



EFFECTIVENESS OF COMPLEMENTARY THERAPY ON BLOOD PRESSURE IN HYPERTENSION PATIENTS: A LITERATURE REVIEW

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ABSTRACT

Management of hypertension can be done pharmacologically and non-pharmacologically. Pharmacologically by consuming medication to control blood pressure. Whereas non-pharmacologically, it can be done through the provision of complementary therapy. Complementary therapy is not only for lowering blood pressure but also for addressing various physical and psychological complaints related to hypertension. Some complementary therapies found to help lower blood pressure include progressive muscle relaxation, slow stroke back massage, guided imagery, hypertension exercise, aromatherapy, music therapy, and mural. The purpose of this literature review is to determine the effectiveness of several types of complementary therapies on blood pressure in hypertensive patients. The literature review search uses the PubMed and Google Scholar databases. The literature search started with articles published from 2019 to 2024. The inclusion criteria used in the selection of this literature review are original research, full text, the period from 2019 to 2024, experimental studies with complementary therapy interventions, and research results showing the effectiveness of the therapy. Whereas the exclusion criteria are studies that do not focus on complementary therapy for hypertension patients. Based on the literature review, 6 articles were found that examined complementary therapy interventions showing significant results in lowering blood pressure in hypertensive patients. The conclusion of this literature review is that complementary therapies such as progressive muscle relaxation, slow stroke back massage, guided imagery, hypertension exercises, aromatherapy, music therapy, and mural are effective in lowering blood pressure in hypertensive patients.

Keywords: complementary therapies; hypertension; literature review

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INTRODUCTION

Hypertension is a persistent blood pressure condition where the systolic blood pressure is above 140 mmHg and the diastolic pressure is above 90 mmHg. WHO or World Health Organization (2019) estimates the global prevalence of hypertension to be 22% of the world's population. (World Health Statistics 2023 – Monitoring Health for the SDGs, 2023). In Indonesia, based on the results of Riskesdas (2018), the prevalence of hypertension is 34.11%. In West Sumatra, the prevalence of hypertension is 25.1%. (Kemenkes RI, 2018). In hypertensive patients, symptoms will appear due to high blood pressure such as headaches, dizziness, and fatigue (Black & Hawk, 2014). To control blood pressure and hypertension symptoms, patients need to manage their condition. Hypertension control can be carried out by patients by adhering to medication and therapy, maintaining positive health behaviors, and practicing self-management (Mulyati et al., 2015). Hypertensive patients who possess good self-management skills can manage their disease in a better and more beneficial way. Hypertensive patients with good self-management will have a positive impact on blood pressure management and adherence to maintaining a beneficial lifestyle (Sudja & Meirina,

2017). Effective self-management is beneficial for increasing patient independence, boosting self-confidence, enhancing patient satisfaction in living, improving the quality of life for patients, and reducing care costs. One of the things that can be done by hypertension patients for the treatment and management of hypertension is self-management.

Hypertension requires long-term disease management, but in this case, it not only involves the patients and disease managers but also the involvement of family members and healthcare professionals. Self-management plays a crucial role in controlling blood pressure in hypertensive patients. Hypertension self-management is an individual's ability to manage the symptoms and signs of their hypertension, such as medication and treatment, physical activity, social activity, and lifestyle changes. Uncontrolled hypertension can lead to complications such as stroke, heart failure, and kidney failure. By implementing hypertension self-management, complications can be prevented (Sakinah et al., 2020). Management of hypertension can be done pharmacologically and non-pharmacologically. Pharmacologically by consuming medication to control blood pressure. Non-pharmacologically, it can be done through the provision of complementary therapy. Complementary therapy is not only for lowering blood pressure but also for addressing various physical and psychological complaints related to hypertension, such as headaches, disturbed sleep quality, fatigue, and anxiety. The existing complementary therapies have become one of the treatment options in society. People use complementary therapies for reasons such as belief, financial considerations, reactions to chemical drugs, and the level of recovery. Complementary therapy will also be perceived as cheaper for clients with chronic illnesses who must regularly incur costs for treatment. The main focus of this literature review is to determine the effectiveness of several complementary therapies on blood pressure in hypertensive patients. The purpose of this literature review is to determine the effectiveness of several types of complementary therapies on blood pressure in hypertensive patients.

