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The Effectiveness of the Combination of Finger-Holding Relaxation Therapy and Deep Breathing on Changes in Blood Pressure in Hypertension Patients at the Sariwangi Community Health Center

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ABSTARCT

Hypertension is a cardiovascular disease characterized by an increase in systolic blood pressure ≥140 mmHg and/or diastolic blood pressure ≥90 mmHg and is known as the silent killer because it often shows no symptoms. Elevated blood pressure occurs due to activation of the sympathetic nervous system, leading to peripheral vasoconstriction and increased cardiac workload. The management of hypertension can be carried out through pharmacological and non-pharmacological approaches. One safe and easily applied non-pharmacological therapy is the combination of finger-grip relaxation and deep breathing. This therapy theoretically works through stimulation of meridian points in the fingers and activation of the parasympathetic nervous system, thereby reducing epinephrine and norepinephrine levels, decreasing heart rate, and lowering blood pressure. To determine the effectiveness of the combination of finger grip relaxation and deep breathing on blood pressure changes in patients hypertension. This study employed a quantitative approach with a quasi-experimental pre-test and post-test design. Non-probability sampling was used to recruit 40 respondents, consisting of 20 participants in the intervention group and 20 in the control group. Data normality was tested using the Shapiro–Wilk test, and statistical analysis was performed using the Mann–Whitney test. The results showed a significant reduction in blood pressure in the intervention group after the therapy. The p-value for systolic blood pressure was 0.048, while the p-value for diastolic blood pressure was 0.022. The combination of finger-grip relaxation and deep breathing therapy performed for 10 minutes in the morning and evening for three days within one week was effective in reducing systolic blood pressure by 7–11 mmHg in patients with hypertension.

Keywords: *Hypertension*, *Finger-Grip Relaxation, Deep Breathing*

INTRODUCTION

Hypertension is a disease that often has no symptoms and can lead to sudden death, a condition known as "The Silent Killer." It is also a risk factor for various serious illnesses such as heart failure, stroke, and kidney disease. Blood pressure is the force with which the heart pumps blood throughout the body; its value can fluctuate depending on the activity the body is undertaking (Muzamil 2021). Blood pressure is said to be normal if the systolic blood pressure is < 120 mmHg and the diastolic blood pressure is < 80 mmHg (AHA 2025).

In 2023, the WHO recorded that approximately 1.28 billion adults aged 30–79 years worldwide will suffer from hypertension, with two-thirds of cases occurring in low- and middle-income countries. The global prevalence of hypertension is estimated to reach 33%, and approximately 46% of sufferers are unaware of their condition, often not optimally managed. At the national level, the prevalence of hypertension in Indonesia remains relatively high. The 2023 Basic Health Research (Riskesdas) showed that the prevalence of hypertension in the population aged ≥18 years was 34.1%, or approximately 63 million people, with a mortality rate of 427,218. West Java ranks second highest with a prevalence of 39.6%. In Tasikmalaya Regency, the incidence of hypertension in 2024 reached 25,038 cases (13.15%) and increased in the January–August 2025 period to 33,709 cases (18.6%). Sariwangi Community Health Center was chosen as the research location because it has a relatively high prevalence of hypertension, namely 3.32% in 2024 and still shows a significant number of cases until September 2025. This condition indicates that hypertension in the area requires more optimal control and intervention efforts.

If hypertension is left uncontrolled, it can lead to serious complications such as stroke, coronary heart disease, kidney failure, and even blindness. Hypertension can be treated with two approaches: pharmacological and nonpharmacological. Pharmacological therapy includes antihypertensive medications, including diuretics, beta-blockers (beta-adrenergic blockers), vasodilators, calcium channel blockers, and angiotensin-converting enzyme inhibitors. Nonpharmacological therapy is treatment without medication. One nonpharmacological approach that can be applied is complementary therapy (Fajri et al., 2022).

