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Application of Swedish Massage Therapy on Reducing Blood Pressure in Elderly with Hypertension at BPSTW Budi Luhur: A Nursing Case Study

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Abstract: Hypertension is a common cardiovascular disease in the elderly and is known as a "silent killer" because it often causes no symptoms. Uncontrolled hypertension can increase the risk of cardiovascular complications and reduce the quality of life in the elderly. One non-pharmacological therapy that can be used as a complementary therapy to help lower blood pressure is Swedish massage. This study aimed to determine the effect of Swedish massage therapy on reducing blood pressure in elderly patients with hypertension at BPSTW Budi Luhur, Yogyakarta Social Services. The method used was a descriptive case study involving two elderly respondents. Nursing care was provided for three consecutive days, applying Swedish massage therapy interventions. Blood pressure measurements were taken using a sphygmomanometer before and after 30 minutes of Swedish massage using effleurage, friction, petrissage, and tapotement techniques. Two nursing diagnoses were identified: acute pain and disturbed comfort. After three days of Swedish massage intervention, the average blood pressure before intervention was 163/101 mmHg, and after intervention it was 154/99 mmHg, with a reduction of 8 mmHg in systolic blood pressure and 2 mmHg in diastolic blood pressure. These results indicate that Swedish massage can be used as a non-pharmacological complementary therapy to help reduce blood pressure in elderly patients with hypertension.

Keywords: Hypertension, Elderly, Swedish Massage

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Introduction

The elderly represent the final stage in the life cycle, characterized by a decline in the body's ability to adapt to the environment and physiological stress. The aging process leads to physical and psychological changes due to decreased cell function, thereby affecting vital organs, especially the cardiovascular and renal systems. This condition increases the risk of various degenerative diseases, such as hypertension. Hypertension is commonly found in older age; as age increases, blood pressure rises, affecting the body's homeostasis (Bulu et al., 2021).

Hypertension is a cardiovascular disease that remains the leading cause of premature death globally (Marhabatsar & Sijid, 2021). Hypertension is often referred to as the "silent killer" because most sufferers experience no symptoms. Hypertension is defined as a condition where blood pressure in the arteries increases to ≥140 mmHg and/or diastolic blood pressure ≥90 mmHg (Utami & Setiawan, 2025). The higher the blood pressure, the harder the heart works (Bulu et al., 2021).

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According to the World Health Organization (WHO) in 2024, based on 2025 data, an estimated 1.4 billion adults aged 30–79 years worldwide suffer from hypertension (World Health Organization (WHO), 2025). Data from the 2023 Indonesian Health Survey (*Survei Kesehatan Indonesia*, SKI) show a decrease in the prevalence of hypertension among residents aged ≥18 years, at 30.8%, compared to the 2018 Basic Health Research (*Riset Kesehatan Dasar*, Riskesdas) result of 34.1% based on blood pressure measurements (Kemenkes RI, 2023). According to 2023 SKI data, the prevalence of hypertension in D.I. Yogyakarta based on doctor's diagnosis and blood pressure measurements in individuals aged ≥18 years reached 31.8% (SKI, 2023). According to the Bantul Health Profile for 2025 (based on 2024 data), the number of hypertension cases reached 12,634 (Dinas Kesehatan Kabupaten Bantul, 2025).

The high incidence of hypertension is influenced by non-modifiable risk factors such as age, gender, and genetics, while modifiable risk factors include stress, smoking, obesity, lack of physical activity, and excessive consumption of fat and salt (Afifah et al., 2022). Gender is one of the contributing factors to hypertension. Research results show that males have a 3-fold higher risk compared to females, with a p-value = 0.008 (Nilawati et al., 2023).

Long-standing hypertension can increase the risk of cardiovascular disease, stroke, kidney disorders, and even death. Individuals with hypertension often experience many problems such as depression, stress, difficulty sleeping, damage to the brain, eyes, heart, blood vessels, and kidneys, all of which affect quality of life (Nilawati et al., 2023). Most people with hypertension are asymptomatic, but sometimes hypertension causes several symptoms, including headache, dizziness, a warm sensation at the nape of the neck, fatigue, restlessness, nausea, vomiting, shortness of breath, and blurred vision (Sugiyanto & Husain, 2022). In the elderly, this condition also brings psychological effects such as decreased concentration, discomfort due to increased blood flow to the brain, leading to withdrawal from the social environment, as well as an increased risk of falls and dependence in daily activities, thereby reducing quality of life. Therefore, hypertension requires comprehensive management to increase the life expectancy and quality of life of the elderly (Bulu et al., 2021; Prastika & Nur Siyam, 2021; Yuliati et al., 2021).

