

THE EFFECT OF SLOW STROKE BACK MASSAGE (SSBM) THERAPY ON BLOOD PRESSURE IN HYPERTENSIVE PATIENTS

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ABSTRACT

Background: Hypertension is a global health problem that is the leading cause of death. WHO data for 2023 shows that around 1.28 billion adults aged 30–79 years in the world suffer from hypertension, with only 42% diagnosed and treated. In Indonesia, the prevalence of hypertension reaches 23.7% (WHO, 2022) and in West Java it is 32.6% (SKI, 2023). Uncontrolled hypertension can lead to serious complications such as stroke and kidney failure. The management of hypertension can be done pharmacologically and non-pharmacologically. One of the effective non-pharmacological therapies is Slow Stroke Back Massage (SSBM), which is a gentle massage technique in the back area to provide a relaxing effect and lower blood pressure. **Objective:** Aim to identify scientific journals that explain the effect of SSBM therapy on blood pressure in hypertensive patients. **Method:** This study is a literature review study that was searched through the ResearchGate, ScienceDirect, and Google Scholar databases with a publication deadline of 2015– 2025. Of the 1,134 journals selected using the inclusion criteria of PICOS and PRISMA, 10 journals were analyzed. **Results:** review showed that SSBM therapy significantly lowered systolic and diastolic blood pressure in hypertensive patients, especially if it was done routinely for several days or weeks. **Conclusion:** SSBM is an effective, safe, and efficient non-pharmacological therapy in helping to lower blood pressure in hypertensive patients and provide a relaxation effect that supports patient welfare.

Keywords: Slow Stroke Back Massage, Blood Pressure, Hypertension

INTRODUCTION

Cardiovascular diseases (including hypertension) are the leading cause of death worldwide. In Indonesia, these diseases account for 36.33% of total deaths. For hypertension specifically, the Indonesian Ministry of Health (2018) recorded over 63 million cases, with a mortality rate reaching 427,218 lives. It is dubbed the "Silent Killer" because most sufferers do not experience significant early symptoms. Consequently, patients often ignore the condition, leading to serious and life-threatening complications.

The prevalence of hypertension increases drastically with age—peaking at 65–74 years old (57.8%) due to structural changes in blood vessels, such as atherosclerosis and loss of tissue elasticity. However, prevalence among the productive age group (15–64 years) is also becoming a growing concern. If left undetected and untreated, hypertension causes the narrowing or rupture of blood vessels in the brain (stroke), kidney damage, and heart disorders. To minimize the risk of complications, early management using both pharmacological and non-pharmacological approaches is required. Non-pharmacological treatments like SSBM are considered safer alternatives that can enhance the effectiveness of anti-hypertensive medication. SSBM is a relaxation therapy involving gentle massage in the back area. This massage produces physiological effects, particularly on the vascular, muscular, and central nervous systems. **The benefits are** Lowers systolic and diastolic blood

pressure, improves and smoothens blood circulation, induces a relaxation effect and reduces body tension, alleviates pain (such as headaches or neck pain commonly triggered by high blood pressure) and Reduces sleep disturbances and improves sleep quality. **Kusumoningtyas (2018)** reported that SSBM therapy significantly reduced both systolic and diastolic blood pressure, with a mean decrease of approximately 5 mmHg. **Marhamah & Rahani (2023)**: This study demonstrated that SSBM is highly effective in lowering blood pressure when performed routinely over **3 weeks** (consisting of 10 sessions, each lasting 1 minute and 40 seconds).

METHOD

A. Research Design

The design of this study utilizes a literature review framework. A literature review provides a framework, concept, or orientation for analyzing and classifying facts collected within a study. It contains descriptions of theories, findings, and other research materials obtained from reference sources to serve as the foundation for research activities (Nursalam, 2020). The purpose of this method is to review several journals to determine the findings of previous studies regarding the effect of Slow Stroke Back Massage therapy on blood pressure in hypertension patients.

