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The Effectiveness of Wet Cupping Complementary Therapy to Decrease Blood Pressure in Hypertension Patients at Kolaka

Lusiana Jeni[1], Tahiruddin[2], Cholic Harun Rosjidi[3]
[1,2,3] Nursing Science Program, STIKes Karya Kesehatan, Kendari, Indonesia

Coresponding Author :
Lusiana Jeni
ln.Pendidikan Desa Pesauha Kecamatan Pomalaa Kabupaten Kolaka
Email : jenilusiana01@gmail.com

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Abstract*. Cupping is one of the complementary therapies that can reduce blood pressure in people with hypertension. Wet cupping therapy is a cupping process by making a fine incision or stabbing to remove dirty blood in the epidermal capillaries and plays a role in controlling vasodilation so that blood pressure can decrease. The purpose of this study was to determine the effectiveness of complementary wet cupping therapy in reducing blood pressure in hypertensive patients at the Pomaala Public Health Center, Kolaka Regency. This study is a quantitative study, with a quasi-experimental design with a "pre-post test design" without a control group which was carried out from June to July 2022. The population in this study was carried out at the Pomalaa Health Center, Kolaka Regency with a total of 25 people. The statistical test method uses 2 different test models, namely the t-test for systole and the Wilcoxon for diastole due to the normality test with the results of systole >0.05 and diastole <0.05. The results showed that pre-post obtained p value of 0.001< 0.05, on diastolic blood pressure obtained p p-value of 0.001< 0.05 indicating that Ha was accepted. Thus, it can be concluded that there is an effectiveness of complementary wet cupping therapy on reducing blood pressure in hypertensive patients. blood at the Pomalaa Health Center.*

Background

Hypertension, known as the silent killer, is a major risk factor for life-threatening cardiovascular disease which can be found all over the world, and Indonesia is no exception[1]. Hypertension is a condition in which a patient experiences an increase in systolic blood pressure above 130 mmHg and diastolic blood pressure above 80 mmHg continuously and for a long time [2]. This can happen because the heart works harder to pump blood to meet the body's oxygen and nutrient needs[3].

Hypertension does not occur suddenly but through a long process. High blood pressure that cannot be controlled for a certain period and will cause high blood pressure to become permanent is called hypertension[4]. Hypertension can be caused by obesity (overweight), foods high in salt, stress, alcoholic beverages, coffee, genetic factors, age, or can be caused by other diseases such as kidney, heart, hormonal disorders, or the effects of drug use, if sufferers do not get treatment and control regularly it will cause strokes, heart attacks,

damage to the blood vessels of the heart, kidneys, eyes and even cause death [5].

World Health Organization (WHO) in 2019 reported that there were 839 million cases of hypertension and it is estimated to be around 1.15 billion in 2025 (29%) of the world's population. Meanwhile in Indonesia in 2019 the incidence of hypertension was 185,857 people. East Java residents in 2019 experienced hypertension as much as 20.45% of 1,828,669 residents, 20.83% for men and 20.11% for women [6]. Berdasarkan data Dinas Kesehatan ProvinsiSulawesi Tenggara bahwa hipertensi merupakan salah satu dari sepuluh besar penyakit terbesar di Sulawesi Tenggara. Based on data from the Southeast Sulawesi Provincial Health Office, hypertension is one of the top ten major diseases in Southeast Sulawesi. Based on integrated surveillance data for health center-based diseases (STP) from the Southeast Sulawesi provincial health office in 2016, it was stated that in 2013 the number of cases of hypertension was 46,656 cases, in 2014 the number of cases of hypertension was 24,419 cases and in 2015 the number of cases of hypertension was 19,743. case[7]. Data obtained from the Pomalaa Public Health Center, Kolaka Regency, in 2019 the number of cases of hypertension was 455, in 2020 the number of cases of hypertension was 1551 and in 2021 the number of cases of hypertension was 5126 cases.

