

Complementary cupping effectively lowers blood pressure in hypertension

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ABSTRACT

Hypertension, as a global problem, occurs worldwide and can lead to serious complications if not properly controlled. The number of people with hypertension continues to increase every year, making it important to look for effective non-pharmacological treatments. Cupping therapy, as one of the complementary therapies, has been shown to be beneficial in the prevention and reduction of blood pressure in patients with hypertension. This therapy works by removing toxins from the body, improving blood vessel microcirculation, and providing a vasodilating effect, so that it can reduce blood pressure stably. This study aims to test the effectiveness of cupping therapy in reducing blood pressure in hypertensive patients at the Nurush Syifa Healthy House Cupping Clinic Pekanbaru in 2021. In this study, a pre-experimental research method was used with a one group pretest posttest research design, involving 18 hypertensive patients as samples. The data obtained were analyzed using the Wilcoxon test. The results showed that there was a decrease in blood pressure after cupping therapy intervention in the majority of type I hypertension patients. Statistical analysis showed a significant difference before and after cupping therapy with a p-value of 0.001 (<0.05). Thus, it can be concluded that cupping therapy is effective in reducing blood pressure in hypertensive patients at the Nurush Syifa Healthy House Cupping Clinic Pekanbaru in 2021. This study is expected to provide useful information for the community and the clinic about the benefits of cupping therapy as a non-pharmacological option to reduce blood pressure in hypertensive patients.

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INTRODUCTION

The development of an increasingly advanced era, the density of the routines lived, increased stress levels, irregular eating patterns, unhealthy lifestyles, and decreased levels of vigilance toward health, have led to the emergence of various health problems today. Nowadays, it is no longer infectious diseases that cause high mortality rates, even non-communicable diseases also have a considerable percentage in increasing the number of deaths. One of the non-communicable diseases

that has become a dominant health problem in developed and developing countries is hypertension (Risksedas, 2013).

Hypertension is one of the degenerative diseases, generally, blood pressure increases slowly with age. Hypertension is a disease that cannot be cured but can be controlled and a disease that can cause increased morbidity and mortality in heart disease. Heart and vascular diseases, including hypertension, have been a killer diseases of many populations in developed and developing countries for more than eight decades. Hypertension is often referred to as a silent killer where symptoms can vary in each individual and are almost the same as symptoms of other diseases (Harvey, 2013).

The World Health Organization (WHO) noted in 2012 at least 839 million cases of hypertension, estimated to be 1.5 billion in 2025 or about 29% of the total world population, About 80% of the increase in hypertension cases occurred mainly in developing countries. WHO data in September 2012, stated that hypertension causes 8 million deaths per year worldwide and 1.5 million deaths per year in Southeast Asia. Hypertension also affects Thailand at 17% of the total population, Vietnam at 34.6%, Singapore at 24.9%, and Malaysia at 29.9%.

Hypertension is the third leading cause of death in Indonesia for all ages at 7.4%, after stroke at 15.6%. The prevalence of hypertension in Indonesia reaches 31.7% of the population aged 18 years and above. Of that number, 60% of hypertensive patients experience stroke complications. Based on data from the North Sumatra Provincial Health Office, the number of people with hypertension in 2016 was recorded at 50162 people in the age group over 45 years and over (Risksedas, 2013).

Controlling blood pressure or hypertension can be done in two ways, namely through pharmacology and non-pharmacology. In carrying out pharmacological treatment, patients are required to take drugs regularly, pharmacological treatment is very likely to allow hypertensive patients to become bored, which allows hypertension patients to be non-compliant in taking hypertension drugs and this is the reason for the frequent failure of pharmacological therapy in hypertensive patients (Harvey, 2013).

Along with technological advances various types of treatment approaches are developing in the world. Many non-pharmacological treatments have been found to help lower blood pressure including complementary therapy approaches such as acupuncture, acupressure, cupping, reflexology, hypnotherapy, herbs, and others. People are now starting to turn to non-pharmacological treatments because they know the side effects of using pharmacology which can damage the liver and kidneys if used for a long period of time. Non-pharmacological treatment in the form of complementary therapy that is often chosen by hypertensive patients is cupping therapy (Ambarwati, 2015).

Cupping therapy has been recognized and developed in various countries around the world. Cupping therapy is a way of treatment by removing dirty blood from the body which can improve blood vessel microcirculation and can increase elasticity and widen blood vessels so that blood pressure drops stably and cupping also has an effect on calming the sympathetic nervous system. This effect on the sympathetic nervous system stimulates the secretion of enzymes that act as the rennin angiotensin system. After this system is calm and its activity is reduced, blood pressure will drop (Sharaf, 2012).