B. Journal Database

The literature review was conducted using various sources, including both national and international journals, obtained from the following databases: ResearchGate, ScienceDirect, and Google Scholar. The literature search was carried out in May 2025.

C. Publication Time Limit

The journals used in this study were restricted by publication time to ensure up-to-date research findings, as science and research outcomes adjust to current trends and issues. The journal findings used in this study span the last 10 years, specifically from January 2015 to May 2025.

D. Keywords

The search for articles or journals utilized keywords to either broaden or specify the search, thereby facilitating the selection of the articles or journals to be used. The literature search used keywords combined with the Boolean operators "AND" and "OR" to specify the search. The keywords used were adjusted to Medical Subject Headings (MeSH) as follows:

Table 1. Literature Study Keywords

Concept 1	Operat or	Concept 2	Operat or	Concept 3
Pijat lembut punggung	AND	Tekanan Darah	AND	Hipertensi
OR		OR		OR
Slow Stroke Back Massage		Blood pressure		Hypertensi on

E. Inclusion and Exclusion Criteria

The strategy used to search for articles applied the PICOS framework, which consists of:

1. **Population/problem:** The population or problem to be analyzed in accordance with the predetermined theme of the literature review.
2. **Intervention:** A management action implemented for individuals or communities, as well as the exposure of the study management according to the predetermined theme of the literature review.
3. **Comparison:** Other interventions or management strategies used as a comparison; if

none are available, a control group from the selected studies can be used.

4. **Outcome:** The results or outcomes obtained in the literature review study.

5. **Study design:** The research design used in the articles to be reviewed.

Table 2. PICOS Format in Literature Review

Criteria	Inclusion Criteria	Exclusion Criteria
Population	Hypertension	Non-Hypertension
Intervention	Slow Stroke Back Massage	Not Slow Stroke Back Massage
Comparison	No comparison	With comparison
Outcome	The effect of Slow Stroke Back Massage therapy on blood pressure in hypertension patients.	Does not discuss the effect of Slow Stroke Back Massage therapy on blood pressure in hypertension patients.
Study design	Quasi-Experimental, Randomized Controlled Trials (RCT), and Case Studies	Literature Reviews, Scoping Reviews, Meta-Analyses, dissertations, theses, books
Publication years	Years 2015–2025	Before the year 2015
Language	English, Indonesian	Other than English and Indonesian

F. Study Selection and Quality Assessment

1. Study Selection

The study selection process followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines. A systematic literature search was conducted using three electronic databases: ResearchGate (n = 108), ScienceDirect (n = 470), and Google Scholar (n = 556). The search was performed using predefined keywords and identified a total of 1,134 records.

After removing duplicate records and excluding literature reviews, scoping reviews, meta-analyses, dissertations, theses, and books, 151 articles remained for further screening. Subsequently, articles that were unavailable in full text or lacked open-access availability were excluded, resulting in 139 eligible articles. Finally, all remaining articles were assessed according to the predefined inclusion and exclusion criteria based on the PICOS framework. A total of 10 studies met all eligibility criteria and were included in the final literature review. The study selection process is presented in the PRISMA flow diagram.

2. Quality Assessment

The methodological quality of the selected studies was assessed by evaluating their relevance to the research objective and their compliance with the predefined inclusion criteria. The assessment considered the study design, participant characteristics, intervention, outcome measures, publication period (2015–2025), language (English or Indonesian), and availability of full-text articles. Only studies that satisfied all eligibility criteria were included in the final analysis.

RESULTS AND DISCUSSION

A. Characteristics of the Reviewed Journals

The ten journals reviewed in this study share identical characteristics regarding their research objectives, types, designs, samples, variables, instruments, and data analysis

techniques—all evaluating the effect of Slow Stroke Back Massage (SSBM) therapy on blood pressure in hypertensive patients. In terms of publication years, four journals were published in 2023, two in 2018, and one journal each in 2024, 2022, 2020, and 2017. All ten journals (100%) employed a quasi-experimental research design. For bivariate data analysis, nine journals utilized the Paired t-test, while one journal used the Wilcoxon signed-rank test. The combined sample size across these studies totaled 309 elderly patients diagnosed with hypertension. Collectively, the findings demonstrate that the administration of Slow Stroke Back Massage intervention has a significant effect on reducing blood pressure.

