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Alternative Therapy Tactics: Integration Of Cupping Therapy And Massage In Managing Low Density Lipoprotein (LDL) In Hypertension Patients With Hypercholesterolemia

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ABSTRACT

Introduction: *Hypertension with hypercholesterolemia can lead to complications like stroke, heart disease, and death, necessitating alternative therapeutic approaches.*
Objectives: *This study aims to analyze the effects of integrating cupping therapy with massage to control LDL levels in hypertensive patients with hypercholesterolemia.*
Methods: *This research is A quantitative, experimental study with a pre-post design and control group was conducted. Using the Lameshow formula, 68 participants were selected and divided into two groups: intervention and control.*
Results: *In the intervention group, the mean LDL level decreased significantly from 165.76 at pretest to 109.03 at posttest. The minimum reduction in LDL was 49.842, and the maximum was 63.629. The paired t-test showed a significant effect, with a p-value of 0.0001 (<0.05), indicating that integrating cupping therapy and massage effectively lowered LDL levels in the intervention group. In contrast, the control group showed no significant change, with a pretest mean of 159.59 and posttest mean of 158.32 (p = 0.107 > 0.05).*
Conclusions: *This study concludes that combining cupping therapy with massage can effectively reduce LDL levels in hypertensive patients with hypercholesterolemia.*

Introduction

The prevalence of hypertensionsufferers in Indonesia continues to increase from 2007, the number of sufferers was 31.7%, increasing in 2018 to 34.11% (KEMENKES-RI, 2020). Hypertension in Southeast Sulawesi ranks 2nd of the 10 highest diseases with a 28.75% increase in 2018 compared to 2013(Indonesian Ministry of Health, 2018). Hypertension ranks 2nd in the list of the 10 highest in Southeast Sulawesi with a total of 62,964 cases, this number has increased by 50% from 2012 and the city of Kendari is the region with the highest spread of hypertension (Dinkes Sultra, 2021).

The highest number of hypertension sufferers in the city of Kendari is at the Poasia HealthCenter where in 2023 the number of hypertension sufferers will be 8,490 people, this value has increased from 2022 of 4,118 people and more than 20% **will** experience hypercholesterolemia (Puskesmas Poasia, 2023). Hypertension is also said to be a silent killer because it can cause heart disease and death. Cholesterol is one of the causes of hypertension because of the presence of Low Density Lipoprotein (LDL), which, if the concentration is high, will stick to the walls of blood vessels and will cause an increase in pressure in the blood vessels dueto narrowing of the blood vessel cavity (Vallejo-vaz et al., 2021). LDL is also said to be "Bad Cholesterol" which can cause coronary artery disease,

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coronary heart disease, hypertension andstroke if left untreated (Ose, 2021).

Management of hypertension with hypercholestrolemia at the Poasia Health Center includes routine medication, education, screening and exercise. However, there will be an increase in sufferers in 2023 due to non-compliance with taking medication regularly and not having regular health checks (Puskesmas Poasia, 2022). Based on this, alternative treatment is needed to overcome this problem.

Complementary treatments that can be used to treat hypertension include herbal medicine, massage and cupping (Dewi et al., 2023). Cupping therapy is a recommended therapy for lowering cholesterol levels as carried out by Helma, Yasir, & Lillah in 2018, and also Pelawatiet.al (2022) where it was found that cupping can stabilize cholesterol in the blood (Helma et al., 2018; Pelawati et al., 2022) Apart from cupping, other research also reveals that massage can reduce blood pressure and can also reduce cholesterol levels and lower blood pressure as done by Darni et.al (2022), Sihotang (2021) and Ainun (2021)(Ainun et al., 2021; Darni, Nur Azlia, 2020; Sihotang, 2021). Based on the description above, researchers are interested incombining Cupping Therapy with Massage to reduce Low Density Lipoprotein (LDL) Levels in Hypertension sufferers complicated by Hypercholestrolemia.

This Research aims to obtain the characteristics of hypertension sufferers with hypercholesterolemia, to obtain the distribution of blood pressure, cholesterol and LDL values before and after therapy, to analyze the effect of integrating cupping therapy with massage in controlling LDL levels in hypertension sufferers with hypercholetrolemia.

