Literasi Kesehatan Husada: Jurnal Informasi Ilmu Kesehatan
Vol. 8, No. 1, February 2024

Original Articles

THE EFFECT OF COMPLEMENTARY BACK MASSAGE THERAPY ON BLOOD PRESSURE IN ELDERLY WITH HYPERTENSION

Rista Dian Anggraini [1*], Ardiyanti Hidayah [1], Siti Nur Farida [1]

[1] Diploma Program of Midwifery, College of Health Sciences of Husada Jombang

Correspondence:
Rista Dian Anggraini
Diploma Program of Midwifery, College of Health Sciences of Husada Jombang
e-mail: ristadian@stikeshusadajombang.ac.id

DOI: https://doi.org/10.60050/lkh.v8i1.21

ABSTRACT

Background: According to the World Health Organization, hypertension is a condition where the blood vessels have high blood pressure (systolic blood pressure ≥140 mmHg or diastolic blood pressure ≥ 90 mmHg). Hypertension in the elderly is differentiated into hypertension where the systolic pressure is equal to or greater than 140 mmHg and/or diastolic pressure is equal to or greater than 90 mmHg, as well as isolated systolic hypertension where the systolic pressure is greater than 160 mmHg and the diastolic pressure is lower than 90 mmHg (NOC, 2015).
Objectives: This study aimed to analyze the effect of complementary back massage therapy on blood pressure in elderly people with hypertension.
Design: The research design used a quasi-experiment with a pretest-posttest control group design approach.
Methods: This research was carried out from April to October 2023 at the Posyandu for the Elderly in Candimulyo Village, Jombang Regency. The population in this study were all elderly people who attended the Posyandu for the Elderly in Candimulyo Village, Jombang Regency. The sampling technique used in this research is purposive sampling, by establishing several criteria. The sample size for each group was 20 respondents. The research data were analyzed using the Wilcoxon and Mann-Whitney tests.
Results: The Wilcoxon test showed that there was a significant difference in blood pressure in the treatment groups with the systole p-value being 0.000, the diastole p-value 0.025. There was no significant difference in blood pressure in the control group, both in systole with a p-value of 0.086 and a diastole p-value of 0.140. There is a significant effect of complementary back massage therapy on systolic blood pressure with a p-value of 0.000 and a diastolic p-value of 0.028.
Conclusion: Based on the results of this research, back massage therapy is recommended as a non-pharmacological therapy to stabilize blood pressure and prevent cardiovascular complications in the elderly.

Keywords: Back Massage Therapy, Hypertension, Elderly, Blood Pressure.

INTRODUCTION

The composition of the elderly population is increasing rapidly in both developed and developing countries, this is due to a decrease in fertility (birth) and mortality (death) rates, as well as an increase in life expectancy, which changes the overall population structure. The

process of population aging is influenced by several factors, for example: improving nutrition, sanitation, health services, and improving educational and socio-economic levels. Globally, the elderly population is predicted to continue to increase (Indonesian Ministry of Health, 2017). The increasing number of elderly provides special attention to elderly people who are experiencing an aging process. Problems that require special attention for the elderly are related to the ongoing process of aging, which results in physical, cognitive, emotional, social and sexual changes (Azizah, 2011). One of the changes that occurs in the elderly is changes in the cardiovascular system which is the main disease that takes its toll because it will have an impact on other diseases such as hypertension, coronary heart disease, pulmonary heart disease, cardiomyopathy, stroke, kidney failure.

Research by Nurhidayati et al (2018) found that in elderly people aged 60-64 years there was an increase in hypertension by 2.18 times, aged 65-69 years 2.45 times, > 70 years 2.97 times. This happens because at that age the large arteries lose their flexibility and become stiff, therefore the blood with each heart beat is forced to pass through blood vessels that are narrower than usual and causes blood pressure to rise. Age is one of the factors that influences high blood pressure (hypertension). The older a person is, the greater the risk of developing hypertension (Adam, 2019). Relaxation is an action that must be carried out in every antihypertensive therapy (Sulistyarini, 2013). If blood pressure is too high, the blood vessels relax, vasodilation of the blood vessels will occur, causing blood pressure to drop and return to normal. To relax the body, it can be done in several ways, such as classical music therapy, yoga, deep breathing techniques, and massage therapy (Yanti et al, 2019).

