



# EFFECT OF CUPPING THERAPY ON THE BLOOD PRESSURE OF PEOPLE WITH HYPERTENSION IN THE WORKING AREA OF CENTRAL CITY HEALTH CENTER GORONTALO CITY 2020

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<p><b>Received:</b> 6<sup>th</sup> January 2022 <b>Accepted:</b> 8<sup>th</sup> February 2022 <b>Published:</b> 21<sup>st</sup> March 2022</p>	<p>Hypertension or high blood pressure disease is a disorder of the blood vessels and heart disorders characterized by an increase in blood pressure where systolic blood pressure is more than 120 mmHg and diastolic blood pressure is more than 80 mmHg. This study aims to find out the Effect of Cupping Therapy on Blood Pressure in People with Hypertension in the Working Area of Gorontalo City Central City Health Center in 2020.</p> <p>This research has been conducted at Gorontalo Cupping House Clinic located in the Working area of Gorontalo City Central City Health Center, from August to October 2020, using a quasy experimental design method with one group pretest-posttest design without a control group. The sample in this study was a person with hypertension who was in the Working area of Gorontalo City Central City Health Center as many as 30 people were taken using nonprobability sampling, which meets the criteria of inclusion that is willing to be a respondent, able to communicate well, suffer from hypertension degree I &amp; II, does not suffer from other diseases, is not taking blood-thinning therapy and has never been cupping. Data processing using the SPSS program.</p> <p>The results of the study had the effect of Cupping Therapy on blood pressure in people with hypertension in the working area of the Central City Health Center with <math>p = 0.000 &lt; \alpha = 0.01</math></p>

**Keywords:** Cupping therapy; blood pressure; hypertension.

## 1. INTRODUCTION

Hypertension or high blood pressure disease is a disorder of the blood vessels and heart disease that is characterized by an increase in blood pressure where systolic blood pressure is more than 120 mmHg and diastolic blood pressure is more than 80 mmHg (Muttaqin, 2009 dalam Andika Syahputra, 2019).

Hypertension is one of the diseases that attack many people and become one of the number 1 killers in the world which causes 7.5 million deaths. Hypertension cannot be considered a mild disease. Symptoms and complaints may be ignored. However, keep in mind that hypertension is a major risk factor for heart disease and stroke. Hypertension is also referred to as "the silent disease" because it cannot be seen from the outside (Dalimartha, 2008 dalam Umamah and Paraswati, 2019).

The prevalence of hypertension in the world reach 29.2% in men and 24.8% in women (WHO, 2013). This hypertension will continue to increase and predicted by 2025 as many as 29% of adults worldwide suffer from Hypertension (Rezky et al., 2015). Hypertension in Indonesia reaches 31.7% of the population aged 18 years and above. Of that number, 60% of people with hypertension experience complications of a stroke. While the rest suffered from kidney disease, kidney failure, and blindness (Nuraini, 2019).

Based on the results of Basic Health Research (RISKESDAS) in 2018, the prevalence rate of hypertension measuring results reached 34.1% increased sharply from 25.8% in 2013, with the highest prevalence rate in South Kalimantan Province at 44.1% and the lowest in Papua province at 22.2%. Gorontalo Province itself in the results of Riskesdas 2013 reached 29.0% and in Riskesdas in 2018 to 31.0% and was 20th out of 34 Provinces (Kemenkes RI, 2018).

Data from the Gorontalo Provincial Health Office, hypertension is the first most ranked non-communicable disease in Gorontalo Province for four consecutive years with 29,391 cases in 2018 and based on data obtained from the Gorontalo City Health Office, the central city health center was third place with hypertension visits, which was 1,722 visits. Data obtained from the Central City Health Center that the number of people with hypertension in 2019 was recorded at 969 sufferers, with the male sex as many as 290 sufferers and women 679 sufferers. In 2020 from January to June 2020 there were 116 patients.

Some of the data above indicate that the incidence of hypertension is still high. Therefore, preventive and handling measures are very important to avoid an increase in people with hypertension. One form of hypertension treatment is in the form of hypertension treatment that can be done pharmacologically and non-pharmacologically.