Methods

This research used a Quasy Experiment design with a Pre-Post design with control group (Sugiyono, 2016). In this study, researchers combined Cupping Therapy with Massage for people with hypertension complicated by Hypercholeratrol and to see the reaction of LDL levelsbefore and after giving therapy. The implementation of this research consisted of several stages,namely the first stage, namely determining the number of research samples using the Lameshowformula and based on this formula, a sample size of 68 people was obtained which was divided into 2 groups, namely the intervention group and the control group. The sample criteria in this study were hypertension sufferers with hypercholesterolemia, willing to be respondents and notsuffering from anemia or hyperglycemia. The Intervention Group was given a combination of Cupping Therapy and massage while the Control group was not given. The intervention for the control group will be provided after the post-test data collection is completed. The intervention includes Cupping Therapy and Massage.

The intervention group will be given cupping therapy and massage, while the control groupwill not be given therapy but will only be observed and undergo treatment as usual provided by the health center. Therapy is carried out by first giving massage to the respondent's back to relaxthe muscles and improve blood circulation for 5 minutes, after which cupping therapy is given at the following points:

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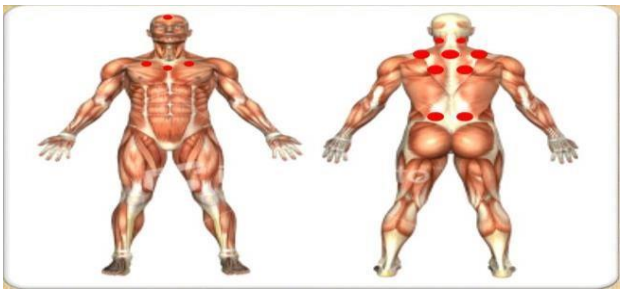

Figure 1. Cupping Point

Before administering therapy, respondents first had their blood pressure, cholesterol and LDL levels measured. And after giving therapy, blood pressure, cholesterol and LDL are measured again. Therapy is carried out only once and then a post test is carried out. This research was carried out in the Poasia Health Center Working Area, Kendari City. Guidelines for implementingtherapy in the form of a Module and SOP for the Combination of Cupping Therapy with Massage which has been designed by the proposer. The cupping therapy . Cupping therapy and massage are provided only once session, With an estimated duration of approximately 20 minutes per therapy session. The measurement results will be recorded on an observation sheet which will then be analyzed. Data analysis consists of 2, namely descriptive analysis using frequency distribution analysis and bivariate analysi. The normality test result using Kolmogrov Smirnov obtained a value of 0.730 > 0.05, meaning the data is normallydistributed. So the tests used are the Parametric Paired t test and the Independent Sample t test. This study has undergone an ethical review conducted by the Ethics Committee of Mandala Waluya University with the approval number 028/KEP/UMW/VII/2024.

Results

1. Respondent Characteristics

Table 1. Characteristics of Respondents

Variable	Category	Group			
		Intervention		Control	
		n	%	n	%
Age	20-30 years	5	14.7	0	0
	31-40 years old	10	29.4	9	26.5
	41-50 years old	12	35.3	18	52.9
	51-60 years old	5	14.7	6	17.6
	61-70 years old	2	5.9	1	2.9
Total		**34**	**100**	**34**	**100**
Gender	Man	13	38.2	12	35.3
	Woman	21	61.8	22	64.7
Total		**34**	**100**	**34**	**100**
Education	No school	1	2.9	2	5.9
	elementary school	2	5.9	2	5.9
	Junior High School	4	11.8	6	17.6
	Senior High School	26	76.5	20	58.8
	S1	1	2.9	4	11.8
Total		**34**	**100**	**34**	**100**

Based on table 1, it shows that in the intervention group There were 12 people aged 41-50 years (35.3) and 10 people aged 31-40 years (29.4%).

