, while based on symptoms, it reaches 15% or 2,650,340 people. In 2013, East Java Province was the estimated most significant number of people with heart disease, with 54,826 people (0.19%), increasing to 1.6% in 2018 (Kemenkes RI, 2021). The city of Surabaya had a mortality rate of 22% in 2018, and in 2030 it is estimated that deaths caused by cardiovascular disease will increase to 23.3 million deaths, especially coronary heart disease and stroke. The leading cause of coronary heart disease is high blood cholesterol (Kemenkes RI, 2019).

Based on the study's introduction, _ researcher at Dusen Payan Customs obtained data from 20 respondents, 15 of whom obtained a rate of cholesterol above 200 mg/dL. This shows that the people in the area Payan customs may have high cholesterol levels, so intervention is needed to reduce cholesterol levels. Hypercholesterolemia namely increased production or use of LDL *(Low-Density Lipoprotein).* High cholesterol levels in blood pressure are caused by consuming foods containing much-saturated fat and little fiber (Fauziana, 2016).

Reducing cholesterol levels can be done in two ways: pharmacological therapy and therapy in a non-pharmacological manner. Non-pharmacological therapy occurs through various mechanisms, including the process of phagocytosis to prevent the buildup of oxidized LDL-cholesterol in blood vessel walls using antioxidants and probucol, as well as inhibits tissue fat, reducing the uptake of free fatty acids by the liver as well as increase the expenditure of cholesterol by the liver through the bile using clofibrate, and niacin (nicotinic acid) (Ariantari et al., 2010).

In addition, lowering cholesterol can Fruits and vegetables have a high intake of nutrients with fiber content, besides that fruits and vegetables contain antioxidants such as flavonoids. Flavonoids are active substances that affect the lipid profile, which can bind cholesterol levels and bile to be excreted (Waskito et al., 2020). One of the vegetables high in fiber and flavonoids is Okra fruit *(Abelmoschus Esculentus)*. Research conducted by (Tandraini et al., 2020)_ shows that there are influences to extract okra seeds against a decline in cholesterol & mice. Based on the background above, the researcher is interested in researching "The effect of fruit-infused water Okra *(Abelmoschus Esculntus) on* Decreased Cholesterol Levels in Hypercholesterolemic Patients.

Methods

Study this using a design quasi-experimental with design study pretest post-test with nonequivalent control group design. Taking a sample with the method of purposive sampling for one month. The study population is patients with hypercholesterolemia, with a sample study of as many as 32 people with 16 groups of treatment and 16 groups of control. With criteria inclusion, the patient experienced hyper cholesterol with a rate of more than 200 mg/dL. Patient no consumes drug lowering cholesterol. Test analysis using paired t-test. Before conducting the research, an ethical review was conducted first and declared ethically feasible with a number 101.1/016/VIII/EC/KEP/LCBL/2022. All research teams agree with the final results of this study, and there is no conflict of interest in this study

Results

Characteristics of respondents based on age and gender can be seen in the table below

Table 1: Characteristics Respondents

Variable	Frequency	Percentage
	%	%
Type sex		
Man	9	28.1
Woman	23	71.9
Total	32	100
Age		
30-40	4	12.5
41-50	11	34.4
>50	17	53.1
	32	100
Total	100	100

The table above shows that of the 32 respondents, the majority were women, namely 23 respondents (71.9%), and a small portion were men, namely nine respondents (28.12%). As much Most of the 32 respondents were aged >50 years, namely 17 respondents (53.12%), and a small proportion aged 30-40 years, as many as four respondents (12.5%).

Table 2 . rate cholesterol

Group		Means	SD	p-*value*
treatment	pre	288	26.82	0.000
	post	222	32.12	
Control	pre	283	32.32	0.659
	post	285	29.55	

The table above shows an average pre- and post-test of 288 mg/dl in the group treatment & post-test of 222 mg/dl. The mean in the control group was the average pre-test value of 283 mg/dl & post-test of 285 mg/dl. Based on data analysis using the paired t-test, the significant *P* 0.000 means there is an influence gift infusion of okra fruit water against the rate of cholesterol in patients hyper cholesterol.

Discussion

Based on the results of research in getting an average pre-test of 288mg/dl in the group treatment and the control group, the average pre-test value was 283 mg/dl. Hypercholesterolemia is a condition consequence happening marked disturbances in fat metabolism with height rate of total cholesterol in the blood, height rate cholesterol in the blood caused by habit consuming society _ foods that contain lots of saturated fat and low fiber (Hala & Alimuddin, 2020).

Researchers argued that from the results study, the rate experienced high cholesterol _ _ patients caused because habit patterns of eating less society _ healthy and consuming food fatty wicked like fried and seafood, given the spot study majority of many sell _ fried food (fried food) (Setyawati, 2022).

Based on the results of research in getting an average post-test of 222 mg/dl in the group treatment and the control group, the average post-test value was 285 mg/dl. Hypercholesterolemia is a condition consequence of disturbance marked fat metabolism with height rate of total cholesterol in the blood. According to (Fauziana, 2016). Height rate cholesterol is caused by the habit of consuming society _ foods that contain a lot of saturated fat and little fiber. Flavonoids are compounds that play a role as antioxidants and potency as declining cholesterol blood. Flavonoids are many compounds _ found in vegetables and fruit. Potent Flavonoids protect the heart with a method that hinders Lipid peroxidation and play a role in warding off free radicals (Waskito et al., 2020). Flavonoids are also capable of repairing the function of endothelium vessels in blood, and yes, reduce LDL sensitivity up to could lower rate total cholesterol triglyceride, as well increase HDL with hinder HMG CoA reductase enzyme. Flavonoids consist from

some class like flavonols, flavones , flavanols, flavanones, isoflavanones, and anthocyanidins (Setyawati, 2022).

Flavonoids activity as antioxidants. Thus flavonoids can prevent cardiovascular disease, cancer, degenerative disease, arteriosclerosis, inflammation of joints, and Alzheimer's disease can due to the increasing concentration of radical free _ Radical free be sourced from normal metabolism or induction by UV radiation as well display various pollutants (Indra et al., 2019).

Okra is a plant that is for a moment this grow as well as cultivated, but the Public does not yet many know _ the benefits of the okra fruit because of lack of knowledge. Okra fruit can be used as a material that can lower No cholesterol, yet known by some big societies. The study is supported by (Ansari et al., 2022), who stated the effect of okra mucilage (crude water extract and fractions) with a dose of raw water extract of okra (500 and 100 mg/kg BW) or water fraction (50 and 100 mg/ kgBB) given with a high-fat diet rat hypercholesterolemia During one week. Showing results show that water extract and water fraction of okra fruit modulate blood fat levels and have potency for use as veggie friendly _ Heart ".

Conclusion

Giving okra fruit-infused water can lower the rate of cholesterol. There is an influence rate cholesterol in groups treatment & control after giving infused water of okra fruit to the patient with hypercholesterolemia

Authors Contributions

The author carries out tasks from data collection, data analysis, making discussions to making manuscripts

Conflicts of Interest

All research teams agree with the final results of this study, and there is no conflict of interest in this study.

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