There are various types of complementary therapies used to treat hypertension because they are natural and do not cause dangerous side effects, including nutritional therapy, herbal therapy, meditation, progressive muscle relaxation, acupuncture, laughter therapy, guided imagery, yoga, and aerobic exercise (Keperawatan et al., 2024). One independent intervention that can support blood pressure control is finger grip relaxation and deep breathing (Putu 2024). This method emphasizes stress management and autonomic nerve stimulation to help reduce sympathetic activity (Puspita et al., n.d.).

The finger hold relaxation technique is a simple method that combines finger stimulation with deep breathing. By alternately holding your fingers while breathing deeply, the body feels a warming effect on the meridian points that channel energy, resulting in a relaxation response. This stimulation is transmitted through the nerves to the brain and then to the nerves of the related organs, clearing blocked blood flow (Nurannisa 2024). The combination of finger stimulation and deep breathing helps reduce physical and emotional tension.

The increasing number of people with hypertension and the risk of complications resulting from uncontrolled blood pressure demonstrate the need for safe, simple, and effective interventions. Several studies have shown that finger-holding relaxation and deep breathing can help lower blood pressure (Pengabdian Masyarakat et al., n.d.). The difference between this study and previous studies lies in the characteristics of the respondents, which included adults and the elderly, given that hypertension is not unique to the elderly. Furthermore, this study emphasizes the importance of preventing complications through simple, self-administered interventions. Therefore, this study aims to

analyze the effectiveness of the combination of finger-holding relaxation and deep breathing on blood pressure changes in patients with hypertension at the Sariwangi Community Health Center.

METHODS

This quantitative study used a quasi-experimental pre-post-test with control group design. Blood pressure measurements were performed on both the intervention and control groups (Muhammad et al., n.d.). The study was conducted in the Sariwangi Community Health Center (Puskesmas) in Tasikmalaya Regency. The population consisted of 217 hypertension patients in the Sariwangi Community Health Center in Tasikmalaya Regency in September 2025. A total of 40 respondents were selected. Respondents were selected based on inclusion and exclusion criteria. Purposive sampling was used.

The intervention group received finger-holding and deep breathing interventions, while the control group received only blood pressure monitoring.

Univariate analysis aimed to describe respondent characteristics, including age, gender, and education level. Bivariate analysis was used to determine differences in blood pressure scores in hypertensive patients after the combination of finger-holding relaxation and deep breathing. Data analysis was performed using a normality test, followed by a Mann-Whitney test.

RESULT AND DISCUSSION

Based on Table 1, the majority of respondents in the intervention group (10 people) were aged 45-59 years, while in the control group, the majority of respondents (9 people) were aged 60 years and above, indicating that hypertension is not only predominant in the elderly but is also found in many adult and pre-elderly groups.

Table 1. Distribution of Age Characteristics

Age	Intervention Group (n=20)		Control Group (n=20)	
	n	%	N	%
26 – 45 Years	3	15	4	20
46 – 59 Years	10	50	7	35
> 60 Years	7	35	9	45

The increased incidence of hypertension in this age group is related to degenerative processes, such as decreased blood vessel elasticity and atherosclerosis, which causes increased peripheral resistance, thus tending to increase blood pressure (Ekarini, 2020). In addition to biological factors, unhealthy lifestyles, low physical activity, and increased stress, especially after the COVID-19 pandemic, also contribute to the high prevalence of hypertension in adults (Cristanto, 2021).

Table 2. Characteritics Distribution of Sex

SEX	Intervenstion Group (n=20)		Control Group (n=20)	
	n	%	N	%
Male	3	15	4	20
Female	17	85	16	80

Based on Table 2, the majority of respondents in the intervention group were female (17 people (85%), while in the control group, 16 people (80%). This finding indicates that hypertension was more prevalent in this study among women.

The high proportion of women with hypertension is related to biological and hormonal factors, particularly in women entering menopause. Decreased estrogen levels during menopause contribute to decreased blood vessel elasticity and an increased risk of atherosclerosis, which can ultimately lead to increased blood pressure. (Nurhayati, 2025). Before menopause, estrogen has a protective effect on the cardiovascular system by increasing high-density lipoprotein (HDL) levels, which play a role in preventing atherosclerosis. In addition to hormonal factors, lifestyle and psychosocial factors also contribute to the high incidence of hypertension in women. Physical inactivity, high-salt consumption, obesity, and high stress levels are known to increase the risk of hypertension in women (Garwahusada, 2020). Other studies also suggest that women tend to have a higher stress response, which can contribute to sustained increases in blood pressure (Yunus, 2021).

