

Effectiveness of Foot Reflexology Massage Therapy in Reducing Blood Pressure and Improving Comfort in Elderly Patients with Hypertension: A Case Study at Griya Lansia Garut Social Service Unit

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Abstract: Hypertension is a major health problem among the elderly, often requiring integrated management approaches. Foot reflexology massage therapy is a non-pharmacological intervention that may reduce blood pressure and improve comfort in hypertensive elderly patients. To analyze the effectiveness of foot reflexology massage therapy in reducing blood pressure and improving comfort in an elderly patient with hypertension at the Griya Lansia Garut Social Service Unit. A descriptive case study method was used with one elderly respondent. Nursing care was implemented over three days, with foot reflexology massage as the main intervention. Pre- and post-therapy blood pressure measurements and comfort assessments were conducted. Four nursing diagnoses were identified: discomfort, sleep pattern disturbance, knowledge deficit, and risk of falls. After three days of intervention, systolic blood pressure decreased from 170/100 mmHg to 130/90 mmHg, and diastolic pressure improved. The patient reported reduced discomfort, improved sleep, and increased understanding of hypertension management. Foot reflexology massage therapy is an effective non-pharmacological intervention to reduce blood pressure and enhance comfort in elderly hypertensive patients. It should be considered as part of holistic geriatric nursing care.

Keywords: Elderly, Foot Reflexology, Geriatric Nursing, Hypertension, Non-Pharmacological Therapy

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Introduction

Hypertension is a significant health issue among the elderly, contributing to high morbidity and mortality rates globally. In Indonesia, the prevalence of hypertension continues to rise, with West Java Province reporting the second-highest prevalence at 39.60% (Pangribowo, 2019). Non-pharmacological interventions, including complementary therapies, are increasingly used to manage hypertension (Puspita, et al., 2023). Foot reflexology massage therapy is a non-

invasive technique that applies pressure to specific reflex points on the feet, promoting relaxation, improving circulation, and potentially lowering blood pressure (Wijayakusuma, 2016; Sihotang, 2021).

This study aimed to analyze the application of foot reflexology massage therapy in an elderly patient with hypertension at the Griya Lansia Garut Social Service Unit. Through structured nursing care, this case study evaluated the therapy's effectiveness in reducing blood pressure and improving patient comfort.

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Method

A descriptive case study design was employed, focusing on one elderly female patient, 75 years old, diagnosed with hypertension for two years. The study was conducted over three consecutive days in March 2025. Nursing care was implemented following the nursing process stages: assessment, diagnosis, planning, intervention, implementation, and evaluation. Foot reflexology massage was administered daily for 20–30 minutes, targeting reflex points associated with cardiovascular and relaxation responses. Blood pressure was measured before and after each session using a calibrated sphygmomanometer. Comfort levels were assessed through patient self-report and observational indicators.

Result and Discussion

Comprehensive assessment revealed four priority nursing diagnoses: (1) Discomfort related to hypertension symptoms (D.0074); (2) Sleep pattern disturbance due to nighttime discomfort (D.0055); (3) Knowledge deficit regarding hypertension management (D.0111); and (4) Risk of falls associated with dizziness and age >65 years (D.0143). The patient's initial blood pressure was 170/100 mmHg, with complaints of headache, neck discomfort, and frequent nighttime awakenings.

Following three consecutive days of foot reflexology massage therapy, the patient's blood pressure showed consistent improvement. Pre-intervention blood pressure was 170/100 mmHg. Post-intervention measurements recorded 160/100 mmHg on day one, 150/90 mmHg on day two, and 130/90 mmHg on day three. This represents a total reduction of 40 mmHg in systolic pressure and 10 mmHg in diastolic pressure over the intervention period.

The patient reported significant reduction in headache and neck discomfort, especially after the second and third sessions. She expressed feeling "more relaxed" and "less tense." Sleep quality improved markedly, with fewer nighttime awakenings and longer uninterrupted sleep periods. By the third day, the patient noted feeling "more refreshed in the morning."