B. Intervention Protocol and Research Variations

The intervention protocols reported across the ten reviewed studies demonstrated a high degree of consistency regarding the implementation of Slow Stroke Back Massage (SSBM). Most studies applied SSBM for approximately 10 minutes per session, once daily, with intervention periods ranging from three consecutive days to four weeks. Although the duration of treatment varied among studies, all protocols followed the same fundamental massage principles, emphasizing gentle and rhythmic strokes along the back to promote relaxation and cardiovascular stability.

- **Meidayanti et al. (2023):** The findings consistently demonstrated that SSBM effectively reduced both systolic and diastolic blood pressure in patients with hypertension. Meidayanti et al. (2023) reported one of the largest reductions in blood pressure after the intervention, while the control group showed only minimal changes, indicating that SSBM contributed significantly to blood pressure reduction. Similarly, Meswanti (2018) found significant decreases in both systolic and diastolic blood pressure following SSBM, whereas participants receiving standard care alone experienced no meaningful improvement.
- **Normaliyanti et al. (2022):** Several studies investigated modifications of the standard massage protocol by combining SSBM with aromatherapy. Normaliyanti et al. (2022) incorporated cananga (ylang-ylang) essential oil during massage sessions and found significant reductions in both systolic and diastolic blood pressure after three consecutive days of treatment. Likewise, Sani et al. (2020) combined SSBM with lavender aromatherapy and reported marked improvements in blood pressure, suggesting that aromatherapy may enhance the relaxation response produced by massage.
- **Setiawan et al. (2023):** Comparable results were reported by Setiawan et al. (2023), who observed that participants receiving SSBM experienced greater reductions in blood pressure than those in the control group.
- **Meswanti (2018):** Found significant decreases in both systolic and diastolic blood pressure following SSBM, whereas participants receiving standard care alone experienced no meaningful improvement.
- **Sani et al. (2020):** Likewise, Sani et al. (2020) combined SSBM with lavender aromatherapy and reported marked improvements in blood pressure, suggesting that aromatherapy may enhance the relaxation response produced by massage.
- **Sasti et al. (2024):** Evidence from Sasti et al. (2024) further demonstrated that patients receiving SSBM achieved greater reductions in blood pressure than those receiving pharmacological therapy alone. Similar findings were presented by Auliyah et al. (2023), who observed significant improvements in both systolic and diastolic blood pressure following SSBM intervention.
- **Marlinda et al. (2023):** Also demonstrated substantial decreases in systolic and diastolic blood pressure after the intervention, confirming the therapeutic effectiveness of SSBM among hypertensive patients.

- **Auliyah et al. (2023):** Similar findings were presented by Auliyah et al. (2023), who observed significant improvements in both systolic and diastolic blood pressure following SSBM intervention.
- **Wibowo (2017):** Aimed to evaluate the effectiveness of Slow Stroke Back Massage (SSBM) in reducing blood pressure among older adults with hypertension living at the Nirwana Puri Elderly Social Institution in Samarinda, Indonesia. The study employed a pre-experimental one-group pretest–posttest design, in which participants' blood pressure was measured before and after receiving the massage intervention.
- **Kusumoningtyas et al. (2018):** investigated the effectiveness of Slow Stroke Back Massage (SSBM) in reducing blood pressure among older adults with hypertension living in RW 001, Jombang Village, Ciputat District, South Tangerang, Indonesia. The study employed a quasi-experimental design with a pretest–posttest non-equivalent control group, involving 30 elderly participants who were divided into intervention and control groups.

