

ORIGINAL ARTICLE**THE EFFECT OF ACUPRESSURE THERAPY ON BLOOD PRESSURE IN HYPERTENSIVE PATIENTS AT DAWAN USADHA NURSE PRACTITIONER**

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ABSTRACT

Background: Hypertension is one of the most prevalent non-communicable diseases and a major risk factor for cardiovascular disorders; therefore, its management should not rely solely on pharmacological therapy but also needs to be supported by safe, effective, and easily applicable non-pharmacological interventions in nursing practice, one of which is acupressure therapy. **Objective:** This study aimed to determine the effect of acupressure therapy on blood pressure among patients with hypertension at Dawan Usadha Independent Nurse Practice. **Method:** This study employed a pre-experimental one-group pretest-posttest design involving 20 hypertensive patients selected using purposive sampling. The sample size was determined based on the number of hypertensive patients who met the inclusion criteria during the study period. Acupressure therapy was administered at LI11, LI4, LR3, SP6, and GB20 points twice weekly for four weeks. Blood pressure was measured before and after intervention using a calibrated digital sphygmomanometer. Data were analyzed using the Wilcoxon Signed Rank Test. **Result:** The results demonstrated a reduction in blood pressure following the acupressure intervention, in which the mean systolic blood pressure decreased from 150.30 mmHg to 142.30 mmHg, with a mean difference of 8.00 mmHg and a p-value of <0.001, while the mean diastolic blood pressure decreased from 89.40 mmHg to 85.60 mmHg, with a mean difference of 3.80 mmHg and a p-value of 0.002. **Conclusion:** Acupressure therapy significantly reduced blood pressure among hypertensive patients and may serve as an effective complementary non-pharmacological intervention in hypertension management.

BACKGROUND

Hypertension, or high blood pressure, is a global health problem with an increasing prevalence and is one of the main risk factors for cardiovascular diseases. Hypertension is known as the silent killer because it often presents without obvious symptoms, causing many individuals to be unaware of their condition until serious complications such as heart disease, stroke, and kidney failure occur (Farrell & Dempsey, 2018). According to the World Health Organization (WHO) approximately 1.28 billion adults aged 30–79 years worldwide suffer from hypertension; however, 46% are unaware of their condition, and only 42% receive effective treatment (World Health Organization, 2023). In Indonesia, the prevalence of hypertension among individuals aged ≥ 18 years reached 30.8% (Ministry of Health of the Republic of Indonesia, 2023). This places hypertension as a major public health problem. Common complications include stroke, chronic kidney disease, and coronary heart disease (Sitoresmi et al., 2020).

According to a report by the Bali Province Government, persons aged ≥ 15 years with hypertension reached 396,996. It consists of 197,629 males (49.78%) and 199,367 females (50.22%) (Bali Provincial Health Service, 2025). Modern lifestyle factors such as high salt intake, stress, and low physical activity are major contributors to the increasing prevalence of hypertension (Sukmadi et al., 2021). The high prevalence of hypertension and low levels of awareness and treatment effectiveness indicate that blood pressure control remains a challenge in healthcare services. Hypertension management has largely relied on pharmacological therapy; however, not all patients achieve optimal blood pressure control. Medication non-adherence, long-term side effects, limited access to healthcare, and insufficient patient knowledge regarding disease management influence outcomes. It will increase the risk of complications and reduce quality of life, highlighting the need for complementary approaches to support blood pressure control more effectively and sustainably (Whelton et al., 2018).

One complementary approach is acupressure therapy. Acupressure is a non-pharmacological complementary therapy derived from traditional Chinese medicine principles, involving the application of pressure using fingers, thumbs, or specific tools at designated meridian points. This therapy aims to balance energy flow and stimulate physiological responses through the nervous system (Suwarni et al., 2021). Acupressure can reduce stress hormone levels such as cortisol and increase endorphins. Thereby producing both physical and psychological relaxation effects. This relaxation is particularly important for individuals with hypertension, as psychological stress is one of the factors that can trigger increases in blood pressure (Webster et al., 2025).