Cupping therapy in hypertensive patients can also stimulate blood circulation in the body in general through nitric oxide (NO) which plays a role in expanding blood vessels, causing blood pressure to drop. Nitric oxide (NO) also plays a role in increasing the supply of nutrients and blood needed by the cells and layers of arterial and venous blood vessels, making them stronger and more elastic and reducing blood pressure. Complementary therapy cupping is done by removing dirty blood by sucking through a vacuum (Sharaf, 2012).

Based on the results of previous research from Rina Ambarwati 2015, a student of the FK UNDIP nursing master program on the effectiveness of complementary cupping therapy in cupping

houses in the Karang Malang area with a sample of 30 respondents, it can be concluded that there is a significant effect of cupping therapy to reduce blood pressure in hypertensive patients.

Based on the results of an initial survey in the field at the cupping clinic of Rumah Sehat Nurush Syifa Pekanbaru from the data for the last three months from October, November, and December there were 200 visits with around 60 visits each month. In October there were 60 patient visits, in November there were 80 patient visits, and in December there were 60 patient visits as gastritis patients there were 4 cases, cholesterol there were 20, hypertension 20, stroke 2, and patients who experienced frequent migrations there were 14 cases, and 40 repeat patients and 20 new patients who came to the cupping clinic of Rumah Sehat Nurush Syifa Pekanbaru.

Data taken from the cupping clinic of Rumah Sehat Nurush Syifa Pekanbaru, the most common cases of patients who do cupping complementary therapy are cholesterol patients and hypertension patients. Based on the results of interviews with 6 patients who performed cupping complementary therapy conducted by people who are experts in cupping therapy at the cupping clinic of Rumah Sehat Nurush Syifa Pekanbaru, they said that after cupping complementary therapy, dizziness decreased, the body felt fresher and lighter, blood pressure decreased steadily and there were significant changes in blood pressure after cupping complementary therapy intervention.

In this study, those who performed cupping complementary therapy were experts and had certificates in cupping complementary therapy training and researchers only observed blood pressure before and after cupping complementary therapy. Seeing the phenomenon of the many non-pharmacological therapies that can be used to lower blood pressure and each therapy has advantages and disadvantages. Based on the phenomenon of the above background, the purpose of this study is to observe the effectiveness of cupping complementary therapy on lowering blood pressure in hypertensive patients at the cupping clinic of Rumah Sehat Nurush Syifa Pekanbaru in 2021.

RESEARCH METHOD

This type of research uses pre-experimental with one group pretest-posttest research design. The study population was all hypertensive patients as many as 60 people. The sampling technique used purposive sampling with a total sample of 18 people. The research instruments used observation sheets, a sphygmomanometer, and a stethoscope. Data analysis was carried out by univariate and bivariate analysis using the Wilcoxon test.

RESULTS AND DISCUSSIONS

Demographic Data

Demographic data based on research that has been conducted, which includes age, gender, occupation, and education, the demographic characteristics of research respondents are obtained as follows.

Characteristics of Respondents

Frequency Distribution of Respondents' Characteristics in hypertensive patients at the Nurush Syifa Healthy Home Cupping Clinic Pekanbaru in 2021

Table 1. Characteristics of Hypertensive Patients of Cupping Clinic Nurush Syifa Healthy House Pekanbaru in 2021

Characteristic	f	%
Age		
35-50 years	12	66,6
51-65 years	6	33,4
Total	18	100,0

Gender		
Man	9	50,0
Woman	9	50,0
Total	18	100,0
Work		
Housewives	5	27,8
Self-employed.	9	50,0
Civil servants	4	22,2
Total	18	100,0
Pendidikan		
Junior High School	1	5,6
Senior High School	13	72,2
Bachelor	4	22,2
Total	18	100,0

Based on the table above, it is known that the age of hypertensive patients at the Cupping Clinic of Nurush Syifa Healthy House Pekanbaru in 2021, the majority are 35-50 years old as many as 12 people where the arterial walls experience thickening due to the presence of collagen substances in the muscle layer of blood vessels so that the blood vessels will gradually narrow and become stiff, 51-65 years old as many as 6 people. The gender of women is 9 people, men are 9 people where in this study men and women are equally balanced both have the perception to do cupping complementary therapy.

Based on the results of this study, most occupations suffering from hypertension are self-employed as many as 9 people where these self-employed people vary such as trading, repairmen, farmers, and others who have their respective workloads, lack of rest is one of the risk factors for hypertension and the second is working as a housewife as many as 5 people where housewives have complex problems in addition to taking care of the family, doing housework, taking care of children as one of the stress triggers so that it can increase blood pressure.

