

ORIGINAL ARTICLE

Nursing Intervention in Decrease of Blood Cholesterol and Blood Pressure in The Lansia Group Provided Cupping Therapy in The Village of Wedomartani Sleman

SUWARSI

*Nursing Science, Respati University of Yogyakarta*Corresponden author to Suwarsi : umisuwarsi@gmail.com**ABSTRACT**

Background: Much alternative therapy such as cupping therapy in the community as one of the cheap treatment efforts without side effects makes the challenge and the goal for nursing staff improve nursing services. The unfinished scientific verification of cupping therapy's alternative therapy makes nurses need to prove decreased blood pressure and cholesterol levels in the elderly.

Objective: Scientific proof of cholesterol and blood pressure decrease after Cupping Therapy in an elderly group in Wedomartani Village, Sleman Yogyakarta Indonesia.

Method: quantitative type with pseudo experimental research design. Pre-test and Post-test nonequivalent control group. The treatment group was given wet cupping therapy, while the control group was given dry cupping. Respondents were selected using a purposive sampling technique. Blood pressure measurement uses a digital tensimeter and cholesterol measurement using a digital blood cholesterol level measuring device.

Results: The elderly blood cholesterol levels after the average therapy decreased 42.89 mg/dl, whereas blood cholesterol levels in the control group decreased an average of 20.95 mg/dl. The blood pressure of the elderly systole in the intervention group after the average therapy decreased 10.74 mmHg, whereas the control group's systole blood pressure decreased an average of 1.58 mmHg. Diastole blood pressure in the treatment group decreased 3,48 mmHg, in the diastole blood pressure control group increased 5,26 mmHg.

Conclusions: Wet and dry cupping are both significantly associated with decreased blood cholesterol and blood pressure levels, but wet cupping lowers blood cholesterol levels by a mean difference of 21.95 mg/dl and mean systole blood pressure of 3.74 mmHg and pressure diastole blood difference of mean 9.1 mmHg.

Keyword: Blood Pressure. Cupping Therapy, Cholesterol, Elderly

INTRODUCTION

Indonesia has 19.874 cases of primary hypertension under the care of the hospital (inpatients) and 955 deaths. In 2010, those who are under the caring of the hospital (outpatients) were 80615 people (Health Ministry of Indonesia, 2011), and the hypertension prevalence based on the measurement of the Indonesian people's blood pressure result is 31, 7% [1]. The hypertension suspects in Klaten are around 10, 49%. The condition needs consideration and treatment so that the dangerous illness complication does not happen. One of the suspects' efforts of cardiovascular disease such as hypertension and atherosclerosis is cupping therapy because of the increase of the cholesterol or blood sugar. Cupping therapy is a Malay term; in Arabic, it is called *Hijamah*, and Chinese people call it *Guasha*, while Indonesian people call it *Cantuk* or *Kop* [2]. The Indonesian Moslem believes this therapy is the method recommended by the prophet to cure the illness. The therapist also uses it to diagnose the patients' illness [3]. Based on the author's preliminary study on the 10th of March 2017 on the older adults in Wedomartani, it is found that the older adults in Tonggalan are 51 that is the largest number in Wedomartani so that the author chooses it as the research place. In the preliminary study, it can be found that there are two from 5 older people who get high blood cholesterol, and three from 5 older adults get hypertension. Based on the interview, they also say that they never get cupping therapy.

METHODS

This research is quantitative, especially *quasi*-experiment with Pre-test and Post-test nonequivalent control group design. In this research, before the treatment is given, the experiment group respondents (R_1) and the control group respondents (R_2) are given the pretest to measure the beginning condition. After the pretest is administered to the groups, the treatment is given to the experiment group (X). Then, after the treatment, the experiment group (O_1) and the control group (O_2) were given a post-test. This research was conducted in Wedomartani (Puskesmas Ngemplak II Sleman Yogyakarta) in May-August 2018. The samples in this research are the older people in Wedomartani Sleman who increase the blood cholesterol and blood pressure with age ≥ 60 years old, no heart illness, breathe problems, lung illness, and post-operation. The sampling technique used is purposive sampling based on the research sampling criteria.

RESULT

Based on the invariant analysis result in table 1, it can be found that there is the deviation of total blood cholesterol mean before and after conducting the wet cupping therapy which decreases by 42, 9, with the P-value is 0,000, which means that there is a significant correlation between the given of wet cupping therapy and the decrease of the total blood cholesterol among the elderly.