Hypertension management efforts include pharmacological and non-pharmacological therapies. Pharmacological treatment aims to prevent mortality and control complications by maintaining arterial blood pressure at ≤140/90 mmHg. Non-pharmacological management includes weight loss, sodium restriction, regular exercise, and relaxation (Smeltzer & Bare, 2020). One non-pharmacological method is Swedish massage. Swedish massage is a type of massage that can relax muscles, improve blood circulation, increase parasympathetic activity, enhance circulation, and reduce stress hormones such as cortisol, adrenaline, and norepinephrine. This relaxed state contributes to vasodilation of blood vessels, thus lowering blood pressure using effleurage, petrissage, friction, and tapotement techniques (Wisrance et al., 2025).

Various non-pharmacological therapies have been implemented at Balai Pelayanan Sosial Tresna Werdha (BPSTW) Budi Luhur Yogyakarta, such as murattal (Qur'anic recitation) therapy, warm water immersion therapy, guava juice administration, and cucumber juice administration. However, implementation has not been optimal and has not been performed consistently. Furthermore, interventions that directly target physiological relaxation and improved blood circulation, such as Swedish massage therapy, have not been widely applied. Therefore, this study is important to ascertain the effectiveness of Swedish massage therapy as a complementary therapy in reducing blood pressure in elderly patients with hypertension.

This study aims to determine the application of Swedish massage therapy in reducing blood pressure in elderly patients with hypertension at BPSTW Budi Luhur, Yogyakarta Social Services.

Method

The research design used a descriptive case study in the form of a case report, with a sample of two elderly individuals with hypertension at BPSTW Budi Luhur, Yogyakarta Social Services. The case study was conducted for three consecutive days from February 19–21, 2026. Nursing care was implemented following the stages of the nursing process: assessment, diagnosis, intervention, implementation, and evaluation. Data were obtained through observation and interviews with respondents and nurses at BPSTW. Inclusion criteria were elderly aged ≥60 years, having hypertension, and elderly who were willing to be respondents and cooperative.

This case report describes two elderly individuals with hypertension. The first respondent was a 61-year-old male with a high school education. Based on the assessment, the respondent reported knowing he had had hypertension for three years, since living at BPSTW. The main complaint at the time of assessment was a stiff neck. Vital signs assessment showed a blood pressure of 177/99 mmHg, classified as grade 2 hypertension. The second respondent was a 60-year-old male with a junior high school education. The

respondent reported knowing he had had hypertension for one year, since being at BPSTW. The complaints during assessment were a headache with a throbbing sensation and a feeling of heaviness in the nape, with a pain scale of 4, intermittent pain. Vital signs examination showed a blood pressure of 163/113 mmHg, classified as grade 3 hypertension. Both respondents took amlodipine 1×10 mg.

The intervention was performed by measuring blood pressure using a digital sphygmomanometer before administering the Swedish massage therapy for 30 minutes to see if there was a reduction in blood pressure. The steps of the Swedish massage therapy were: 1) performing effleurage (stroking) movements, 2) performing friction movements (pressure with rotating circular movements), 3) performing petrissage (kneading) movements, 4) performing tapotement (tapping) movements (Utami & Setiawan, 2025). Blood pressure was then measured again after the intervention.

Result and Discussion

The assessment results identified two priority nursing diagnoses: 1) acute pain related to hypertension symptoms (D.0077), 2) disturbed comfort related to hypertension symptoms (D.0074). The patients' initial blood pressure readings were: 1) first respondent, aged 61 years, blood pressure 177/99 mmHg with complaint of a stiff neck, history of hypertension for 3 years since being at BPSTW; and 2) second respondent, aged 60 years, blood pressure 163/113 mmHg with complaint of a throbbing headache and a heavy sensation in the nape of the neck, pain scale 4, intermittent pain, history of hypertension for 1 year since being at BPSTW. Both respondents took amlodipine.

Table 1. Blood Pressure Data Before and After Intervention for Each Respondent Over 3 Days

Respondents	Day 1		Day 2		Day 3	
	Pre	Post	Pre	Post	Pre	Post
1	179/99	168/99	177/90	159/98	149/86	143/82
2	163/124	158/113	154/105	151/101	156/104	148/101

Based on Table 1, changes in blood pressure before (pre) and after (post) administration of the Swedish massage intervention over three consecutive days were observed in both respondents. Overall, the results showed a tendency toward decreased blood pressure in each respondent after the intervention. In the first respondent, blood pressure on the first day before intervention was recorded at 179/99 mmHg and gradually decreased to 143/82 mmHg on the third day after intervention. Meanwhile, in the second respondent, the initial blood pressure before intervention was 163/124 mmHg, which decreased after three days of intervention to 148/101 mmHg, although it remained in the hypertensive category. Overall, the Swedish massage intervention had a positive effect on lowering blood pressure in both respondents, although the magnitude of reduction differed between individuals.

