

# Gerontic Nursing Care with Hypertension in Mrs. N by Soaking Feet Using Warm Water

Nalla Siti Sofiah<sup>1\*</sup>, Iwan Wahyudi<sup>2</sup>

<sup>1</sup>Nursing Profession, Karsa Husada College of Health Sciences, Garut, West Java, Indonesia.

<sup>2</sup>Bachelor of Nursing Science, Karsa Husada College of Health Sciences, Garut, West Java, Indonesia

**Abstract:** Hypertension, characterized by elevated blood pressure, is a prevalent cardiovascular disorder influenced by genetic, lifestyle, and socio-cultural factors. Effective management, including non-pharmacological interventions like warm water foot soaking therapy, is crucial to prevent complications. This case study details the nursing care provided to Mrs. N, a geriatric patient with hypertension, using warm water soaking therapy at Tarogong Health Center. A qualitative descriptive method was used to analyze the nursing process, covering assessment, diagnosis, intervention, implementation, and evaluation. The study identified three nursing problems: chronic pain, sleep pattern disturbance, and risk of falls. Warm water foot soaking therapy was implemented based on Evidence-Based Practice (EBP) to alleviate pain and improve peripheral circulation. Following three days of therapy, Mrs. N's blood pressure decreased. This study highlights the potential of warm water foot soaking therapy as a beneficial nursing intervention for managing hypertension in geriatric patients.

**Keywords:** Elderly, Hypertension, Warm Water Foot Soaking Therapy

Received: 24 August 2024

Revised: 09 December 2024

Accepted: 20 December 2024

Published: 28 December 2024

Corresponding Author: Nalla Siti Sofiah

Author Name\*: Nalla Siti Sofiah

Email\*: [nallasitisofiah5@gmail.com](mailto:nallasitisofiah5@gmail.com)

DOI : [10.63166/ad5rfp38](https://doi.org/10.63166/ad5rfp38)

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Phone\*: +62 882-2916-6612

## Introduction

Hypertension remains a critical public health challenge, particularly among the elderly population where prevalence exceeds 70% in many developed nations (Unger et al., 2020). This persistent elevation of blood pressure ( $\geq 140/90$  mmHg) significantly increases cardiovascular risks including stroke, myocardial infarction, and renal failure. The aging process itself contributes to hypertension through arterial stiffening, endothelial dysfunction, and reduced baroreceptor sensitivity (Franklin et al., 2015). These physiological changes create an urgent need for effective, low-risk interventions that can complement or reduce pharmacological dependence in geriatric care.

Elderly patients present unique therapeutic challenges due to increased medication sensitivity, polypharmacy risks, and higher incidence of orthostatic hypotension (Monahan, 2015). Pharmacological treatments often cause adverse effects like electrolyte imbalances, cognitive impairment, and excessive BP reduction in this population (Mills et al., 2020). These limitations have spurred interest in non-pharmacological approaches, particularly those that leverage the body's natural regulatory mechanisms while minimizing side effects. Warm water foot soaking has emerged as a promising intervention that addresses both physiological and practical needs of elderly hypertensives.

The antihypertensive effect of warm water foot soaking operates through multiple physiological pathways. Heat exposure induces peripheral vasodilation through nitric oxide-mediated relaxation of vascular smooth muscles (Brunt et al., 2016). This reduces systemic vascular resistance, a key determinant of blood pressure. Additionally, the therapy stimulates cutaneous thermoreceptors, activating the parasympathetic nervous system and promoting overall cardiovascular relaxation (Kuwahara et al., 2016). Research indicates these effects are particularly pronounced in elderly patients who often exhibit impaired peripheral circulation (Cui et al., 2017).

Recent clinical studies have quantified the therapeutic potential of this intervention. A controlled trial by Thomas et al. (2019) demonstrated that 15-minute foot baths at 40°C reduced systolic BP by an average of 12-15 mmHg in elderly participants. The effects persisted for 2-3 hours post-intervention, suggesting potential for both acute management and long-term regimen integration. Importantly, the therapy showed excellent safety profiles with no reported adverse events, making it particularly suitable for frail elderly patients (Zhang et al., 2018).

For optimal results, current evidence recommends foot soaking sessions of 10-15 minutes at 38-40°C, ideally performed during evening hours when blood pressure typically peaks (Kuwahara et al., 2016). Nurses play a crucial role in educating patients about proper technique and safety precautions, especially for those with diabetes or peripheral neuropathy who require temperature monitoring (Mills et al., 2020). The intervention's simplicity and low cost enhance its feasibility for home-based management, potentially improving adherence compared to complex medication regimens. This study looked for effect of soakig feet to hypertension in elderly.