METHOD

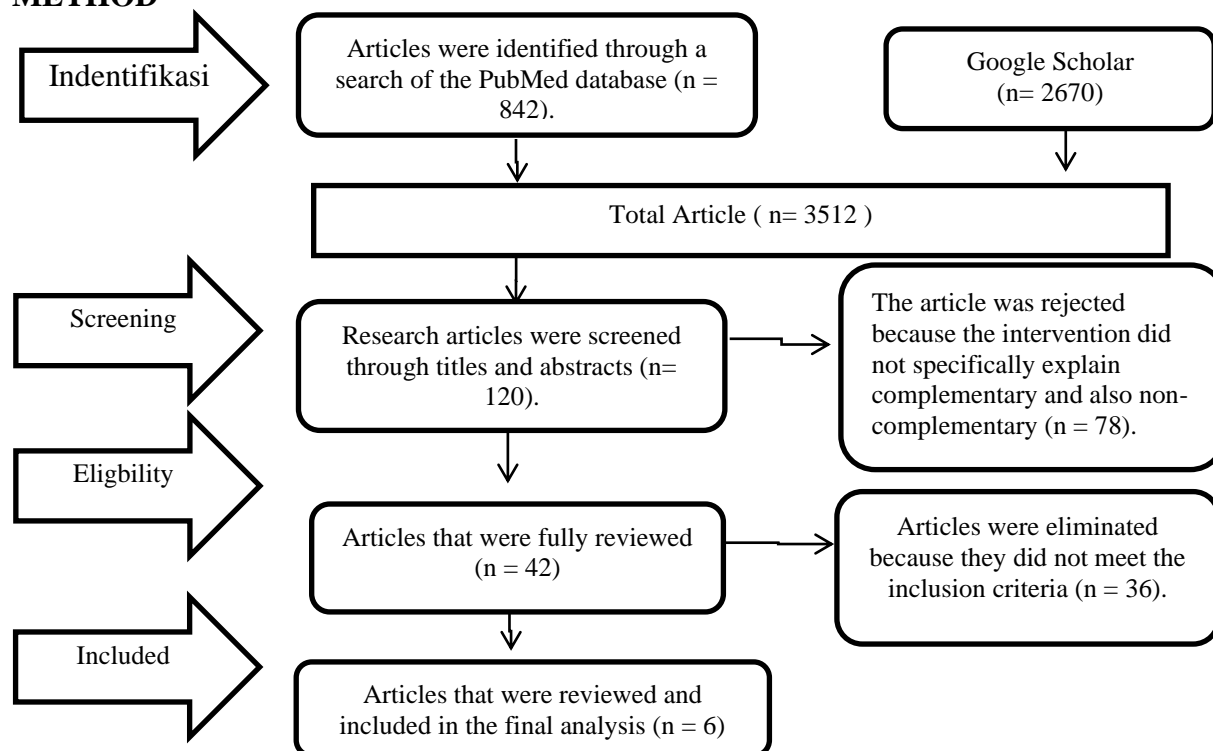


Figure 1. Article Search Process

The method of searching for articles in this literature review uses the PubMed database (2019 - 2024) and Google Scholar (2019 - 2024) in September 2024. The search strategy was conducted using the following keywords: *Complementary Therapy AND Hypertension, Complementary Therapy AND Blood Pressure, Complementary Therapy OR Progressive Muscle Relaxation OR Music Therapy OR Aromatherapy OR Slow Stroke Back Massage OR murottal OR Guided Imagery OR Senam, Effect of Complementary therapy, Hypertension Patients*. The inclusion criteria used in the selection of this literature review are original research, full text, the time frame of 2019 – 2024, experimental research with complementary therapy interventions, and research results showing the effectiveness of the therapy. Meanwhile, the exclusion criteria are research that does not focus on complementary therapy for hypertension patients.

RESULT

Table 1.
List of reviewed articles

| No | Author | Title | Type of Research | Sample | Type of Complementary Therapy | Outcome |
|----|-------------------------|---|--|--|-------------------------------|--|
| 1 | Ermayani et al., 2020 | The effect of progressive muscle relaxation on anxiety and blood pressure among hypertension patients in East Kalimantan, Indonesia | This study used a non-equivalent control group with a pretest-posttest design. | The sampling technique used was simple random sampling involving 91 respondents which were divided into 2 groups. The respondents were hypertension patients in grade I and II, with compositis awareness (GCS = 15), aged between 26-65 years old with body mass index (BMI) <30 kg/m ² , and got standard anti-hypertension drugs such as diuretics, beta-blockers, calcium channel blockers and, ACE inhibitors. | Progressive muscle relaxation | These findings showed that there was a significant difference before and after the fourth and eighth weeks of intervention on systolic and diastolic blood pressure and anxiety ($p = 0.000$). The results showed significant differences between the intervention group and the control group in systolic blood pressure ($p = 0.001$) and diastolic ($p = 0.000$), |
| 2 | Meidayanti et al., 2023 | The Effect of Slow Stroke Back Massage on Blood Pressure in Elderly Patients with | This research method uses a quantitative of research using quasi experimental | Sampling using the simple random sampling technique was carried out 3 times a week | Slow Stroke Back Massage | The results obtained mean a decrease in systolic and diastolic blood pressure in the intervention group was 21.04 mmHg |

