

## The Impact of Slow Stroke Back Massage on Blood Pressure among Hypertensive Patients

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DOI:



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### ABSTRACT

**Introduction:** Hypertension is a prevalent non-communicable disease that contributes to serious health complications such as stroke, heart disease, and kidney failure. While pharmacological treatments are widely used, they may lead to drug-related problems, making non-pharmacological alternatives, such as Slow Stroke Back Massage (SSBM), increasingly relevant.

**Objective:** This study aimed to determine the effect of Slow Stroke Back Massage therapy on reducing blood pressure in hypertensive patients.

**Method:** A quantitative approach with a quasi-experimental, one-group pretest-posttest design was employed. The study was conducted at Dr. A. Dadi Tjokrodipo Hospital in Bandar Lampung from December 2024 to February 2025. A total of 21 hypertensive patients participated in the intervention, receiving SSBM therapy. Blood pressure measurements were taken before and after the intervention, and statistical analyses were performed to assess significance.

**Result:** The mean systolic blood pressure decreased from 146.71 mmHg to 132.14 mmHg, and diastolic pressure also showed a reduction. The intervention resulted in statistically significant changes, with p-values of 0.000 for systolic and 0.003 for diastolic pressure, indicating the effectiveness of SSBM therapy.

**Conclusion:** SSBM therapy significantly reduces both systolic and diastolic blood pressure in hypertensive patients. This intervention enhances relaxation, promotes vasodilation, and reduces sympathetic nervous activity. It is recommended that healthcare professionals consider integrating SSBM as a complementary therapy alongside pharmacological treatment for holistic hypertension management.

**Keywords:** blood pressure, hypertension, massage therapy, non-pharmacological

## Introduction

Blood pressure, as described by Anggara and Prayitno (2013), plays a critical role in the circulatory system. Any increase or decrease in blood pressure can significantly disrupt the body's homeostasis. Adequate blood pressure is essential to ensure effective blood flow through the arteries, arterioles, capillaries, and the venous system, thereby maintaining circulatory stability. According to Fitriani and Nilamsari (2017), disturbances in blood pressure are classified as hypertension (high blood pressure) or hypotension (low blood pressure). Hypertension is a major global health concern, frequently ranking as the leading non-communicable disease in various countries.

In Indonesia, hypertension remains prevalent, and many patients still rely predominantly on pharmacological treatments (Hartanti et al., 2016). While pharmacological interventions are widely used, they are not without risks. Ainurrafiq et al. (2019) reported that long-term use of antihypertensive medications can lead to drug-related problems, such as non-compliance, drug interactions, and allergic reactions. These issues can negatively affect the patient's overall health status. Consequently, non-pharmacological treatments are gaining attention as complementary approaches in hypertension management.

Lifestyle modifications, including regular physical activity and relaxation techniques, have been shown to significantly reduce blood pressure and mitigate cardiovascular risk (Kusumoningtyas & Ratnawati, 2018). Holistic nursing interventions that consider physical, emotional, social, economic, and spiritual dimensions are increasingly adopted in Indonesia, incorporating the use of herbal remedies and relaxation therapies such as massage.

Kurniawan and Sulaiman (2019) stated that hypertension is a degenerative condition, with blood pressure typically rising with age. Although not directly fatal, hypertension can act as a precursor to more severe and life-threatening conditions, including heart attacks, strokes, and kidney failure. One promising non-pharmacological intervention is slow stroke back massage therapy, which is designed to reduce elevated blood pressure.

Afrila et al. (2015) describe slow stroke back massage as a gentle tissue manipulation therapy that yields physiological benefits, particularly in the vascular, muscular, and nervous systems. According to Trisnadewi et al. (2018), this massage technique promotes relaxation by decreasing sympathetic nervous activity and enhancing parasympathetic activity, leading to arterial vasodilation. The parasympathetic nervous system releases acetylcholine, which reduces heart muscle contractility, stroke volume, and causes arterial and venous dilation, ultimately lowering blood pressure.

