RESEARCH ARTICLE
Article URL: https://ojs.poltekkes-malang.ac.id/index.php/HAJ/index

The Impact of Slow Stroke Back Massage on Blood Pressure and Pulse in Hypertensive Patients Aged 45–54 Years

Intan Clarisa Yuli Susamto [1(CA)], Tri Cahyo Sepdianto[2]. Mujito[3]
[1,2,3] Departement of Nursing, Poltekkes Kemenkes Malang
Correspondence author's email ([CA]): Intanclarissa1@gmail.com

ABSTRACT

Hypertension is a non-communicable disease that kills silently. The aim of this research is to determine the effect of slowstroke back massage on blood pressure and pulse in hypertension sufferers aged 45-54 years in Blitar City. This research uses a quantitative type of research with a pre-experimental research design with a One-Group Pretest-Posttest design approach. The samples taken were hypertension sufferers aged 45-54 years who underwent examinations at the Blitar City Health Center UPTD with a sample size of 30 respondents, and sampling used purposive sampling. This research instrument uses a digital sphygmomanometer and oximetry. SSBM is carried out for 15 minutes with 2 massages for 2 weeks which aims to reduce blood pressure and pulse in hypertension sufferers. The data was processed descriptively and continued with the Paired t Test. The results show that the average systolic pressure before is 154.70, the average diastole before is 90.23, the average pulse before is 86.67, and the average systolic pressure after is 152.13, the average diastole after is 88.23, the average pulse after is 84.03. The results of statistical tests using the Paired t Test show a value of P=0.000 ($p<0.05$), so there is a significant difference in the blood pressure and pulse values before and after. The results of the research show that there is a decreasing effect on blood pressure and pulse before and after being given Slow Stroke Back Massage therapy and can be used as a non-pharmacological therapy at the Blitar City Health Center UPTD for hypertension sufferers.

Keyword : Hypertension; Blood pressure; Pulse; SSBM

.

INTRODUCTION

Hypertension is a non-communicable disease that ranks first in the cause of death globally and ranks fourth in Indonesia as a cause of death every year (1). Hypertension sufferers experience blood pressure conditions of systolic blood pressure ≥ 130 mmHg or diastolic ≥ 80 mmHg, and this is the biggest cause of death in the world which is commonly called silent killing and it is estimated that the

Submitted: 19 May 2025 Reviewed: 29 May 2025 Accepted: 18 June 2025
Doi: https://doi.org/10.31290/haj.v2i2.5391

number of deaths will continue to increase (2). Hypertension sufferers usually do not feel any symptoms that appear in their bodies, so this is called silent killing(2).

The prevalence of hypertension continues to increase in developed and developing countries such as in Indonesia(3). According to Organization, (2023) 1.28 billion people worldwide experience hypertension with an age range of 30-79 years. It is known that in the 2013 Riskesdas data, only 0.7% of the 25.8% of hypertension sufferers took (4). In the 2018 Riskesdas data in Indonesia, there was an increase in prevalence of 34.1% compared to the 2013 Riskesdas data, which was 25.8%(3,5)). Several factors that cause hypertension in a person, such as habits in living an unhealthy lifestyle, one of which is obesity and this results in arteriosclerosis or commonly referred to as blockage in blood flow due to increased levels of fat in the blood (3).

Hypertension that is not properly controlled will cause complications of cardiovascular disease such as stroke, kidney failure, coronary heart disease in sufferers (1). From several causes that can be complications for hypertension sufferers, treatment is needed that can be used as a tool to control hypertension in sufferers.

Non-pharmacological techniques that can be easily done independently at home are by applying Slow Stroke Back Massage. This technique is a massage technique on the back that is useful for muscle relaxation and aims to lower blood pressure, the advantages of this non-pharmacological technique are that it is easy to do independently at home and of course it is also (6). Several studies have been conducted related to the Slow Stroke Back Massage technique and according to Meidayanti et al (2023) in their research that there is an effect on the elderly with hypertension.

METHODS

In this study, the researcher used a quantitative research type and the research design used was a pre-experimental design with a One-Group Pretest-Posttest design approach. The population in this study were hypertension sufferers aged 45-54 years who underwent control at the Blitar City Health Center. The sample taken in this study was hypertension sufferers aged 45-54 years who underwent control at the Blitar City Health Center with a sample size of 30 respondents. The sampling technique in this study used purposive sampling. This sampling also took into account the inclusion and exclusion criteria. This study was conducted at the Blitar City Health Center UPT, namely at the Sananwetan Health Center UPTD, Sukorejo Health Center UPTD, Kepanjenkidul Health Center UPTD

The research instrument is a tool for collecting, processing, analyzing and presenting data systematically and objectively which aims to test a hypothesis. The tools used in this study were digital tensiometers, oximetry, questionnaires, and observation sheets.