Table 3. Characteristic Distribution of Education Level

Education	Intervenstion Group (n=20)		Control Group (n=20)	
	n	%	n	%
Elementry	11	55	13	65
Junior High School	5	25	5	25

Senior High School	4	20	2	10
College	-	-	-	-

Based on Table 3, the majority of respondents in both the intervention and control groups had an elementary school education (11 respondents (55%) and 13 respondents (65%), respectively. This finding indicates that the majority of hypertension sufferers in this study came from groups with low levels of education.

Education level plays a significant role in shaping a person's health knowledge, attitudes, and behaviors. Low levels of education tend to be associated with limited understanding of health information, including prevention, control, and adherence to hypertension management (Hadiyati, 2022). This condition can result in a lower level of healthy lifestyle habits, such as diet, physical activity, and stress management.

However, higher education does not always guarantee good health behaviors if it is not accompanied by the ability and skills to implement that knowledge in daily life. However, individuals with higher levels of education generally have better access to information and a better knowledge base regarding health than those with less education (Dhirisma, 2022).

Table 4. Distribution of average blood pressure before intervention in the intervention group and control group

Group	Variable	Mean (mmHg)	Min (mmHg)	Max (mmHg)
Intervention	Sistolik	162,5	144	202
	Diastolik	97,45	92	132
Control	Sistolik	155,2	142	171
	Diastolik	96,5	91	105

Based on Table 4, the highest average systolic blood pressure after the intervention was 150.7 mmHg in the intervention group. Meanwhile, the highest average diastolic blood pressure after the intervention was 90.3 mmHg in the intervention group.

Table 5. Distribution of average blood pressure before and after the intervention in the intervention and control groups.

Kelompok	Variable	Mean (mmHg)	Min (mmHg)	Max (mmHg)
PRE TEST				
Intervensi	Sistolik	162,5	144	
	Diastolik	97,45	92	
Kontrol	Sistolik	155,2	142	
	Diastolik	96,5	91	
POST TEST				
Intervensi	Sistolik	150,7	130	
	Diastolik	90,3	86	
Kontrol	Sistolik	149,95	134	
	Diastolik	87,6	80	

Based on table 5, it can be seen about the average changes in systolic and diastolic blood pressure before and after the intervention in the intervention group and control group. These findings indicate differences in blood pressure values between the two groups after the intervention. Relaxing finger holds and deep breathing is one of the non-pharmacological nursing interventions that is effective in helping to lower blood pressure, because it can provide a relaxing effect, increase the elasticity of blood vessels, and reduce the activity of the sympathetic nervous system so that blood pressure becomes more controlled (Sholina, 2025).

Table 6. Difference in average reduction in blood pressure before and after intervention in the intervention group and control group.

Group	Variable	Mean		
		Pre Test mmHg	Post Test mmHg	Selisih mmHg
Intervention	Sistolik	162,5	150,7	11,8
	Diastolik	97,45	90,3	7,15
Control	Sistolik	155,2	149,95	5,25
	Diastolik	96,5	87,6	8,9

Based on Table 6 above, it is known that the highest difference/reduction in systolic blood pressure was in the intervention group with an average reduction of 11.8 mmHg, and the highest reduction in diastolic blood pressure was in the control group with an average reduction of 8.9 mmHg.

Blood pressure in both the intervention and control groups before the finger-hold relaxation and deep breathing sessions was in the hypertension category, with values exceeding the normal limit (>140/90 mmHg). This condition indicates that all respondents had high blood pressure before the intervention.