Pharmacological treatments that use drugs not only have beneficial effects, but also harm. Side effects of the drug can cause unwanted reactions for sufferers such as cough, fatigue, dizziness, frequent urination, fluid retention, sexual dysfunction, cardiac arrhythmias, and allergic reactions (Kurniadi & Nurrahmi 2015). The use of more than one drug and long-term use of drugs will increase the risk of drug-related problems. Drug-Related Problems are all sorts of undesirable conditions experienced by patients involved and caused or suspected to involve treatment therapy given to patients, which can actually and potentially affect the patient's condition such as non-compliance, drug interactions, allergies to prescribed drugs so that this can worsen the state of hypertension itself (Sulistyarini, 2013).

While non-pharmacological therapy is a therapy that does not use anti-hypertensive drugs. Non-pharmacological therapies that can be done are exercise, not smoking, not drinking alcohol, avoiding stress, water therapy, jade therapy, herbal therapy, meditation, reflexology therapy, and cupping therapy.

One of the trends of non-pharmacological treatment to treat hypertension today is to use cupping. Cupping is an alternative treatment that is quite popular since ancient times. Cupping is a treatment technique using glass, tube, or bamboo means that the process begins by shoveling (making negative pressure in the glass, tube, or bamboo) at the point of cupping, thus causing local dams on the surface of the skin. In the wet cupping technique, after a local dam occurs, the process is continued by tanning the surface of the skin using a scalpel or stabbing of cupping needles so that dirty blood can be removed.

Cupping therapy is one way of healing that is considered by the people of Indonesia can help lower blood pressure in people with hypertension (Kamaluddin, 2010). Cupping is a therapy that aims to cleanse the body of toxin-containing blood with thin tanning or small punctures on the surface of the skin. Cupping is also often referred to as a therapy that serves to bleed dirty (Dalimartha et al., 2008).

Cupping mechanism in improving health, especially in lowering blood pressure due to mast cell damage will be released some substances such as Serotonin, Histamine, Bradykinin, Slow Reacting Substance (SRS), as well as other substances that are not yet known. These substances cause capillary and arteriole dilation, as well as flare reactions in the area. Capillary dilation can also occur in a place far from the debriefing site, this leads to a repair of the microcirculation of blood vessels. As a result, the effect of relaxation (relaxation) of stiff muscles and due to general vasodilation will lower blood pressure steadily.

In addition, the most important thing is the release of the Corticotropin-Releasing Factor (CRF) and the release of other factors by adeno hypophyse. CRF will further lead to the formation of ACTH, corticotropin, and corticosteroids. These corticosteroids have the effect of curing inflammation and stabilizing cell permeability. While the histamine group it causes benefits in the process of repairing damaged cells and tissues and spurring the formation of Reticulo Endothelial Cell, which will increase the resistance (endurance) and immunity (immunity) of the body.

Some studies that support cupping therapy are recommended for people with hypertension, namely Andika Syaputra et al Research (2019) on Phenomenology Studies on The Quality of Life of Hypertensive Patients After Undergoing Cupping Therapy where the results of the study recommend for hypertensive patients to continue to undergo cupping therapy as an alternative to complementary therapies.

The results of research from Hasan Ahmad (2014) also inform that cupping can be used as an alternative treatment because cupping therapy has benefits that have been scientifically proven to treat diseases by clearing blood and interstitial fluids from disease-causing substantial.

Based on the results of an initial survey obtained by researchers at the Cupping clinic in Gorontalo City in June 2020, it is known that the average visit to cupping therapy of hypertensive clients is  $\pm$  5-10 people per day, and the most patients who come are with complaints of hypertension without complications. The results of interviews to hypertensive clients who are in therapy, it is known that 5 people out of 6 patients said they have never known about cupping therapy, also said they do not know the procedure and the final benefits of cupping therapy.

Based on the description in the background above, the researchers are interested in conducting research with the title "Effect of Cupping Therapy on Blood Pressure in People with Hypertension in the Gorontalo City area in 2020".

## 2. MATERIALS AND METHODS

This type of research uses a pre-experimental method with a one-group pretest-posttest design. by giving pretest first before being given intervention, after that then given the intervention of cupping therapy then re-done posttest. This design also has no control group but at least a pretest has been made that allows testing for changes that occur after the experiment (Notoatmodjo, 2010).

Instruments in this study use observation sheets, and research aids in the form of standardized tensimeters. This research was conducted in the Working Area of Gorontalo City Central City Health Center from August to November 2020. The determination of the research location is based on:

1. The number of visits of people with hypertension for central city health centers is the third highest, which is 1,722 visits.
2. The location is easily affordable, near urban, and accessible to all land vehicles.
3. The clinic where the cupping therapy intervention will be conducted is in the working area of the Central City Health Center

The population and sample in this study are people with hypertension who are in the Working area of Gorontalo City Central City Health Center in 2020.