Management of hypertension can be done pharmacologically or with complementary therapy. Pharmacological therapy in treating hypertension using drugs or chemical compounds such as diuretics, sympatholytics, vasodilators, angiotensin antagonists and calcium channel blockers[8], will still have adverse side effects if consumed regularly for a long time such as coughing, fatigue, dizziness, frequent urination, fluid retention, sexual dysfunction, cardiac arrhythmias and allergic reactions [9]. So that complementary therapy can be an alternative effort that can be done in dealing with hypertension so that more severe complications do not occur is to do cupping therapy (hijamaah[2]. In addition to cupping, one complementary therapy that can reduce blood pressure is physical activity, where some research results show that physical activity affects reducing blood pressure in hypertensive patients[10,11].

Muslims believe that cupping is a treatment prescribed by Allah SWT through Rasulullah SAW. Cupping (Al-Hijamah) is a method of treatment by removing dirty blood from the body through the surface of the skin. Several hadiths state about the virtues and benefits of cupping. (H.R. Muslim, Bukhari and Ahmad). "If there is goodness in something that you use for treatment, then it is cupping." (H.R. Bukhari). The hadith has shown that cupping therapy is one of the treatment methods used by Rasulullah SAW[12]. Cupping therapy or hijamah according to the Indonesian Cupping Association is a suction event to remove dirty blood from the surface of the skin using a tube or glass that is placed face down on the surface of the skin, causing a local dam[8].

In addition to cupping, several therapies can lower or stabilize blood pressure in hypertensive patients. Based on the following literature studies, some therapies that can lower blood pressure are hydrotherapy, acupressure, foot massage, stews and juices (*infused* cucumber water, cucumber juice, bananas, tomato juice, avocado leaf stew, betel leaf stew), yoga, meditation, classical music, bending and hypnosis, SEFT therapy, progressive muscle relaxation, deep breathing techniques, reflexology massage[13]. Previous research such as acupressure therapy is effective in lowering blood pressure and can be applied by nurses[14,15]. In addition, the therapy that has been done is hydrotherapy, whereby soaking in warm water affects blood pressure in people with hypertension[16].

Wet cupping therapy is a cupping process by making fine cuts or pricks to remove dirty blood in the epidermal capillaries[8]. Cupping is done so that the body can secrete substances such as serotonin, histamine, and bradykinin, slow-reacting

substances that result in improvements to blood vessel microcirculation which will have a relaxing effect on stiff muscles and stabilize blood pressure[2]. Nitric oxide (NO) obtained from wet cupping therapy can play a role in controlling vasodilation so that it can lower blood pressure, and increase the supply of nutrients and blood needed by cells and the lining of blood vessels, thus making blood vessels more elastic and strong and reducing blood pressure. Oxidation of nitrites plays a role in vasodilation so that it can lower blood pressure[17].

The results of interviews with 8 hypertension sufferers at the Pomalaa Health Center said that the therapy carried out so far besides using drugs also consumed cucumber juice, but several studies of wet cupping therapy could also reduce blood pressure. Therefore, this study will try to see the effectiveness of using wet cupping therapy to reduce blood pressure in hypertension sufferers.

Method

This research is quantitative, the design used is quasi-experimental with the design "*pre-post test design*" without a control group. The research was conducted at the Pomalaa Health Center from June to July 2022 with a sample of 25 people with hypertension. Recruitment of samples using the technique of purposive *sampling*.

The variables in this study were wet cupping and blood pressure in hypertensive patients. The data collection instrument used was an observation sheet. Data analysis using test-test and *Wilcox*.

