

The Effect of Foot Reflection Massage to Decrease in Blood Pressure of Hypertensive Client in the Area of Community Health Centre Central City Gorontalo

¹Kartin L. Buheli | ²Lisdiyanti Usman

^{1,2} Department of Nursing,

Health Polytechnic of Ministry of Health, Gorontalo

Email: usmanlisdiyanti@gmail.com

Abstract

Foot reflection massage were points in the soles of the feet in relation with all body organs, starting from urinary bag, intestine, stomach, liver, kidney, spleen, pancreas, until heart. The data obtained during initial data collection in the area of Community Health Centre Central City to hypertensive clients was 969 hypertension cases, with 290 men and 679 women. This research aimed to know the effect of foot reflection massage to decrease in blood pressure of hypertensive clients in the working area of Community Health Centre Central City Gorontalo. This research design was quasi-experimental with one group design pre-post-test research type, with 30 respondents as the sampling. This research was held on 20 August – 17 November 2017, and the data collection was done by observation to hypertensive clients. The research result showed that after foot reflection massage in pre-post systolic test, there was a decrease of 12,5 mmHg and a decrease of 5,6 mmHg in pre-post-test diastolic. Based on analysis test by using paired sample T test, there was a significant effect of foot reflection massage to blood pressure decrease in hypertensive clients in the area of Community Health Centre Central City Gorontalo.

Keywords: Reflection massage, Foot, Blood Pressure, Hypertension

1.0 INTRODUCTION

In the scope of cardiovascular disease, hypertension took the first place with most sufferers (Triyanto, 2014). Hypertension was a condition of blood pressure increase which gave symptoms that would continue to a target organ like stroke (for brain), coronary heart disease (for heart blood vessels) and right ventricular hypertrophy / left ventricle hypertrophy (for cardiac muscle), (Bustan, 2007). Hypertension or high blood pressure was very variate according to how someone looked at it. It was generally called silent killer also by suddenly killing someone without recognizing the symptoms first (Susilo and Wulandari, 2011). World Health Organization (WHO) recorded that at least 839 million hypertension cases happened in 2012, estimated to be 1,15 billion in 2025 or about 29% from total world population, which female sufferers were more (30%) than male (29%). About 80% of hypertension cases increase happened especially in developing countries. The prevalence of hypertension Indonesia reached 31,7% from the population of 18 years old and above. From that total, 60% of hypertension sufferers experienced stroke complication. Meanwhile the rest experienced heart disease, kidney failure, and blindness. Hypertension as the third death cause after stroke and tuberculosis, the total had reached 6,8% from the proportion of death cause at all ages in Indonesia (Riskseddas, 2010 in Triyanto, 2014).

In Gorontalo the proportion of highest maternal death cause was hypertension as much as 28,8% (15 people) and bleeding as much as 21,2% (11 people), other causes were infection 7,7% (4 people), abortion 1,9% (1 person), old parturition 1,9% (1 person). Meanwhile for other death causes was as much as 38,5% (20 people), (Health Profile of Gorontalo Province 2013). Based on the initial data from Community Health Centre Central City Gorontalo there were 969 hypertension cases, with 290 men and 679 women. From the initial data that was obtained temporarily it could be seen that clients with hypertension cases were more dominated by women (Data from Community Health Centre Central City, 2017). Massage therapy was one of the non-pharmacological therapies that could decrease hypertension. Generally, massage was used to produce relaxation, so that all tension as the cause of daily activities could be relaxed and eliminated. Massage was proved to be very effective either to treat hypertension sufferers, sinusitis, headache, insomnia, hyperactivity. Also for them who suffered blood circulation disorder, heart disorder, and stroke (Mangoenprasodjo & Hidayati, 2005).

2.0 METHODOLOGY

This research used pre experimental design with one group design pre-post test as the type of design used, which all samples were given treatment. It was held in the area of Community Health Centre Central City Gorontalo from 20 August – 17 November 2017 in Community Health Centre Central City Gorontalo. The population in this research was every subject that fulfilled characteristics and suffered hypertension in the area of Community Health Centre Central City Gorontalo. The total research samples done were 30 respondents. In which 30 treatment samples

were given foot massage intervention by using purposive sampling technique, which was by setting samples based on certain consideration made by the researcher based on the population characteristic or nature that had been known previously (Notoatmodjo, 124;2012), And the sample criteria's used were:

1. Hypertension sufferers
2. Clients with the age of 40-65 years' old
3. Female clients
4. Willing to be respondents and signed informed consent
5. Clients who didn't consume medicine antihypertensive drugs in the last week.