Sampling techniques in this study use nonprobability sampling with purposive sampling methods. The sample criteria specified are:

Inclusion criteria:

1. Willing to be a respondent
2. Able to communicate well
3. Can follow the research procedure until completion
4. Do not suffer from other diseases that can affect blood pressure
5. Not currently taking blood-thinning medication therapy
6. Never done cupping therapy

Exclusion criteria:

1. Respondents who did not participate fully in the study
2. Respondents who consume other herbal remedies.

Data collection techniques use blood pressure measuring instruments that are in accordance with SNI standards to determine the patient's blood pressure when examination before and after cupping therapy and use assessment sheets to find out the characteristics of respondents.

Data processing is done manually and electronically using calculators and computers with statistical data processing programs.

After the retrieval and management of the data, the data is then analyzed with Univariate Analysis and Bivariate Analysis. Bivariate analysis knows the relationship between independent variables and dependent variables using statistical tests. Statistical tests are conducted in the form of pairs t-tests, Wilcoxon tests. Paired t-test to find out and analyze the effect of cupping therapy on systolic blood pressure on pre-test and post-test and Wilcoxon test to find out and analyze the effect of cupping therapy on diastolic blood pressure on pre-tests and post-tests. The test was conducted with a < of 0.05.

### 3. RESULTS AND DISCUSSIONS

#### Results

This research has been carried out in the working area of Gorontalo City Central City Health Center, precisely at Gorontalo Cupping House Clinic which is located at Jalan Jeruk Wumialo Village, Gorontalo City Central City District on August 27, 2020, until November 10, 2020.

#### 1. Characteristics of Respondents

- a. Distribution of Frequency of Respondents By Gender in the Working Area of Gorontalo City Central City Health Center

Table 1. Distribution of Frequency of Respondents By Gender in the Working Area of Gorontalo City Central City Health Center

Gender	Frequency	Percentage
Woman	13	43,3
Man	17	56,7
Total	30	100,0

Source: Primer Data (2020)

Based on the table above, it can be known that in the working area of the Central City Health Center, most of the respondents were male, which was 56.7%.

- b. Distribution of Frequency of Respondents By Age in The Working Area of Gorontalo City Central City Health Center

Table 2. Distribution of Frequency of Respondents By Age in The Working Area of Gorontalo City Central City Health Center

Age	Frequency	Percentage
Adolescent (17-25 Tahun)	3	10
Early Adulthood (26-35 Tahun)	4	13,3
Final Adult (36-45 Tahun)	10	33,3
Early Elderly (46-55 Tahun)	5	16,7
Elderly (≥56 Tahun)	8	26,7
Total	30	100,0

Source: Primer Data (2020)

Based on the table above, it can be known that in the working area of the Central City Health Center, most respondents are late adults (36-45 years old) which is as much as 33.3%.

c. Distribution of Frequency of Respondents Based on Education in the Working Area of Gorontalo City Central City Health Center

Table 3. Distribution of Frequency of Respondents Based on Education in the Working Area of Gorontalo City Central City Health Center

Education	Frequency	Percentage
Primary School	2	6,7
Junior School	4	13,3
Hight School	20	66,7
College	4	13,3
Total	30	100,0

Source: Primer Data (2020)

Based on the table above, it can be known that in the working area of the Central City Health Center, most of the respondents educated in high school are as much as 66.7%.

d. Distribution of Frequency of Respondents Based on Work in the Working Area of Gorontalo City Central City Health Center

Table 4. Distribution of Frequency of Respondents Based on Work in the Working Area of The Middle East City Health Center of Gorontalo City

Work	Frequency	Percentage
PNS	7	23,33
Pensiunan	5	16,67
Private	3	10,0
Entrepreneur	10	33,33
Does not work	5	16,67
Total	30	100,0

Source: Primer Data (2020)

Based on the table above, it can be known that in the working area of the Central City Health Center, most respondents work with various types of jobs (self-employed) which is 33.33%.

