MULTIDI SCIENCE
Journal of Multidisciplinary Science
Vol. 3 No. 1, January 2026, Pages. 22-30
P-ISSN: 3046-692X, E-ISSN: 3046-6911
Doi: 10.59631/multidiscience.v3i1.467

Combination of Music Therapy and Progressive Muscle Relaxation in Patients with Hypertension: A Case Study

Nurosmala[1*], Asep Iskandar[1], Koernia Nanda Pratama[1], Pratama Yulianto[2]

[1]*Universitas Jenderal Soedirman, Indonesia*
[2]*Universitas Yayasan Pendidikan Imam Bonjol Majalengka, Indonesia*

**Corresponding Email: mallasf19@gmail.com*

Abstract
Hypertension is a chronic condition that commonly occurs in the elderly population. This condition is often referred to as the "silent killer" because it does not show any obvious symptoms until it triggers serious complications such as stroke, heart failure, and kidney dysfunction. In Indonesia, the prevalence rate reaches 34.1% nationally and 68% in Banyumas Regency, with a higher risk in postmenopausal women due to a decrease in estrogen that disrupts blood vessel elasticity. Non-pharmacological complementary therapies, such as music and progressive muscle relaxation (PMR), are needed to complement conventional treatment, given the vulnerability of the elderly to multiple medications. This study aims to explore the effectiveness of combined music and PMR therapy in controlling blood pressure in elderly hypertensive patients. This study uses a case study approach, involving three female patients aged 60–74 years with essential hypertension, without antihypertensive drugs, and able to communicate well (exclusions: cognitive, extremity, or hearing impairment). The main outcome measures were changes in systolic blood pressure (SBP) and diastolic blood pressure (DBP), evaluated before and after the intervention, accompanied by qualitative observations. There was an average decrease in SBP of 9.11 mmHg (range 2–14 mmHg) and DBP of 6.11 mmHg (range 1–7 mmHg). Qualitatively, respondents reported increased relaxation, cognitive focus, and decreased complaints such as anxiety and sleep disturbances. The combination therapy of music and PMR was effective in lowering blood pressure and providing psychosocial benefits in elderly hypertensive patients.

Keywords: Elderly, hypertension, music therapy, progressive muscle relaxation.

1. Introduction

Hypertension, also known as high blood pressure, refers to a condition in which blood pressure exceeds normal thresholds (Choundhry et al., 2022). This phenomenon arises due to a chronic increase in blood pressure in the arteries that exceeds standard values. In the elderly population, hypertension is a chronic condition characterized by an elevation in systolic blood pressure (SBP) of ≥130 mmHg and/or diastolic blood pressure (DBP) of ≥80 mmHg (AHA, 2025; Grassi et al., 2021). This condition is often referred to as a silent killer because it tends not to show any obvious clinical manifestations, thus potentially causing serious

complications such as stroke, heart failure, and renal dysfunction; as a result, many affected individuals are unaware of its existence until it develops into a serious, life-threatening health disorder (Mullens et al., 2024; Winarto et al., 2021).

The prevalence of hypertension increases significantly with age. In the United States, the incidence of hypertension reaches 72% in the 65–74 age group. It increases to 80% in those over 75 years of age, with the global elderly population (≥60 years) projected to reach 2.1 billion by 2050 (Fryar et al., 2024; Horne et al., 2023). According to the Ministry of Health of the Republic of Indonesia, Indonesia has a prevalence of hypertension in the elderly population of around 34.1%, with an increasingly high risk in the 60–74 age range. Meanwhile (Kemenkes RI, 2018), data from the Banyumas District Health Office shows a figure of around 68%, indicating that nearly seven out of ten elderly individuals are potentially affected by this condition (Dinkes Kabupaten Banyumas, 2024).

Hypertension in older adults can increase the risk of cardiovascular disease, including heart failure, stroke, myocardial infarction, and mortality. The pathophysiological mechanism involves elevated pressure in the arteries and heart, which triggers left ventricular hypertrophy and consequently increases the likelihood of heart failure by 2–3 times among the elderly (AHA, 2025; Sutriyawan et al., 2022). In addition, high blood pressure plays a role in inducing atherosclerosis or decreasing cerebral vascular integrity, thereby increasing the risk of stroke up to tenfold in grade 2 hypertension. Myocardial infarction occurs due to coronary artery occlusion, which is exacerbated by an increase in myocardial oxygen demand (Tomiyama, 2023). Furthermore, hypertension can also accelerate cognitive degeneration and dementia in old age, with other complications including myocardial damage due to excessive pressure load, aneurysms, renal dysfunction, visual abnormalities, metabolic syndrome, and memory and cognitive performance impairment (Nova & Hasni, 2022).