Results and Discussion

1. Characteristics of Respondents

The description of the frequency distribution based on the characteristics of the respondents can be seen in the following table:

Table 1.1 Frequency distribution based on the characteristics of respondents at the Pomalaa Health Center

No	Variable	n	%
1	**Age (Years)**		
	30-39	7	28.0
	40-49	13	52.0
	50-59	5	20.0
2	**Gender**		
	Men	25	100.0
3	**Education**		
	Junior High School	4	56.0
	Senior High School	14	16.0
	Diplom III	4	16.0
	Bachelor	3	12.0
4	**Pekerjaan**		
	Wiraswasta	15	60.0
	Pengusaha	5	20.0
	BUMN	3	12.0
	PNS	2	8.0

Source: Primary Data 2022

Table 1.1 shows that the highest frequency is respondents aged 40-49 years, namely 13 people (52.0%). All respondents are male, namely 25 people (100.0%). The highest frequency of respondents' education was high school with 14 people (56.0%) and the highest frequency of respondents' work was Entrepreneurs, namely 15 people (56.0%).

2. Univariate analysis

A description of the distribution of respondents based on blood pressure and posttest can be seen in the table as follows:

Table 1.2 Frequency distribution of respondents based on pressure before*(pretest)* and after*(posttest)* Wet cupping was done at the Pomalaa Public Health Center.

No	Blood Pressure		Median	Min	Max
1	*Pretest*	Sistole	160	140	180
		Diastole	92	85	102
2	*Posttest*	Sistole	135	117	150
		Diastole	83	70	96

Source: Primary Data 2022

Table 1.2 shows that at the pretest, the median systolic value was 160 mmHg with the lowest value being 140 mmHg and the highest being 180 mmHg and the median Diatole being 92 mmHg with the lowest value being 85 mmHg and the highest being 102 mmHg. For the post-test, the median systolic value was 135mmHg with the lowest value being 117 mmHg and the highest being 150 mmHg, and the median diastolic was 83 mmHg with the lowest value being 70 mmHg and the highest being 96 mmHg.

3. Bivariate Analysis

Normality test performed on systolic and diastolic blood pressure data pretest and post-test using test *Saphiro Wilk* earned *p* value each systole pretest and posttest 0.426 and 0.781 > 0.05, which means that it can be concluded that the data is normally distributed, so a bivariate test can be performed using *Independent Samples Test and* values each diastole pretest and posttest 0.021 and 0.013 <0.05, which means that it can be concluded that the data is not normally distributed, so a bivariate test can be performed using the Wilcoxon *sign rank test.* Thus, the description of the distribution of the effectiveness of complementary wet cupping therapy in reducing blood pressure in patients with blood hypertension can be seen in the following table:

Table 1.3 Distribution based on the effectiveness of complementary wet cupping therapy in reducing blood pressure in blood hypertension patients at the Pomalaa Health Center

Variabel	Mean, ±SD	Median (min-maks)	*P Value*
BP Sistole Pre-test Post-test	155,64, ±10,97 134,32, ±9,36		0.001
BP Diastole Pre-test Post-test		90 (85-100) 80,66 (70-92)	0.001

Source: Primary Data 2022

Table 1.3 shows that the results of the bivariate analysis used 2 different tests, namely the t-test for systolic and the Wilcoxon for diastolic systolic blood pressure with a 95% confidence level-post value is obtained *value* 0.000 < 0.05, the value of diastolic blood pressure is obtained *p-value* 0.000 < 0.05. This shows that Ha is accepted, and Ho is rejected. Thus it can be concluded that there is the effectiveness of complementary wet cupping therapy for reducing blood pressure in blood hypertension patients at the Pomalaa Health Center.

Discussion

1. Blood pressure before the implementation of complementary base cupping therapy

Based on the results of the study it was found that at the pretest, the median systolic value was 160 mmHg with the lowest value being 140 mmHg and the highest being 180 mmHg, and the median systolic was 92 mmHg with the lowest value being 85 mmHg and the highest being 102 mmHg. It can be seen that the median systolic and diastolic blood pressure of the respondents is high.