This increase in blood pressure is associated with unhealthy lifestyle factors, such as lack of physical activity, a high-salt diet, smoking, and an inability to manage stress. This finding aligns with research by (Perceka et al., 2022), which states that excessive salt consumption, obesity, smoking, and stress play a role in increasing blood pressure. Other research also confirms that unhealthy lifestyle behaviors, such as smoking, low physical activity, coffee consumption, and a high-salt diet, are major risk factors for hypertension (Nafila, 2021).

Table 7. Analysis of average blood pressure after the finger grip relaxation and deep breathing intervention in the intervention group.

Group	Blood Pressure	Mean	P Value	Conclussion
Intervention	Sistolik	163.64	0,048	There is an Effect of Intervention on Blood Pressure
	Diastolik	120.91	0,022	

Based on Table 7, the Mann–Whitney test results show a significant difference in systolic and diastolic blood pressure between the intervention and
control groups after receiving finger-holding relaxation and deep breathing therapy, with p-values of 0.048 (systolic) and 0.022 (diastolic), respectively ($p < 0.05$). These findings indicate that the finger-holding relaxation and deep breathing intervention significantly reduced blood pressure compared to the control group, which received only pharmacological therapy.

These results align with those of Lisa et al. (2023), which demonstrated a decrease in systolic and diastolic blood pressure after routinely administering finger-holding relaxation and deep breathing therapy.

Physiologically, the combination of finger-holding and deep breathing can suppress sympathetic nerve activity and increase parasympathetic activity, resulting in vasodilation, decreased heart rate, and decreased cardiac output, leading to lower blood pressure.

Other research also supports the effectiveness of this technique as a simple and easy-to-implement non-pharmacological intervention. Finger grip relaxation accompanied by deep breathing has been proven to be effective in lowering blood pressure in hypertension sufferers through physical and emotional relaxation effects, increasing baroreceptor sensitivity, and inhibiting the release of stress hormones such as epinephrine and norepinephrine (Nurannisa, 2024).

Thus, finger-holding relaxation therapy and deep breathing can be recommended as an effective non-pharmacological nursing intervention to help control blood pressure in patients with hypertension.

CONCLUSSION

This study shows that the majority of respondents with hypertension at the Sariwangi Community Health Center are in the adult age group (26–59 years), female, and have a primary school education. The average blood pressure before the intervention in the intervention and control groups was in the hypertension category. After the intervention, both groups experienced a decrease in blood pressure, but a greater decrease occurred in the intervention group. Statistical tests showed that the combination of finger grip relaxation and deep breathing had a significant effect on reducing systolic and diastolic blood pressure in hypertensive patients ($p < 0.05$). These findings indicate that the intervention is effective as a non-pharmacological therapy in helping to control blood pressure.

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REFERENCE

AHA. (2025). Tekanan Darah Tinggi (Hipertensi). *Galeri Medika*.

Cristanto, M. (2021). Hubungan Aktivitas Fisik dengan Pencegahan Hipertensi pada Usia Dewasa Muda. *Jurnal Sahabat Keperawatan*, *3*(1), 53–65.

Dhirisma, F. (2022). Hubungan Antara Tingkat Pendidikan Terhadap Pengetahuan Masyarakat tentang Hipertensi di Posbindu Desa Srigading, Sanden, Bantul Yogyakarta. *AKFARINDO*, *7*(1), 40–44.

Garwahusada, E. (2020). Hubungan Jenis Kelamin, Perilaku Merokok, Aktivitas Fisik dengan Hipertensi Pada Pegawai Kantor. *Media Gizi Indonesia*, *15*(1), 60–65.

Hadiyati, L. (2022). Tingkat pengetahuan masyarakat kelurahan antapani kidul mengenai pencegahan dan komplikasi hipertensi. *Jurnal Sehat Masada*, *XVI*, 136–141.