2. Univariate Analysis

a. Blood Pressure before being given Cupping Therapy Intervention in the Working Area of Gorontalo City Central Health Center

Table 5. Blood Pressure before being given Cupping Therapy Intervention in the Working Area of Gorontalo City Central City Health Center

Hypertension Rate	Frequency	Percentage
Pre hypertensive	9	30
Hypertension Degree 1	12	40
Hypertension Degree 2	9	30
Total	30	100,0

Source: Primer Data (2020)

Based on the table above, it can be known that in the working area of the central city health center, people with hypertension with a pre-hypertension classification as many as 9 people (30%), hypertension degree I as many as 12 people (40%) and hypertension degree 2 as many as 9 people (30%). Prior to cupping therapy intervention, the average systolic blood pressure was 151.57 mmHg and diastolic blood pressure was 94.87 mmHg.

b. Blood Pressure After Being Given Cupping Therapy Intervention in the Working Area of Gorontalo City Central Health Center

Table 6. Blood Pressure after being given Cupping Therapy Intervention in the Working Area of Gorontalo City Central Health Center

Hypertension Rate	Frequency	Percentage
Normal	1	3,33
Pre hypertensive	12	40
Hypertension Degree 1	13	43,34
Hypertension Degree 2	4	13,33
Total	30	100,0

Source: Primer Data (2020)

Based on the table above, it can be known that in the working area of the Central City Health Center, after being given a Cupping Therapy intervention in people with hypertension obtained hypertension with a pre-hypertension classification of 12 people (40%), hypertension degree I as many as 13 people (43.34%), hypertension degree II as many as 4 people (13.33%) and 1 respondent (3.33%) whose blood pressure became normal. After cupping therapy intervention, the average systolic blood pressure became 143.3 mmHg and diastolic became 91.1 mmHg.

3. Bivariate Analysis

a. Normality data results of Pretest-Posttest Blood Pressure Measurement in People with Hypertension in the Central City Health Center Work Area

Table 7. Normality data results pretest-posttest blood pressure measurement in people with hypertension in the working area of central city health center

Blood Pressure		Shapiro-Wilk		
		Statistic	Df	Sig.
Sistolik	Pretest	0,964	30	0,000
	Posttest	0,809	30	0,000
Diastolik	Pretest	0,964	30	0,000
	Posttest	0,809	30	0,000

Source: Primer Data (2020)

The table shows that sig value. Systolic and diastolic blood pressure data on both pretest and posttest data are all worth  $> \alpha$  (0.05). Thus it was concluded that the data of blood pressure measurement results were entirely distributed normally.

b. Effect of Cupping Therapy on Blood Pressure In People with Hypertension In The Working Area of Central City Health Center

Table 8. Effect of Cupping Therapy on Blood Pressure In People with Hypertension In The Central City Health Center Work Area

Blood Pressure		<i>N</i>	<i>Mean</i>	<i>SD</i>	<i>T</i>	<i>p-value</i>
Sistolik	Pretest	30	151,57	7,554	<b>18,808</b>	<b>0,000</b>
	Posttest	30	143,30	7,931		
Diastolik	Pretest	30	94,87	3,288	<b>16,624</b>	<b>0,000</b>
	Posttest	30	91,10	3,980		

Source: Primer Data (2020)

Based on the table above it can be known that before Cupping Therapy, the average systolic blood pressure was 151.57 mmHg and diastolic blood pressure was 94.87 mmHg. After cupping therapy intervention, the average systolic blood pressure became 143.3 mmHg and diastolic to 91.1 mmHg. This means an average decrease in systolic blood pressure of 8.27 mmHg and diastolic 3.77 mmHg.

The results of the paired sample t-test showed that systolic blood pressure was received at a count of 18,808 and  $p$  value 0.000 and at diastolic blood pressure t count of 16,624 and  $p$  value 0.000. With the fulfillment of the statistical hypothesis that  $t$  calculate  $>$   $t$  table (2,144) and  $p$  value (0.05), it can be concluded that there is an effect of Cupping Therapy on blood pressure in people with hypertension in the working area of central city health center.

### DISCUSSIONS

#### 1. Blood Pressure before being given Cupping Therapy in the Working Area of Gorontalo City Central City Health Center

Based on the results of the study showed that people with hypertension who were in the working area of puskesmas with a pre-hypertension classification as many as 9 people (30%), the degree I as many as 12 people (40%), and degree II as many as 9 people (30%). Prior to cupping therapy intervention, the average systolic blood pressure was 151.57 mmHg and diastolic blood pressure was 94.87 mmHg.