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|---|----------------------|--|--|---|--|---|
| | Hypertension | design with two group pre-post-test nonequivalent control group design. | with a duration of 10 minutes for 4 weeks. Inclusion criteria in this study were hypertension sufferers who were willing to be respondents, patients aged 45-74 years both male and female and patients taking hypertension medication. Exclusion criteria were patients who experienced burns, bruises, skin rashes, inflammation of the skin of the back, patients who had spinal fractures. | | and 11.68 mmHg, p-value (0.000 <0.05). Meanwhile, the mean reduction in systolic and diastolic blood pressure in the control group was 3.00 mmHg with a p-value (0.071>0.05) and 2.04 mmHg with a p-value (0.081>0.05). The results of data analysis using the independent sample t-test obtained a p-value of 0.000 <0.05, which means that there is an effect of slow stroke back massage on blood pressure in hypertension sufferers. | |
| 3 | Afrioza et al., 2023 | The Effect of Guided Imagination Techniques on Hypertension In the elderly in the Kutabumi Village, Tangerang | This study used the quantitative method Quasi Experiment One Group Pretest-Posttest with Instrument observation sheets. | The sampling technique used was simple random sampling involving 50 respondents | Guided Imagination Techniques | This study showed that p value decreased after the treatment of guided imagination techniques. The result of the p value of systolic hypertension after treatment is $p \leq 0.05$ means a significant decrease |
| 4 | Efliani et al., 2022 | The Effectiveness of Hypertension Exercise on Blood Pressure Reduction in the Elderly at UPT PSTW Khusnul Khotimah Pekanbaru | This type of research is quantitative with quasy experimental method with the design of pre test and post test design with control group | The sampling technique used purposive sampling with 16 samples for the experimental group and 16 for the control group. | Hypertension Exercise | The results showed that there was a significant effect between given hypertension gymnastics to decrease high blood pressure with the results of the pre test and post test sistole on the first day p value = 0,000 and the pre test and post test diastole p value = 0.001. On the second day the pre test and post test sistole p value = 0.003 and the pre test and post test |

| | | | | | | |
|---|------------------------|--|--|--|---|--|
| | | | | | | diastole ρ value = 0.003. The third day pre test and post test sistolep value = 0,000 and pre test and post test diastole ρ value = 0,000. |
| 5 | Soeryanto et al., 2024 | The Effectiveness of Lemon Aromatherapy on Blood Pressure in Hypertension Patients in Modopuro Public Health Center, Mojokerto | The research design used pre-experimental with a one group pre-post test design approach | The sample used 35 respondents with a purposive sampling technique | Aromatherapy | The results showed that the mean systolic blood pressure before intervention was 158.34 mmHg, and the mean systolic blood pressure after intervention was 144.42 mmHg. The result showed a significant difference between systolic blood pressure before and after giving lemon aromatherapy in hypertension patients (p-value = 0.000) |
| 6 | Wahyuni et al., 2020 | Effectiveness of Classical Music and Qur'an Murottal Therapies on Patients With Hypertension in Middle Adulthood for Work Area of Sibela Surakarta Health Center | The type of research is quasi experimental design with the method of two groups in pre and post test design. | The sample of it was 32 persons who consisted of hypertension patients in work area of Sibela Health Care. The method of collecting sample used was purposive sampling | Classical Music and Qur'an Murottal Therapies | The result shows the systolic score of p value is 0,005 (p<0,05), it means there is the meaningful difference, while the diastolic score of p value shows 0,287 (p>0,05), it means there is no meaningful difference. The drop mean of blood pressure in classical music therapy group is systolic s4,06 mmHg and diastolic 2,54 mmHg, while the Qur'an murottal therapy group is systolic 6,90 mmHg and 3,27 mmHg |

From the 6 journals that were fully reviewed, the types of complementary therapies studied were progressive muscle relaxation, slow stroke back massage, guided imagery, hypertension exercises, classical music and murottal therapy, and aromatherapy. All research results indicate that complementary therapies significantly reduce both systolic and diastolic blood pressure in hypertensive patients.