Through integrated health education, the patient demonstrated improved understanding of hypertension management, including medication adherence, dietary sodium restriction, and fall prevention strategies. She verbalized intentions to maintain regular antihypertensive medication and adopt a healthier diet.

The Timed Up and Go (TUG) test score remained at 11–19 seconds (low to moderate fall risk), while functional reach test indicated continued fall risk (<6 inches). However, the patient showed improved

awareness of fall prevention and began using a walker as recommended.

The observed blood pressure reduction aligns with established physiological mechanisms of foot reflexology. Stimulation of specific reflex points on the feet activates the parasympathetic nervous system, reduces cortisol levels, and promotes vasodilation, thereby lowering peripheral vascular resistance (Wijayakusuma, 2016; Pristiyani & Mujahid, 2020). This case supports findings from Sihotang (2021), who reported significant blood pressure reduction in hypertensive patients following regular foot reflexology sessions. The progressive improvement over three days suggests a cumulative therapeutic effect, consistent with the concept that repeated stimulation enhances autonomic regulation (Umanah & Paraswati, 2019).

The blood pressure reductions (40 mmHg systolic, 10 mmHg diastolic) are clinically significant and align with meta-analytic evidence. Li et al. (2022) reported average reductions of 4.62 mmHg systolic and 3.32 mmHg diastolic across 13 randomized controlled trials. The more substantial reduction in this case may reflect intensive daily application and individualized care. Furthermore, Arifah et al. (2024) demonstrated significant differences between intervention and control groups ($p=0.000$ for systolic, $p=0.001$ for diastolic), supporting reflexology's specific antihypertensive effects rather than placebo responses.

Beyond blood pressure reduction, the intervention addressed multiple geriatric syndromes concurrently. Improved sleep quality correlates with reduced sympathetic tone and decreased nighttime discomfort, addressing a common complication of hypertension (Sumartini et al., 2019). This multidimensional improvement supports the holistic approach of geriatric nursing, which integrates physical, psychological, and functional aspects (Azizah, 2011). The patient's reported "increased comfort" and "reduced tension" reflect the therapy's psychosomatic benefits, consistent with reflexology's known stress-reduction effects (Wahyuni, 2014).

This case demonstrates successful integration of complementary therapy within conventional hypertension management. The patient maintained antihypertensive medication while receiving reflexology, illustrating how non-pharmacological interventions can synergize with medical treatment. This approach aligns with current hypertension management guidelines emphasizing multimodal strategies (Kemenkes RI, 2020). The concurrent health education component addressed knowledge deficits, creating a comprehensive self-management framework that empowers elderly patients (Basuki & Others, 2017).

The findings support incorporating foot reflexology into nursing care plans for elderly hypertensive patients. As demonstrated in the nursing interventions, techniques such as reflexology can be implemented by trained nursing staff without specialized equipment, making it particularly suitable for residential care settings like the Griya Lansia unit. The Standard Operating Procedure outlined in this study (Table 2.9) provides a practical framework for implementation. Furthermore, the therapy's non-invasive nature and high patient acceptability make it especially suitable for frail elderly populations (Wulandari, 2020).

Indonesia's aging population presents unique challenges for hypertension management. With limited access to specialized healthcare in many regions, non-pharmacological interventions like foot reflexology offer practical, culturally acceptable alternatives. This case study contributes to the growing body of Indonesian research on complementary therapies, joining studies by Sihotang (2021) in Medan, Umanah & Paraswati (2019) in Surabaya, and Lutvitaningsih & Maryoto (2021) in Purbalingga. The consistency of findings across different regions strengthens the evidence base for reflexology's effectiveness in diverse Indonesian elderly populations.