The need for complementary therapy as an approach to controlling hypertension is crucial. This condition is associated with the risk of serious cardiovascular complications such as stroke, heart failure, and myocardial infarction. Complementary therapy, which is non-pharmacological and self-administered, offers a safe and efficient alternative to complement conventional treatment, especially for the elderly who are prone to polypharmacy (Al-Worafi, 2025). Music therapy, through exposure to classical genres or binaural beats, has been shown to lower SBP and DBP, heart rate (HR), and stress and anxiety levels via activation of the parasympathetic system (Winarto et al., 2021). Meta-analyses support its role in improving sleep quality, reducing depression, and strengthening treatment adherence, particularly in socially isolated elderly individuals (De Witte et al., 2022). Meanwhile, progressive muscle relaxation (PMR) involves cycles of muscle tension

and relaxation to induce deep relaxation, significantly lowering SBP/DBP, stress, and the need for antihypertensive medication through sympathetic suppression and improved endothelial function (Sari & Putri, 2023). Given these conditions, researchers were interested in conducting a trial to implement a combination of both therapies in elderly people with hypertension. The benefits of this study are expected to serve as a reference for complementary self-therapy that can be given to elderly people with hypertension who are receiving pharmacological therapy.

2. Method

This study adopted a case study approach as the primary method for exploring the effectiveness of complementary therapy in managing hypertension in the elderly population. The target population consisted of three patients diagnosed with hypertension, who were selected based on strict inclusion criteria to ensure sample homogeneity and relevance, namely individuals over 60 years of age, not currently taking antihypertensive medication, and able to communicate effectively. Conversely, exclusion criteria were applied to exclude participants with cognitive impairment, limb abnormalities, or hearing impairment, in order to avoid bias and ensure the safety of the intervention. The intervention involved a combination therapy of PMR and music, conducted for three consecutive days with sessions lasting 15–20 minutes per day, aiming to induce a parasympathetic relaxation response and reduce sympathetic activity. The primary outcome evaluated was changes in blood pressure in patients, measured pre- and post-intervention, to analyze the potential impact on systolic and diastolic blood pressure. This approach allowed for an in-depth analysis of individual cases, with an emphasis on qualitative and quantitative observations, thus providing contextual insights into the feasibility of non-pharmacological therapy in a limited clinical setting, although the small sample size requires caution in generalizing the results.

3. Results and Discussion

3.1 Characteristics Respondent

The results of the assessment of all respondents show the characteristics described in Table 1.

Table 1. Characteristics of research respondents

Nama	Ms. K	Ms. M	Ms. R
Age	61	64	67
Gender	Female	Female	Female
Long Suffering	5 years	5 years	2 years

Source: Research Data (2025)

Based on this data, it can be explained that all respondents fall into the early elderly category, namely individuals aged 60–74 years. In this age range, a person begins to experience a decline in physiological functions, such as reduced blood vessel elasticity, a slowdown in metabolic processes, and hormonal changes that can potentially affect overall health, including blood pressure and the cardiovascular system (Sutriyawan et al., 2022). In addition, all three respondents were women, who physiologically have a different hormonal profile from men. Women after entering menopause, estrogen levels decrease significantly, thereby increasing the risk of degenerative diseases such as hypertension. This is due to the role of estrogen in maintaining blood vessel elasticity and regulating cholesterol levels. Thus, the characteristics of these respondents show demographic uniformity in terms of age and gender in the study group, which allows the intervention results to be more homogeneous and minimizes potential bias due to biological variations (Astutik et al., 2021).

