



The Application Of Warm-Water Foot Soaks With A Mixture Of Salt And Lemongrass To Lower Blood Pressure In Patients With Hypertension

Nanda Fitria¹, Siti Nurafifah Qarimah², Melafilani S³, Rina Karmila⁴

¹ Nursing Student Academy of Nursing Iskandar Muda Iskandar Muda Banda Aceh.

² Academy of Nursing Iskandar Muda Banda Aceh.

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Corresponding Author: Siti

Nurafifah Qarimah

Author Name*: Nanda Fitria

Email*:

nandafitria011105@gmail.com

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Phone*: +62 821 7351 6050

Abstract: Hypertension is a noncommunicable disease that poses a major health problem because it increases the risk of cardiovascular complications if not managed properly. In addition to pharmacological therapy, nonpharmacological therapies are needed as adjuncts to help control blood pressure. One therapy that can be applied in nursing care is a warm foot bath with a mixture of salt and lemongrass, which provides a relaxing effect, improves blood circulation, facilitates peripheral blood flow, and helps lower blood pressure. The objective of this case study is to describe the application of warm foot soaks with a mixture of salt and lemongrass in lowering blood pressure among patients with hypertension in Gampong Cot Lamme, Kuta Baro Subdistrict, Aceh Besar Regency. This study employed a descriptive design using a case study approach involving two patients with stage 1 hypertension. The intervention was conducted for seven consecutive days, once daily for 10 minutes. Data were collected through interviews, observations, and blood pressure measurements before and after the intervention. The results showed a decrease in blood pressure in both subjects: from 159/98 mmHg to 140/80 mmHg and from 159/99 mmHg to 130/80 mmHg. Both subjects also responded well during the intervention. In conclusion, warm foot soaks with a mixture of salt and lemongrass can help lower blood pressure and have the potential to serve as a nonpharmacological therapy.

Keywords: hypertension, warm foot soak, salt, lemongrass, blood pressure

Introduction

Hypertension is a noncommunicable disease that poses a major global health problem because it is a risk factor for various cardiovascular diseases, such as stroke, coronary heart disease, heart failure, and chronic kidney disease (Mills et al., 2020). Hypertension is defined as a condition in which systolic blood pressure is >140 mmHg and diastolic blood pressure is >90 mmHg (Whelton et al., 2018). This disease is often called the “silent killer” because most patients do not

experience symptoms until serious complications arise. Risk factors for hypertension include modifiable factors—such as obesity, a high-sodium diet, physical inactivity, smoking, stress, and alcohol consumption—as well as non-modifiable factors, such as age, gender, and family history (Indonesian Ministry of Health 2019).

According to the World Health Organization (WHO) in 2023, approximately 1.28 billion adults aged 30–79 worldwide suffer from hypertension, with a

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global prevalence of 22%. In Indonesia, the prevalence of hypertension among people aged 18 and older is 34.1% (Indonesian Ministry of Health, 2019). In Aceh Province, hypertension remains one of the diseases with a high number of cases and continues to increase every year. This situation indicates that hypertension remains a public health issue requiring comprehensive management (Aceh Health Profile, 2022).

The management of hypertension involves not only pharmacological therapy but also requires nonpharmacological therapies as supportive measures to control blood pressure (Unger et al. 2020). One nonpharmacological therapy that is easy to implement is a warm foot soak with a mixture of salt and lemongrass (Nerenberg., 2018). This therapy provides a relaxing effect, improves blood circulation, reduces muscle tension, and helps lower blood pressure, making it a simple, safe, and easy-to-perform alternative nursing intervention that can be done independently at home (Nuraini, 2020).

Based on the results of a preliminary survey conducted in Gampong Cot Lamme, Kuta Baro Subdistrict, Aceh Besar Regency, data showed that there were 35 patients with hypertension in the past three months. An assessment of two subjects showed blood pressure readings of 159/98 mmHg and 159/99 mmHg, respectively, accompanied by complaints of headaches and stiffness in the back of the neck. Neither subject was aware of the benefits of warm foot soaks with a mixture of salt and lemongrass as a non-pharmacological approach to help lower blood pressure.

