



THE EFFECT OF COMBINED FIVE FINGERS AND RHYTHMIC BREATHING THERAPY ON BLOOD PRESSURE REDUCTION IN ELDERLY PEOPLE WITH HYPERTENSION IN THE MUARA BANGKAHULU COMMUNITY HEALTH CENTER BENGKULU CITY

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Abstract

Hypertension is a chronic cardiovascular disorder characterized by an increase in blood pressure of 140/90 mmHg or higher. This condition is prevalent among older adults due to natural aging and lifestyle-related risk factors. Globally, approximately one in two adults over the age of 50 suffers from hypertension, with a significant proportion residing in Asia. Uncontrolled hypertension can lead to severe complications, including stroke, heart disease, and kidney failure. Non-pharmacological interventions, such as relaxation techniques, have been shown to support blood pressure control. This study aimed to determine the effect of combining Five Fingers and Rhythmic Breathing therapy on blood pressure reduction among elderly individuals with hypertension. A quasi-experimental design with a pre-test and post-test control group was used, involving 40 respondents selected through random sampling. The intervention group received Five Fingers and Rhythmic Breathing therapy three times per week for two weeks, while the control group received autogenic relaxation. Blood pressure measurements were obtained using a sphygmomanometer, and data were analyzed using the Mann-Whitney U test. The results showed a significant difference in both systolic ($p = 0.001$) and diastolic ($p = 0.040$) blood pressure between groups after the intervention. These findings suggest that the combined Five Fingers and Rhythmic Breathing therapy effectively reduces blood pressure among elderly individuals with hypertension. The intervention is simple, safe, non-invasive, and can be practiced independently at home. This approach can be recommended as an adjunct non-pharmacological therapy in hypertension management.

Keywords: Hypertension, relaxation therapy, rhythmic breathing, five fingers, elderly

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INTRODUCTION

Population aging is an inevitable global phenomenon that affects health outcomes across the lifespan. The World Health Organization (WHO) estimated that by 2021, more than 703 million individuals were aged 60 years and older, with over 53% residing in Asia. In Indonesia, the elderly population reached 30.16 million (11.01% of the total population), while in Bengkulu Province, 101,754 elderly

individuals were recorded, including 2,169 elderly residents in Bengkulu City. Aging is accompanied by physiological, psychological, and social changes that predispose individuals to chronic non-communicable diseases, among which hypertension is the most prevalent.

Hypertension, commonly known as high blood pressure, is a major cardiovascular disorder characterized by a systolic blood pressure ≥ 140 mmHg and/or diastolic blood pressure ≥ 90 mmHg. It remains one of the leading causes of morbidity and mortality globally. According to WHO (2019), the global prevalence of hypertension is 22%, and in Southeast Asia, it affects about 25% of adults. In Indonesia, the prevalence rises significantly with age — 57.6% among those aged 65–74 years and 63.8% in those aged 75 years and above. The condition is exacerbated by modifiable factors such as obesity, sedentary lifestyle, excessive salt intake, alcohol consumption, and psychosocial stress.

In Bengkulu Province, hypertension cases continue to rise annually. In 2020, there were 342,172 cases, increasing sharply to 286,339 cases in Bengkulu City by 2021. According to 2023 data from the Bengkulu City Health Office, 50,898 elderly individuals were diagnosed with hypertension across 20 public health centers, including 549 elderly patients in Muara Bangkahulu Public Health Center. This indicates that hypertension among older adults remains a pressing local public health concern.

Persistent high blood pressure in the elderly leads to structural and functional changes in blood vessels, including arterial wall thickening, loss of elasticity, and vascular stiffness, which further exacerbate hypertension. If left uncontrolled, hypertension can result in serious complications such as stroke, heart disease, heart failure, kidney failure, and vision impairment. Conventional pharmacological management — including the use of diuretics, beta-blockers, and ACE inhibitors — remains the cornerstone of treatment. However, lifelong medication use may cause dependency and side effects, underscoring the importance of complementary non-pharmacological therapies.

Non-pharmacological interventions, particularly relaxation-based techniques, have gained attention for their potential to modulate the autonomic nervous system and reduce sympathetic overactivity. Among these, *Five Fingers Therapy* and *Rhythmic Breathing* have shown promise in managing stress and promoting relaxation. The Five Fingers technique, also known as five-finger hypnosis, helps individuals associate finger movements with pleasant memories and positive affirmations, thereby inducing relaxation and reducing stress-related blood pressure elevation. Meanwhile, Rhythmic Breathing involves controlled, paced breathing that enhances parasympathetic activity and suppresses sympathetic arousal, helping stabilize cardiovascular function and reduce blood pressure.