3.2 Changes in Respondent Blood Pressure

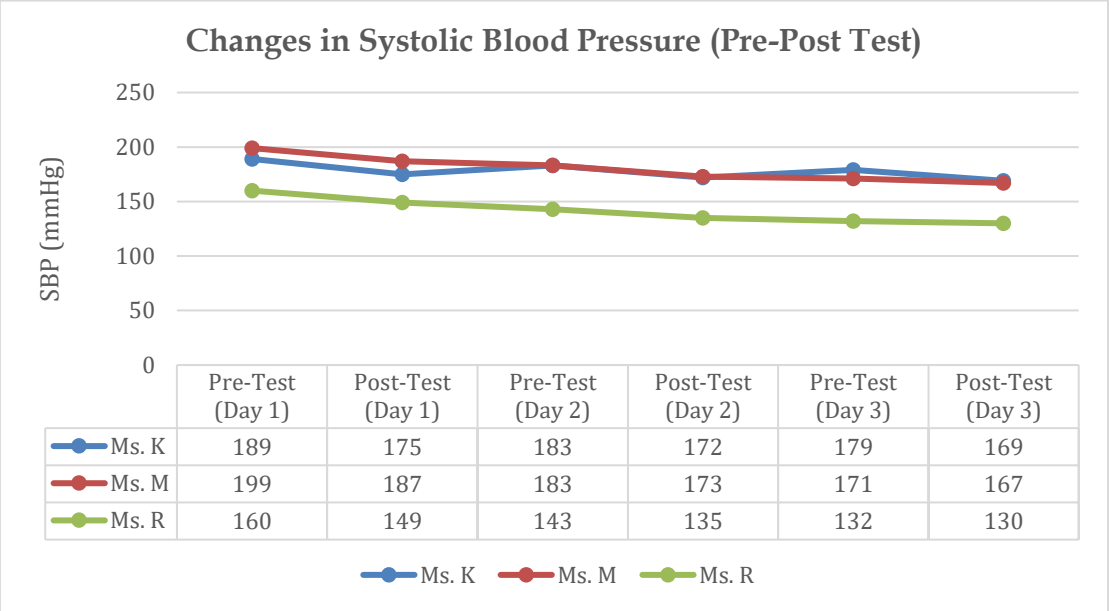

Figure 1. Pre and post-intervention systolic blood pressure chart

The results showed a positive effect on the systolic blood pressure of all respondents, as shown in Figure 1. After a 3-day intervention lasting 15-20 minutes, there was a decrease in systolic blood pressure scores of 2-14 (mmHg), with an average decrease of 9.11 (mmHg).

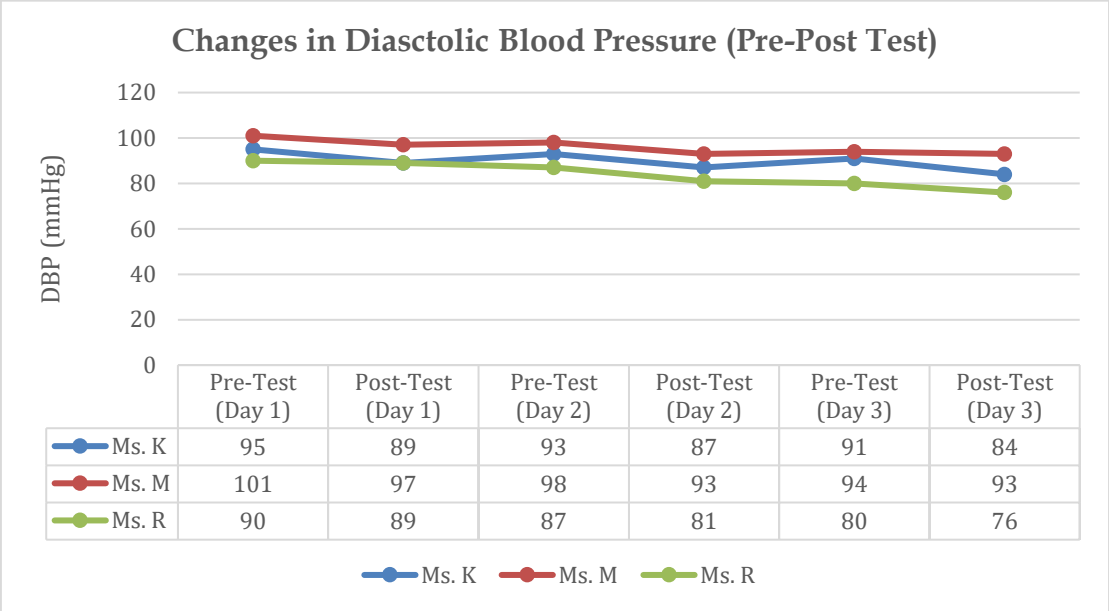

Figure 2. Pre and post-intervention diastolic blood pressure chart

The results showed a positive effect on the diastolic blood pressure of all respondents, as shown in Figure 2. After a 3-day intervention lasting 15-20 minutes, there was a decrease in diastolic blood pressure scores of 1-7 (mmHg), with an average decrease of 6,11 (mmHg).