According to the assumption of researchers, the occurrence of hypertension in respondents in the working area of the central city health center is influenced by age and gender factors. It was shown that out of 30 respondents there were 23 respondents who belonged to the classification of final adult age, early elderly, and late elderly. According to researchers, along with age, there is a decrease in cardiovascular function in the form of narrowing of blood vessels that can increase blood pressure, causing hypertension.

Hypertension is a multifactor disease caused by interaction as a risk factor experienced by a person. Age causes physiological changes in the body such as the thickening of artery walls due to the buildup of collagen substances in the muscle layer, so that blood vessels will narrow and become stiff starting at the age of 45 years.

Research from Febby Hendra (2012) shows a relationship between age and the incidence of hypertension. This is due to arterial pressure that increases with age, the occurrence of aortic regurgitation, and the presence of degenerative processes that are more frequent in old age.

In line with the theory mentioned by Novataningtyas (2014) that increasing age results in increased blood pressure, because the artery walls in old age (elderly) will experience thickening that results in a buildup of collagen substances in the muscle layer, so that blood vessels will gradually narrow and become stiff, therefore blood at each heart rate is forced to go through narrower blood vessels than usual and cause blood pressure to rise.

Based on gender, most of the respondents with hypertension were male. According to researchers, it is related to the duties and responsibilities of men as the head of the ladder who are responsible for providing a living, and work too hard so that they are often prone to stress.

This is in line with the theory of Sari (2016) which explains that sex is one of the factors that affect blood pressure that cannot be changed. Men are more likely to suffer from hypertension compared to women. This happens because of the suspicion that men have a less healthy lifestyle when compared to women. In addition, men are also unable to withstand too heavy a burden. However, the prevalence of hypertension in women also increases after entering the age of menopause. This is due to hormonal changes experienced by women who have menopause.

The high risk of men experiencing hypertension as found from the results of this analysis is in line with the findings of Zamhir Setiawan (2006) in Alfian Rahman (2016) where men are more likely to experience hypertension than women often triggered by unhealthy behaviors (smoking and alcohol consumption), depression and low employment status, feeling uncomfortable at work and unemployment.

The prevalence of hypertension in men is almost the same as in women. But women are protected from cardiovascular disease before menopause. Women who have not gone through menopause are protected by estrogen hormones that play a role in increasing high-density lipoprotein (HDL) levels.

#### 2. Blood Pressure After Being Given Cupping Therapy in the Working Area of Gorontalo City Central Health Center

The results showed that after being given cupping therapy interventions were obtained by hypertensive patients who had their blood pressure back in the normal classification as many as 1 respondent (33.33%), the pre-hypertension classification as many as 12 respondents (40%), the classification of hypertension degree I as many as 13 respondents (43.34%) and the classification of hypertension degree II as many as 4 people (13.33%). After cupping therapy intervention, the average systolic blood pressure became 143.3 mmHg and diastolic became 91.1 mmHg.

According to researchers, the decrease in blood pressure in people with hypertension in the working area of the Central City Health Center can occur because cupping plays a role in lowering the volume of blood that drains

blood in blood vessels thereby reducing the blood pressure of people with hypertension. In addition, researchers also argue that due to incisions in the skin, under-skin tissue, and muscles at the time of the debriefing procedure, there will be damage to mast cells, as a result of which there will be the release of some substances such as serotonin, histamine, bradykinin, and other substances that cause capillary dilation to cause blood vessel microcirculation to be smooth as a result of muscles that are initially stiff will become relaxed so that blood pressure becomes relaxed or stable.

The researcher's assumption is in line with the theory that the effect of cupping therapy on hypertension includes: cupping playing a role in calming the sympathetic nervous system. This upheaval in the sympathetic nervous system stimulates the secretion of enzymes that act as angiotensin renin systems. Once this system calms down and its activity is reduced blood pressure will drop. Cupping plays a role in reducing the volume of blood flowing in blood vessels thereby reducing blood pressure (Sharaf, 2012).

Other studies have shown that the debriefing of the skin surface will stimulate the skin's surface nerves which will be continued in the posterior cornu medulla spinalis through the A-delta and C nerves, as well as the thalamicus spino thalamicus tractus towards the thalamus which will produce endorphins. While some other stimuli will be passed through sympathetic afferent fibers to the motor neurons and cause reflexes of pain intubation. Other effects are dilation of skin blood vessels and increased work of the heart (Umar, 2008).