Many doctors do not treat hypertension in old age until it is optimal (achieving a target of less than 150/90 mmHg) considering the concern that the side effects of treatment will be greater than the benefits (Kuswardhani, 2006). Apart from that, there are also several other factors that need to be considered, namely factors that also influences the response of elderly patients to anti-hypertension therapy, such as atherosclerosis, cardiovascular changes due to degenerative processes, decreased baroreflex response and others (Sartik et al, 2017). This study aims to determine the effect of back massage therapy on blood pressure in elderly people with hypertension at the Elderly Posyandu, Candimulyo Village, Jombang Regency.

METHODS

Study Design

This research used a Quasy-Experimental research design with a Pretest-Posttest Control Group approach.

Setting

This research was carried out at the Posyandu for the Elderly in Candimulyo Village, Jombang Regency from April to October 2023.

Research Subject

The population in this study were all elderly people who attended the Posyandu for the Elderly in Candimulyo Village, Jombang Regency. Researchers used a sampling technique in the form of Purposive Sampling by establishing several criteria in determining research respondents, including 1) Elderly people with hypertension, 2) Aged > 60 years, 3) Uncontrolled hypertension, and 4) Taking anti-hypertension medication for > 2 years. In this

study there were 2 research groups. Based on the criteria set by the researchers, the sample size in this study was 20 respondents for each research group.

Instrument

The research instruments used in this study were the SOP for providing back massage therapy and a blood pressure observation sheet.

Intervention

In this study, the researchers gave treatment to one group in the form of back massage therapy which was carried out twice a week for 3 weeks. Back massage therapy is carried out for 15 minutes each time. For the control group, the researchers did not provide special treatment.

Data Collection

Researchers measured blood pressure on each respondent, both the control group and the treatment group. After that, the treatment group was given back massage therapy. After 3 weeks, the researchers took blood pressure measurements again on each respondent from both research groups.

Data Analysis

Data analysis is processed using data analysis techniques, namely using parametric tests. The requirement for carrying out a parametric test is that apart from the data being in the form of an interval scale, the data must also be normally distributed. So, a data normality test was carried out using the Kolmogorov Smirnov test (Sujarweni, 2019). It is said to have a normal distribution if it says the value α<Asymp.sig (1-tailed). To determine blood pressure before and after being given back massage therapy, the Wilcoxon and Mann-Whitney tests were carried out with an alpha of 0.05.

Ethical Consideration

This research has received permission for its implementation from the College of Health Science Husada Jombang and the Head of Candimulyo Village, Jombang Regency.

RESULTS

Characteristics of Respondents Based on Age and Gender in the Control Group and Treatment Group

Table 1. Frequency Distribution of Respondents Based on Age and Gender in the Control Group and Treatment Group at Posyandu for the Elderly in Candimulyo Village, Jombang Regency from April to October 2023 (n = 40).

Characteristics of Respondent	Groups	
	Treatment	Control
Age	73.3 ± 8.50	75.3 ± 6.40
Gender		
Male	10	10
Female	10	10
Total	20	20

Sources: Questionnaire Data, 2023.

Based on Table 1 above, it showed that the average age of respondents in the treatment group was 73.3 ± 8.50 years and in the control group 75.3 ± 6.40 years. Judging from the gender obtained in both groups, the number of men and women was 10 each.

Description of Pre and Post Blood Pressure in the Control Group and Treatment Group

Table 2. Description of Pre and Post Blood Pressure in the Control Group and Treatment Group at Posyandu for the Elderly in Candimulyo Village, Jombang Regency from April to October 2023 (n = 40).

Blood Pressure	Treatment Group				Control Group			
	Systole		Diastole		Systole		Diastole	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post
Mean	164.0	148.5	85.0	80.0	167.7	151.2	87.5	77.5
Median	160.0	150.0	90.0	80.0	170.0	150.0	90.0	80.0
Min	150.0	140.0	70.0	70.0	160.0	140.0	70.0	70.0
Max	180.0	140.0	70.0	70.0	180.0	160.0	90.0	90.0
SD	7.5	6.7	9.4	6.4	6.1	6.4	5.5	7.1

Sources: Questionnaire Data, 2023.