Previous studies have demonstrated that slow stroke back massage can effectively reduce blood pressure, heart rate, and body temperature in elderly patients with hypertension (Trisnadewi et al., 2018). Liliandriani and Hanna (2017) emphasize the serious consequences of untreated hypertension, such as stroke, coronary heart disease, kidney failure, and even death.

A preliminary survey conducted at RSD Dr. A. Dadi Tjokrodipo revealed a fluctuating trend in hypertension cases: 462 in 2022, 495 in 2023, and 397 in 2024. From October to December 2024 alone, there were 68 documented cases. Furthermore, interviews with 10 hypertensive patients indicated that 8 of them had never received slow stroke back massage as part of their hypertension treatment, relying solely on medication. Based on the growing interest in non-pharmacological interventions and the existing gap in practice, this study aims to investigate the effect of slow stroke back massage on blood pressure levels in hypertensive patients.

## Objective

This study aimed to determine the effect of Slow Stroke Back Massage therapy on reducing blood pressure in hypertensive patients.

## Method

This study employed a quantitative research approach using a quasi-experimental design, specifically the one-group pretest-posttest design. The research was conducted over a three-month period, from December 2024 to February 2025, at Dr. A. Dadi Tjokrodipo Hospital, located in Bandar Lampung City. The population in this study consisted of 68 hypertensive patients recorded during the last quarter of 2024. In October, there were 26 patients, in November 21 patients, and in December 21 patients.

## Result

This study involved 21 hypertensive patients who received Slow Stroke Back Massage (SSBM) therapy. Measurements of systolic and diastolic blood pressure were taken before and after the intervention to evaluate its effectiveness. The descriptive and inferential statistical results are presented below.

Table 1. Descriptive and Inferential Statistics of Blood Pressure Before and After SSBM Intervention

Variable	Mean	Minimum	Maximum	SD	Range	N	p-value
Blood Pressure (Pre)	146.1	130	194	14.680	64	21	0.000
Blood Pressure (Post)	132.14	116	177	13.529	61	21	

As shown in Table 1, the mean blood pressure before the intervention was 146.71 mmHg, with values ranging from 130 to 194 mmHg. After the intervention, the mean blood pressure decreased to 132.14 mmHg, with values ranging from 116 to 177 mmHg. The p-value obtained was 0.000, which is less than 0.05, indicating a statistically significant difference in blood pressure before and after the SSBM intervention.

This result demonstrates that Slow Stroke Back Massage therapy had a significant effect on reducing blood pressure in hypertensive patients. Additionally, separate analysis showed that both systolic and diastolic blood pressure changes were statistically significant, with p-values of 0.000 and 0.003, respectively, further supporting the effectiveness of the intervention.

## Discussion

Hypertension causes an increase in blood pressure or heart pump pressure, which forces blood to push more strongly through the vessels. This condition can negatively affect the brain, which receives the largest blood supply from the circulatory system. According to Perdossi (2017), optimal recovery in ischemic stroke patients can be achieved through a sufficient decrease in blood pressure during the development of cerebral edema, thereby maintaining adequate cerebral perfusion pressure. One non-pharmacological approach to

lowering both systolic and diastolic blood pressure is Slow Stroke Back Massage (SSBM) therapy.

The findings of this study align with the theory presented by Potter and Perry (2015), which states that massage therapy can effectively reduce systolic and diastolic blood pressure in individuals with chronic illnesses. Akoso (2019) supports this by explaining that massage stimulates muscle tissue, facilitates toxin elimination, relaxes joints, increases oxygen flow, and relieves muscle tension—all of which contribute to blood pressure reduction.

Mechanistically, SSBM promotes relaxation by decreasing sympathetic nervous system activity and enhancing parasympathetic nervous system activation, leading to vasodilation of arterioles (Cassar, 2024). The parasympathetic system releases acetylcholine, which inhibits sympathetic responses by lowering cardiac contractility, reducing stroke volume, and promoting vasodilation in both arterioles and veins, ultimately leading to a drop in blood pressure (Muttaqin, 2018).