3.0 RESULTS AND DISCUSSIONS

3.1 Univariate Analysis

Respondent characteristic distribution based on the age in the area of Community Health Centre Central City Gorontalo.

Table 1 Respondent Characteristic Based on Age in 2017

Age	Total	Percentage (%)
40-48 years' old	3	10,0
49-57 years' old	10	33,3
58-65 years old	17	56,7
Total	30	100,0

Based on the Table above it could be seen that respondent distribution based on most age was those with the age of 58-65 years old with the total of 17 respondents (56,7%).

Blood pressure before and after foot reflection massage was given to hypertension clients in the sub-district of Central City Gorontalo could be seen in the following Table 2:

Table 2 Blood Pressure Change of Respondent Pre-Post Test Year 2017

No	-Blood Pressure (mmHg)			
	Systolic		Diastolic	
	Before	After	Before	After
1	157	143	107	97
2	177	173	117	113
3	143	133	90	83
4	147	127	107	97
5	147	137	93	87
6	140	120	93	90
7	133	130	93	90
8	130	120	90	87
9	177	157	100	100
10	163	153	107	100
11	207	178	100	97
12	160	150	93	93
13	160	140	93	87
14	167	157	97	90
15	150	140	97	90
16	160	153	97	90
17	153	143	97	83
18	200	190	93	93
19	167	163	103	90
20	163	153	97	90
21	150	137	93	87
22	177	157	113	100
23	193	180	100	93
24	143	123	93	90
25	147	133	90	87

26	163	150	93	90
27	147	130	97	97
28	157	147	87	83
29	170	157	93	87
30	170	157	93	87
Total	4818	4431	2916	2748
Average	160,6	147,7	97,2	91,6

Based on table 2 above it showed that the average of systolic in blood pressure before foot reflection massage intervention was 160,6 mmHg, after foot reflection massage intervention was done, it decreased into 147,7 mmHg with 12,9 mmHg systolic difference before and after foot reflection massage intervention.

The average of diastolic in blood pressure before foot reflection massage intervention was 97,2 mmHg, and after foot reflection massage intervention it decreased into 91,6 mmHg with diastolic difference before and after foot reflection massage intervention of 5,6 mmHg.

3.2 Bivariate Analysis

In analyzing data paired sample T- test was done which was comparing blood pressure pre and post foot reflection massage.

Table 3 Paired Sample T- test Result

	Before	After	Sig (2tailed)
Sistole	Mean 160,60±18,22	Mean 147,70 ± 17,788	0,000
Diastole	Mean 97,20 ± 7,049	Mean 91,60 ± 6,393	

From statistical test result in the table above, it was known that the mean of systolic blood pressure before foot reflection massage was 160,60, after foot reflection massage it became 147,70. Meanwhile diastolic blood pressure before foot reflection massage was done was 97,20, after foot reflection massage it became 91,60.

Paired T test result obtained p-value 0,000 (<0,005) which meant that there was a difference between systolic and diastolic blood pressure before and after foot reflection massage therapy was done. Therefore, it could be stated that foot reflection massage therapy affected blood pressure change.

3.3 Blood pressure before foot reflection massage was given to hypertension clients in the area of Community Health Centre Central City Gorontalo.

Based on the table of pre-posttest respondent blood pressure change that the mean or average of systolic blood pressure was 160,6 mmHg. Before intervention was done the diastolic blood pressure was 97,2 mmHg. This blood pressure level before foot reflection massage done had the relation with the respondent's age. In this research, respondents with the age of 58-65 years old (56,7%) were the most age. In accordance with the opinion from Triyanto (2014), which the age factor was very influential to hypertension because with the increase of age then the risk of hypertension would increase too. The incidence of hypertension would increase by the increase of age. This was caused by natural changes in body that affected heart, blood vessels, and hormone.

The higher the age of a person the higher the blood pressure was, so older people tended to have higher blood pressure than young people so that the prevalence of blood pressure increase happened more to older people. This thing happened because of side product from arteriosclerosis wear and main arteries especially aorta and as a result of reduced flexibility. By hardening these arteries and became stiffer, that artery and aorta lost the power of adjustment (Hanns Peter, 2009).

In accordance with the theory expressed by (Triyanto, 2014) the definite cause from essential hypertension currently was not yet known. About 90% of hypertension sufferers were classified into essential hypertension meanwhile the other 10% were classified into secondary hypertension. Genetic and race were parts that became the causes of primary hypertension, included other factors such as stress factor, alcohol intake, smoking, environment, demography, and life style.

