



Original Article

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Effectiveness of Acupressure Therapy in Reducing Blood Pressure Among Older Adults with Hypertension

Sri Hartati¹, Kamesywor¹, Yeni Elviani¹

¹ Health Polytechnic of the Ministry of Health (Poltekkes Kemenkes) Palembang, South Sumatra, Indonesia

Corresponding Author's: Sri Hartati, srih3728@gmail.com

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ABSTRACT

Background: Hypertension is a non-communicable disease that remains one of the leading causes of premature death worldwide. However, in the elderly population, there is a decline in muscle mass and strength, decreased heart rate, reduced exercise tolerance, and lowered cardiovascular capacity. The objective of this study was to determine the effect of acupressure therapy on blood pressure reduction in elderly patients with hypertension

Methods: This study employed a quantitative research design using a quasi-experimental method to evaluate the effectiveness of the intervention. The research was conducted among elderly individuals with hypertension in the working area of Pagar Agung Public Health Center, Lahat, in 2023

Result: The results of the paired t-test showed a statistically significant difference in blood pressure before and after acupressure therapy, with a p-value of < 0.001 ($p < 0.05$). This indicates that acupressure therapy had a significant effect on reducing blood pressure in elderly patients with hypertension

Conclusion: Acupressure therapy is effective in lowering blood pressure among older adults with hypertension. This non-pharmacological intervention can be considered as an alternative or complementary approach in hypertension management for the elderly population.

Keywords: Hypertension, Elderly, Acupressure Therapy, Blood Pressure

Practice Implications

1. Acupressure therapy can be integrated into routine hypertension management for elderly patients as a safe, cost-effective, and non-invasive complementary intervention.
2. Healthcare providers, especially in community health settings, should be trained to apply acupressure techniques to support blood pressure control in older adults.
3. Non-pharmacological strategies such as acupressure offer practical alternatives for elderly patients who may have limitations or contraindications to medication use.

Introduction

Older adults represent the final stage of the human life cycle, beginning at the age of 60 and above. Aging is a natural and

inevitable process characterized by gradual declines in biological, physical, and cognitive functions. Among the elderly, reductions in bone and muscle mass can

lead to decreased balance, increasing the risk of falls ([Wieling et al., 2022](#); [Xu, Ou and Li, 2022](#)). According to Law No. 13 of 1998, the elderly are defined as individuals aged 60 years or older. During this phase, individuals experience progressive deterioration in physical, mental, and social functions. In Indonesia, the elderly population has increased from 18 million (7.56%) in 2010 to 25.9 million (9.7%) in 2019, and it is projected to reach 48.2 million (15.77%) by 2035, marking a demographic shift into an aging population ([Riskasdas, 2018](#)).

Hypertension is a major non-communicable disease and remains one of the leading causes of premature mortality worldwide. The World Health Organization (WHO) estimates that approximately 22% of the global population is affected by hypertension. Among the elderly, this condition is exacerbated by age-related physiological changes such as loss of muscle mass and strength, reduced heart rate, decreased exercise tolerance, and lowered cardiovascular capacity. However, despite the increasing prevalence of hypertension in this population, less than one-fifth of affected individuals actively engage in blood pressure management.

Hypertension management can be approached through both pharmacological and non-pharmacological interventions. Pharmacological treatment typically involves regular medical consultations and the administration of antihypertensive drugs. Although many patients tolerate these medications well, some experience side effects such as coughing, headaches, dizziness, nausea, vomiting, constipation or diarrhea, fatigue, nervousness, skin rashes, and significant changes in body weight ([Wei et al., 2022](#); [Haghighat et al., 2023](#); [Olsson et al., 2023](#)).

As a result, non-pharmacological strategies have gained interest as safer alternatives or complements to medication. These include healthy lifestyle modifications such as reducing salt and cholesterol intake, weight management, quitting smoking, limiting alcohol consumption, and the use of complementary therapies ([Liang et al., 2020](#); [Thakur et al., 2021](#)). One such complementary therapy is acupressure, a traditional healing technique developed in Asia over 5,000 years ago. Sharing similar principles with acupuncture, acupressure stimulates meridian points in the body to balance the flow of bioenergy, known as qi, affecting both physical health and emotional well-being ([Han et al., 2021](#); [Sleiman et al., 2024](#)). By applying pressure to specific acupoints, this therapy is believed to restore energy balance and alleviate various symptoms, including high blood pressure.