Previous studies have demonstrated the individual effectiveness of both techniques. Sri Budiarti et al. (2021) reported that Five Fingers therapy significantly reduced anxiety levels among elderly patients with chronic illnesses. Similarly, Babamohamadi et al. (2021) found that Rhythmic Breathing effectively alleviated postoperative pain and reduced physiological stress responses. However, existing research has rarely examined the combined effect of these two therapies on blood pressure regulation, particularly among elderly hypertensive patients.

Given the limited literature on combined relaxation approaches, this study aimed to investigate the effect of combining Five Fingers and Rhythmic Breathing therapy on blood pressure reduction among elderly individuals with hypertension in the working area of Muara Bangkahulu Community Health Center, Bengkulu City. The study also sought to explore the feasibility of this technique as a simple, low-cost, and self-administered non-pharmacological intervention that could complement medical treatment in hypertension management programs for the elderly.

MATERIALS AND METHODS

This study employed a quasi-experimental design with a pre-test and post-test control group. The research was conducted in the working area of Muara Bangkahulu Community Health Center, Bengkulu City, Indonesia. The study was carried out from August 2024 to May 2025, with data collection taking place between March 7 and April 7, 2025.

The study population consisted of all elderly individuals (≥ 60 years) diagnosed with hypertension within the Muara Bangkahulu Community Health Center area. Based on data from 2023, there were approximately 549 elderly individuals with hypertension. A total of 40 respondents were selected using a probability sampling technique with simple random sampling, ensuring that each eligible individual had an equal opportunity to participate.

Participants were divided into two groups: Intervention group (n=20): received the combined *Five Fingers* and *Rhythmic Breathing* therapy. Control group (n=20): received *autogenic relaxation therapy*.

Inclusion Criteria: Elderly individuals aged ≥ 60 years. Diagnosed with hypertension (blood pressure $\geq 140/90$ mmHg). Physically and mentally stable (cooperative). Willing to participate and signed informed consent. Taking antihypertensive medication regularly.

Exclusion Criteria: Participants who withdrew before completing the intervention. Participants who experienced illness or hospitalization during the study period.

Intervention Procedure

The combined Five Fingers and Rhythmic Breathing therapy was conducted over a two-week period, three times per week. Each session lasted 10–15 minutes, guided by trained researchers following standardized operating procedures.

a. Five Fingers Therapy Steps:

1. Touch the thumb and index finger together while imagining a pleasant or healthy experience.
2. Touch the middle finger and thumb, recalling a joyful moment with loved ones.
3. Touch the ring finger and thumb, remembering a moment of receiving praise or achievement.
4. Touch the little finger and thumb, visualizing a peaceful or favorite place.

b. Rhythmic Breathing Steps:

1. Instruct participants to sit comfortably, relax muscles, and close their eyes.
2. Inhale slowly through the nose and exhale gently through the mouth.
3. Focus on the rhythm of breathing and bodily sensations.
4. Repeat breathing cycles for 20 minutes (1-minute intervals, repeated five times).

The control group performed autogenic relaxation, which involved self-directed relaxation using calming affirmations and breathing control, based on the same duration and schedule.

Measurement Instruments

Blood pressure was measured using a calibrated manual sphygmomanometer before (pre-test) and after (post-test) each intervention period. Additional data were collected through structured questionnaires to document demographic characteristics (age, sex, education, occupation).

Variables

1. Independent variable: Combined Five Fingers and Rhythmic Breathing therapy.
2. Dependent variable: Systolic and diastolic blood pressure levels.
3. Confounding variables: Age, sex, education, occupation.

Data Analysis

Descriptive statistics were used to present respondent characteristics and mean blood pressure levels before and after the intervention. The Mann–Whitney U test was employed to compare blood pressure differences between the intervention and control groups, given the non-parametric nature of the data. A p-value < 0.05 was considered statistically significant.

Ethical Considerations

This study was approved by the Ethics Committee of Poltekkes Kemenkes Bengkulu (Certificate Number: [No.KEPK.BKL/154/03/2025]) and conducted in accordance with the ethical principles of respect for autonomy, beneficence, non-maleficence, and justice. All participants provided written informed consent before participation, and confidentiality was strictly maintained throughout the study.