It can also be triggered by a very minimal level of education due to a lack of knowledge about the prevention of hypertension, where in this study the highest level of education was high school as many as 13 people, 4 undergraduates, and 1 junior high school.

Research Results

Blood pressure in hypertensive patients before cupping complementary therapy at the Cupping Clinic of Rumah Sehat Nurush Syifa Pekanbaru in 2021

Table 2. Frequency distribution of blood pressure in hypertensive patients before complementary cupping therapy in Cupping Clinic Rumah Sehat Nurush Syifa Pekanbaru in 2021

Blood pressure	f	%
Normal (120/80-140/90 MmHg)	0	0,0
Type hypertension 1 (140/90 -159/99 MmHg)	12	66,7
Type hypertension 2 (160/100 -179/109 MmHg)	6	33,3
Type hypertension 3 (\geq 180/110)	0	0,0
Total	18	100,0

Based on Table 2 above, it is known that, blood pressure in hypertensive patients before cupping complementary therapy at Rumah Sehat Nurush Syifa Cupping Clinic Pekanbaru in 2021 the majority of blood pressure is suffering from type 1 hypertension (140/90 -159/99 mmHg) as many as 12 people and the minority is type 2 hypertension (160/100 -179/109 mmHg) as many as 6 people while normal blood pressure and type 3 hypertension ($>$ 180/110) are absent.

Blood pressure in hypertensive patients after cupping complementary therapy at the Cupping Clinic of Rumah Sehat Nurush Syifa Pekanbaru in 2021

Table 3. Frequency distribution of blood pressure in hypertensive patients after cupping complementary therapy at the Nurush Syifa Healthy Home Cupping Clinic Pekanbaru in 2021

Tekanan darah	f	%
Normal (120/80-140/90 MmHg)	5	27,8
Hipertensi tipe 1 (140/90 -159/99 MmHg)	13	72,2
Hipertensi tipe 2 (160/100 -179/109 MmHg)	0	0,0
Hipertensi tipe 3 (\geq 180/110)	0	0,0
Total	18	100,0

Based on the table above, it is known that blood pressure in hypertensive patients after cupping complementary therapy at the Cupping Clinic of Rumah Sehat Nurush Syifa Pekanbaru in 2021 the majority of blood pressure suffering from type 1 hypertension (140/90 -159/99 mmHg) as many as 13 people and the minority is Normal blood pressure (120/80-140/90 mmHg) as many as 5 people while type 2 hypertension (160/100 -179/109 MmHg) and type 3 hypertension ($>$ 180/110) does not exist.

Analysis of the effectiveness of cupping complementary therapy on lowering blood pressure in hypertensive patients at Rumah Sehat Nurush Syifa Cupping Clinic Pekanbaru in 2021

Table 4. Results of Analysis of the effectiveness of cupping complementary therapy on lowering blood pressure in hypertensive patients at the Cupping Clinic of Rumah Sehat Nurush Syifa Pekanbaru in 2021

Blood pressure	Changes in blood pressure			Mean	Std. deviate	z	Sig. (Pvalue)
	Decreased	Increase	Remain				
Pretest				2,33	0,485		
Posttest	11	0	7	1,72	0,461	-3,317	0,001

Based on the table above, it is known that, the decrease in mean or average blood pressure in blood pressure of hypertensive patients at the Cupping Clinic of Rumah Sehat Nurush Syifa Pekanbaru in 2021 there was a decrease in pressure before and after treatment by 11 respondents, an increase of 0 respondents and a fixed 7 respondents.

The results of the analysis with *the Wilcoxon test* also showed a mean pretest of 2.33 and a posttest of 1.72, a pretest std. deviation value of 0.485 and a posttest of 0.461. While the z value is -3.317 and the Pvalue is $0.001 < 0.05$, this shows that there is the effectiveness of cupping complementary therapy in reducing blood pressure in hypertensive patients at the Cupping Clinic of Rumah Sehat Nurush Syifa Pekanbaru in 2021.

Discussion

Blood pressure in hypertensive patients before cupping complementary therapy at the Cupping Clinic of Rumah Sehat Nurush Syifa Pekanbaru in 2021

Based on the results of the study, it is known that blood pressure in hypertensive patients before cupping complementary therapy at the Cupping Clinic of Rumah Sehat Nurush Syifa Pekanbaru in 2021 the majority of blood pressure suffering from type 1 hypertension (140/90 -159/99 mmHg) as many as 12 people and the minority is type 2 hypertension (160/100 -179/109 mmHg) as many as 6 people while normal blood pressure and type 3 hypertension ($>$ 180/110) do not exist.