Table 1. The Mean Distribution of the Total Blood Cholesterol of the Old People Given a Wet Cupping Therapy in Wedomartani in 2018 (N=19)

The amount of total blood cholesterol	Mean	Mean deviation	Std.Error Mean	P-value
Blood cholesterol PRE	224,26	42,9	7,29	0,000
Blood cholesterol POST	181,37		5,93	

Based on the *Univariate* analysis result in table 2, it can be found that the deviation of the mean of the total blood cholesterol before and after applying the dry cupping therapy decreases by 20.95. The P-value is 0, 04 means that there is a significant correlation between dry cupping therapy and the decrease of the total blood cholesterol among the elderly.

Table 2. The Mean Distribution of the Total Blood Cholesterol of the Old People Given a Dry Cupping Therapy in Wedomartani in 2018 (N=19)

The amount of total blood cholesterol	Mean	Mean Deviation	Std.Error Mean	P-value
Blood cholesterol PRE	178,84	20,95	12,67	0,04
Blood cholesterol POST	157,89		8,67	

Based on the *Univariate* analysis result in table 3, it can be found that the deviation of the systole means before and after applying the wet cupping therapy decreases by 10,74. The P-value is 0, 04 means that there is a significant intervention correlation between wet cupping therapy and decreased total systole blood among the elderly.

Table 3. The Mean Distribution of the Systole Blood after Wet Cupping Therapy among the Elderly in Wedomartani in 2018 (N=19)

The amount of total blood cholesterol	Mean	Mean Deviation	Std.Error Mean	P-value
Systole Blood Pressure PRE	139,74	10,74	3,88	0,04
Systole Blood Pressure POST	129,00		4,50	

Based on the *univariate* analysis result in table 4, it can be found that there is a deviation difference of systole blood pressure before and after applying the dry cupping therapy that decreases by 0,765. It means that there is no significant intervention correlation between the given dry cupping therapy and the decrease of the total systole blood among the elderly.

Table 4. The Mean Distribution of the Systole Blood Pressure among the Elderly after Dry Cupping Therapy in Wedomartani in 2018 (N=19)

The amount of total blood cholesterol	Mean	Mean Deviation	Std. Error Mean	P-value
Systole Blood Pressure PRE	125,79	1,58	4,2	0,765
Systole Blood Pressure POST	124,21		2,9	

Based on the *Univariate* analysis result in table 5, it can be found that there is a deviation difference of diastole

blood pressure before and after applying the wet cupping therapy that decreases by 3,48, with the P-value is 0,01, which means that there is a significant correlation between the given of wet cupping therapy and the decrease of the total diastole blood pressure among the elderly.

Table 5. The Mean Distribution of the Diastole Blood Pressure Old People Given a Wet Cupping Therapy in Wedomartani in 2018 (N=19)

The amount of total blood cholesterol	Mean	Mean Deviation	Std.Error Mean	P-value
Diastole Blood Pressure PRE	84,95	3,48	2,595	0,01
Diastole Blood Pressure POST	81,47		2,711	

Based on the *Univariate* analysis result in table 6, it can be found that there is a deviation difference of diastole blood pressure before and after applying the dry cupping therapy that increases by 5, 26, with the P-value is 0, 104 which means that there is not a significant correlation between the given of dry cupping therapy and the decrease of the total diastole blood pressure among the elderly.

Table 6. The Mean Distribution of the Diastole Blood Pressure Old People Given a Dry Cupping Therapy in Wedomartani in 2018 (N=19)

The amount of total blood cholesterol	Mean	Mean Deviation	Std. Error Mean	P-value
Diastole Blood Pressure PRE	78,95	-5,26	42,008	0,104
Diastole Blood Pressure POST	84,21		1,763	