The administration of combination therapy involving music and PMR has been shown to have a significant impact on reducing SBP and DBP in elderly populations suffering from essential hypertension. This intervention, which involves exposure to relaxing music such as classical genres or binaural beats combined with sequential muscle tension-relaxation cycles, triggers activation of the parasympathetic nervous system, thereby reducing excessive sympathetic activity and improving vascular endothelial function (De Witte et al., 2022). From a qualitative perspective, respondents reported increased feelings of deep relaxation, improved cognitive focus, and reduced subjective complaints such as anxiety, muscle tension, and sleep disturbances after receiving the intervention, as explored through semi-structured interviews that revealed positive perceptions of the therapy as a holistic stress management tool (Winarto et al., 2021). This phenomenon indicates that combination therapy contributes not only to physiological outcomes but also to psychosocial outcomes, thereby strengthening long-term adherence and preventing the progression of complications such as stroke or dementia.

3.3 The effect of combined PMR and music therapy on blood pressure in elderly hypertensive patients

PMR therapy is a non-pharmacological intervention modality designed to achieve holistic relaxation through a series of specific muscle contractions and relaxations, with the primary goal of improving an individual's physical and mental well-being. This procedure involves temporary tension in specific muscle groups, such as the shoulders, arms, and legs, followed by release accompanied by deep breathing, which effectively improves blood flow and reduces peripheral vascular resistance (Lin et al., 2025; Muhammad Khir et al., 2024). In the elderly population, the selection of movements focused on these areas has proven to be most effective and easy to apply, considering that it does not require extreme posture changes and can be done in a sitting or lying position, thereby minimizing the risk of fatigue while maintaining optimal relaxation benefits. As stated by Rahmawati et al., (2024), large areas of the body such as the shoulders and limbs are often the locus of muscle tension accumulation, so relaxation in these areas can accelerate the reduction of stress and blood pressure in hypertensive elderly people, which is in line with the physiological principle of sympathetic activity reduction. Meanwhile, music therapy with its distinctive characteristics plays a role in stress-related hormonal modulation, including the balance of prolactin and growth hormones and increased endorphin production (Cao & Zhang, 2023; Winarto et al., 2021). These conditions contribute to pain reduction and increased comfort. Slow rhythms in music are thought to suppress the secretion of catecholamines into the bloodstream, thereby significantly reducing plasma catecholamine levels (Nopriani & Xesti, 2025).

In the context of implementing combined interventions, the client's physiological and emotional factors have a crucial influence on their response to therapy. On the first day, intensive guidance is needed to ensure that elderly clients, who tend to have difficulty memorizing, understand the stages of PMR, with repeated instructions and slow demonstrations to avoid execution errors. Initially, clients showed signs of tension and difficulty concentrating, such as unfocused gaze or complaints of soreness, but after about 10 minutes, their facial expressions became calmer thanks to the synergy between slow-tempo classical music (60–80 bpm) that created a relaxing environment and gradual muscle contraction-release movements, as observed in a related study (Kusuma et al., 2025). These findings imply that the integration of the two therapies not only enhances physiological effects through decreased muscle tone and hemodynamic stabilization, but also supports emotional adaptation, thereby enriching a multidisciplinary approach to managing hypertension in the elderly by comprehensively considering biopsychosocial aspects.

Empirical evidence from various clinical studies further strengthens the efficacy of PMR and music therapy as complementary interventions in the management of

hypertension. One study showed that PMR, when combined with slow breathing exercises, significantly reduced SBP and DBP in hypertensive elderly people, with sustained effects through increased relaxation response and suppression of sympathetic activity, thus being recommended as a routine non-pharmacological therapy to reduce the need for antihypertensive drugs (Muhammad Khir et al., 2024; Sari & Putri, 2023). Furthermore, the integration of PMR with traditional musical elements such as gamelan has been shown to significantly lower blood pressure in the intervention group, with a significant difference compared to the control group, indicating synergy between muscle relaxation and auditory stimulation in the modulation of the cardiovascular system (Winarto et al., 2021).