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Meanwhile, in the control group most of respondents were aged 41-50 years (52.9%). Meanwhile, for the gender variable in both the intervention and control groups, and respondents were women, 21 people (61.8%) and 22 people (64.7%). Meanwhile, for the education variable, the majority of respondents were at the high school education level, 26 people (76.5%) in the intervention group and 20 people (58.8%) in the control group.

2. Respondents' Blood Pressure

Table 2. Distribution of Blood Pressure in the Intervention Group

Variable	Category	Pretest				Posttest			
		Systole		Diastol		Systole		Diastol	
		n	%	n	%	n	%	n	%
Blood pressure	Normal	**0**	**0**	5	14.7	15	44.1	8	23.5
	Pre Hypertension	25	73.5	6	17.6	19	55.9	14	41.2
	Degree 1	7	20.6	9	26.5	0	0	12	35.3
	Degree 2	2	5.9	14	41.2	0	0	0	0
	Total	**34**	**100**	**34**	**100**	**34**	**100**	**34**	**100**

Table 2 shows a change in blood pressure levels before and after the pressure, but after the intervention there were 15 people (44.1%) who had normal systolic pressure and 8 people (23.5%) who had normal diastolic pressure. And also before treatment, there were 2 respondents (5.9%) who had grade 2 systolic pressure and there were 14 respondents (41.2%) who had diastolic pressure which was included in grade 2 hypertension, but after the intervention there were no sufferers of grade 2 hypertension.

Table 3. Distribution of Blood Pressure in the Control Group

Variable	Category	Pretest				Posttest			
		Systole		Diastol		Systole		Diastole	
		n	%	n	%	n	%	n	%
Blood pressure	Normal	**0**	**0**	1	2.9	0	0	3	8.8
	Pre Hypertension	11	32.4	8	23.5	10	29.4	15	44.1
	Degree 1	15	44.1	9	26.5	15	44.1	6	17.6
	Degree 2	8	23.5	16	47.1	9	26.5	10	29.4
	Total	**34**	**100**	**34**	**100**	**34**	**100**	**34**	**100**

Table 3 shows that there were not too many changes in blood pressure both before and after treatment. In Grade 2 hypertension before treatment, there were 8 people (23.5%) who had high Systolic pressure, and there were 16 people (47.1%) who had Diastolic pressure which was included in the Grade 2 Hypertension Category. However, after treatment the number of Hypertension sufferers Grade 2 Systolic pressureincreased to 9 people (26.5%) while Diastolic pressure decreased to 10 people (29.4%).

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3. Low Density Lipo Protein Levels of Respondents

Table 4. Distribution of LDL Levels in the Intervention Group

Variable	Category	Group							
		Intervention				Control			
		Pretest		Posttest		Pretest		Posttest	
		n	%	n	%	n	%	n	%
LDL	optimal	**0**	**0**	8	3.5	**0**	**0**	**0**	**0**
	Near Optimal	0	0	2	4.7	0	0	0	0
	Boderline	2	5.3	4	1.8	8	2.9	8	2.9
	High	0	8.8	0	0	6	7.1	6	7.1
	Very High	2	5.9	0	0	0	0	0	0
	Total	**34**	**100**	**34**	**100**	**34**	**100**	**34**	**100**

Table 4 shows that in the intervention group the LDL levels of respondents were in the Boderline category for 12 people (35.3%), High for 20 people (58.8%) and Very High for 2 people (5.9%). And after treatment with LDL levels, 8 respondents (23.5%) were inthe Optimal category and 22 people (64.7%) were in the Near Optimal category and there were still 4 respondents (11.8%) who were still in the Boderline category. In the ControlGroup there was no change in LDL levels either at Pretest, there were 18 respondents

52.9%) who were in the Boderline category, and 16 people (47.1%) were in the Highcategory and this number did not change after the Posttest was carried out.