DISCUSSION

Based on the invariant analysis result in table 1, it can be found that there is the deviation of total blood cholesterol mean before and after conducting the wet cupping therapy which decreases by 42, 9, with the P-value is 0,000, which means there is a significant correlation between the given of wet cupping therapy and the decrease of the total blood cholesterol among the elderly. Based on table 1, it can be concluded that there is a mean deviation of the amount of the total blood cholesterol after the wet cupping therapy is given, which is 42, 9 mg/dl. The decrease of the total amount of blood cholesterol in this research is more than Rini's research findings [4]. The wet cupping therapy can also decrease the cholesterol amount by 2, 6 mg/dl. The wet cupping therapy intervention in this research is conducted through small punctures in the area, which is already cupped based on Kim's theory [5]. This states that cupping therapy or hijamah (the other terms are canduk and kop) is a therapy aiming at cleaning the body from the toxic-contaminated blood through small punctures on the skin's surface. The released toxic is the part of the total LDL cholesterol, which is usually called the bad cholesterol. LDL distributes the cholesterol in the liver to the whole body cells. The LDL cholesterol can stick to the blood vessels wall, which can cause the blood vessel plug. Too much LDL circulated in the blood causes the stacked of LDL around the artery wall, detaining the blood's oxygen and nutrition entrance, which will be distributed to the

whole body [6]. Hypercholesterolemia is a medical illness that can be cured through cupping therapy [7]. The amount of the total blood cholesterol before the treatment given in this research is 224 mg/dl, which belongs to the middle level, after the wet cupping therapy; it becomes 118 mg/dl, which belongs to the average level—the decrease of the blood cholesterol category from the high to the middle level [8]. The Mean blood cholesterol amount before the intervention is 283 mg/dl, and after the intervention of the wet cupping therapy is 244 mg/dl, or it decreases by 39 mg/dl. The decrease of the total amount of the blood cholesterol after the intervention happens because the wet cupping therapy releases the toxic, in line with the statement proposed by Al-Bedah, which explains that the wet cupping therapy is a cupping process with making slices to release the blood in the epidermal capillary and the pathogen from the outside such as wind, heat, fire, and static blood [9].

The wet cupping therapy in this research significantly decreases the amount of total blood cholesterol with a P-value is 0,004; it is in accordance to the Tagil [10], related to the giving of the therapy conducted in the median spots to decrease the high cholesterol, which involves (1) KHL/ the spot under the back neck, (2) UN2/ The spots in the neck, face from the back, (3) UN3, (4) AK1/ The spots on the shoulders, and (5) AK2/ The spots on the shoulders. Sayet et al. (2014) mention that the steps of the wet cupping therapy are known as “Tripel S” (suction, skin scarification, and second suction). Suction means the suction on the skin surface. Skin Scarification is a wounding procedure on the skin surface. Second, suction means the suction of the wounded parts. The significance of the decrease of the amount of the total blood cholesterol is appropriate to Cao’s statement, which explains the working mechanism of the cupping therapy based on the modern medicine that on the skin, muscles, or fascia, there is one point for one spot which has a unique characteristic where from one spot to another related spot, there is endways and cross lines forming a web [11]. One Taibah cupping therapy theories explain CPS (Causative Pathological Substance), which is dissolved in the blood serum. If the amount of it is too much, it can cause illness. This theory says through cupping therapy, and the serum excess will be released. It involves blood cholesterol, triglyceride, glucose, uric acid, ion surplus, ferritin in thalassemia, etc. In this research, dry cupping therapy also significantly decreases the amount of the total blood cholesterol. It is following de Graaf which says that it happens because of the unique point, which is the “*motor points*” in neuromuscular attachment containing many *mitochondria*, many blood vessels, high *myoglobin*, and most of the cells using oxidative metabolism and containing more *cell mast*, capillary, *venula*, lymph glands, bundle, and neural plexus, and the last neuron ends [12]. Western medical science proves that if the cupping therapy is conducted in a skin spot, the part under the skin, fascia, and the muscles, the damage of the *cell mast*, and so on will happen. In this research, compared to the decrease in the mean of the total blood cholesterol gained from the dry cupping therapy, the decrease gained from the wet cupping therapy is 20 mg/dl higher than what is gained from the dry cupping therapy. The dry cupping therapy only releases the

wind, fire, and heat, different from the wet cupping therapy, which releases pathogen substances such as blood cholesterol.