At the data collection stage, data collection of patients with hypertension was carried out from data provided by the Blitar Health Center, then visits to each house and conducts research related to the provision of SSBM for 2 weeks. After that, data processing was carried out through several processes

and data analysis was carried out with paired t-tests through univariate analysis and bivariate analysis. The data that has been processed through several stages is then presented in the form of text and tables.

RESULT

General Data

Table 1 Distribution of Hypertension Sufferers Based on Gender

Gender	Frekuensi (N=30)	%
Male	7	23
Female	23	76.7

Based on table 1, it shows that the majority of hypertension sufferers, namely 76.7% (23 sufferers), are female

Table 2 Distribution of Hypertension Patients by Age

Age	Frekuensi (N=30)	%
45 years	7	23.3
46 years	7	23.3
47 years	2	6.7
48 years	4	13.3
49 years	6	20.0
52 years	1	3.3
53 years	1	3.3
54 years	2	6.7

Based on table 2, it shows that the majority of hypertension sufferers, namely 23.3% (7 sufferers), are aged 45 and 46 years.

Table 3 Distribution of Hypertension Patients Based on Taking Hypertension Medication

Explanation	Frekuensi (N=30)	%
Take medicine	15	50.0
No Medication	15	50.0

Based on table 3, it shows that hypertension sufferers with information about taking hypertension medication are 50.0% (15 sufferers). And hypertension sufferers with information about not taking hypertension medication are 50.0% (15 sufferers).

Table 4. Distribution of Hypertension Sufferers Based on Routine Health Checks

Explanation	Frekuensi (N=30)	%
Conducting a Health Check	17	56.7
Not Performing Health Check	13	43.3

Based on table 4, it shows that hypertension sufferers with information who underwent examination at the Blitar City Health Center UPT were 56.7% (17 sufferers).

Table 5 Distribution of Hypertension Patients Based on Physical Sports Activities

Information	Frekuensi (N=30)	%

Doing Physical Activity Sports	19	63.3%
Not Doing Physical Sports Activities	11	36.7%

Based on table 5, it shows that the majority of hypertension sufferers with information about doing physical sports activities are 63.3% (19 sufferers).

Table 6 Distribution of Hypertension Patients Based on Work

Information	Frekuensi (N=30)	Presentase
Work	15	50.0%
Doesn't work	15	50.0%

Based on table 6, it shows that hypertension sufferers with a statement of working are 50.0% (15 sufferers). Hypertension sufferers with a statement of not working are 50.0% (15 sufferers).

Table 7 Distribution of Hypertension Patients Based on the Main Complaint of Dizziness

Explanation	Frekuensi (N=30)	Presentase
There is a main complaint of dizziness	15	50.0%
No Chief Complaints Dizziness	15	50.0%

Based on table 7, it shows that hypertension sufferers with information that there is a main complaint of dizziness are 50.0% (15 sufferers). Hypertension sufferers with information that there is no main complaint of dizziness are 50.0% (15 sufferers).

Table 8 Distribution of Hypertension Patients Based on Hypertension Diet

Information	Frekuensi (N=30)	Presentase
Doing a Hypertension Diet	22	73.3
Not Dieting Hypertension	8	26.7

Based on table 8, it shows that the majority of hypertension sufferers with information about following a hypertension diet are 73.3% (22 sufferers).

Spesial Data

Table 9. Distribution of Blood Pressure, Pulse, and Oxygen Saturation Values in Hypertension Patients Before and After Slow Stroke Back Massage on Day 1

Characteristics	Mean	Median	SD	Min-Maks
Sistole-Pre	154.70	150.50	14.181	140-181
Sistole-Post	152.13	148.50	13.643	137-177
Diastole-Pre	90.23	90.00	6.055	70-99
Diastole-Post	88.23	89.00	6.151	69-99
Nadi-Pre	86.67	89.00	8.389	67-112
Nadi-Post	84.03	87.00	7.819	62-100
Saturasi-Pre	97.50	98.00	1.333	94-99
Saturasi-Post	98.90	99.00	1.094	96-100

Based on table 9, the analysis results obtained an average before the SSBM intervention on systolic pressure before was 154.70 with a standard deviation of 14.181 and a minimum-maximum value of 140-181. After the SSBM intervention was given, the average systolic after was 152.13 with a standard deviation of 13.643 and a minimum-maximum value of 137-177.