3.4 Blood pressure after foot reflection massage therapy was given to hypertension clients at Community Health Centre Central City Gorontalo

Based on the table of respondent blood pressure pre-posttest change that the mean or average of systolic after intervention was done for 147,7 mmHg. The average of diastolic blood pressure after intervention done was 91,6 mmHg. The result of respondent interview of foot reflection massage intervention, the researchers obtained data that foot reflection massage had never been done to respondents. Hypertension clients that were made respondents after foot reflection massage was done experienced decrease in blood pressure.

The treatment of hypertension was divided into 2 types which were pharmacological and non-pharmacological. Non-pharmacological therapy was a therapy without using drug agent in the therapy process, but pharmacological therapy used drugs or compounds which could affect the client's blood pressure (Triyanto,2014). Other therapies were also known in hypertension therapy such as: homeopathy therapy, music therapy that was suspected could reduce pressure in someone so that the blood pressure could be normal back, therapy with aroma therapy or reflexology which stimulated reflex area in the foot so that the body function could be normal back (Susilo and Wulandari, 2011).

According to Setiyoadi and Kusharyadi (2011), massage was the process of pressing and rubbing or manipulating muscles and other soft tissues from the body by combining the benefit of the nature and aroma of oil planting. Massage increased surface circulation that decreased heart workload, blood pressure, speeded up remaining metabolic and nutrients, increased blood circulation in the tissue, increased circulation, and stimulated blood flow into deeper veins.

3.5 The Effect of Foot Reflection Massage to Blood Pressure Decrease to Hypertension Clients in the Sub-District of Central City Gorontalo

Based on respondent pre-posttest table of changes in blood pressure, a meaningful difference on systolic and diastolic blood pressure was known before and after foot reflection massage was given. Initially pre-test systolic blood pressure of 160,6 mmHg experienced decrease into 147,7 mmHg with *p-Value* $0,000 < 0,05$ and pre-test diastolic blood pressure of 97,2 mmHg experienced decrease into 91,6 mmHg with *p-Value* $0,000 < 0,05$. From clinical there was not meaningful difference but in this research, the researcher wanted to know whether there was an effect of foot reflection massage to blood pressure decrease and this research used statistical test, the hypothesis was accepted previously that the researcher conducted normality test by using Shapiro-wilk test and *p* value $> 0,05$ was obtained which meant that the data was distributed normally so that the hypothesis used was Paired T-test.

This was supported by the theory of Wahyuni (2014) reflection massage was a practice of massaging certain points on hands and feet with the purpose to keep the body healthy. According to Setyoadi and Kushariyadi (2014) massage was a process of pressing and rubbing or manipulating muscles and other soft tissues from the body by combining the benefit of essential oil's nature and aroma. Massage increased surface circulation that reduced heart workload, decreased blood pressure, speeded up remaining metabolism and nutrition, and stimulated blood flow to deeper blood vessel.

The effect of foot reflection massage to blood pressure decrease in hypertension clients except strengthened by some theories and also in line with the research result conducted in Hasta Therapeutika Tugurejo Clinic, Semarang by Zunaidi et al. (2014), after reflection massage therapy was done to the respondents, it was concluded that on average the respondents experienced blood pressure decrease after reflection massage therapy was done with average value of systolic and diastolic blood pressure after reflection massage of 150,9/91,3 mmHg.

According to the research conducted by Hartutik et al. (2017) which was the effect of reflection massage therapy to primary hypertension sufferers at the nursing home of Pajang Surakarta to 22 respondents which was divided into 11 group control respondents and 11 intervention group respondents it was obtained that the average of blood pressure of 153,6 mmHg/94,5 mmHg decreased into 152,3 mmHg/92,3 mmHg in group control before treatment was done, and the average of blood pressure of 154,5 mmHg/94,1 mmHg and decreased into 128,6 mmHg/80,0 mmHg in the treatment group.

According to the research conducted by Rezky, et al. (2015) at Community Health Centre, after reflection massage was done to blood pressure in primary hypertension sufferers experienced average systolic blood pressure decrease of 158,66 mmHg into 152,37 mmHg and in average diastolic blood pressure from 94,17 into 90,73 mmHg.

4.0 CONCLUSION

Clients who suffered hypertension in the sub-district of Central City Gorontalo with the age of 58-65 years old with total respondents of 17 people. After foot reflection massage was done on average experienced systolic and diastolic decrease. There was a significant effect between foot reflection massage and blood pressure decrease.

5.0 RECOMMENDATIONS

Health officer was hoped to develop this therapy in the health improvement program and could be used as the method of foot massage as one of the nurse's independent interventions to decrease blood pressure in hypertension sufferers. It was hoped that there was a further information about foot reflection massage to blood pressure decrease.

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