Based on the research data in the table above, it shows that the average post-pre systole value decreased from 164-148.5 mmHg and the post-pre diastole value remained constant (80-85 mmHg) in the treatment group. Based on the results of the research data above, it also shows that the highest pre-systole blood pressure is 180 mmHg and the lowest is 160 mmHg, the highest post-systole is 160 mmHg and the lowest is 140 mmHg, the average value of pre-systole blood pressure is 167.7 ±6.1 mmHg. The average value of post-systolic blood pressure was 151.2 ± 6.4 mmHg. The highest pre-diastole average was 87.5 and the lowest was 77.5 mmHg.

Differences in Elderly Blood Pressure in the Treatment Group and Control Group

Table 3. Differences in Elderly Blood Pressure in the Treatment Group and Control Group at Posyandu for the Elderly in Candimulyo Village, Jombang Regency from April to October 2023 (n = 40).

Groups	Blood Pressure	p-value	Description
Treatment	Systole	0.000	Significant
	Diastole	0.025	Significant
Control	Systole	0.086	Not significant
	Diastole	0.140	Not significant

Sources: Questionnaire Data, 2023.

Based on the research data in the table above, it shows that there is no significant difference in systolic blood pressure in the control group with a p value of 0.086. There was no

significant difference in diastolic blood pressure in the control group with a p-value of 0.000. There was a significant difference in systolic blood pressure in the treatment group with a p-value of 0.000. There was a significant difference in diastolic blood pressure in the treatment group with a p-value of 0.025.

Differences in Impact After Complementary Back Massage Therapy using the Mann-Whitney Test

Table 4. Differences in Impact After Complementary Back Massage Therapy in the Treatment Group at Posyandu for the Elderly in Candimulyo Village, Jombang Regency Using the Mann-Whitney Test.

Blood Pressure	p-value
Systole	0.000
Diastole	0.028

Sources: Questionnaire Data, 2023.

Based on the above, it was found that there was a significant difference in the impact felt by respondents in the treatment group on Systole pressure with a p-value of .000 and Diastole value with a p-value of .028.

DISCUSSION

According to the World Health Organization, elderly people are a group of people aged 60 years or more (Kiik et al, 2018). The average age of respondents in the treatment group was 73.3 ± 8.50 years and in the control group 75.3 ± 6.40 years with a p value of 0.418. Judging from the gender obtained in both groups, the number of men and women each was 10 people with a p value of 1.00. This means that the characteristics of respondents based on age and gender are not significantly different, in other words the two groups are worthy of comparison.

Based on the results of data analysis in the control group, the highest pre-systole blood pressure was 180 mmHg and the lowest was 160 mmHg, the highest post-systole was found to be 160 mmHg and the lowest was 140 mmHg, the average value of pre-systole blood pressure was 167.7 ± 6.1 mmHg, post-systole of 151.2 ± 6.4 mmHg. The highest pre-diastole average is 90 mmHg and the lowest is 70 mmHg. From these results, there was a decrease in blood pressure, both systole and diastole, after the complementary back massage therapy intervention was given. Relaxation is an action that must be carried out in every antihypertensive therapy (Tyani et al, 2015). If blood pressure is too high, the blood vessels relax, vasodilation of the blood vessels will occur, causing blood pressure to drop and return to normal. To achieve this reduction in blood pressure, each respondent underwent back massage therapy 2x a week for 3 weeks, 15 minutes each time.

The results of the study found that there was no significant difference in systolic blood pressure in the control group with a p-value of 0.086 and diastole in the control group with a p-value: 0.140. Relaxation is an action that must be carried out in every antihypertensive therapy. If blood pressure is too high, the blood vessels relax, vasodilation of the blood vessels will occur, causing blood pressure to drop and return to normal (Udani, 2016). To relax the

body, it can be done in several ways, such as classical music therapy, yoga, deep breathing techniques, and massage therapy (Anggariawan and Kushartanti, 2014). In uncontrolled hypertension, even though medication is regularly consumed, blood pressure remains high (Darussalam and Warseno, 2017). This was proven by giving back massage therapy to the treatment group. It was found that there was a significant difference in systolic blood pressure in the treatment group with a p-value of 0.000. There was a significant difference in diastolic blood pressure in the treatment group with a p-value of 0.025.

The differences in the effects caused by complementary back massage therapy showed that there was a significant effect of complementary back massage therapy on systolic pressure with a p-value of 0.000, and a diastole p-value of 0.028. Massage has a certain effect on body tissue. Apart from that, pressure, direction of movement, repetition and rhythm determine its effect (Harahap and Sagala, 2017). The success of massage is also determined by massage knowledge and experience. Using alternate pressing and pushing techniques causes emptying and filling of the veins and lymph vessels, thus helping the excretion & delivery of nutrients and O2 into the tissues (Juliantara et al, 2015).