Acupressure therapy offers several advantages, including being safe, non-invasive, easy to learn, and feasible to administer independently as supportive therapy. Therefore, acupressure is considered to have substantial potential as a supportive intervention in the long-term management of hypertension. A previous study reported a significant reduction in blood pressure (Saputra et al., 2023). In addition, a study demonstrated that regular acupressure therapy decreases blood pressure, reduces stress levels, and improves blood circulation (Manullang et al., 2024). Given the high prevalence of hypertension in the

Dawan area and the limited utilization of non-pharmacological strategies among patients, this study was conducted to analyze the effect of acupressure therapy on blood pressure among hypertensive patients at the Dawan Usadha Nurse Practitioner.

OBJECTIVE

The objective of this study was to analyze the effect of acupressure therapy on blood pressure in patients with hypertension at the Dawan Usadha Independent Nurse Practice.

METHOD

Design, Population and Sample

The study was conducted at the Dawan Usadha Nursing Practitioner from September 21 to October 22, 2025. This study employed a pre-experimental design with a one-group pretest-posttest approach. Ethical approval was obtained under approval number 733/E1.STIKESWIK/EC/XII/2025, dated December 23, 2025. Blinding procedures were not applied in this study because both researchers and participants were aware of the intervention being administered. To minimize measurement bias, all blood pressure assessments were conducted using the same calibrated digital sphygmomanometer and standardized measurement procedures before and after the intervention.

The population consisted of 40 hypertensive patients receiving complementary therapy at the Dawan Usadha Independent Nurse Practice. Purposive sampling was used, resulting in 20 respondents. Inclusion criteria included patients with stage 1 and stage 2 hypertension, those taking antihypertensive medication, and willingness to participate. Exclusion criteria included patients with severe hypertension complications, skin lesions or infections at acupressure points, and fractures. The sample size in this study was determined based on the number of hypertensive patients who met the inclusion criteria during the study period at the Dawan Usadha Nurse Practitioner. Considering the pre-experimental design and limited accessible population, a total of 20 respondents was considered adequate to evaluate changes in blood pressure before and after the intervention. A total of 40 hypertensive patients were initially assessed for eligibility. Of these, 25 patients met the inclusion criteria. Five eligible patients declined participation due to personal reasons. Therefore, 20 respondents were enrolled in the study and completed the intervention until the post-test assessment. No participants withdrew during the intervention period.

Intervention, Instrument and Data Analysis

Acupressure therapy was administered at LI11, LI4, LR3, SP6, and GB20 points, with 30 presses or rotations per point, performed twice weekly for four weeks. The intervention frequency was selected based on previous studies indicating that regular and

repeated acupressure stimulation over several weeks is effective in producing relaxation responses and gradual blood pressure reduction in hypertensive patients.

The acupressure intervention was administered directly by the researcher, who had received prior training in acupressure techniques. To ensure intervention fidelity and consistency, all procedures were performed according to a standardized operational procedure (SOP), including identical acupressure points, pressure intensity, duration, and intervention frequency for all participants. During the intervention period, no serious adverse events or complications related to acupressure therapy were reported by the participants. The independent variable was the Acupressure Standard Operating Procedure (SOP), while the dependent variable was the Blood Pressure Measurement SOP. Blood pressure was measured using a calibrated digital sphygmomanometer. Data were analyzed using the Wilcoxon Signed Rank Test.

RESULTS

After data collection was completed, the characteristics of the study participants are presented in the following table:

Table 1. Characteristics of Study Participants (n = 20)

Characteristic	Category	Frequency (f)	Percentage (%)
Age	Early Elderly (46-55 Years)	11	55
	Late Elderly (56-65 Years)	9	45
Gender	Male	10	50.0
	Female	10	50.0
Duration of Hypertension	< 6 Months	3	15.0
	≥ 6 Months	17	85.0
Medication Adherence	Reguler	20	100
	Irregular	0	0
Total		20	100

Table 1 shows the characteristics of the study participants; the majority of respondents were aged 46-55 years (55%). The gender distribution was equal, with 10 female respondents (50%) and 10 male respondents (50%). Most respondents had experienced hypertension for ≥6 months, accounting for 17 participants (85%). Regarding medication adherence, all respondents adhered to their medication regularly (100%).

