

Literature Review: The Effect of Non-Pharmacological Therapy in Lowering Blood Pressure in Hypertensive Patients

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Article Info	Abstract
Article History Submitted, 2026-05-13 Accepted, 2026-06-24 Published, 2026-06-30	Hypertension is one of the most common chronic health problems experienced by the elderly and contributes significantly to the risk of cardiovascular disease. Although pharmacological therapy is frequently used, non-pharmacological interventions such as progressive muscle relaxation therapy are considered effective and safe in reducing blood pressure. This literature review aims to determine the effectiveness of non-pharmacological therapy in hypertensive patients in reducing and controlling blood pressure. This journal's literature uses a Narrative Review approach, using Google Scholar as its database. The search was limited to articles published between 2020 and 2025. Selected journals were those relevant to hypertension and non-pharmacological therapies. Results of this study was 5 journals were selected as research reference sources that met the criteria. Results from these five referenced scientific journals indicate that non-pharmacological hypertension therapy is effective in lowering systolic and diastolic blood pressure. Conclusion of this study was non-pharmacological therapies recommended according to reference sources include gymnastics for the elderly, deep breathing relaxation therapy, progressive muscle relaxation, guided imagery therapy, and music therapy.
Keywords: Hypertension, non-pharmacological therapy, influence, blood pressure	

Introduction

Hypertension (high blood pressure) is a condition where the pressure in the blood vessels is too high (140/90 mmHg or higher). This condition is common but can be serious if left untreated. People with high blood pressure may not experience symptoms. The only way to know if they have it is to have their blood pressure checked. According to the World Health Organization, an estimated 1.4 billion adults aged 30–79 worldwide will have hypertension by 2024, representing 33% of the population in this age group. The global elderly population continues to rise annually. According to the United Nations (2020), the global population of people aged 65 and older reached 727 million (9.3 percent of the world's population) in 2020. It is estimated that by 2050, the global elderly population will double, reaching 16 percent of the total population—equivalent to 1.5 billion people. Currently, Europe has the highest percentage of residents aged 60 or older (24%), but rapid aging is also expected to occur in other parts of the world. Consequently, by 2050, nearly a quarter or more of the populations in other regions—with the exception of Africa—will be aged 60 or older. The global elderly population is projected to reach 1.4 billion by 2030 and 2.1 billion by 2050, potentially rising to 3.2 billion by 2100. According to the WHO, the elderly population in Southeast Asia stands at 8%, or approximately 142 million people. By 2050, this elderly population is expected to triple in size (Kusmiati et al., 2024).

Two-thirds of adults aged 30–79 with hypertension live in low- and middle-income countries. An estimated 600 million adults with hypertension (44%) are unaware they have the condition. Approximately 630 million adults with hypertension (44%) are diagnosed and treated. Approximately 320 million adults with hypertension (23%) have it under control. Hypertension is a leading cause of premature death worldwide. One of the global targets for non-communicable diseases is to reduce the prevalence of uncontrolled hypertension by 25% between 2010 and 2025 (World Health Organization, 2025).

In Indonesia, according to the 2023 Indonesian Health Survey and the 2011-2021 non-communicable disease (NCD) cohort study, hypertension is the fourth highest risk factor for

death, contributing 10.2%. The 2023 Indonesian Health Survey data shows that 59.1% of disabilities (sight, hearing, walking) in the population aged 15 years and above are acquired diseases, of which 53.5% are NCDs, primarily hypertension (22.2%) (Kemenkes, 2024).

According to the American Heart Association (AHA), the latest hypertension classification issued in 2025 is normal systolic <120 and diastolic <80, elevated (Pre-hypertension) systolic 120-129 and diastolic <80, HT grade 1 systolic 130-139 and diastolic 80-89, HT grade 2 systolic 140 or more and diastolic 90 or more, and severe hypertension systolic >180 and diastolic >120 (American Heart Association, 2025).