Massage accelerates the emptying and filling of fluids thereby facilitating circulation and the release of metabolic waste, facilitating the delivery of nutrients thereby speeding up the recovery process. For injured muscles, massage helps spread traumatic effusion and blood supply to the tissue (Sa'roni and Graha, 2019). Back massage or back massage is the act of massaging the back with slow strokes at a speed of 60 strokes per minute. Both hands cover an area 5 cm wide on both sides of the spinal column from the tip of the head to the sacrum area. An effective back rub takes 3 to 5 minutes (Istyawati et al, 2020). Back massage is stimulation of the body's skin by massaging and giving a touch to the back and shoulders which can relax the muscles beyond the source of pain and is done for around 10 minutes to achieve maximum relaxation results (Puspitasari and Astuti, 2017).

Giving massage to the back will stimulate the large diameter beta A nerve which has a speed of 30-70 m/sec. The beta A nerve will also transmit impulses through the spinothalamic tract or ascending pathway and then end in the midbrain. Then this impulse will stimulate the area to send it back down, namely to the dorsal horn of the spinal cord or the descending control system which works by releasing neuromodulators that inhibit pain transmission, namely enkephalin (Supliyani, 2017). This enkephalin will inhibit the release of substance P in the dorsal horn so that the transmission of pain impulses can be inhibited (Purnama, 2018).

CONCLUSION

Respondent characteristics: The average age in the treatment group was 73.3 years and in the control group 75.3 years, 10 men, 10 women in both the control and treatment groups.

The results of systole/diastole blood pressure measurements in the treatment group were a mean of 164/85 mmHg (pretest) and a mean of 148.5/80 mmHg (posttest), with a p-value of 0.000 in systole and a p-value of 0.025 in diastole. Meanwhile, systolic/diastolic blood pressure in the control group was 167.7/87.5 mmHg (pretest) and 151.2/77.5 mmHg (posttest), with a p-value of 0.086 in systole and a p-value of 0.140 in diastole.

There is a significant effect of complementary back massage therapy on systolic pressure with a p-value of 0.000, and diastolic value with a p-value of 0.028.

Back massage is a recommended non-pharmacological therapy to stabilize blood pressure to prevent cardiovascular complications in elderly people with hypertension. There is a need for cadre training on back massage as a complementary therapy to overcome various complaints of degenerative diseases in the elderly

LIMITATION

There are no limitations in carrying out this research.

REFERENCES

Adam, Lusiane. (2019). Determinan Hipertensi Pada Lanjut Usia. Jambura Health and Sport Journal, 1(2), 82–89. https://doi.org/10.37311/jhsj.v1i2.2558

Amanda, Desi dan Martini Santi. (2018). The Relationship between Demographical Characteristic and Central Obesity with Hypertension. Jurnal Berkala Epidemiologi, 6(1), hal 43 - 50. https://doi.org/10.20473/jbe.v6i12018.

Anggariawan, Nova dan Wara, Kushartanti. (2014). Pengaruh Terapi Masase, Terapi Latihan, Dan Terapi Kombinasi Masase Dan Latihan Dalam Penyembuhan Cedera Bahu Kronis Pada Olahragawan. Medikora. 12(1)

Bestari, Beningtyas K., dan Wati D. N. K.(2016). Penyakit Kronis Lebih Dari Satu Menimbulkan Peningkatan Perasaan Cemas Pada Lansia di Kecamatan Cibinong. Jurnal Keperawatan Indonesia,19(1), 49–55.

Darussalam, Miftafu dan Warseno, Agus. (2017). Faktor yang Berhubungan dengan Pasien Hipertensi Tidak Terkontrol di Puskesmas. Jurnal Keperawatan Klinis Dan Komunitas, 1(2), 72–80.

Harahap, Novita. S., dan Nila Sari S. S. (2017). Pengaruh Pemberian Manipulasi Sport Massage. Journal kesehatan dan Olahraga. 1(2), 11–21.