Based on table 8, the analysis results obtained an average before the SSBM intervention on diastolic pressure before was 90.23 with a standard deviation of 6.055 and a minimum-maximum value of 70-99. After the SSBM intervention was given, the average diastolic after was 88.23 with a standard deviation of 6.151 and a minimum-maximum value of 69-99.

Based on table 8, the analysis results obtained an average before the SSBM intervention at the pulse value before, namely 86.67 with a standard deviation of 8,389 and a minimum-maximum value of 67-112. After the SSBM intervention was given, the average pulse value after was 84.03 with a standard deviation of 7,819 and a minimum-maximum value of 62-100. Based on table 8, the analysis results obtained an average before the SSBM intervention at the oxygen saturation value before was 97.50 with a standard deviation of 1,094 and a minimum-maximum value of 94-99. After the intervention was given, the average oxygen saturation value after was 98.90 with a standard deviation of 1,094 and a minimum-maximum value of 96-100.

Table. 10 Effect of Slow Stroke Back Massage on Decreasing Blood Pressure, Pulse Rate, and Increasing Oxygen Saturation in Hypertension Patients on Day 1

Information	N	Mean	SD	Sig.(2-tailed)
Sistole-Pre Sistole-Post	30	2.567	971	0,000
Diastole-Pre Diastole-Post	30	2.000	1.313	0,000
Nadi-Pre Nadi-Post	30	2.633	2.157	0,000
Saturasi-Pre Saturasi-Post	30	-1.400	724	0,000

Based on table 10, further analysis results were carried out using the paired t-Test, the p-value was 0.000 with a value of ($p<0.05$), so it can be concluded that there is a significant difference between blood pressure, pulse, and oxygen saturation before and after the Slow Stroke Back Massage intervention was given on day 2.

Table 11 Distribution of Blood Pressure, Pulse, and Oxygen Saturation Values in Hypertension Patients Before and After Slow Stroke Back Massage on Day 2

Characteristics	Mean	Median	SD	Minimal-Maksimal
Sistole-Pre	158.00	157.50	13.526	139-186
Sistole-Post	155.70	155.00	13.483	138-182
Diastole-Pre	90.27	90.00	4.258	78-98
Diastole-Post	88.63	88.00	3.864	76-95
Nadi-Pre	86.83	86.00	7.901	68-110
Nadi-Post	84.97	86.00	8.269	65-110
Saturasi-Pre	97.87	98.00	1.196	95-100
Saturasi-Post	99.13	99.00	1.074	96-100

Based on table 10, the analysis results obtained an average before the SSBM intervention on systolic pressure before was 158.00 with a standard deviation of 13,526 and a minimum-maximum value of 139-186. After the SSBM intervention was given, the average systolic after was 155.70 with a standard deviation of 13,483 and a minimum-maximum value of 138-182.

Based on table 10, the analysis results obtained an average before the SSBM intervention on diastolic pressure before was 90.27 with a standard deviation of 4,258 and a minimum-maximum value of 78-98. After the SSBM intervention was given, the average diastolic after was 88.63 with a standard deviation of 3,864 and a minimum-maximum value of 76-95.

Based on table 10, the analysis results obtained an average before the SSBM intervention on the pulse value before was 86.83 with a standard deviation of 7.901 and a minimum-maximum value of 68-110. After the SSBM intervention was given, the average pulse value after was 84.97 with a standard deviation of 8.269 and a minimum-maximum value of 65-110. Based on table 10, the analysis results obtained an average before the intervention on the oxygen saturation value before was 97.87 with a standard deviation of 1.196 and a minimum-maximum value of 95-100. After the intervention was given, the average oxygen saturation value after was 99.13 with a standard deviation of 1.074 and a minimum-maximum value of 96-100

Table 4.12 Effect of Slow Stroke Back Massage on Decreasing Blood Pressure, Pulse Rate, and Increasing Oxygen Saturation in Hypertension Patients on Day 2

Information	N	Mean	SD	Sig.(2-tailed)
Sistole-Pre Sistole-Post	30	2.300	877	0,000
Diastole-Pre Diastole-Post	30	1.633	1.299	0,000
Nadi-Pre Nadi-Post	30	1.867	776	0,000
Saturasi-Pre Saturasi-Post	30	-1.267	740	0,000

Based on table 12, the results of further analysis were carried out using the paired t-test, the p-value was 0.000 with a value of ($p<0.05$), so it can be concluded that there is a significant difference between the blood pressure, pulse, and oxygen saturation values before and after the Slow Stroke Back Massage intervention was given on the 2nd day.