Hypertension is a condition of a person who experiences an increase in blood pressure above normal resulting in an increase in morbidity and mortality rates, systolic phase blood pressure 140 mmHg indicates the phase of blood being pumped by the heart and the diastolic phase 90 mmHg indicates the phase of blood returning to the heart (Triyanto, 2014).

Hypertension is one of the degenerative diseases, generally, blood pressure increases slowly with age. Hypertension is an incurable but controllable disease and disease that can cause increased morbidity and death rates in heart disease. Heart and blood vessel diseases, including hypertension, have been the deadly diseases of many people in developed and developing countries for more than eight decades. Hypertension is often also called the silent killer where symptoms can vary in each individual and are almost the same as symptoms of other diseases (Harvey, 2013).

Hypertension can occur essentially (primary or idiopathic) where the causative factor cannot be identified, or secondarily, as a result of certain diseases suffered. Hypertension is a leading cause of stroke, heart disease, and kidney failure. Primary hypertension occurs in 90-95% of cases and tends to increase over time. Risk factors include obesity, stress, a relaxed lifestyle, and smoking (Robinson and Saputra, 2014).

Based on the results of this study, respondents who suffer the most from hypertension are in the age range of 35-50 years. The results of this study are in line with Angraini (2009) which states that after the age of 45 years, the artery walls thicken due to the buildup of collagen substances in the muscle layer of blood vessels so that blood vessels will gradually narrow and become stiff.

Based on the results of this study, the jobs that suffer the most from hypertension are 9 people who are self-employed where these entrepreneurs are diverse such as trading, workshops, farmers, and others who have their respective workloads, and the second job as a housewife as many as 5 people where housewives have complex problems in addition to taking care of the family, doing housework, Taking care of children as one of the stressors so that it can increase blood pressure. The results of this study are in line with research conducted by Nugroho (2013) which found that self-employed jobs have more people suffering from hypertension than other jobs, this is caused by jobs that have a heavy load, lack of rest is very risky for hypertension.

Blood pressure in hypertensive patients after cupping complementary therapy at Cupping Clinic Rumah Sehat Nurush Syifa Pekanbaru in 2021

Based on the results of the study, it is known that blood pressure in hypertensive patients after cupping complementary therapy at the Cupping Clinic of Rumah Sehat Nurush Syifa Pekanbaru in 2021 the majority of blood pressure is suffering from type 1 hypertension (140/90 - 159/99 mmHg) as many as 13 people and the minority is Normal blood pressure (120/80-140/90 MmHg) as many as 5 people while type 2 hypertension (160/100 -179/109 MmHg) and type 3 hypertension (>180/110) does not exist.

Based on the data obtained, there were changes in blood pressure after complementary therapy given with cupping therapy, where respondents who originally suffered from hypertension, but after the intervention, blood pressure became normal, or who originally suffered from grade 2 hypertension turned into grade 1 hypertension. Where this shows a decrease after cupping therapy intervention.

According to Angraini (2009), the prevalence of hypertension in men is the same as in women, but women are protected from cardiovascular disease before menopause. Women who have not experienced menopause are protected by the hormone estrogen which plays a role in increasing high-density lipoprotein (HDL) levels. High levels of HDL cholesterol are a protective factor in preventing the occurrence of atherosclerosis processes. The protective effect of estrogen is thought to explain the presence of female immunity at premenopausal age. In premenopause, women begin to lose little by little the hormone estrogen, which has been protecting blood vessels from damage. This process continues where the estrogen hormone changes in quantity according to the age of women naturally, which generally begins to occur in women aged 45-55 years.

Based on the results of this study, respondents who suffer the most from hypertension are the age range of 41-45. The results of this study are in line with Anggraini (2009) which states that after the age of 45 years, the artery walls thicken due to the buildup of collagen substances in the muscle layer of blood vessels so that blood vessels will gradually narrow and become stiff.

There are other factors that can affect the blood pressure of these respondents, namely lifestyle including obesity, eating habits, salt consumption and smoking habits. Of the 9 male respondents who had hypertension all with a history of smoking, this could be used as a reason for the increase in respondents' blood pressure after cupping therapy. Then, eating habits, unregulated salt consumption can be one of the causes of blood pressure rising after cupping, but in this study did not include this.

Patients with hypertension who do cupping therapy besides being useful for lowering blood pressure are also useful for cleaning the blood from toxins and food debris and can increase spinal cord activity, overcome abnormal blood pressure disorders and calcification of blood vessels, eliminate dizziness, convulsions and cramps that occur in the muscles, eliminate shoulder, chest and back pain because blood flow after cupping becomes smooth (Fatahillah, 2006).