Istyawati, Purwani, dkk. (2020). Efektifitas Slow Stroke Back Massage (Ssbm) Dalam Menurunkan Skala Nyeri Kepala Pasien Hipertensi Di Rumah Sakit Mitra Siaga Tegal. Coping: Community of Publishing in Nursing, 8(2), 207. https://doi.org/10.24843/coping.2020.v08.i 02.p14

Juliantri, Veny, dkk. 2015. Efektivitas Massage Ekstremitas terhadap Perubahan Tekanan Darah pada Pasien Hipertensi di Klinik Pratama Universitas Tanjungpura Tahun 2015. Journal Cerebellum 1(3), 247–265.

Kiik, Stefanus. M. dkk. 2018. Peningkatan Kualitas Hidup Lanjut Usia (Lansia) Di Kota Depok Dengan Latihan Keseimbangan. Jurnal Keperawatan Indonesia, 21(2), 109–116. https://doi.org/10.7454/jki.v21i2.584

Kuswardhani, R. (2006). Penatalaksanaan Hipertensi Pada Lanjut Usia. Journal of Internal Medicine, 7(2), 135–140.

Nurhidayati, Istiana, dkk. (2018). Penderita Hipertensi Dewasa Lebih Patuh daripada Lansia dalam Minum Obat Penurun Tekanan Darah. Jurnal Kesehatan Masyarakat Indonesia, 13(2), 4–8.

Supliyani, Elin. (2017). Pengaruh Masase Punggung Terhadap Intensitas nyeri persalinan Kala 1 di kota Bogor. Midwife journal. 3(1), 22–29.

Purnama, Y. H. C. (2018). Pengaruh Bekam Terhadap Penurunan Nyeri Pada Klien Dengan Trapezius Myalgia Pada Pekerja Angkut Di Kecamatan Jelbuk Jember. The Indonesian Journal of Health Science. September, 66. https://doi.org/10.32528/ijhs.v0i0.1524

Puspitasari, Indah dan Astuti, Dwi. (2017). Tehnik Massage Punggung Untuk Mengurangi Nyeri Persalinan Kala I. Jurnal Ilmu Keperawatan Dan Kebidanan, 8(2), 100. https://doi.org/10.26751/jikk.v8i2.289

Tyani, Endar S., dkk .(2015). Efektifitas relaksasi otot progresif terhadap tekanan darah pada penderita hipertensi esential. Journal Online Mahasiswa.2(2). 1068 - 1075.

Sartik. (2017). Risk Factors and the Incidence of Hipertension in Palembang. Jurnal Ilmu Kesehatan Masyarakat, 8(3), 180–191. https://doi.org/10.26553/jikm.2017.8.3.180

Sa'roni, Subhan dan Ali Graha, S. (2019). Efektifitas Massage Terapi Cedera Olahraga Terhadap Nyeri Tumit Dan Nyeri Otot Tibialis Pada Atlet Futsal Sma Negeri 1. Medikora XVIII(2), 56–63.

Sugiyono. (2019). Metode Penelitian Kuantitatif dan Kualitatif. Bandung. Alfabeta.

Sujarweni, Wiratna. (2019). SPSS untuk Penelitian. Yogyakarta. Pustaka baru press

Sulistyarini, Indahria. (2013). Terapi Relaksasi untuk Menurunkan Tekanan Darah dan Meningkatkan Kualitas Hidup Penderita Hipertensi. Jurnal Psikologi, 40(1), 28–38. https://doi.org/10.22146/jpsi.7064

Suprapti Budi, dkk. 2014. Permasalahan Terkait Obat Antihipertensi pada Pasien Usia Lanjut di Poli Geriatri RSUD Dr.Soetomo, Surabaya. 1(2), 36–41.

Udani, Giri. 2016. Pengaruh Massase pada Penderita Hipertensi di UPTD Panti Tresna Werdha Lampung Selatan. Jurnal Kesehatan, 7(3), 503. https://doi.org/10.26630/jk.v7i3.236

Wahyuningsih, & Astuti, Endri. 2016. Faktor yang Mempengaruhi Hipertensi pada Usia Lanjut. Jurnal Ners Dan Kebidanan Indonesia, 1(3), 71. https://doi.org/10.21927/jnki.2013.1(3).71- 75

Yanti, Etri. (2019). Efektifitas Massase Punggung Dan Kaki Terhadap Tekanan Darah Pada Penderita Hipertensi. Jurnal Kesehatan Medika Saintika, 10(1), 18. https://doi.org/10.30633/jkms.v10i1.305