DISCUSSION

Blood Pressure, Pulse, and Oxygen Saturation Values of Hypertensive Respondents Before Being Given Slow Stroke Back Massage Therapy on Days 1 and 2

The results of the study conducted were by showing the average results before the SSBM administration was carried out, namely blood pressure, pulse, and oxygen saturation experienced values

above normal and oxygen saturation was less than normal. From the results obtained, hypertension sufferers experience serious problems by showing examination results with abnormal values, so it is necessary to provide non-pharmacological techniques that can be inexpensive and can be easily done at home independently.

Blood Pressure, Pulse, and Oxygen Saturation Values of Hypertensive Respondents After Being Given Slow Stroke Back Massage Therapy on Days 1 and 2

After SSBM was given to respondents with a history of hypertension, it showed a decrease in blood pressure, pulse, and could provide a relaxing effect and complaints of dizziness and neck pain were reduced. And it gave an increase in oxygen saturation which had the effect of fulfilling the oxygen supply to the blood flow so that respondents had less headaches and could breathe relaxedly.

Effectiveness of Slow Stroke Back Massage Therapy on Blood Pressure, Pulse, and Oxygen Saturation in Hypertensive Patients on Days 1 and 2

The decrease in the value that occurred in each hypertensive patient who had been given SSBM showed different results, this was due to several factors that triggered the large or small number of values that decreased in blood pressure, pulse, and an increase in oxygen saturation.

The data shows that the effect of SSBM administration on hypertensive patients has an effect on decreasing blood pressure, pulse, and increasing oxygen saturation. This SSBM intervention has the potential as part of non-pharmacological therapy that is inexpensive and easy to do independently at home and has a significant effect on decreasing blood pressure, pulse, and increasing oxygen saturation. So it can provide a relaxing effect on hypertensive patients and can reduce complaints of headaches and neck pain.

CONCLUSION

In a study conducted by providing SSBM treatment to hypertension patients who were respondents during the study showed a significant change towards normal values in blood pressure, pulse, and oxygen saturation. Each individual showed different results but with values that were approaching normal, this is because there are several different factors experienced by each individual and this can be one of the factors that affect the results of changes in values before and after being given SSBM to hypertension patients.

This study also proves that there is an effect on hypertension patients like previous studies. However, there are limitations of researchers in conducting this study, namely this study used a pre-experimental research design, namely the study was conducted without a comparison and without control. So in this study it is not yet known for sure if the changes in the values tested are entirely from the influence of giving SSBM or only temporarily providing a sense of comfort, or it could be with the influence of other factors so that the SSBM carried out in this study can affect the decrease in blood pressure, pulse, and increase oxygen saturation in hypertension patients.

In a study conducted by providing SSBM treatment to hypertension patients who were respondents during the study showed a significant change towards normal values in blood pressure, pulse, and oxygen saturation. Each individual showed different results but with values that were approaching normal, this is because there are several different factors experienced by each individual and this can be one of the factors that affect the results of changes in values before and after being given SSBM to hypertension patients.

This study also proves that there is an effect on hypertension patients like previous studies. However, there are limitations of researchers in conducting this study, namely this study used a pre-experimental research design, namely the study was conducted without a comparison and without control. So in this study it is not yet known for sure if the changes in the values tested are entirely from the influence of giving SSBM or only temporarily providing a sense of comfort, or it could be with the influence of other factors so that the SSBM carried out in this study can affect the decrease in blood pressure, pulse, and increase oxygen saturation in hypertension patients.

REFERENCES

1. Pramono J, Arsyawina, Masita K. Reducing Blood Pressure with Slow Stroke Back Massage and Warm Water Foot Soak in Isolated Systolic Hypertension Patients Article info Hypertension is a condition where blood pressure is 140 mmHg (systolic pressure) is normal, ideally up to 120. 4, 414 – 42. 2021;
2. Adrian S. Traditional Acupressure Treatment in the Modern Era in Society. Cdk-274. 2019;46(3):172–8.
3. Adam L. Determinants of Hypertension in the Elderly. Jambura Health and Sport Journal. 2019;1(2):82–9.
4. Kemenkes RI. Facts and Figures of Hypertension - Directorate of P2PTM. 2017;
5. Kemenkes RI. Hypertension, the Main Cause of Heart Disease, Kidney Failure, and Stroke – Sehat Negeriku. 2021;
6. Meidayanti G, Candrawati S, Lestari N. The Effect of Slow Stroke Back Massage on Blood Pressure in Elderly Patients with Hypertension. Holistic Nursing and Health Science. 2023;6(1):30–7.