The effectiveness of cupping complementary therapy on lowering blood pressure in hypertensive patients at Rumah Sehat Nurush Syifa Cupping Clinic Pekanbaru in 2021

Based on the results of the study, it is known that, the decrease in mean or average blood pressure in the blood pressure of hypertensive patients at the Cupping Clinic of Rumah Sehat Nurush Syifa Pekanbaru in 2021 there was a decrease in pressure before and after treatment by 7 respondents, an increase of 0 respondents and a fixed 7 respondents.

The results of the analysis with the Wilcoxon test also showed the sig value. or a pvalue of $0.001 < 0.05$, this shows that there is an effectiveness of cupping complementary therapy on reducing blood pressure in hypertensive patients at the Cupping Clinic of Rumah Sehat Nurush Syifa Pekanbaru in 2021.

The results of this study are supported by previous research from Rina Ambarwati 2015, a student of the nursing master program FK UNDIP about the effectiveness of cupping complementary therapy in cupping houses in the coral area of Malang with a sample of 30 respondents obtained p-value = $0.001 < 0.05$ so that it can be concluded that there is a significant effect of cupping therapy to lower blood pressure in hypertensive patients.

This is reinforced by research by Sangkur et al (2016), which shows that cupping can lower blood pressure in hypertensive patients. The results obtained on the use of digital sphygmomanometer showed an average decrease in systole blood pressure of 8.54 mmHg and diastole of 5.53 mmHg. While in the use of mercury sphygmomanometer, the average decrease in systole blood pressure was 7.44 mmHg and diastole 4.59 mmHg.

The results of this study are in line with research conducted by Mustika (2012) on the effect of wet cupping therapy on reducing blood pressure which obtained the average results of systolic blood pressure before wet cupping therapy of 153.10 mmHg and average diastolic blood pressure of 94.5%. Research by Safrianda, Parjo and Maulana (2015) also showed significant changes in blood pressure before and after wet cupping therapy at Thibbun Nabawy Therapy House Pontianak. Susanah (2017) also stated in her research that there was an effect of cupping therapy on lowering blood pressure in hypertensive patients at Trio Husada Polyclinic Malang.

A similar study was also conducted by Zarei (2012) who found that the average systolic blood pressure before wet cupping therapy was 151.1 mmHg and the average diastolic blood pressure before wet cupping therapy was 93.2 mmHg. After wet cupping therapy, respondents in this study were again observed by measuring blood pressure after 15 minutes of wet cupping therapy in a resting state it was found that as many as 18.75% had prehypertension, 37.5% had grade I hypertension, while respondents with grade II hypertension with the highest number with 43.75%.

Cupping therapy in hypertensive patients can also stimulate blood circulation in the body in general through nitric oxide (NO) which plays a role in expanding blood vessels, causing a drop in blood pressure. Nitric oxide (NO) also plays a role in increasing the supply of nutrients and blood needed by the cells and linings of arteries and veins, making them stronger and elastic and reducing blood pressure. Cupping complementary therapy is done by removing dirty blood by sucking through a vacuum (Sharaf, 2012).

According to Umar (2012) There are several benefits of cupping obtained, namely: Cleanses the blood of toxins (toxins) and can increase spinal nerve activity. Overcoming abnormal blood pressure disorders. Relieve dizziness, convulsions and cramps that occur in the muscles. Beneficial for experiencing dizziness, migraines, toothache, and shoulder, chest and back pain. As well as the benefits of overcoming pericarditis (inflammation of the lining of the heart) and nephritis (inflammation of the kidneys) that are severe.

According to the assumption of researchers, there is an effect of cupping therapy in lowering blood pressure, because cupping therapy has techniques that can remove clotted blood, so that the release of *darh* can be beneficial for the body in facilitating blood circulation, so that it can reduce blood pressure in people with hypertension.

CONCLUSION

The results of research on the effectiveness of complementary cupping therapy in reducing blood pressure in hypertensive patients at the Nurush Syifa Healthy House Cupping Clinic Pekanbaru in 2021 show important things. The majority of hypertensive patients before cupping therapy had type 1 high blood pressure. After undergoing cupping therapy, although most were still categorized as type 1 hypertension, cupping therapy proved effective in lowering their blood pressure. This is proven by the significance value (P-value) of 0.001, which is smaller than the significance limit of 0.05. With these findings, it is hoped that clinics can improve cupping therapy services, educational institutions can obtain references regarding the use of cupping therapy in lowering blood pressure, and future research can use these results as a reference and useful source of information.

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