C. Physiological Mechanism of Action

Slow Stroke Back Massage is a mechanical, manual manipulation of the body utilizing various stroke techniques and pressures (Trisnowiyanto, in Septiari et al., 2017). When integrated into chronic disease management, its primary therapeutic objective is to alleviate anxiety, which is known to exacerbate pain perception. Massage yields profound physiological advantages for the musculoskeletal and cardiovascular systems. This non-pharmacological approach offers a favorable alternative, considering the side-effect profiles associated with high-risk antihypertensive medications. Physiologically, SSBM induces systemic vasodilation of blood vessels and lymphatic channels while upregulating the baroreceptor reflex response. This shift downregulates sympathetic nervous system (SNS) activity and upregulates parasympathetic nervous system (PNS) activity (Retno, in Septiari et al., 2017). This neurological shift triggers systemic vasodilation and decreases myocardial contractility, subsequently lowering heart rate, cardiac output, and stroke volume—culminating in a distinct reduction in blood pressure. The combined effects of vasodilation and reduced cardiac output work synergistically to lower blood pressure. Conversely, during acute hypotensive shifts, the body initiates rapid homeostatic compensatory responses to restore blood pressure back within normal physiological baselines (Muttaqin, in Septiari et al., 2017). Mechanistically, this massage acts by stimulating cutaneous nerve fibers on the skin surface. These sensory signals are transmitted to the hypothalamus, which interprets the tactile stimuli as a relaxation response, triggering a drop in systemic vascular resistance.

The primary massage stroke responsible for lowering blood pressure is **effleurage** (stroking).

- **Effleurage:** The most fundamental stroking technique, applied across broad expanses of the body to lower cortisol levels, alleviate stress, and activate the body's systemic relaxation response.
- **Friction:** Involves small, circular movements utilizing deep thumb pressure, designed primarily to release localized muscular tension.
- **Petrissage:** Consists of rhythmic kneading and squeezing maneuvers, applied progressively following effleurage.
- **Vibration:** Uses rapid shaking movements to stimulate deep tissues.
- **Tapotement:** Utilizes rapid, alternating striking movements with the fingers or hands to alter local circulation and relieve deep muscular rigidity.

By facilitating localized and systemic blood flow, massage optimizes the delivery of oxygen and vital nutrients to cellular tissues. This enhanced circulatory efficiency underpins

why this physical therapy serves as an effective modality for mitigating hypertension (Afrila, 2015).

D. Researcher's Assumption

Following a comprehensive evaluation of the literature, the researcher concludes that Slow Stroke Back Massage therapy exerts a substantial down-regulatory effect on blood pressure profiles in patients with hypertension. An optimized intervention protocol consists of a 10-minute session administered once daily for a duration of 3 days to 4 weeks. This massage technique successfully enhances circulatory stimulation and abolishes myofascial tension; the application of gentle, sustained mechanical pressure over cutaneous layers upregulates systemic blood flow. Ultimately, this therapeutic touch provides a powerful mechanism for conscious distraction and deep local relaxation at the intervention site.

CONCLUSIONS AND SUGGESTIONS

1. The Effect of SSBM Therapy on Blood Pressure

An analysis of the 10 journals indicates a significant difference in the blood pressure of hypertensive patients before and after the intervention. This significance is supported by statistical test results yielding a $p\text{-value} < 0.05$. This statistical evidence confirms that SSBM therapy effectively lowers both systolic and diastolic blood pressure.

2. Intervention Protocol and Duration

The majority of the reviewed studies implemented the following standard procedures for the massage intervention:

- Average Duration: 10 minutes per session.
- Frequency: Once (1\texttimes) daily.
- Timeline Range: Conducted routinely over a period spanning from 3 days up to 4 weeks.