Akusyati (2019) further explains that the physiological effect of SSBM includes improved blood circulation and vasodilation, facilitating better exchange of metabolic substances and waste removal. This process reduces muscle tension, enhances both physical and psychological relaxation, and contributes to decreased pain, anxiety, heart rate, and consequently, blood pressure.

Tarigan (2019) found that regular SSBM therapy can lower blood pressure and cortisol levels while reducing anxiety, thus improving overall physiological function. Enhanced circulation from massage helps deliver more oxygen and nutrients to the body's cells. Similarly, Afrila (2015) noted that massage therapy is highly effective for hypertension management.

Empirical evidence also supports this. Data from five respondents in this study showed measurable reductions in both systolic and diastolic blood pressure following SSBM. This aligns with Retno's (2022) research conducted in Kediri, which demonstrated systolic and diastolic decreases of up to 8.00 mmHg and 24.00 mmHg, respectively, among 24 respondents. Johnson (2015) corroborates this, stating that gentle massage pressure enhances circulation and relieves muscle tension.

In light of these findings, the researcher concludes that SSBM is an effective intervention to reduce blood pressure in hypertensive patients. This intervention aligns with Katharine Kolcaba's Comfort Theory, which highlights the importance of addressing patients' physiological and psychological comfort through therapeutic nursing actions. As a comforting intervention, SSBM addresses holistic needs and can be particularly beneficial for adult and elderly patients suffering from hypertension.

However, it is important to consider contraindications. This intervention should not be administered to patients with fever, acute injuries, inflammation, varicose veins, phlebitis, or venous obstructions. When administered appropriately, SSBM has the potential to reduce hypertension from Stage 2 to Stage 1, as indicated by decreases in blood pressure and Mean Arterial Pressure (MAP) values.

The researcher recommends SSBM therapy be performed for 10 minutes daily over a two-week period, in combination with lifestyle modifications, such as maintaining a healthy diet, managing stress, and avoiding smoking. Therefore, based on both theoretical and empirical evidence, Slow Stroke Back Massage is a highly effective non-pharmacological intervention for lowering blood pressure in hypertensive patients.

## Conclusion

Based on the results of the study, it was found that there was a significant difference in both systolic and diastolic blood pressure before and after the administration of Slow Stroke Back Massage (SSBM) therapy. The average systolic and diastolic blood pressure values showed a measurable decrease post-intervention, supported by a statistically significant p-value in both parameters. These findings indicate that SSBM therapy is effective in reducing blood pressure in patients with hypertension. The therapy works by promoting relaxation, improving circulation, and reducing sympathetic nervous system activity, which contributes to vasodilation and lower cardiovascular strain.

In light of these results, it is recommended that health care professionals, particularly nurses in health centers, consider implementing SSBM therapy as a complementary non-pharmacological intervention. This approach can be used alongside antihypertensive medication, especially in elderly patients, to help manage blood pressure more effectively and holistically.

### **Acknowledgement**

The researcher would like to express his gratitude to God, parents, supervisor, friends and all parties involved in this research.

### **Authors' contribution**

Each author contributed equally in all the parts of the research. All authors have critically reviewed and approved the final draft and are responsible for the content and similarity index of the manuscript.

### **Conflict of interest**

The researchers stated that there is no conflict of interest related to the implementation and publication of the results of this research. The entire research process, from planning, data collection, analysis, to report preparation, was carried out independently without any influence or pressure from any third party. A commitment to research ethics is upheld throughout the research process, ensuring transparency, accuracy and honesty in reporting results. Respondents' participation was voluntary with informed consent, and their confidentiality and privacy were maintained in accordance with applicable research ethics standards. With this statement, researchers hope that the research results can be trusted and used as a valid reference for the development of science and health practices related to ethnomedicine and reproductive health.

### **Ethical consideration**

Not applicable.

### **Funding**

This research is not funded by any party and is not intended for any financial gain.

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