Tables 3 and 5 show that the mean of the older adults' systole and diastole blood pressures given the wet cupping therapy significantly decreases; the systole blood pressure can decrease by 10,74. In contrast, the diastole blood pressure decreases by 3,48, with the significance value is less than 0,05. This research shows similar findings to Lu's research, which mentions that cupping therapy can significantly decrease systole blood pressure [13]. This research finding is also supported by the relevant study conducted by Al-Tabakha, which shows that the cupping therapy interventions conducted even just once can decrease blood pressure [14]. The other research states that cupping therapy is also useful for hypertension patients [15]. Aboushanab states that one of the cupping therapy benefits is curing cardiovascular illnesses such as hypertension (excreting excess serum fluid and vasoconstrictors) [16]. The cupping therapy intervention is conducted to the cupping spots in the head or around the neck. The particular point, which is the “*motor points*” in neuromuscular attachment, contains many *mitochondria*, many blood vessels, high *myoglobin*, and most of the cells using *oxidative* metabolism, and containing more *cell mast*, capillary, *venula*, lymph glands, bundle, and neural plexus, and the last neuron ends. Western medical science proves that if the cupping therapy is conducted in a skin spot, the part under the skin, fascia, and the muscles, the damage of the *cell mast*, and so on will happen. The effect of the cell mass damage is the release of several substances such as *serotonin*, *histamine*, *bradykinin*, and slow-reacting substance (SRS). Those substances cause capillary and arterial dilatation and flare reactions in the cupped area. Capillary dilatation can also happen far from the cupped area, causing the blood vessel microcirculation repairmen so that the muscle relaxation effect happens. Because of the general vasodilatation, the blood pressure will move to a stable level. The cupping therapy is indicated to cure the illness maximally or partially through cleaning the blood and the interstitial room from the CPS through the *ekskresion* of too much intravascular liquid. One of the illnesses with the increase of the extracellular and interstitial liquid volume is hypertension [17]. Tables 4 and 6 show no significant correlation between dry cupping therapy intervention and the decrease of both systole and diastole blood pressure with a P-value is more than 0.05. This result is similar to the research conducted by Al Bedah, which mentions that there is no significant correlation between cupping therapy and hypertension [9]. It may be caused by the fact that dry cupping therapy is cupping using pumps without releasing the blood. Rozenfeld states that dry cupping therapy only releases the pathogen from the wind, fire, and heat. The effect of cell mass damage is the release of several substances such as *serotonin*, *histamine*, *bradykinin*, and *slow-reacting substance* (SRS) [18]. Those substances cause capillary and arterial dilatation and flare reactions in the cupped area. Capillary dilatation can also happen far from the cupped area, causing the blood vessel microcirculation repairmen so that the muscle relaxation

effect happens. Because of the general vasodilation, the blood pressure will move to a stable level.

CONCLUSION

The amount of the older adults' blood cholesterol in the experimental group after the therapy decreases by 42, 89 mg/dl. In contrast, the control group's blood cholesterol level tends to decrease by 20, 95 mg/dl. The older people's systole blood pressure in the experimental group after the therapy decreases by 10, 74 mmHg, while the control group's systole blood pressure tends to decrease by 1, 58 mmHg. The experiment group's diastole blood pressure decreases by 3,48 mmHg, while in the control group, it increases by 5,26 mmHg. Both wet and dry cupping therapy significantly decreases the amount of blood cholesterol and blood pressure. However, the wet cupping therapy decreases the blood cholesterol with a mean deviation of 21, 95 mg/dl, and the mean deviation of the systole blood pressure is 3, 74 mmHg, and the diastole blood pressure with the mean deviation is 9, 1 mmHg.