Based on the research results in Table 4.2, as many as 52.0% of respondents were in the age group of 40-49 years, more respondents were men. This is to the theory of [9], which said that the incidence of hypertension increases with age and men have a higher risk of experiencing hypertension than women [9], the highest frequency of respondents' education was high school as much as 56.0% and the highest frequency of respondents' work was self-employed, namely 56.0%.

Hypertension is an increase in systolic and diastolic blood pressure above 140/90 mmHg based on examination at least three times at different times[18]. Hypertension can be classified into two types, namely primary or essential hypertension whose cause is unknown, and secondary hypertension which can be caused by kidney disease. , endocrine disease, heart disease, and child kidney disorders [19].

According to the researchers' assumptions, before the wet cupping therapy was carried out, the blood pressure of 25 patients was very high and there was no significant change, the respondent's blood pressure, both systolic and diastolic, showed hypertension rates. It is said to have high blood pressure if while sitting the systolic blood pressure reaches 140 mmHg or more, or the diastolic blood pressure reaches 90 mmHg or more, or both.

Along with the research conducted by Zahara Syifa Annisa[5], this result study shows blood pressure before being given cupping therapy was on average included in the category of level 1 (mild) hypertension, and level 2 (moderate). Grade 1 hypertension was 60% with an average systole of 147.67mmhg and a diastolic of 92mmHg. Grade 2 hypertension was 40%, with an average systolic of 161.69mmhg and a diastolic of 99.29mmhg. Similar result with the research conducted [20] it shows that the univariate analysis test obtained the average value of blood pressure before the intervention, namely the mean result was 168.00, the standard deviation was 12.065, the minimum value was 150 and the maximum value was 180 for systolic blood pressure and diastolic blood pressure the mean value 93.50, standard deviation 6.687, minimum value 80 and maximum 100.

2. Blood pressure after the implementation of complementary therapy wet cupping

After carrying out the wet cupping therapy, the respondent was given a break for 30 minutes and then the blood pressure was measured again. The results of the blood pressure measurements *obtained the* median systolic value was 156 mmHg with the lowest value being 149 mmHg and the highest being 165 mmHg, and the median diastolic was 88 mmHg with the lowest value being 84 mmHg and the highest being 98 mmHg. When compared with the median blood pressure showed a decrease. The conclusion was reached that the implementation of wet basking

therapy showed a decrease in blood pressure in research respondents.

The results of this study indicate that after carrying out complementary wet cupping therapy, the respondent's blood pressure value decreased both systolic and diastolic. Researchers assume that this happens because one of the bruising processes is the suction of the skin and subcutaneous tissue. In patients with hypertension, blood pressure becomes high, one of which is caused by the narrowing of the blood vessels, where the process of suctioning by the cupping glass will cause the pores and blood vessels to dilate so that blood circulation will become smooth and blood pressure will decrease. In addition, with cupping at the right point, blood pressure in hypertensive patients will drop.

Wet cupping is a type of cupping with incisions or punctures by removing dirty blood. The benefits of this wet cupping include cleaning the blood and increasing the activity of the spinal nerves, improving the permeability of blood vessels, and inflammation of the lining of the heart, kidneys, and others [21]. The effects of cupping on hypertension include: Cupping plays a role in calming the sympathetic nervous system (sympathetic nervous system). This upheaval in the sympathetic nervous system stimulates the secretion of enzymes that act as the renin-angiotensin system. Once this system calms down and its activity decreases, blood pressure will drop. Cupping plays a role in reducing the volume of blood that drains blood from the blood vessels thereby reducing blood pressure[20].

In line with the results of Susanah, Sutriningsih, and Warsono's research (2017) on 23 respondents, there was a decrease in the difference in mean values at systole (11.74) and diastole (7.39) with a p-value (0.00) <α (0.005). Respondents experienced a decrease from grade 2 hypertension to grade 1 hypertension. Puspitorini's research, 2017 shows a similar result, after being given wet cupping therapy there was a change, namely there were 2 respondents (6.9%) who were in the pre-hypertension category, and those who included stage 1 hypertension became 21 respondents (72.4%) while respondents who included stage 1 hypertension 2 only 6 respondents (20.7%)Puspitorini, 2017.