Hypertension is one of the most significant comorbidities contributing to the increased incidence of stroke, myocardial infarction, heart failure, and kidney failure. Therefore, it is important for people with hypertension to regularly monitor their blood pressure to maintain control. Blood pressure management is divided into pharmacological and non-pharmacological therapies. Pharmacological therapy involves the use of drugs or compounds that affect blood pressure, such as angiotensin-converting enzyme inhibitors (ACEIs), angiotensin receptor blockers (ARBs), diuretics, calcium channel blockers (CCBs), and beta-blockers (BBs). These medications can be prescribed by a doctor to help control blood pressure and prevent complications associated with hypertension. However, taking high blood pressure medication must follow a doctor's recommendations, including the type of medication taken, how to take it, the dosage, and how many times a day it should be taken. If medication is taken according to the doctor's instructions and the dosage instructions, it should not cause side effects, even if taken regularly every day. However, some people may experience mild side effects, such as stomach ache, nausea or constipation, headache, drowsiness, fatigue, swollen feet or ankles, flushing or feeling hot/warm in the face, palpitations or faster heartbeat (Kementeterian Kesehatan, 2024).

According to Nurhanifah & Sari (2022), non-pharmacological therapy is a treatment approach that does not involve the use of chemical drugs. Non-pharmacological therapy is often used as an adjunct or primary option for managing pain, anxiety, stress, and other disorders that do not require medication. Non-pharmacological therapies that can be applied include physical therapy, relaxation, psychotherapy, and complementary therapies. These therapies can include mind-body therapies such as progressive relaxation, meditation, imagery, music therapy, humor, laughter therapy, and aromatherapy. Therefore, it is highly recommended for hypertensive patients to undergo non-pharmacological therapy that can support pharmacological hypertension therapy.

Hypertension management encompasses pharmacological therapy using combinations of antihypertensive drugs and non-pharmacological therapy. Non-pharmacological therapy can independently lower blood pressure and reduce morbidity and mortality. Furthermore, non-pharmacological therapy can potentiate the effects of antihypertensive medications. Non-pharmacological therapy is recommended as a first-line management strategy and should be continued regardless of the severity of hypertension or the drug combinations employed. Non-pharmacological therapy is also recommended for individuals with normal blood pressure to prevent or delay the onset of hypertension, thereby reducing the risk of cardiovascular events and metabolic diseases. Non-pharmacological hypertension therapy aligns with the Indonesian government's health program focus on reducing the burden of hypertension through health promotion and primary prevention—such as the Prolanis program and BPJS-based telemedicine services at primary healthcare facilities (Saputra et al., 2023). The primary objective of this study is to evaluate the effectiveness of lifestyle modification interventions (such as diet, exercise, and stress management) in lowering and controlling blood pressure, while simultaneously preventing cardiovascular complications and metabolic diseases, enhancing the effects of antihypertensive medications, improving quality of life, optimizing costs, and preventing or delaying the onset of hypertension in populations with normal blood pressure.

Methods

This study uses the Literature Review (LR) method, which is a systematic and clear literature study by collecting, identifying, and evaluating existing research data. The purpose of this literature review is to determine the effect of non-pharmacological therapy in lowering blood pressure in hypertensive patients. A systematic, computer-based search was conducted using Google Scholar, Google Search, and professional nursing research journals. The search was limited to articles published between 2020 and 2025. Selected journals were those relevant to hypertension and non-pharmacological therapies. The keywords used by the authors were "hypertension," "non-pharmacological therapy," "effect," and "blood pressure".

Results and Discussion

Based on searches conducted via Google, Google Scholar, and professional nursing journals, five journals related to hypertension and non-pharmacological therapy, published

between 2020 and 2025 were identified. The results of the journal analysis are presented in Table 1 below:

Table 1. Article Research

No	Researchers	Research methods	Results
1.	Progressive Muscle Relaxation: A Non-Pharmacological Approach to Reducing Blood Pressure in Elderly Hypertensive Patients (Andriani et al., 2025)	This study used a quantitative approach with a quasi-experimental design, including a pre-test and post-test without a control group, involving 21 respondents selected using a purposive sampling technique. Data analysis was performed using the Wilcoxon test.	The results showed a significant decrease in systolic blood pressure (mean from 160.67 mmHg to 152.57 mmHg; $p = 0.002$) and diastolic blood pressure (from 94.67 mmHg to 89.81 mmHg; $p = 0.001$) after the intervention. There was a significant effect of progressive muscle relaxation therapy on blood pressure reduction in elderly people with hypertension.
2.	The Effect of Guided Imagery Therapy on Blood Pressure Changes in Hypertension Patients at the Jayengan Community Health Center in Surakarta (Husain, 2021)	The pre-experimental research design used a one-group pretest-posttest design. The sample size was 40 hypertension patients. A purposive sampling technique was used. The pre-experimental research design used a one-group pretest-posttest design. The sample size was 29 respondents, using a purposive sampling technique. The Wilcoxon Signed Rank test was used to test for differences.	The statistical test results showed a p-value for systolic blood pressure before and after guided imagery therapy (0.001), which was smaller than the alpha value (0.05). The conclusion of this study is that guided imagery therapy has an effect on blood pressure changes in hypertension patients at the Jayengan Community Health Center in Surakarta.
3.	The Effect of Deep Breathing Relaxation Therapy on Blood Pressure Reduction in the Elderly (Bukhori, 2022)	The research design used a narrative study with a qualitative approach that focused on the effect of deep breathing relaxation therapy on lowering blood pressure in the elderly. The study subjects were elderly residents of a social care facility for the elderly. The sample was determined by selecting fifteen elderly individuals with hypertension. Data collection by interviews, observation and physical examination.	It was found that deep breathing relaxation therapy had an effect on reducing blood pressure in elderly people. Of the 15 respondents who underwent deep breathing relaxation therapy, all showed a decrease in blood pressure.
4.	The Effect of Elderly Exercise as a Non-Pharmacological Therapy in Lowering Blood Pressure in the Elderly (Huzaifah et al., 2024)	This quantitative study employed a quasi-experimental design with a one-group pre- and post-test design. The subjects were 32 elderly residents within the Kuin Raya Community Health Center's coverage area.	Statistical testing using the Wilcoxon test yielded a p-value of 0.000, which is smaller than the α value. Therefore, the hypothesis is accepted, namely that there is an effect of elderly exercise as a non-pharmacological therapy in reducing blood pressure in the elderly.
5.	The Effect of Instrumental Music Therapy on Blood Pressure in Elderly Patients with Hypertension (Kholifah & Sutanta, 2021)	This study used a pre-experiment with a One Group Pretest-Posttest. The study population consisted of 52 elderly people, and a sample size of 30 elderly individuals was selected using purposive sampling. Data analysis used the Wilcoxon method.	After instrumental music therapy, 28 individuals had normal blood pressure and 2 individuals had high blood pressure. The Wilcoxon test yielded a Z-value of -6.174 with a p-value of $0.000 < \alpha = 0.05$. Instrumental music therapy significantly impacted blood pressure in hypertensive elderly individuals at the Budhi Dharma Umbulharjo Nursing Home in Yogyakarta.

Based on an analysis of five selected journals, a consistent effect of non-pharmacological therapy on lowering blood pressure in hypertensive patients was found. Two of the five journals focused on relaxation techniques by regulating breathing, thus providing a relaxing effect on the body. One journal focused on increasing blood flow and oxygen supply to active muscles and skeleton, particularly the heart muscle, through light physical exercise. The other two journals focused on reducing anxiety levels with music, thus positively impacting mood and reducing emotions. The physiological effects can result in increased or decreased muscle energy. Blood circulation, pulse, and blood pressure become more regular.

The five selected journals concerning hypertension and non-pharmacological therapy align with the study by Mawaddah et al (2024) titled "Effectiveness of Non-Pharmacological Therapy in Hypertensive Patients". That study implemented several non-pharmacological interventions for hypertensive patients, including nutritional interventions (replacing regular salt with low-sodium, high-potassium salt) and lifestyle modifications (increasing physical activity). Additionally, relaxation therapies such as listening to music, foot reflexology, and acupuncture were shown to lower blood pressure in some of the intervention groups.

The Effect of Elderly Gymnastics as a Non-Pharmacological Therapy in Reducing Blood Pressure in the Elderly

Uncontrolled hypertension can have serious health consequences. Chronic hypertension can increase the risk of heart disease, stroke, kidney failure, eye disorders, and other vascular problems. Therefore, it is important to prevent and manage hypertension through a preventive and control approach that involves healthy lifestyle changes, the use of antihypertensive medications, and regular blood pressure monitoring. Awareness of the importance of early detection of hypertension is also crucial. Hypertension often has no obvious symptoms at first, so organ damage can occur without being noticed. Regular blood pressure checks, especially for individuals with risk factors, can help detect hypertension as early as possible and initiate appropriate management.