Music therapy alone also contributes through its influence on the autonomic nervous system. Slow music suppresses catecholamine secretion, thereby reducing blood pressure and the hormonal effects of stress in hypertensive patients, as evidenced in a review highlighting the short-term benefits of relaxation interventions, including music (De Witte et al., 2022). Furthermore, the combination of PMR and music in the RESIK (Emotional, Spiritual, Intellectual, and Kinesthetic Relaxation) approach has shown a reduction in blood pressure in community-dwelling older adults in Indonesia, with implications that this therapy is not only physiologically effective but also easily adaptable in the local cultural context to prevent long-term complications of hypertension (Hari et al., 2021; Yulinda & Kusumawardani, 2023). These findings collectively affirm the potential of such complementary therapies as safe and cost-effective holistic strategies, although further longitudinal research is needed to confirm long-term effects and generalizations to a broader population. The limitations of the current study relate to the very limited population size, meaning that the results cannot be generalized to a large population.

4. Conclusion

The administration of combined PMR and music therapy has an impact on lowering blood pressure in elderly people suffering from hypertension. According to the results of the study, this combination can lower systolic blood pressure by 2-14 mmHg and diastolic blood pressure by 1-7 mmHg. In addition, this therapy has a psychological effect, making the elderly feel relaxed and experiencing a reduction in their complaints. Recommendations from this study include practical advice for healthcare providers. The combination of PMR and music therapy can be used as a complementary therapy to pharmacology for elderly people with hypertension.

References

AHA. (2025). *High blood pressure (hypertension)*.

Al-Worafi, Y. (2025). *Evidence-Based Complementary, Alternative, and Integrated Medicine*

and Efficacy and Safety: Angina and Myocardial Infarction. CRC Press. https://doi.org/10.1201/9781003328117-5

Astutik, E., Farapti, F., Tama, T. D., & Puspikawati, S. I. (2021). Differences risk factors for hypertension among elderly woman in rural and urban Indonesia. *The Yale Journal of Biology and Medicine*, *94*(3), 407–413.

Cao, M., & Zhang, Z. (2023). Adjuvant music therapy for patients with hypertension: a meta-analysis and systematic review. *BMC Complementary Medicine and Therapies*, *23*(1), 110–123. https://doi.org/10.1186/s12906-023-03929-6

Choundhry, N., Kronish, I., Vongpatanasin, W., Ferdinand, K., & Egan, B. (2022). Medication adherence and blood pressure control: a scientific statement from the American Heart Association. *Hypertension*, *79*, 1–14.

De Witte, M., Pinho, A. D. S., Stams, G. J., Moonen, X., Bos, A. E., & Van Hooren, S. (2022). Music therapy for stress reduction: a systematic review and meta-analysis. *Health Psychology Review*, *16*(1), 134–159. https://doi.org/10.1080/17437199.2020.1846580

Dinkes Kabupaten Banyumas. (2024). *Profil kesehatan Kabupaten Banyumas 2023/2024*.

Fryar, C. D., Kit, B., Carroll, M. D., & Afful, J. (2024). *Hypertension Prevalence, Awareness, Treatment, and Control Among Adults Age 18 and Older: United States*.

Grassi, G., Quarti-Trevano, F., & Esler, M. D. (2021). Sympathetic activation in congestive heart failure: an updated overview. In *Heart Failure Reviews* (Vol. 26, Issue 1). https://doi.org/10.1007/s10741-019-09901-2

Hari, T. S., Sudha, T. S., Varghese, A. M., Sasanka, K. K., & Thangaraju, P. (2021). A study of risk factors and complications in elderly hypertensive subjects. *Journal of Family Medicine and Primary Care*, *10*(6), 2230–2234. https://doi.org/10.4103/jfmpc.jfmpc_1959_20

Horne, C., Stayt, L., Schutz, S., Smith, C., Haberstroh, A., Bolin, L., & Bibbey, A. (2023). Symptom experiences in hypertension: a mixed methods systematic review. *Journal of Hypertension*, *41*(1), 1–16. https://doi.org/10.1097/HJH.0000000000003306

Kemenkes RI. (2018). *Riset Kesehatan Dasar*. https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&cad=rja&uact=8&ved=2ahUKEwiYrZHlx6DzAhXFXisKHYrAAJ4QFnoECAIQAQ&url=https%3A%2F%2Fkesmas.kemkes.go.id%2Fassets%2Fupload%2Fdir_519d41d8cd98f00%2Ffiles%2FHasil-riskesdas-2018_1274.pdf&usg=AOvVaw0