Keperawatan, J., Nightingale, F., Pemberian, E., Relaksasi, T., Jari, G., Tekanan, T., Pada, D., & Lansia, P. (2024). *Effectiveness of Giving Finger Grip Relaxation Therapy on Blood Pressure in Pre- Elderly Hypertension Hypertensive Patients*. *7*(1), 285–291. https://doi.org/10.52774/jkfn.v7i1.193

Muhammad, B. R., Alfiyansyah, R., & Perceka, A. L. (n.d.). *INCREASING COMMUNITY KNOWLEDGE ABOUT HYPERTENSION WITH A DIRECT EDUCATION PROGRAM AS AN EFFORT TO IMPROVE COMMUNITY HEALTH STATUS Jurnal Pengabdian Masyarakat DEDIKASI INCREASING COMMUNITY KNOWLEDGE ABOUT HYPERTENSION WITH A DIRECT EDUCATION PROGRAM AS AN EFFORT TO IMPROVE COMMUNITY HEALTH STATUS INCREASING COMMUNITY KNOWLEDGE ABOUT HYPERTENSION WITH A DIRECT EDUCATION PROGRAM AS AN EFFORT TO IMPROVE COMMUNITY HEALTH STATUS*. Retrieved https://dedikasi.lp4mstikeskhg.org/home

Muzamil, N. (2021). Penerapan Swedish Massage Untuk Menurunkan Tekanan Darah Pada Asuhan Keperawatan Gerontik Dengan Kasus Hipertensi. In *Poltekkes Kemenkes Palu*.

Nafila, K. (2021). Hubungan Gaya Hidup dengan Kejadian Hipertensi pada Usia Dewasa Muda. *Prosiding Seminar Nasional Kesehatan 2021 Lembaga Penelitian Dan Pengabdian Masyarakat Hubungan Gaya Hidup Dengan Kejadian Hipertensi Pada Usia Dewasa Muda : Literature Review Prosiding Seminar Nasional Kesehatan 2021 Lembaga Penelitian Dan Pengabdian Mas*, 1578–1589.

Nurannisa, T. (2024). Efektifitas Pemberian Terapi Relaksasi Genggam Jari Terhadap Tekanan Darah Pada Pra Lansia Penderita Hipertensi. *Jurnal Keperawatan Florence Nightingale*, *7*(1), 285–291. https://doi.org/10.52774/jkfn.v7i1.193

Nurhayati, U. (2025). Hubungan usia dan jenis kelamin terhadap kejadian hipertensi. *Prosiding Seminar Nasional Penelitian Dan Pengabdian Masyarakat Universitas Aisyiyah Yogyakarta*, *1*(2018), 363–369.

Pengabdian Masyarakat, J., Ali Awaludin, A., Dewi Budairti, K., Gin Sugih Permana, G., Lungguh Perceka, A., & Suliyawati, E. (n.d.). *PENINGKATAN PENGETAHUAN PERILAKU HIDUP BERSIH DAN SEHAT DI DESA CITANGTU KECAMATAN WANARAJA KABUPATEN GARUT*.

Perceka, A. L., Erlinawati, N. A., & ... (2022). PENYULUHAN KESEHATAN DAN PEMERIKSAAN FISIK, TEKANAN DARAH, GULA DARAH, DAN ASAM URAT RW 15 DESA SINDANGGALIH KARANGAPAWITAN …. *Jurnal …*. https://dedikasi.lp4mstikeskhg.org/index.php/home/article/view/43

Puspita, T., Hadi Sulhan, M., Yekti Widadi, S., Nafsa Mutmainna, G., Lungguh

Perceka, A., & Gin Sugih Permana, G. (n.d.). *Jurnal Pengabdian Masyarakat DEDIKASI KNOWLEDGE IMPROVEMENT RELATED TO HYPERTENSION*. Retrieved http://repository.ub.ac.id/180261/

Putu, N. L. (2024). “Renjana” (Relaksasi Genggam Jari Dengan Nafas Dalam) Memengaruhi Tekanan Darah Lansia Hipertensi. *Jurnal Keperawatan*, *16*(1), 383–396.

Yunus, M. (2021). Hubungan Usia dan Jenis Kelamin dengan Kejadian Hipertensi di Puskesmas Haji di Kecamatan Anak Tuha Kabupaten Lampung Tengah. *Journal Ilmu Kedokteran Dan Kesehatan*, *8*(1), 192–201.