4. The Effect Of Integration Of Thery Cupping With Massage On Low Density Lipoprotein (Ldl) Levels

Table 5. Effect of Cupping Therapy Integration with Massage on Low DensityLipoprotein (LDL) Levels

Group	LDL	Mean	Std	95% Confidence Interval of the Difference		Phi	α
				Low	Upper		
Intervention	Pretest	165.76	19,010	49,842	63,629	0.0001	0.05
	Posttest	109.03	15,266				
Control	Pretest	159.59	13,242	-4,063	0.416	0.107	0.05
	Posttest	158.32	14,248				

Table 5 explains that in the intervention group there was a difference in mean at pretest from 165.76 to 109.03 at posttest. And the lowest reduction in cholesterol levels was 49,842 and the highest was 63,629. The paired t-test result showed a Phi valueof 0.0001 < 0.05, which means that the integration of Cupping Therapy with Massage wasable to reduce LDL levels in the Intervention Group. Meanwhile, in the Control group, themean Pretest value was 159.59 and Posttest 158.32. The paired t test result showed that the Phi value was 0.107 > 0.05, which means there was no change in Low Density Lipoprotein (LDL) levels in the control group.

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Discussion

The results of this study show that Cupping Therapy and Massage reduced LDL levels in the intervention group given this therapy with a Phi value of 0.0001 < 0.05. This study's result aligns with research conducted by Uda'a et.al (2023) which explains that cupping therapy can reduce cholesterol levels in sufferers of Hypercholestrolemia at theHamdalah Clinic, Makassar (Uda'a et al., 2023). In another study, Darini (2020) stated that massage can reduce cholesterol levels in the blood vessels (Darni et al., 2022)

Cupping therapy and massage can reduce LDL levels in blood vessels. Pelawati said cupping can reduce LDL levels in hypercholesterolemia patients and keep HDL levels stable (Pelawati et al., 2022).

Hypercholesterolemia is a medical condition in which cholesterol levels, particularly low- density lipoprotein (LDL) or what is known as "bad" cholesterol, are elevated in the blood. Excessive LDL can cause plaque buildup in the arteries, potentially leading to cardiovasculardiseases such as heart attacks and strokes (Vallejo-vaz et al., 2021). Therefore, managing high LDL levels is crucial in preventing further complications. Cupping therapy, is a traditional treatment method used for centuries in various cultures, including in traditional Chinese and Middle Eastern medicine. This therapy involvesusing special cups placed on the skin to create suction or vacuum. The goal is improving blood circulation, reducing inflammation, and speeding healing (Dewi et al., 2023).

Cupping helps increase blood circulation in the treated area, supporting body detoxification. With better blood circulation, lipid (fat) metabolism can be improved, helpingto reduce LDL levels in the blood. Cupping is also thought to help reduce oxidative stress, contributing to inflammation and atherosclerotic plaque foramtion (fat buildup on artery walls). Apart from that, cupping can also provide a sensation of comfort and reduce pain (Lisnawati et al., 2024). By reducing inflammation, the risk of plaque formation can be reduced, which in turn reduces LDL levels stimulates the immune system and help the body cleanse fat and toxins, including excess LDL.

Massage is a form of manual therapy that involves pressing, rubbing, and manipulating the body's muscles and soft tissues. Stress is a factor that can affect cholesterol levels in the blood. Massage is effective in reducing stress, which can help lower LDL levels (Marlinda et al., 2023). By lowering stress, the body reduces the production of hormones such as cortisol, which is associated with increased cholesterol levels. Like cupping therapy, massage also helps improve blood circulation. Better circulation helps eliminate metabolic waste products and improves the flow of nutrients necessary for lipid metabolism,including management of LDL. Massage can stimulate the lymphatic system, which helps in removing fat from the body. With more efficient fat metabolism, LDL levels in the blood can decrease (Sihotang, 2021).

Cupping therapy and massage are additional methods that can be used along with conventional medical approaches in managing hypercholesterolemia. Both therapies work primarily by improving blood circulation, reducing inflammation, and reducing stress, all of which contribute to lowering LDL levels. Although more research is still needed to fully understand these mechanisms, these practices are already widely used as part ofcomplementary and alternative medicine.

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Conclusion

The combination of Cupping therapy and Massage can reduce Low Density Lipoprotein (LDL)levels in hypertension sufferers complicated by hypercholesterolemia.

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