DISCUSSION

Progressive Muscle Relaxation

The progressive muscle relaxation technique involves the sequential contraction and relaxation of muscles to reduce tension and stress, which can help lower blood pressure. By practicing this exercise regularly, hypertensive patients can experience a significant reduction in blood pressure and decrease the risk of complications associated with the condition. Additionally, progressive muscle relaxation therapy can also enhance overall well-being and help manage daily stress (Waryantini et al., 2021).

PMR exercises with calmness, relaxation, and full concentration on muscle tension and relaxation performed for 15 minutes can lead to a decrease in the secretion of CRH (corticotropin-releasing hormone) and ACTH (adrenocorticotrophic hormone) in the hypothalamus. The decrease in the secretion of these two hormones leads to a reduction in sympathetic nerve activity, resulting in decreased production of epinephrine and norepinephrine as neurotransmitters associated with anxiety. Conversely, acetylcholine levels will increase due to heightened stimulation of the parasympathetic nervous system. The norepinephrine system is thought to mediate the fight-or-flight response. This places norepinephrine in the locus coeruleus, which is connected by neurotransmitters to other brain structures related to anxiety, such as the amygdala, hippocampus, and cerebral cortex. Chronic stress causes changes in the amygdala, hippocampus, and cerebral cortex.

PMR exercises will lower epinephrine levels, preventing stress and reducing systemic responses. The decrease in sympathetic nervous system activity will lower heart rate and cardiac contractility, cause extensive vasodilation in peripheral arterioles, and inhibit the release of renin from the kidneys. The consequence of decreased sympathetic nervous system activation is a reduction in blood pressure through decreased Cardiac Output (CO) and Systemic Vascular Resistance (SVR). The parasympathetic nerve will also lower blood pressure by decreasing CO and SVR through the vagus nerve. The influence of PMR exercises on blood pressure (systolic and diastolic) and anxiety is statistically very strong because all tests show significant results (Waryantini et al., 2021).

Slow Stroke Back Massage

Slow stroke back massage is a type of relaxation therapy that uses the method of massage on the back area. This back massage is able to stimulate the endorphin glands, which provide a calming and relaxing effect, thereby lowering blood pressure. Physiologically, slow stroke back massage is a stimulus or stimulation caused by the massage on the tissue, which is a complex response of the neurohormonal system on the hypothalamic-pituitary-adrenal (HPA) axis. This stimulus is transmitted through the spinal cord to the hypothalamus, which is interpreted as a relaxation response. Touch or pressure on the skin relaxes muscles, tendons, and ligaments, increases parasympathetic activity to release the neurotransmitter acetylcholine to inhibit sympathetic nerve activity on the heart muscle, resulting in a decrease in blood pressure. (Meidayanti et al., 2023).

The SSBM therapy triggers the release of endorphin hormones that can enhance comfort, stimulate sensory nerve receptors towards the central nervous system, and if it affects the gray matter in the midbrain (periaqueductal), it is then transmitted to the hypothalamus. From the hypothalamus, through descending nerves, endorphin hormones are released, resulting in a relaxation effect that can ultimately reduce the headache experienced by hypertensive patients. Slow Stroke Back Massage (SSBM) therapy is one of the non-pharmacological management approaches in hypertension management. Non-pharmacological management

does not aim to replace the function of pharmacological treatment. Hypertension treatment also requires adherence to improve health status, such as a low-salt diet, not smoking, and regularly taking antihypertensive medication (Surya & Yusri, 2022).

Guided Imagery Therapy

One of the well-known relaxation therapies is guided imagery. Guided imagery is a relaxation technique that involves the individual's imagination with directed imagery. This relaxation method involves visualizing or imagining places and events associated with a pleasant sense of relaxation (Desnita et al., 2024). The relaxation effect induced by imagination through guided imagery can reduce heart rate and total peripheral resistance by inhibiting the sympathetic nervous system's stress response. The decrease in sympathetic nervous system activity can relax the smooth muscles of blood vessels and cause a decrease in blood pressure (Sherwood, 2016). The relaxing effect reduces sympathetic nerve stress activity, which will lower heart rate and contractility, cause vasodilation of blood vessels, and inhibit the release of the renin hormone that regulates blood pressure.

Several previous research findings have proven the effects of guided imagery on the blood pressure of hypertensive patients. The research results (Afrioza et al., 2023) shows that guided imagery therapy is effective in lowering the blood pressure of hypertensive patients. The research results Aji et al. (2022) shows the influence of guided imagery therapy on changes in systolic and diastolic blood pressure in hypertensive patients in the working area of Jayengan Health Center, Surakarta. Research results Setyani & Rohana (2019) shows that guided imagery relaxation therapy has an effect on reducing systolic and diastolic blood pressure in hypertensive elderly individuals in Dusun Krajan, Desa Leban Boja, Kendal.