Based on the above discussion, the researchers were interested in conducting a case study on the use of warm foot baths containing a mixture of salt and lemongrass to lower blood pressure in patients with hypertension in Gampong Cot Lamme, Kuta Baro

Result and Discussion

Classification	Systolic (mmHg)	Diastolic (mmHg)
Normal	<120	<80
Prehypertension	120 - 139	80 - 89
Stage 1 Hypertension	140 - 159	90 - 99
Stage 2 Hypertension	160 - 179	100 - 109
Stage 3 Hypertension	180 - 209	110 - 119
Stage 4 Hypertension	>210	>120

Graph 1. Classification of Hypertension

Subdistrict, Aceh Besar Regency. This study aims to describe the implementation of nursing care through this therapy as a nonpharmacological intervention to help control blood pressure in patients with hypertension.

Method

This study employed a case study design with a nursing care approach for two patients with hypertension. The study was conducted in Gampong Cot Lamme, Kuta Baro Subdistrict, Aceh Besar Regency, from October 17 to 23, 2025. Research subjects were selected using purposive sampling based on the criteria of patients with hypertension who were willing to participate and met the inclusion criteria, namely: being willing to participate and cooperative, aged 46-55 years, having stage 1 hypertension, having no wounds on their feet, and having never previously received warm-water foot soak therapy with a mixture of salt and lemongrass.

Data collection was conducted through interviews, observations, physical examinations, blood pressure measurements using a sphygmomanometer, and documentation. The nursing intervention consisted of a 10-minute warm foot soak with a mixture of salt and lemongrass, once a day for seven consecutive days, accompanied by blood pressure monitoring before and after the intervention.

Descriptive data analysis was conducted by comparing the results of assessments before and after the administration of warm-water foot soaks with a mixture of salt and lemongrass. The research results are presented in narrative form and in tables to illustrate changes in blood pressure in both subjects following the intervention.



Figure 1. blood pressure check

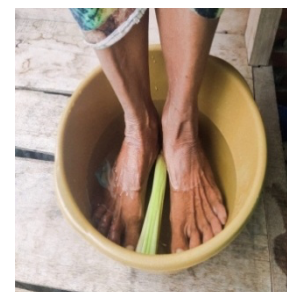
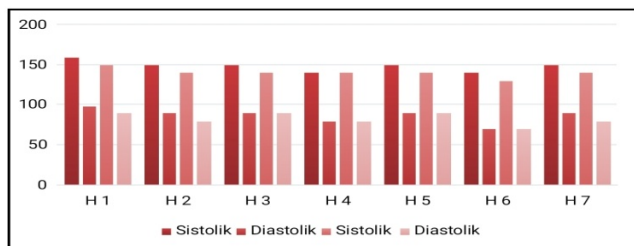
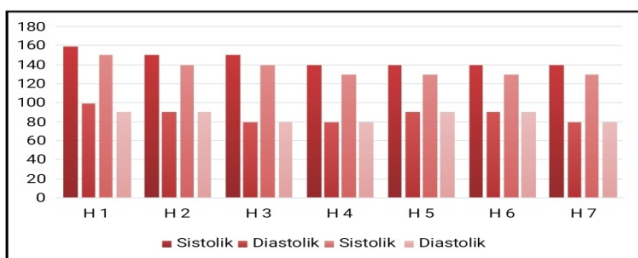


Figure 2. Soaking the feet in warm water mixed with salt and lemongrass



Grapsh 2. Blood pressure readings for Subject I before and after receiving therapy

Based on Figure 1, Subject I's blood pressure over the seven days treatment period was recorded as follows: on the first day, 150/90 mmHg, on the second day, 140/80 mmHg, on the third day, 140/90 mmHg, on the fourth day, 140/80 mmHg, on the fifth day, 140/90 mmHg, on the sixth day, 130/70 mmHg, and on the seventh day, 140/80 mmHg. Overall, Subject 1's blood pressure decreased following the administration of the therapy, although there were fluctuations on some days.