While this case study provides valuable clinical insights, its single-subject design limits generalizability. Future research should employ randomized controlled designs with larger samples and longer follow-up periods to establish efficacy more definitively. Studies should also explore optimal protocols regarding frequency, duration, and specific techniques. Additionally, research comparing reflexology with other non-pharmacological interventions (e.g., breathing exercises, meditation) would help clinicians select the most appropriate therapies for individual patients.

The application of foot reflexology within the nursing process demonstrates how complementary therapies can be systematically integrated into professional nursing practice. Using standardized nursing diagnoses (SDKI), interventions (SIKI), and outcomes (SLKI) ensures that reflexology is implemented as an evidence-based nursing intervention rather than merely an adjunctive therapy. This approach elevates complementary therapies from informal practices to formally recognized nursing interventions, contributing to the professional development of nursing science in Indonesia (Tim Pokja SDKI DPP PPNI, 2017).

The patient in this case presented with typical geriatric multimorbidity – hypertension complicated by sleep disturbance, discomfort, and fall risk. Foot reflexology's ability to address multiple issues simultaneously makes it particularly valuable in geriatric care. Unlike single-focused pharmacological

interventions, reflexology appears to have systemic effects that benefit various aspects of health simultaneously. This aligns with the geriatric care principle of minimizing interventions while maximizing benefits – a crucial consideration given elderly patients' increased vulnerability to polypharmacy and treatment burden (Stanley & Beare, 2016).

Foot reflexology requires minimal resources – primarily trained personnel and basic supplies like massage oil – making it highly feasible for implementation in Indonesia's diverse healthcare settings, from urban clinics to rural community health centers. The therapy's low cost and non-technical nature make it particularly suitable for widespread adoption. Training programs for nurses and family caregivers, as suggested in the therapeutic education component, could further enhance accessibility and sustainability (Fandizal et al., 2019).

Beyond physiological measures, this case highlights important patient-centered outcomes. The patient's subjective reports of increased comfort, improved sleep, and enhanced wellbeing demonstrate reflexology's impact on quality of life – an increasingly important outcome measure in geriatric care. These subjective improvements may contribute to better treatment adherence and overall health outcomes, creating a positive feedback loop that enhances both physiological and psychological health (Safitri & Ismawati, 2018).

This case study contributes to the developing evidence base for Indonesian nursing practice, particularly in geriatric and community settings. By documenting the systematic application of foot reflexology within the nursing process, it provides a model for other nurses seeking to integrate complementary therapies into their practice. The detailed documentation of assessment tools, intervention protocols, and evaluation methods creates a replicable framework that can be adapted to various clinical contexts while maintaining methodological rigor.

Conclusion

Foot reflexology massage therapy proved effective in reducing blood pressure and improving comfort in an elderly patient with hypertension. The intervention addressed multiple nursing diagnoses and contributed to holistic geriatric care. Healthcare facilities, particularly elderly care units, should consider integrating trained reflexology sessions into routine nursing care.

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Author Contributions

The author conducted the entire research process including designing the case study methodology, performing comprehensive nursing assessments, implementing and documenting all nursing interventions (including foot reflexology therapy), collecting and analyzing clinical data, drafting the complete manuscript, and preparing all supporting materials (tables, figures, educational leaflets).

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Conflicts of Interest

The author declares no conflicts of interest. There are no financial or personal relationships with organizations or individuals that could inappropriately influence or bias the content of this work. The foot reflexology intervention was implemented as a non-commercial, therapeutic nursing intervention without association with any specific reflexology certification programs, product brands, or commercial massage services. The author confirms that the research was conducted independently and objectively, with primary commitment to patient welfare and scientific integrity.

The patient provided verbal informed consent for participation in this case study and for the anonymous publication of clinical findings. All patient identifiers have been removed or anonymized to protect confidentiality. The study protocol was approved by the academic supervisors at Sekolah Tinggi Ilmu Kesehatan Karsa Husada Garut as part of standard educational requirements.

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