Hypertension Exercise

Hypertension exercises can help reduce high blood pressure and the risk of heart disease. These exercises can also improve heart health and blood circulation. Regular exercise activities can help maintain overall body health. Hypertension exercises can also help improve flexibility and muscle strength, as well as reduce stress and anxiety. By doing exercises regularly, one can feel more energetic, enthusiastic, and overall healthy. Therefore, it is important to make hypertension exercise a part of daily life to maintain body health and prevent chronic diseases. Hypertension exercise can encourage the heart to work optimally, where exercise can increase the energy needs of cells, tissues, and organs, which in turn can enhance venous return, leading to an increase in stroke volume that directly boosts cardiac output, thereby raising arterial blood pressure. After arterial blood pressure increases, the impact of this phase can first reduce respiratory and skeletal muscle activity, causing a decrease in sympathetic nervous system activity. This will then lead to a decrease in heart rate, stroke volume, and vasodilation of venous arterioles. This reduction results in a decrease in cardiac output and total peripheral resistance, leading to a decrease in blood pressure (Efliani et al., 2022).

Aromatherapy

Aromatherapy is a therapy that uses scents derived from plants. Aromatherapy can lower blood pressure because its mechanism of action involves circulation and the olfactory system. When aromatherapy is inhaled through the nose, aromatic molecules enter through the nasal cavity membrane and then to the olfactory. Olfactory is the nerve that carries impulses from the sense of smell in the nose to the brain's control center. The olfactory is located at the top of the nose. (Soeryanto et al., 2024). The brain has a core function, which controls the entire system that has a core function. The brain has a core function, which controls the entire

system. after the impulse is received in the brain, the endocrine hormones will then be stimulated. The endocrine system is a major regulatory force in the body that secretes hormones into the bloodstream. These hormones act as chemical mediators to regulate many bodily functions, including mood, metabolism, and growth and development (Efliani et al., 2022)

Classical Music and Murottal Therapy

Music Therapy is a therapy that involves audio stimulation containing elements of rhythm, melody, harmony, and timbre. The music played to the research subjects will stimulate the auditory organs and activate the temporal lobe of the brain (auditory cortex), followed by stimulation of the limbic system, namely the Hippocampus, Amygdala, and Hypothalamus. Here, the Hypothalamus, stimulated by sound waves, will trigger the release of brain waves in the frontal and parietal cortex cerebri. Some theories suggest that stimulation of the limbic system will activate the RAS (Reticular Activated System). The waves emitted from the brain for the stimulation of relaxation music are alpha waves. These alpha waves cause the release of two chemical substances, namely the neurotransmitter serotonin, which induces a sense of calm, and endorphins, which are the active components of the opium system. These two chemical substances will stimulate the parasympathetic nervous system, leading to changes in the cardiovascular system.

Music therapy has stimulants to increase the release of endorphins and divert attention from pain. This therapy also provides a feeling of relaxation to the mind or body of its listeners, and this feeling of relaxation can affect heart rate and blood pressure according to the frequency, temperature, and volume of the music being listened to. Additionally, listening to music can activate the limbic system, thereby inducing a feeling of relaxation. This condition results in a decrease in blood pressure. Furthermore, music can stimulate the body to produce nitric oxide (NO) molecules. These molecules act on vascular tone, thereby lowering blood pressure.

Murottal is a compilation of recordings of Quranic verses recitation that emphasizes the vocal cords while paying attention to tajwid in the creation of letters and pauses. In addition, the murottal of the Qur'an contains human voice elements that can lower stress hormones, release natural endorphins, provide a sense of relaxation, and reduce feelings of fear, anxiety, and tension. Listening to the murottal of the Qur'an can help in the secretion of neuropeptides, providing comfort and pleasure to its listeners.

CONCLUSION

Based on the results of this literature review, it is known that 6 types of complementary therapies—progressive muscle relaxation, slow stroke back massage, guided imagery therapy, hypertension exercise, aromatherapy, classical music therapy, and murottal are effective in lowering blood pressure in hypertensive patients. The results of this literature review indicate that complementary therapy plays an important role as an adjunct therapy in pharmacological treatment. Complementary therapy has safer side effects compared to the side effects of chemical drug reactions. Treatment using complementary therapy also has benefits besides being able to improve health more comprehensively; it is also cheaper due to lower expenses. The use of complementary therapy also enhances patients' independence in managing their illness.

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