Huzaifah et al (2024) demonstrated the importance of raising awareness of the importance of physical activity in the form of elderly exercise in preventing hypertension. This aligns with research findings showing a significant effect of elderly hypertension exercise on blood pressure in elderly with hypertension.

The Effect of Instrumental Music Therapy on Blood Pressure in Elderly with Hypertension, The Effect of Guided Imagery Therapy on Changes in Blood Pressure in Hypertension Patients in the Jayengan Community Health Center Area, Surakarta

Physical changes that occur in the elderly increase the risk of cardiovascular diseases such as hypertension. Hypertension can affect various aspects of life and impact the quality of life, namely decreasing. One effort to improve the quality of life is through Javanese music therapy tailored to the demographic of the elderly. The intervention in this study used Javanese music. Increasing age and the impact of this aging process, the elderly experience changes in sleep patterns. Difficulty meeting the need for rest and sleep can be measured by the time an elderly person sleeps or deep sleep. Elderly who experience sleep disorders often complain of being unable to sleep, sleep less long, sleep with frightening dreams, and feel their health is disturbed. Music therapy is very effective for addressing sleep disorder, especially in the elderly, namely by listening to music for 2 weeks, this can have an impact on reducing insomnia in the elderly.

According to Kholifah & Sutanta (2021), showed that the blood pressure of hypertensive elderly in the intervention group before instrumental music therapy mostly experienced slightly high blood pressure, while the blood pressure of hypertensive elderly in the intervention group after instrumental music therapy had normalized. Music therapy has a significant effect on reducing blood pressure in hypertensive elderly.

According to Husain (2021), Guided imagery is a technique that combines directing someone to imagine pleasant things and using soft music at a specific volume. Guided imagery relaxation therapy has many benefits for the body, including reducing pain and anxiety, lowering blood pressure, reducing muscle tension, accelerating healing, and helping the body combat various illnesses. Guided imagery relaxation therapy can be practiced daily for 15 minutes, and for maximum results, it can be done up to 14 times in a row.

Progressive Muscle Relaxation: A Non-Pharmacological Approach to Lowering Blood Pressure in Hypertensive Elderly, The Effect of Deep Breathing Relaxation Therapy on Lowering Blood Pressure in the Elderly

Physiologically, this non-pharmacological therapy stimulates the activity of the parasympathetic nervous system and influences the work of the hypothalamus, which then produces alpha brain waves and suppresses the production of stress hormones such as cortisol, epinephrine, and norepinephrine so that vasodilation or widening of blood vessels occurs, which helps lower blood pressure and provides a relaxing effect on the muscles.

According to Andriani et al (2025), One of non-pharmacological approach proven effective in lowering blood pressure is progressive muscle relaxation therapy. This therapy involves practicing conscious and systematic muscle tension and release for 15 minutes, which then reduces the secretion of stress hormones such as CRH and ACTH from the hypothalamus. This decreases sympathetic nerve activity and lowers epinephrine and norepinephrine levels, while parasympathetic nerve stimulation increases through the release of acetylcholine, thus naturally lowering blood pressure.

According to Bukhori (2022), Deep breathing relaxation therapy is effective in lowering blood pressure in elderly people with hypertension. Deep breathing can stretch the airways, reducing oxygen consumption, metabolism, respiratory rate, heart rate, and muscle tension, thus lowering blood pressure in hypertensive patients. This finding in line with study by Adiutama(2021).

Conclusion

Non-pharmacological therapy for hypertension patients is considered effective in significantly lowering both systolic and diastolic blood pressure. Recommended non-pharmacological therapies, according to reference sources, include exercise for the elderly, Deep braething relaxation therapy, progressive muscle relaxation, guided imagery therapy, and music therapy. However, in practice, consideration must also be given to the duration and adherence of hypertensive patients to non-pharmacological therapy to achieve optimal results in helping control blood pressure.

Acknowledgments

Thank you to all the lecturers at Universitas Ngudi Waluyo and my classmates who have helped in compiling this literature review.

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