Grapsh 3. Blood pressure readings for Subject II before and after receiving therapy

Based on Figure 2, Subject II's blood pressure over the seven days treatment period was recorded as follows: on the first day, 150/90 mmHg, on the second day, 140/90 mmHg, on the third day, 140/80 mmHg, on the fourth day, 130/80 mmHg, on the fifth day, 130/90 mmHg, on the sixth day, 130/90 mmHg, and on the seventh day, 130/80 mmHg. Overall, Subject II's blood pressure decreased following the administration of the therapy, although there were fluctuations on some days.

The results of the study showed a decrease in blood pressure in both subjects following warm foot bath therapy with with a mixture of salt and lemongrass. In subjects I, the initial blood pressure of 159/98 mmHg decreased to 140/80 mmHg after receiving the therapy. Meanwhile, in subjects II, the initial blood pressure of 159/99 mmHg after receiving the same therapy. These result indicate that warm foot soak therapy with a mixture of salt and lemongrass hass the potential to effectively in patients with hypertension.

There are several factors that contribute to an increase in blood pressure in the subjects, including diet, lifestyle, fatigue, and anxiety. Based on the research findings, the subjects had a habit of consuming foods high in salt and fat. Excessive consumption of fast food – particularly foods high in salt, saturated fat, and trans fat, and low in fiber – can raise cholesterol levels and increase the risk of vascular disorders, thereby triggering an increase in blood pressure (Widiharti & Fitrihanur, 2020; Karjadidjaja, 2020). In addition, excessive salt and sugar intake, insufficient rest, excessive physical activity, and smoking can also increase the risk of hypertension (WHO, 2021; Nisa et al., 2023). Fatigue resulting from strenuous activity and insufficient rest can disrupt the body's physiological balance, including the cardiovascular system (Rahman, 2022). Anxiety can also stimulate the sympathetic nervous system, leading to increased heart rate and blood pressure (Pratiwi, 2022; Nugraha, 2023).

Factors that can influence the success of therapy include the consistency of therapy implementation, family support, and the subject's knowledge and ability to understand health information. In this study, Subject I and Subject II demonstrated a cooperative and enthusiastic attitude during the implementation of therapy in accordance with the recommended procedures. Consistency in carrying out therapy can improve adherence, allowing the benefits of therapy to be fully realized (Sari & Wahyuni, 2022). Family support also serves as a support system that provides attention, motivation, and helps remind the subject to consistently follow the therapy (Fitri & Handayani, 2021). The research findings indicate that Subject II received more active family support and found it easier to understand explanations regarding the goals, benefits, and procedures of the therapy, resulting in more optimal therapeutic outcomes compared to Subject I. Nevertheless, formal education level does not entirely determine a person's level of knowledge, as knowledge can also be acquired through experience, social interaction, and information from healthcare professionals (Notoatmodjo, 2020; Budiman & Riyanto, 2020). Thus, the success of therapy is influenced not only by educational level but also by the subject's ability to receive and apply health information, consistency in carrying out therapy, and the family support received.

Conclusion

A warm foot soak with a mixture of salt and lemongrass was effective in lowering blood pressure in Subject 1 and Subject 2. In Subject 1, blood pressure before therapy was 159/98 mmHg and decreased to 140/80 mmHg after therapy. Meanwhile, in Subject II,

blood pressure before therapy was 159/99 mmHg and decreased to 130/80 mmHg after therapy. Several factors that influence blood pressure in Subject 1 and Subject 2 include diet, an unhealthy lifestyle, fatigue, and anxiety. Additionally, factors influencing the success of the therapy include consistency in following the treatment regimen, family support (support system), and level of knowledge or education.

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Author Contributions

Nanda Fitria: Conceptualization, methodology, data analysis, data collection, writing—drafting, review and editing of manuscripts

Siti Nurafifah Qariah: Methodology, validation, writing—review and editing, supervision

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Conflicts of Interest

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