### 3. Effect of Cupping Therapy On Blood Pressure In People with Hypertension In Central City Health Center Work Area

The results of the paired sample t-test showed that systolic blood pressure gets at count of 18,808 and  $p$  value 0.000 and at systolic blood pressure t count of 16,624 and  $p$  value 0.000. With the fulfillment of the statistical hypothesis that  $t$  calculated  $>$   $t$  table (2,144) and  $p$  value (0.05), it can be concluded that there is an effect of Cupping Therapy on Blood Pressure in People with Hypertension in the Central City Health Center Work Area.

According to researchers, the significant influence is caused because Cupping Therapy is a method of treatment by removing dirty blood from the body through the surface of the skin by sucking and also cupping plays a role in lowering the volume of blood that drains blood in blood vessels thereby reducing the blood pressure of people with hypertension. In addition, researchers also argue that due to incisions in the skin, under-skin tissue, and muscles at the time of the debriefing procedure, there will be damage to mast cells, as a result of which there will be the release of some substances such as serotonin, histamine, bradykinin, and other substances that cause capillary dilation to cause blood vessel microcirculation to be smooth as a result of muscles that are initially stiff will become relaxed so that blood pressure becomes relaxed or stable.

In addition, the most important thing is the release of the Corticotropin-Releasing Factor (CRF) and the release of other factors by adeno hypophysis. CRF will further lead to the formation of ACTH, corticotropin, and corticosteroids.

These corticosteroids have the effect of curing inflammation and stabilizing cell permeability. While the histamine group causes benefits in the process of repairing damaged cells and tissues and spurring the formation of Reticulo Endothelial Cell, which will increase the resistance (endurance) and immunity (immunity) of the body.

Some theories explain local control of blood vessels, namely there are several chemical mediators released by cells that can bind to meta-arterioles or precapiler sphithers, causing closure or opening of blood flow. Chemicals released by blood vessels or by inflammatory or healing mediators that affect blood flow to an area, such as histamine are excreted in every tissue of the body if the tissue is damaged or inflamed and plays a role in allergic reactions. This substance has a strong vasodilator effect against arterioles and has the ability to greatly increase capillary permeability resulting in leakage of fluid and plasma proteins into the tissues.

Another mediator is Serotonin, a monoamine neurotransmitter synthesized in serotonergic neurons in the central nervous system and enterochromaffin cells in the digestive tract. Serotonin is secreted by platelets that are attracted to the inflammatory area. The effects of serotonin can be as vasodilators and vasoconstrictors, depending on the place of release. Serotonin's functions include regulating mood, appetite, sleep, and muscle contractions. Bradikinin, likewise, is a small polypeptide that serves as a powerful vasodilator for arterioles and increases capillary permeability. Bradykinin is produced in plasma or interstitial fluid from enzymatic decomposition of serum globulin in response to inflammation or tissue or vascular injury. With armed there is a fight on cardiovascular regulators, especially in peripheral resistance. Through the effects that occur due to cupping.

The results of another study in line with this study are by Rahman (2016) where the results of cupping therapy on blood pressure after cupping using the Wilcoxon test on cystol and diastole showed a  $p$ -value of 0.000 which means the value of  $p < 0.05$  indicates an effect on changes in blood pressure after being given a cupping therapy intervention.

## 4. CONCLUSION

Based on the results of research on "The Effect of Cupping Therapy on Blood Pressure in People with Hypertension in the Central City Health Center Work Area", it can be concluded as follows:

1. Blood Pressure Before Cupping Therapy is Pre-hypertension (30%), Hypertension degree I (40%) and Hypertension degree II (30%).
2. Blood Pressure After Cupping Therapy is normal (33.33%), Pre-hypertension (40%), Hypertension Degree I (43.34%), and Hypertension Degree II (13.33%).
3. There is an effect of Cupping Therapy on blood pressure reduction in people with hypertension in the working area of Central City Health Center with  $p = 0.000 < \alpha = 0.01$ .

Suggestion:

1. May it continue to develop the insights of nursing science that is owned including hypertension and its management, and can be applied in nursing practice in the future.
2. May be able to do non-pharmacological therapy that is cupping therapy is routine to lower blood pressure.
3. May the results of this study be accepted and used as lecture material for students that non-pharmacological therapy that can be done in hypertensive patients one of which is cupping therapy and many benefits that can be obtained in cupping therapy.

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