Table 2. Results of Wilcoxon Signed Rank Test Analysis (n=20)

Variable	Pre-test	Post-test	Z	P-value
	Mean±SD	Mean±SD		
Systolic Blood Pressure	150.30±8.266	142.30±8.682	-3.851	0.000
Diastolic Blood Pressure	89.40±5.688	85.60±6.394	-3.144	0.002

Table 2 shows that the mean systolic blood pressure before acupressure therapy was 150.30 mmHg, decreased to 142.30 mmHg after the intervention ($p=0.001$; $Z=-3.851$). The mean diastolic blood pressure before acupressure therapy was 89.40 mmHg, decreased to 85.60 mmHg after the intervention ($p=0.002$; $Z=-3.144$). These findings indicate that acupressure therapy had a statistically significant effect on reducing blood pressure in patients with hypertension. The reduction in systolic and diastolic blood pressure following acupressure therapy demonstrated clinically meaningful improvements among participants. The intervention showed a moderate therapeutic effect. This indicates that acupressure therapy may contribute positively as a complementary non-pharmacological intervention for hypertension management.

DISCUSSION

This study showed that before the acupressure therapy, the respondents' blood pressure levels were generally classified as high, with a mean systolic blood pressure of 150.30 mmHg and a mean diastolic blood pressure of 89.40 mmHg. These findings are consistent with the characteristics of hypertension as a silent killer, a condition that often goes unnoticed by sufferers until blood pressure measurements indicate elevated values (Sarfika et al., 2023). The elevation of blood pressure before intervention affected both physiological and psychological factors. Hypertension is a multifactorial condition influenced by lifestyle, stress, excess body weight, and autonomic nervous system responses to stress stimuli (Goorani et al., 2024; Rajagopalan et al., 2025).

This study demonstrated a significant reduction in both systolic and diastolic blood pressure compared to pre-intervention values. These findings indicate that acupressure therapy contributed positively to blood pressure control among the study participants. The decrease in blood pressure is caused by specific stimulation of acupressure points, which also balances the autonomic nervous system. Pressure applied to these points is believed to stimulate the release of neurotransmitters and relaxation-related hormones, suppress sympathetic nervous system activity, and enhance parasympathetic activity that promotes vasodilation (Yao et al., 2025).

The statistical analysis conducted using the Wilcoxon Signed Rank Test revealed significant reductions in both systolic and diastolic blood pressure following acupressure therapy. These findings are consistent with previous studies demonstrating that acupressure therapy is effective in reducing blood pressure among patients with hypertension. Acupressure therapy helps improve blood circulation and reduce blood pressure. Stimulation of acupressure points promotes the release of endorphins, inducing feelings of calmness and comfort (Wahyuningsih et al., 2025). Additionally, acupressure stimulation triggers vasodilation of blood vessels, resulting in reduced peripheral vascular resistance.

The findings of this study demonstrated not only statistical significance but also clinically meaningful reductions in blood pressure following acupressure therapy. The moderate therapeutic effect observed indicates that acupressure may provide beneficial

physiological responses through autonomic nervous system modulation and vascular relaxation mechanisms. Therefore, acupressure therapy may serve as a supportive complementary intervention alongside pharmacological treatment for hypertension management. These findings support previous evidence suggesting that acupressure therapy is a safe, practical, and affordable complementary intervention that may assist healthcare professionals in improving blood pressure control among patients with hypertension.

CONCLUSION

This study concluded that acupressure therapy can reduce blood pressure among patients with hypertension at the Dawan Usadha Nurse Practitioner. The mean systolic blood pressure decreased by 8.00 mmHg with a p-value of 0.001, while the mean diastolic blood pressure decreased by 3.80 mmHg with a p-value of 0.002. This study has several limitations. First, the study used a pre-experimental design without a control group, which limits the ability to establish causal relationships between acupressure therapy and blood pressure reduction. Second, the relatively small sample size and the use of purposive sampling may limit the generalizability of the findings. Third, blood pressure measurements may have been influenced by respondents' physical and psychological conditions during assessment. In addition, the study was conducted in a single healthcare setting, which may not fully represent hypertensive populations in other regions. Future studies are recommended to use randomized controlled trial designs with larger sample sizes and longer observation periods.

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