However, despite the theoretical benefits of acupressure and its long-standing use, there is a lack of empirical evidence on its effectiveness in reducing blood pressure specifically among elderly individuals with hypertension, particularly in community health settings in Indonesia. Based on local health data from Pagar Agung Public Health Center in Lahat, hypertension was the most frequently reported condition in 2022, with 1,117 cases recorded across all age groups. This indicates a significant public health concern in the region. Therefore, this study aimed to determine the effect of acupressure therapy on blood pressure reduction in elderly patients with hypertension in the working area of Pagar Agung Public Health Center.

Methodology

Study Design

This study employed a quantitative research design with a quasi-experimental approach, specifically a one-group pretest-posttest design. This design was used to evaluate the effectiveness of acupressure therapy on blood pressure reduction among elderly patients with hypertension.

Participants

A purposive sampling strategy was used to select participants who met the inclusion criteria. The population consisted of elderly individuals aged over 50 years with hypertension (blood pressure >140/90 mmHg). The inclusion criteria were: Willingness to participate and signing informed consent, Age above 50 years, Diagnosed with hypertension with systolic/diastolic blood pressure above 140/90 mmHg, Regularly undergoing hypertension treatment.

The sample size consisted of 10 participants. Due to limited resources and study scope, a formal sample size calculation or power analysis was not conducted. However, the sample was deemed sufficient for a preliminary investigation to measure the intervention's effectiveness.

Instrument

Blood pressure was measured using a standard digital sphygmomanometer. The instrument is widely validated for clinical and research use. Measurements were taken before (pretest) and after (posttest) the acupressure therapy. No modifications to the instrument were made, and standard protocols for blood pressure

measurement were followed to ensure reliability and validity.

Intervention

The intervention consisted of acupressure therapy administered by trained practitioners. The therapy targeted specific acupressure points believed to influence blood pressure regulation. The treatment was performed individually for each participant in a controlled setting within the working area of Pagar Agung Public Health Center, Lahat. There was no control group in this study, as the design focused on the pretest-posttest comparison within a single group.

Data Collection

Data were collected in 2023 at the Pagar Agung Public Health Center, Lahat. Blood pressure measurements were taken by trained healthcare staff before the therapy (pretest) and immediately after the completion of acupressure therapy (posttest). Research assistants facilitated participant recruitment and data recording under the supervision of the principal investigator.

Data Analysis

Data were analyzed using the Statistical Package for the Social Sciences (SPSS) version XX. Univariate analyses were conducted to describe the frequency distribution of age, sex, and blood pressure. Bivariate analysis was performed using a dependent (paired) t-test to compare blood pressure before and after the acupressure intervention. A p-value < 0.05 was considered statistically significant.

Ethical Consideration

The study protocol was reviewed and approved by the Ethics Committee of Poltekes Kemenkes Palembang, Indonesia. All participants provided written informed consent before participation. Confidentiality and anonymity of participants' data were maintained throughout the study.

Results

Table 1 shows that the mean systolic blood pressure decreased from 171.67

mmHg before the intervention to 146.67 mmHg after acupressure therapy. Similarly, the mean diastolic blood pressure decreased from 109.93 mmHg to 92.67 mmHg. This indicates a notable reduction in both systolic and diastolic blood pressure following the acupressure treatment among elderly hypertensive patients.

Table 1 Descriptive Statistics of Systolic and Diastolic Blood Pressure Before and After Acupressure Therapy in Elderly Patients with Hypertension

Blood Pressure	Mean	Median	SD	Minimum	Maximum
Systolic Before	171.67	180	9.86	160	180
Systolic After	146.67	150	8.02	140	180
Diastolic Before	109.93	110	8.68	100	120
Diastolic After	92.67	90	4.49	90	100

Table 2 illustrates the dependent t-test results in Table 2 show statistically significant reductions in both systolic and diastolic blood pressure after acupressure therapy ($p < 0.001$). All participants

showed a decrease in blood pressure values post-intervention, confirming the effectiveness of acupressure therapy in lowering blood pressure among elderly hypertensive patients

Table 2. Dependent T-Test Results for Changes in Systolic and Diastolic Blood Pressure Before and After Acupressure Therapy

Blood Pressure	Rank Type	N	p-value
Systolic	Negative Ranks*	10	0.000
	Positive Ranks	0	
	Ties	0	
	Negative Ranks*	10	0.000
	Positive Ranks	0	
	Ties	0	

*Negative ranks indicate cases where blood pressure after therapy was lower than before therapy.

Discussion

The findings of this study indicate that acupressure therapy has a significant effect on reducing both systolic and

diastolic blood pressure in elderly patients with hypertension. The statistical analysis demonstrated a clear influence of the therapy, confirming that the intervention

led to meaningful decreases in blood pressure levels. These results support the hypothesis that acupressure can be an effective complementary treatment for hypertension management in elderly populations ([Zhao et al., 2020](#); [Kim and Park, 2023](#); [Park, Park and Bang, 2023](#); [Yan et al., 2024](#)).