3. Therapeutic Modifications (Use of Essential Oils)

To enhance the relaxation effect, several journals introduced modifications to the manual SSBM technique by utilizing topical lubricants infused with aromatherapy. The identified modifications include the application of:

- *Cananga* (ylang-ylang) essential oil
- Lavender essential oil

This combination creates a synergistic effect: the physical massage mechanically stimulates the parasympathetic nervous system to induce vasodilation, while the inhalation of essential oils stimulates the olfactory system, further promoting neurological relaxation and stress reduction. It is highly recommended that healthcare professionals (particularly community and hospital nurses) actively socialize and educate hypertensive patients regarding Slow Stroke Back Massage (SSBM) therapy. This non-pharmacological intervention should be demonstrated to both patients and their families so it can be correctly implemented independently at home as a complementary treatment to help manage and lower blood pressure

REFERENCES

- Meidayanti.,G., et al., (2023). The Effect of Slow Stroke Back Massage on Blood Pressure in Elderly Patients with Hipertension. *Holistic Nursing and Health Science*. Vol 6. No 1. July (30-37).
- Meswanti., D., A (2018). Pengaruh Slow Back Massage Terhadap Tekanna Darah Pada Lansia Penderita Hipertensi Di Panti Sosial Tresna Werdha Budi Mulia 2 Cengkareng Jakarta Barat. Universitas Muhammadiyah Jakarta.
- Normaliyanti., et al., (2022). Effectiveness of Slow Back Massage Using Ylang Essential Oil on Reducing Blood Pressure Hypertension Patients. *Journal of Advences in Medical*

- and Pharmaceutical science. Vol 1. (51-56)
- Setiawan., I., et al., (2023). Slow Stroke Back Massage (SSBM) therapy with Lavender Essential Oil Effectively Lowers Blood Pressure. *Jurnal Kebidanan dan Keperawatan Aisiyah*. Vol.19. No. 1 (51-62).
- Sani., F., et al., (2020). The Effect of Slow Stroke Back Massage and Lavender Aromatherapy on Blood Pressure in Hypertensive Patients. *Indonesia Journal of Medicine*. Vol 5. No. 3. (178-184).
- Sasti., M., dkk (2024). Pengaruh Teknik Slow Stroke Back Massage (SSBM) Terhadap Penurunan Tekanan Darah Tinggi pada Penderita Hipertensi di
- Marlinda., R., dkk., (2023). Pengaruh Teknik Slow Stroke Back Massage (Pijat Lembut Pada Punggung) Terhadap Tekanan Darah Pada Pasien Hipertensi . *Jurnal Kesehatan Medika Saintika*. Vol. 14. No. 1. (2540-9611).
- Auliyah., S., dkk., (2023). Pengaruh Terapi Slow Stroke Back Massage Terhadap Tekanan Darah Pada Pasien Hipertensi di Ruangan Pulau Selayar RSAL Dr. Mintohardjo Jakarta Pusat 2023. *Jurnal Medika Nusantara*. Vol. 2. No. 3. (23-33).
- Wibowo., T., A., (2017). Pengaruh Slow Stroke Back Massage (SSBM) Terhadap Penurunan Tekanan Darah Pada Hipertensi Lansia. *Universitas Muhammadiyah Klaimantan Timur*.
- Kusumoningtyas., D., et al., (2018). Efektifitas Terapi Slow Stroke Back Massage Terhadap Tekanan Darah Pada Lansia Di RW 001 Kelurahan Jombang Kecamatan Ciputat Kota Tangerang Selatan. *Jurnal Ilmiah Keperawatan Orthopedi*. Vol. 2. No 2. (39-57).
- Septiari., P., dkk., (2017). Pengaruh Terapi Slow Stroke Back Massage Terhadap Perubahan Tekanan Darah Pada Penderita Hipertensi Derajat I Di Panti Wreda Omega Semarang. *Akademik Keperawatan Widya Husada Semarang*.

Rosdiana, N., Rohman, A.A., & Sartika, I. (2026). The Effect of Slow Stroke Back Massage (SSBM) Therapy on Blood Pressure in Hypertensive Patients. 2(1) 229-236