3. The effectiveness of complementary wet cupping therapy on reducing blood pressure in hypertensive patients

The results of research data analysis using the test Wilcoxon systolic blood pressure with a 95% confidence level-post obtained a p-value of 0.001 < 0.05, for diastolic blood pressure a p-value of 0.001 < 0.05 was obtained. This shows that Ha is accepted by Ho is rejected. Thus it can be concluded that there is an effect of complementary wet cupping therapy on reducing blood pressure in hypertensive patients at the Pomalaa Health Center.

Researchers also assume that wet cupping has an effect on blood pressure in hypertensive patients, one of which is reducing blood volume in the body by removing some of the blood. This is by research[6] which states that cupping can lower blood pressure in several ways, namely calming the sympathetic nerves so that the secretion of renin-angiotensin enzymes can be reduced, reducing the volume of blood flowing in the blood vessels thereby reducing blood pressure, controlling aldosterone hormone levels, removing nitric oxide (NO) so that vasodilation occurs in blood vessels, sodium levels in the blood become

proportional, increasing blood supply and nutrition, can stimulate special receptors, and increase their sensitivity to the factors that cause hypertension.

The healing mechanism of cupping in hypertension is based on the theory of organ activation, where cupping activates organs that regulate blood flow such as the liver, kidneys, and heart so that these organs remain active in regulating blood circulation so that blood pressure is maintained. The main points in hypertensive patients are the kahil point, the back liver point, and the back kidney point. The kahil point, located on the C7 spine between the right and left shoulders, is at shoulder level. small intestine, large intestine, bladder, and tripemas. The back liver point is located to the left or right of the spine, parallel to the lower end of the scapula, slightly down, between T9 and T10. The hind kidney point is located parallel to the curvature of the waist, between L2-L3, just to the right and left of the vertebrae[21].

Along with the research conducted [8]. based on the Wilcoxon statistical test on systolic blood pressure, it showed significant results with a p-value (0.003) <α (0.05), so it can be concluded that wet cupping therapy has an effect on systolic blood pressure in grade 1 hypertension patients at the Mina Healthy House. The statistical test value for diastolic blood pressure did not show significant results with a p-value (0.108) > α (0.05), so it can be concluded that wet cupping therapy does not affect diastolic blood pressure in grade 1 hypertension patients at Mina Healthy House. In line with the research conducted [19]. Dari uji statistik dengan menggunakan From statistical tests using the Wilcoxon test, Z values were -4,716 and -4,727 with a p-value (Asymp. Sig. 2 tailed) of 0.000 which is less than the critical research limit of 0.05 so that H1 is accepted and H0 is rejected. Thus it can be concluded that there is an effect of giving wet cupping therapy on blood pressure in hypertensive patients at the Kepanjen Medical Center Cupping Clinic, Malang Regency..

Conclusions and suggestions

The conclusions in this study are as follows, Before being given complementary wet cupping therapy, the mean systolic BP was 155 mmHg and the median diastolic BP was 90 mmHg.

After being given complementary wet cupping therapy, the mean systolic BP was 134mmHg and the median diastolic BP was 80mmHg. Wet cupping therapy is effective in reducing blood pressure in blood hypertension patients at the Pomalaa Health Center systolic and diastolic were 0.001 (p< α 0.05).

Suggestions in this study are as follows, the community can use wet cupping therapy as a non-pharmacological therapy and companion therapy in lowering blood pressure. Wet cupping therapy is easy to do doesn't take long and is very economical. In the field of nursing, to develop research related to efforts to reduce blood pressure non-pharmacologically. For researchers, to always add insight and skills so that they can provide education and maximum nursing services to the community.

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