Physiologically, acupressure induces vasodilation by stimulating specific pressure points, which in turn blocks sympathetic and parasympathetic nerve activity in blood vessels. This stimulation helps widen blood vessels and improve their elasticity, promoting better blood flow and reducing vascular resistance. During acupressure, active muscle cells increase oxygen consumption, which raises energy demands. Consequently, heart rate adapts by increasing to supply more oxygenated blood to the muscles. Regular acupressure therapy, when applied with adequate intensity and duration, enhances cardiac efficiency and strengthens the heart's pumping capacity, resulting in improved circulation and lowered blood pressure ([Xie et al., 2023](#)) ([Xie et al., 2023](#)).

The findings are consistent with previous research. For instance, a study conducted by Astari Putu Dyah investigated acupressure therapy on hypertensive elderly participants in a community setting, showing significant blood pressure reductions using a similar one-group pretest-posttest design and purposive sampling technique. The acupressure, as a non-pharmacological intervention, optimizes heart function by increasing venous return and cardiac output initially, followed by a reduction in sympathetic nervous system activity, leading to decreased heart rate, vasodilation, and overall lowering of blood

pressure ([Biçer and Taşci, 2022](#); [Chatchawan, Srimuang and Yamauchi, 2023](#)).

Despite these promising results, there are several limitations and gaps that must be acknowledged. Firstly, the study employed a quasi-experimental one-group pretest-posttest design without a control group, which limits the ability to fully attribute the observed effects solely to the acupressure therapy, as confounding factors or placebo effects cannot be entirely ruled out. Secondly, the sample size was relatively small and drawn from a single healthcare center, which may affect the generalizability of the findings to a broader population. Thirdly, the study did not assess long-term effects or the sustainability of blood pressure changes over time, nor did it explore potential variations in response based on demographic or clinical characteristics such as gender, comorbidities, or medication use ([Biçer et al., 2021](#); [Moslehi et al., 2021](#); [Jung and Kim, 2023](#)).

Future research should consider randomized controlled trials with larger, more diverse samples and longer follow-up periods to validate and expand upon these findings. Investigations into the underlying mechanisms at the molecular and neurological levels could also deepen understanding of how acupressure influences cardiovascular regulation. Additionally, combining acupressure with other lifestyle or pharmacological interventions may provide insight into integrated approaches for hypertension management. While acupressure therapy shows a promising impact on blood pressure reduction in elderly hypertensive patients, further rigorous studies are needed to strengthen evidence, optimize

protocols, and clarify its role in clinical practice.

Practical Applications of the Findings

The results of this study suggest that acupressure therapy can be effectively integrated as a non-pharmacological intervention in the management of hypertension among elderly patients, particularly in community health settings or primary care facilities. Healthcare practitioners, including nurses and therapists, can incorporate acupressure techniques to complement standard medical treatments, potentially reducing reliance on medication and minimizing side effects. This accessible and low-cost therapy can empower patients to actively participate in their own care, improve blood pressure control, and enhance overall cardiovascular health. Moreover, training programs for caregivers and health workers on acupressure could facilitate wider adoption and improve patient outcomes in resource-limited settings.

Conclusion

The findings of this study suggest that acupressure therapy effectively reduces both systolic and diastolic blood pressure in elderly hypertensive patients, likely through mechanisms involving vasodilation and improved cardiac function. While consistent with previous research, the study's design limitations—such as the absence of a control group, small sample size, and short-term evaluation—highlight the need for cautious interpretation. To fully establish acupressure as a reliable complementary treatment for hypertension, future

randomized controlled trials with larger, more diverse populations and extended follow-up are essential. Such studies could also explore underlying physiological mechanisms and the potential benefits of combining acupressure with other interventions, ultimately supporting its integration into standard hypertension management for elderly patients.

Authors Contributions:

Conceptualization: Sri Hartati, Kamesyworu

Data curation: Kamesyworu, Yeni Elviani

Formal analysis: Sri Hartati, Kamesyworu

Funding acquisition: Sri Hartati

Investigation: Kamesyworu, Yeni Elviani

Methodology: Sri Hartati, Kamesyworu

Project administration: Sri Hartati

Resources: Sri Hartati

Software: Kamesyworu

Supervision: Sri Hartati

Validation: Sri Hartati, Yeni Elviani

Visualization: Kamesyworu

Writing – original draft: Sri Hartati, Kamesyworu

Writing – review & editing: Sri Hartati, Yeni Elviani

Conflicts Of Interest

The Authors Declare No Conflict Of Interest.

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