RESULTS AND DISCUSSION

Results

A total of 40 elderly respondents participated in this study, divided equally into intervention and control groups. Most participants were female, aged 60–74 years, with elementary or secondary education, and were unemployed or retired. The distribution of demographic characteristics was similar between groups, indicating that both were comparable at baseline.

These demographic findings align with the literature stating that hypertension is more prevalent among older adults and females due to hormonal and vascular changes associated with aging (Khotimah, 2023). Low education levels may also limit health literacy, influencing adherence to healthy lifestyle behaviors and non-pharmacological interventions.

Table 1. Comparison of Mean Blood Pressure Values Before and After Intervention In Both Groups.

Group	Measurement	Mean Systolic (mmHg)	Mean Dyastolic (mmHg)
Intervention	Pre-test	157.5	96.7
	Post-test	135.8	86.4
Control	Pre-test	156.3	95.9
	Post-test	148.7	92.6

After two weeks of intervention, the intervention group showed a substantial decrease in both systolic and diastolic blood pressure compared to the control group. The average systolic pressure dropped by 21.7 mmHg, and the average diastolic pressure decreased by 10.3 mmHg. Meanwhile, in the control group, the reductions were smaller (systolic: 7.6 mmHg; diastolic: 3.3 mmHg).

Statistical Test Results

The Mann–Whitney U test revealed a statistically significant difference between groups in both: Systolic pressure: $p = 0.001$ (< 0.05). Diastolic pressure: $p = 0.040$ (< 0.05)

These results indicate that the combination of Five Fingers and Rhythmic Breathing therapy effectively lowered blood pressure among elderly hypertensive participants compared to autogenic relaxation.

Discussion

This study demonstrated that combining Five Fingers and Rhythmic Breathing therapy can significantly reduce blood pressure among elderly individuals with hypertension. These findings support the hypothesis that relaxation-based interventions can influence cardiovascular regulation by modulating the autonomic nervous system.

Mechanism of effect

The Five Fingers technique facilitates relaxation by redirecting attention to positive thoughts, stimulating parasympathetic activation, and suppressing sympathetic tone.

When combined with Rhythmic Breathing, which promotes steady oxygen intake and vagal stimulation, this approach helps regulate heart rate and peripheral resistance — key determinants of blood pressure (Babamohamadi et al., 2021);Ghanesia et al., 2022)

The dual action of mental focus and respiratory control enhances autonomic balance, resulting in vasodilation and reduced vascular resistance. As stress hormones like adrenaline and cortisol decrease, the body experiences a calming effect, reflected in lower blood pressure readings.

Comparison with Previous Studies

The findings are consistent with Sri Budiarti & Nora, (2021) who observed that Five Fingers therapy effectively reduced anxiety and improved relaxation among elderly patients. Similarly, Marvi et al., (2023) reported that rhythmic breathing could alleviate stress-related symptoms by enhancing vagal tone and reducing sympathetic arousal. Moreover, relaxation techniques are known to increase nitric oxide release, improve endothelial function, and reduce oxidative stress — mechanisms that further contribute to blood pressure reduction. These results confirm the synergistic potential of combining multiple relaxation methods for greater clinical impact.

Implications for Nursing Practice

Given its simplicity, cost-effectiveness, and safety, the combined therapy is particularly suitable for community-based hypertension management. Nurses can integrate this intervention into elderly care programs, especially during Prolanis (Chronic Disease Management Program) activities, to empower patients in self-care and promote holistic health.

Study Limitations

This study had several limitations, including a relatively small sample size and short intervention duration (two weeks). Longer follow-up periods could help determine the sustained effects of this therapy. Additionally, other confounding factors — such as diet, physical activity, and medication adherence—were not controlled in detail. Nevertheless, the significant results obtained highlight the potential of this relaxation combination as a non-pharmacological adjunct to hypertension treatment in elderly populations.

CONCLUSION

This study demonstrated that the combination of Five Fingers and Rhythmic Breathing therapy significantly reduced both systolic and diastolic blood pressure among elderly individuals with hypertension. The integration of these relaxation techniques stimulates the parasympathetic nervous system, enhances emotional calmness, and promotes vasodilation, thereby lowering blood pressure levels.

Given its simplicity, safety, and non-invasive nature, this therapy can be used as a complementary nursing intervention alongside pharmacological treatment for hypertension. It is recommended that healthcare providers, particularly nurses in community health centers, incorporate this approach into hypertension management programs to empower elderly patients in self-care practices. Future studies should consider larger samples and longer intervention periods to validate the sustainability of the effects.

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