REFERENCES

1. Y. Christiani, J. E. Byles, M. Tavener, and P. Dugdale, "Assessing socioeconomic inequalities of hypertension among women in Indonesia's major cities," *J. Hum. Hypertens.*, vol. 29, no. 11, pp. 683–688, Nov. 2015, doi: 10.1038/jhh.2015.8.
2. M. Arslan, N. Yeşilçam, D. Aydın, R. Yüksel, and Ş. Dane, "Wet Cupping Therapy Restores Sympathovagal Imbalances in Cardiac Rhythm," *J. Altern. Complement. Med.*, vol. 20, no. 4, pp. 318–321, Apr. 2014, doi: 10.1089/acm.2013.0291.
3. P. Mehta and V. Dhapte, "Cupping therapy: A prudent remedy for a plethora of medical ailments," *J. Tradit. Complement. Med.*, vol. 5, no. 3, pp. 127–134, Jul. 2015, doi: 10.1016/j.jtcme.2014.11.036.
4. et al Rini, "Gambaran kadar kolesterol pasien yang mendapatkan terapi bekam.," *JOM PSIK*, vol. Vol. 1, 2014.
5. J.-I. Kim *et al.*, "Evaluation of wet-cupping therapy for persistent non-specific low back pain: a randomised, waiting-list controlled, open-label, parallel-group pilot trial," *Trials*, vol. 12, no. 1, p. 146, Dec. 2011, doi: 10.1186/1745-6215-12-146.
6. S. Mosig *et al.*, "Different functions of monocyte subsets in familial hypercholesterolemia: potential function of CD14 + CD16 + monocytes in detoxification of oxidized LDL," *FASEB J.*, vol. 23, no. 3, pp. 866–874, Mar. 2009, doi: 10.1096/fj.08-118240.
7. L. A. M. R. M. D. O. M. Al-Sabaawy, "Effect of Wet Cupping on Serum Lipids Profile Levels of Hyperlipidemic Patients and Correlation with some Metal Ions," *Rafidain J. Sci.*, vol. 23, no. 5, pp. 128–136, 2012, doi: 10.33899/rjs.2012.60009.
8. P. S. Collaboration, "Blood cholesterol and vascular mortality by age, sex, and blood pressure: a meta-analysis of individual data from 61 prospective studies with 55 000 vascular deaths," *Lancet*, vol. 370, no. 9602, pp. 1829–1839, Dec. 2007, doi: 10.1016/S0140-6736(07)61778-4.
9. A. M. N. Al-Bedah *et al.*, "The medical perspective of cupping therapy: Effects and mechanisms of action," *J. Tradit. Complement. Med.*, vol. 9, no. 2, pp. 90–97, Apr. 2019, doi: 10.1016/j.jtcme.2018.03.003.
10. S. M. Tagil *et al.*, "Wet-cupping removes oxidants and decreases oxidative stress," *Complement. Ther. Med.*, vol. 22, no. 6, pp. 1032–1036, Dec. 2014, doi: 10.1016/j.ctim.2014.10.008.
11. H. Cao, M. Han, X. Zhu, and J. Liu, "An overview of systematic reviews of clinical evidence for cupping therapy," *J. Tradit. Chinese Med. Sci.*, vol. 2, no. 1, pp. 3–10, Jan. 2015, doi: 10.1016/j.jtcms.2014.11.012.
12. J. de Graaf *et al.*, "Consumption of tall oil-derived phytosterols in a chocolate matrix significantly decreases plasma total and low-density lipoprotein-cholesterol levels," *Br. J. Nutr.*, vol. 88, no. 5, pp. 479–488, Nov. 2002, doi: 10.1079/BJN2002690.
13. S. Lu, S. Du, A. Fish, C. Tang, Q. Lou, and X. Zhang, "Wet cupping for hypertension: a systematic review and meta-analysis," *Clin. Exp. Hypertens.*, vol. 41, no. 5, pp. 474–480, Jul. 2019, doi: 10.1080/10641963.2018.1510939.
14. M. Al-Tabakha, F. Sameer, M. Saeed, R. Batran, N. Abouhegazy, and A. Farajallah, "Evaluation of bloodletting cupping therapy in the management of hypertension," *J. Pharm. Bioallied Sci.*, vol. 10, no. 1, p. 1, 2018, doi: 10.4103/jpbs.JPBS_242_17.
15. N. A. Aleyeidi, K. S. Aseri, S. M. Matbouli, A. A. Sulaiamani, and S. A. Kobeisy, "Effects of wet-cupping on blood pressure in hypertensive patients: a randomized controlled trial," *J. Integr. Med.*, vol. 13, no. 6, pp. 391–399, Nov. 2015, doi: 10.1016/S2095-4964(15)60197-2.
16. T. S. Aboushanab and S. AlSanad, "Cupping Therapy: An Overview from a Modern Medicine Perspective," *J. Acupunct. Meridian Stud.*, vol. 11, no. 3, pp. 83–87, Jun. 2018, doi: 10.1016/j.jams.2018.02.001.
17. H. Kobori, M. Nangaku, L. G. Navar, and A. Nishiyama, "The Intrarenal Renin-Angiotensin System: From Physiology to the Pathobiology of Hypertension and Kidney Disease," *Pharmacol. Rev.*, vol. 59, no. 3, pp. 251–287, Sep. 2007, doi: 10.1124/pr.59.3.3.
18. E. Rozenfeld and L. Kalichman, "New is the well-forgotten old: The use of dry cupping in musculoskeletal medicine," *J. Bodyw. Mov. Ther.*, vol. 20, no. 1, pp. 173–178, Jan. 2016, doi: 10.1016/j.jbmt.2015.11.009.