## Method

This study employed a qualitative descriptive approach, using a case study design conducted at Tarogong Health Center. The data collection involved a comprehensive nursing care process, including initial assessment, nursing diagnosis, planning interventions, implementation, and evaluation. Ethical considerations were observed throughout the study to ensure patient safety and confidentiality.

## Result and Discussion

During the comprehensive assessment at Tarogong Health Center, three primary nursing problems were identified for Mrs. N, a geriatric patient with hypertension. The assessment incorporated both subjective data obtained through patient and family

interviews, and objective data from physical examinations and medical record review (Ackley et al., 2020). The identified problems included: 1) Chronic pain in lower extremities (rated 6/10 on the Numeric Pain Rating Scale) associated with hypertension-related circulatory compromise, 2) Sleep pattern disturbance characterized by difficulty initiating and maintaining sleep due to discomfort and health-related anxiety, and 3) Elevated fall risk secondary to postural instability and muscle weakness (Tinetti et al., 2018). These findings were consistent with common geriatric hypertension complications documented in recent literature.

The nursing care plan incorporated warm water foot soaking as a primary intervention based on current evidence demonstrating its efficacy in hypertension management (Zhang et al., 2018). The intervention protocol followed best practice guidelines: 15-minute sessions at 38-40°C water temperature, administered daily for three consecutive days (Kuwahara et al., 2016). Complementary interventions included patient education on hypertension self-management, sleep hygiene counseling, and fall prevention strategies (Ackley et al., 2020). The multimodal approach addressed both physiological and psychosocial aspects of Mrs. N's condition, aligning with holistic geriatric care principles.

The warm water foot soaking intervention yielded significant physiological improvements. Blood pressure decreased from 160/100 mmHg to 140/90 mmHg, consistent with findings from Brunt et al. (2016) regarding thermal therapy's vasodilatory effects. Pain intensity reduced from 6/10 to 4/10, likely due to improved peripheral circulation and reduced muscle tension (Cui et al., 2017). Visible reduction in lower extremity edema suggested enhanced venous return, supporting the intervention's microcirculatory benefits (Zhang et al., 2018). These objective measures confirmed the therapy's effectiveness in addressing hypertension-related complications.

Subjective outcomes demonstrated equally important quality of life enhancements. Mrs. N reported improved sleep quality and duration, with fewer nighttime awakenings. This aligns with Kuwahara et al.'s (2016) findings on thermal therapy's parasympathetic activation and anxiety-reducing effects. The patient expressed increased confidence in mobility, correlating with reduced pain levels and improved balance. Such psychosocial benefits are particularly valuable in geriatric care, where functional independence significantly impacts overall wellbeing (Tinetti et al., 2018).

The intervention followed a systematic nursing process framework (Ackley et al., 2020). Assessment utilized validated tools including the Numeric Pain

Rating Scale and Morse Fall Scale. Diagnosis formulation applied NANDA-I taxonomy to ensure standardization. Implementation incorporated patient-centered adjustments, such as optimal timing of sessions to match Mrs. N's circadian rhythm. Evaluation employed both quantitative measures (BP readings, pain scores) and qualitative feedback, providing comprehensive outcome assessment.

This case supports integrating warm water foot soaking into hypertension management protocols for elderly patients. The intervention's non-pharmacological nature makes it particularly suitable for patients with medication sensitivity or polypharmacy concerns (Mills et al., 2020). Future applications should consider longer intervention periods to assess sustained benefits, and potential combinations with other non-drug therapies. Healthcare facilities serving geriatric populations may benefit from establishing standardized protocols for this accessible, cost-effective intervention.

## Conclusion

Warm water foot soaking therapy is an effective non-pharmacological intervention for managing hypertension in geriatric patients. It provides multiple benefits, including pain relief, improved circulation, and relaxation, contributing to overall better health outcomes for elderly individuals.

## Acknowledgments

The author expresses gratitude to STIKes Karsa Husada Garut faculty members and staff at Tarogong Health Center for their support during this study.

## Author Contributions

All authors made substantial and equal contributions to this research. We jointly designed the study, collected and analyzed data, implemented interventions, and prepared the manuscript through collaborative discussions. Each author critically reviewed and approved the final version, sharing responsibility for all aspects of the work.

## Funding

This research received no external funding.

## Conflicts of Interest

The authors declare no conflict of interest.

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