Kusuma, D. S., Rusnoto, R., & Kartikasari, F. (2025). Aktivitas Fisik, Kebiasaan Merokok, Dan Konsumsi Kopi Dengan Kejadian Hipertensi Di Klinik Asy-Syifa Desa Janggalan Kecamatan Kota Kabupaten Kudus. *Jurnal Keperawatan Suaka Insan (JKSI)*, *10*(1), 148–157. https://journal.stikessuakainsan.ac.id/index.php/jksi/article/view/785

Lin, T. C., Lu, Y. H., Chao, C. T., Lin, S. J., Wu, P. S., Chan, D. C., & Lee, H. C. (2025). Comprehensive assessment and management of hypertension in elderly patients: Addressing frailty and target organ damage. *Journal of the Formosan Medical Association*, *124*(1), 27–23. https://doi.org/10.1016/j.jfma.2024.10.023

Muhammad Khir, S., Wan Mohd Yunus, W. M. A., Mahmud, N., Wang, R., Panatik, S. A., Mohd Sukor, M. S., & Nordin, N. A. (2024). Efficacy of Progressive Muscle Relaxation in Adults for Stress, Anxiety, and Depression: A Systematic Review. *Psychology Research and Behavior Management*, *17*(1), 345–365. https://doi.org/10.2147/PRBM.S437277

Mullens, W., Damman, K., Dhont, S., Banerjee, D., Bayes-Genis, A., Cannata, A., & Filippatos, G. (2024). Dietary sodium and fluid intake in heart failure. A clinical consensus statement of the Heart Failure Association of the ESC. *European Journal of Heart Failure*, *26*(4), 730–741. https://doi.org/10.1002/ejhf.3244

Nopriani, Y., & Xesti, E. (2025). Pengaruh Intervensi Terapi Musik Klasik Terhadap Tekanan Darah Dan Kualitas Tidur Pada Lansia Penderita Hipertensi Diruang Hemodialisa. *Jurnal Kesehatan Dan Pembangunan*, *15*(2), 172–177.

Nova, R., & Hasni, D. (2022). Edukasi Komplikasi Terjadinya Hipertensi Dan Peranan Konsumsi Obat Hipertensi Pada Penderita Diabetes Melitus Usia Lansia Di Puskesmas Lubuk Buaya Tahun 2021. *Kumawula: Jurnal Pengabdian Kepada Masyarakat*, *5*(3), 545–549. https://doi.org/10.24198/kumawula.v5i3.37661

Rahmawati, I., Magfiroh, F. A., Budiono, B., & Sulastyawati, S. (2024). Effect of Gamelan and progressive muscle relaxation on blood pressure in hypertensive patients. *Healthcare in Low Resource Settings*, *12*(1), 1–10. https://doi.org/10.4081/hls.2023.11814

Sari, M. T., & Putri, M. E. (2023). Pengendalian dan Pencegahan Komplikasi Hipertensi pada Lansia Melalui Pendidikan Kesehatan Perilaku Patuh dan Teknik Relaksasi Otot Progresif. *Jurnal Abdimas Kesehatan (JAK)*, *5*(1), 145. https://doi.org/10.36565/jak.v5i1.483

Sutriyawan, A., Fardhoni, F., Yusuff, A. A., Akbar, H., & Sangaji, S. (2022). Risk factors predicting hypertension in the elderly. *Iranian Journal of War and Public Health*, *14*(4), 433–438. http://ijwph.ir/article-1-1244-en.html

Tomiyama, H. (2023). Vascular function: a key player in hypertension. *Hypertension Research*, *46*(9), 2145–2158. https://doi.org/10.1038/s41440-023-01354-3

Winarto, A., Kusnanto, H., & Harmayetty, H. (2021). The Music Therapy Effect On Lowering Blood Pressure In Elderly With Hypertension: A Systematic Review. *Strada Jurnal Ilmiah Kesehatan*, *10*(1), 1108–1118. https://doi.org/10.30994/sjik.v10i1.768

Yulinda, N., & Kusumawardani, L. H. (2023). Effect of Complementary Therapy Combination of Progressive Muscle Relaxation and Music Therapy (RESIK) to Lower Blood Pressure in the Elderly. *Jurnal Ilmiah Ilmu Keperawatan Indonesia*, *13*(1), 34–40. https://doi.org/10.33221/jiiki.v13i01.2260