Table 2. Average Blood Pressure of Both Respondents Before and After Swedish Massage Therapy Over 3 Days

Respondent	Pre-test (mmHg)	Post-test (mmHg)	Difference (mmHg)
1	168/92	157/93	11
2	158/111	152/105	6
Average	163/101	145/99	8

Based on Table 2, the average blood pressure of both respondents before (pre-test) and after (post-test) receiving Swedish massage therapy for three consecutive days decreased by 11 mmHg and 6 mmHg, respectively. In the first respondent, the average blood pressure before intervention was 168/92 mmHg and after intervention became 157/93 mmHg. Meanwhile, in the second respondent, the average blood pressure before intervention was 158/111 mmHg and after intervention became 152/105 mmHg.

According to the WHO hypertension classification, the blood pressure measurements showed a change in category for both respondents after the intervention. In the first respondent, the average blood pressure showed a significant decrease from grade 2 hypertension to grade 1 hypertension at post-test, indicated by an average reduction of 11 mmHg. Meanwhile, the second respondent experienced a decrease in blood pressure, although not as large as the first respondent. The category changed from grade 3 hypertension to grade 2 hypertensions after the intervention, with an average reduction of 6 mmHg. Although the reduction was smaller, this change still indicates an improvement in blood pressure status.

Subjective results obtained were: 1) the first respondent reported that the stiff neck had decreased, 2) the second respondent reported that the throbbing headache and heavy sensation in the nape had decreased to a pain scale of 2; both respondents reported feeling more relaxed and more comfortable after the Swedish massage therapy because they had not been massaged for a long time. Feelings of relaxation and comfort can trigger the release of endorphins, leading to decreased heart rate, decreased respiration, and decreased blood pressure (Aritonang, 2020).

The non-pharmacological therapy of Swedish massage was administered for three consecutive days. Before the Swedish massage intervention, blood

pressure was measured using a digital sphygmomanometer. Then, the Swedish massage therapy was performed as follows: 1) effleurage (stroking) movements, 2) friction movements (pressure with rotating circular movements), 3) petrissage (kneading) movements, 4) tapotement (tapping) movements, for 30 minutes. Blood pressure was then measured again after the intervention. Each movement in Swedish massage provides benefits: effleurage helps relax the nervous system and increases venous blood flow from the extremities to the heart, thereby reducing venous pressure and improving blood circulation; friction helps restore muscle fiber alignment; petrissage makes muscles more relaxed; and tapotement helps relieve muscle pain. The combination of these techniques plays a role in improving blood circulation and activating the parasympathetic system, which results in decreased heart rate and thus lowers blood pressure (Fahriyah et al., 2021).

Lowering of blood pressure can occur due to direct stimulation of the autonomic nervous system through whole-body massage, resulting in decreased sympathetic activity (Sembiring et al., 2024). This aligns with research by Oktaviani (2023), which found that Swedish massage provides muscle relaxation and improves blood circulation, thereby lowering blood pressure (Oktavianti & Podesta, 2023). Meanwhile, according to Petra (2023), physiologically, Swedish massage therapy can induce a relaxation response by affecting the activity of the parasympathetic nervous system. This activity leads to decreased cortisol levels related to stress and improves blood circulation. This condition can help lower blood pressure and slow heart rate. Swedish massage therapy influences blood pressure changes, whether increase or decrease. Differences in outcomes may be influenced by age factors as well as the biological and psychological responses of each respondent (Petra et al., 2023). Additionally, factors that influence increased blood pressure include increased arterial pressure and degenerative processes commonly occurring in old age.

Regarding the age factor of respondents: as a person ages, there is a decline in the function of body organs, including the cardiovascular system, such as the heart and blood vessels becoming narrower and blood vessel walls becoming stiffer, so the response to therapy becomes slower (Adam, 2019). Psychological factors such as stress can influence increased blood pressure. When a person experiences stress, increased activity of the sympathetic nervous system triggers the release of stress hormones such as cortisol. This condition causes vasoconstriction of blood vessels, increased heart rate, and increased blood pressure. Conversely, when in a relaxed state, increased activity of the parasympathetic nervous system produces relaxation effects (Sembiring et al., 2024).

Consistent with the research by Prassetyo (2024), the application of Swedish massage therapy to the two elderly respondents resulted in blood pressure changes: the first respondent showed a systolic reduction of 23 mmHg and a diastolic reduction of 1 mmHg, while the second respondent showed a systolic reduction of 12 mmHg and a diastolic reduction of 6 mmHg (Prasetyo et al., 2024).

According to research by Widyaningrum (2020), Swedish massage therapy can be given as a complementary therapy to patients who are already taking antihypertensive medication. The combination of both is effective in helping to lower blood pressure because the medication works pharmacologically, while massage enhances relaxation and vasodilation of blood vessels, thereby achieving optimal blood pressure control (Widyaningrum, 2020).

Swedish massage therapy is beneficial in lowering blood pressure in elderly individuals with hypertension. This aligns with Wisrance (2025), who stated that Swedish massage effectively lowers blood pressure through mechanisms of muscle relaxation, vasodilation, parasympathetic system stimulation, and reduction of stress hormones. Therefore, Swedish massage can be recommended as an easy and beneficial non-pharmacological complementary therapy for hypertension management (Wisrance et al., 2025). Based on the range of reduction in this study, it can be concluded that the administration of Swedish massage therapy is beneficial in lowering blood pressure in elderly patients with hypertension.

However, this study has limitations. First, the number of respondents was very limited, only two elderly individuals, so the results cannot be generalized to a broader population. Second, the research design used was a descriptive case study with a case report, thus lacking a control group for comparison. Third, both respondents continued to receive pharmacological therapy with amlodipine during the intervention, so the observed blood pressure reduction resulted from a combination of pharmacological and non-pharmacological therapy. Therefore, the findings of this case report can serve as a basis for future research to evaluate the application of Swedish massage therapy in lowering blood pressure in the elderly, including considering larger sample sizes, different research designs, using samples with uncontrolled hypertension, and possible combination with other interventions to strengthen non-pharmacological therapy in hypertension management.

Conclusion

Based on the results of the assessment and implementation of nursing care for the two elderly respondents with hypertension, two priority nursing

diagnoses were identified: acute pain and disturbed comfort.

The administration of the non-pharmacological intervention in the form of Swedish massage, performed for three consecutive days, showed a reduction in blood pressure in both respondents. In the first respondent, blood pressure decreased from grade 2 hypertension to grade 1, with an average reduction of 11 mmHg. Meanwhile, the second respondent experienced a decrease from grade 3 hypertension to grade 2, with an average reduction of 6 mmHg, although blood pressure remained in the hypertensive category. Looking at the averages, both respondents showed a reduction in blood pressure, with a systolic decrease of 8 mmHg and a diastolic decrease of 2 mmHg.

Moreover, subjectively, both respondents reported a reduction in complaints such as pain and discomfort, as well as an increased feeling of relaxation after receiving the Swedish massage therapy.

Thus, it can be concluded that Swedish massage therapy has a positive effect in helping to lower blood pressure and improve comfort in elderly patients with hypertension. This therapy can be recommended as a non-pharmacological complementary therapy to support blood pressure control in hypertension.

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Author Contributions

The first author is fully responsible for the overall implementation of the research, including conceptualization, design of the research method, data collection, data analysis, interpretation of results, and manuscript preparation.

The second author contributed as an academic supervisor by providing direction, guidance, suggestions, and feedback throughout the research process until the preparation of the publication manuscript. The second author also played a role in the manuscript revision process to improve scientific quality and clarity of content.

All authors have read, approved, and take responsibility for the final version of the manuscript to be published.

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This case study research was conducted as part of the fulfilment of academic requirements (Final Scientific Work) for completing the education of the Professional Nurse Program at Alma Ata University Yogyakarta. Thus, this case study research is purely aimed at advancing scientific knowledge and enhancing the academic competency of the author, without any intervention or interest from external parties that could affect the objectivity of the research results.

Conflicts of Interest

The author declares that there is no conflict of interest in this study, whether financial or non-financial. All stages of this case study research, including the assessment, determination of nursing diagnoses, intervention planning, implementation of actions, and evaluation of the Swedish massage therapy, were conducted independently by the author without any support, pressure, or intervention from any party, including commercial entities, companies, or therapy service providers.

The Swedish massage therapy intervention provided in this study is a non-pharmacological measure given solely for academic purposes as part of the preparation of the Final Scientific Work for the Professional Nurse Program at Alma Ata University Yogyakarta, as well as an effort to improve the quality of nursing care for elderly patients with hypertension.

The author also ensures that the entire case study research process was carried out objectively, transparently, and based on ethical principles, prioritizing the safety and well-being of the respondents. Before the intervention, the respondents were explained the purpose, procedures, and benefits of the study, and they provided verbal consent to participate in this case study.

Furthermore, the author guarantees that all data and information obtained from the respondents are kept confidential. The identities of the respondents are not included in the research report or publication, and all data are presented in anonymized form to protect respondents' privacy.

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