Jurnal Kesehatan Komunitas Indonesia (JKKI)
Volume 5 Issue 2, August 2025, pp 119-130
https://ebsina.or.id/journals/index.php/jkki
eISSN 2503-2801, pISSN 2985-3435

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The Influence of Progressive Muscle Relaxation Therapy on Blood Pressure Reduction in Families with Hypertension: A Literature Review

Bagus Dwi Cahyono[1]*, Nurul Huda[1], Evy Aristawati[1], Hasri Yudha Kusumadayanti[1], Endang Fauziyah Susilowati[2], Saidatus Salamah[3]

1 Universitas Jember, Indonesia
2 Politechnic Of Madura, Indonesia
3 Sahara Clinic of Pasuruan, Indonesia

Article History
Submitted: 16-03-2025
Revised: 11-06-2025
Accepted: 14-06-2025

doi.org/10.58545/jkki.v5i2.483

Abstract

The risk of disease is related to congenital genetic factors, one of which is hypertension. Hypertension is a condition in which blood pressure increases from normal limits caused by unhealthy lifestyles such as excessive salt consumption, obesity, smoking, consumption of alcoholic beverages, and others. How to reduce high blood pressure is done by administering drugs and non-pharmacological therapy, one of which is progressive muscle relaxation therapy. The method used in this final project report is a literature review by reviewing 1 international article and 6 national articles. The collection process uses the PRISMA method (Prefer Reporting Items for Systematic Reviews and Meta-Analysis), and data analysis uses Thematic Analysis to test articles using compare, contrast, and criticism. Progressive muscle relaxation therapy significantly reduces blood pressure. Blood pressure decreases due to relaxation after administration of progressive muscle relaxation therapy. The authors state that progressive muscle therapy can be used as educational material and can be implemented as a nursing intervention in lowering blood pressure in groups or families with a history of hypertension.

Keywords: Progressive Muscle Relaxation, Family, Hypertension

Correspondence
Bagus Dwi Cahyono
Prodi D3 Keperawatan Kampus Kota Pasuruan, Universitas Jember
Jl. KH. Mansyur No.207, Tembokrejo, Kec. Purworejo, Kota Pasuruan, Jawa Timur 67118
Email: bagusdwi.akper@unej.ac.id

How to cite:
Cahyono, B. C., Huda, N., Aristawati, E., Kusumadayanti, H. Y., Susilowati, E. F., & Salamah, S. (2025). The Influence of Progressive Muscle Relaxation Therapy on Blood Pressure Reduction in Families with Hypertension: A Literature Review. Jurnal Kesehatan Komunitas Indonesia, 5(1), 119-130. https://doi.org/10.58545/jkki.v5i2.483

1. BACKGROUND

Hypertension is a major public health concern globally and is recognized as a leading risk factor for cardiovascular diseases, stroke, kidney failure, and other chronic conditions (World Health Organization [WHO], 2021). It is often referred to as a “silent killer” due to its asymptomatic nature, which can lead to delayed diagnosis and treatment (Kemenkes RI, 2019). According to the WHO (2015), approximately 1.13 billion people worldwide suffer from hypertension, with projections indicating an increase to 1.5 billion by 2025. In Indonesia, the prevalence of hypertension

has risen significantly, increasing from 26.5% in 2013 to 34.1% in 2018, based on data from the National Basic Health Research (Kemenkes RI, 2018).

Hypertension is classified into two main types: primary (essential) hypertension, which accounts for about 90% of cases and has no identifiable cause, and secondary hypertension, which results from underlying conditions such as endocrine disorders, heart disease, or kidney disease (Perry & Potter, 2005). Several factors contribute to the development of hypertension, including both modifiable and non-modifiable risk factors. Non-modifiable factors include family history, age, and gender, while modifiable factors encompass lifestyle choices such as poor diet, excessive salt intake, physical inactivity, smoking, alcohol consumption, and obesity (Aziz, 2017; Kemenkes RI, 2019).

Family plays a crucial role in the prevention and management of hypertension due to shared genetic predispositions and lifestyle habits (Nadirawati, 2018). Individuals with a family history of hypertension are at higher risk of developing the condition themselves. Moreover, unhealthy behaviors such as high sodium diets, sedentary lifestyles, and stress are often perpetuated within families, further increasing the likelihood of hypertension (Sartika et al., 2018). Therefore, family-centered interventions are essential for promoting healthy behaviors and supporting individuals in managing their blood pressure effectively.

The management of hypertension typically involves both pharmacological and non-pharmacological approaches. While antihypertensive medications are commonly prescribed, lifestyle modifications remain a cornerstone of treatment. These include weight reduction, dietary changes, regular physical activity, and stress management techniques (Ekarini et al., 2019). Among the non-pharmacological interventions, progressive muscle relaxation (PMR) therapy has gained attention for its effectiveness in reducing stress and lowering blood pressure (Permatasari et al., 2023).

Progressive muscle relaxation is a technique that involves systematically tensing and relaxing different muscle groups in the body to promote physical and mental relaxation. This process reduces sympathetic nervous system activity, decreases cortisol levels, and lowers adrenaline and noradrenaline secretion, ultimately contributing to reduced heart rate and blood pressure (Arisjulyanto,

2018; Karang, 2018). PMR does not require special equipment and can be practiced independently or with minimal guidance, making it a practical and accessible intervention for individuals and families.

Given the rising prevalence of hypertension and the importance of family-based approaches in its management, this literature review aims to examine the influence of progressive muscle relaxation therapy on blood pressure reduction among individuals with hypertension, particularly within familial contexts.

2. METHODS

The data collection process is carried out using the tools ScienceDirect, Google Scholar, and Garuda database search with the use of PRISMA method (Prefer Reporting Item for Systematic Reviews and Meta-Analysis) as well as do limitation article with boolean logic uses PIO technique (Problem, Intervention, Outcome). with information as following:

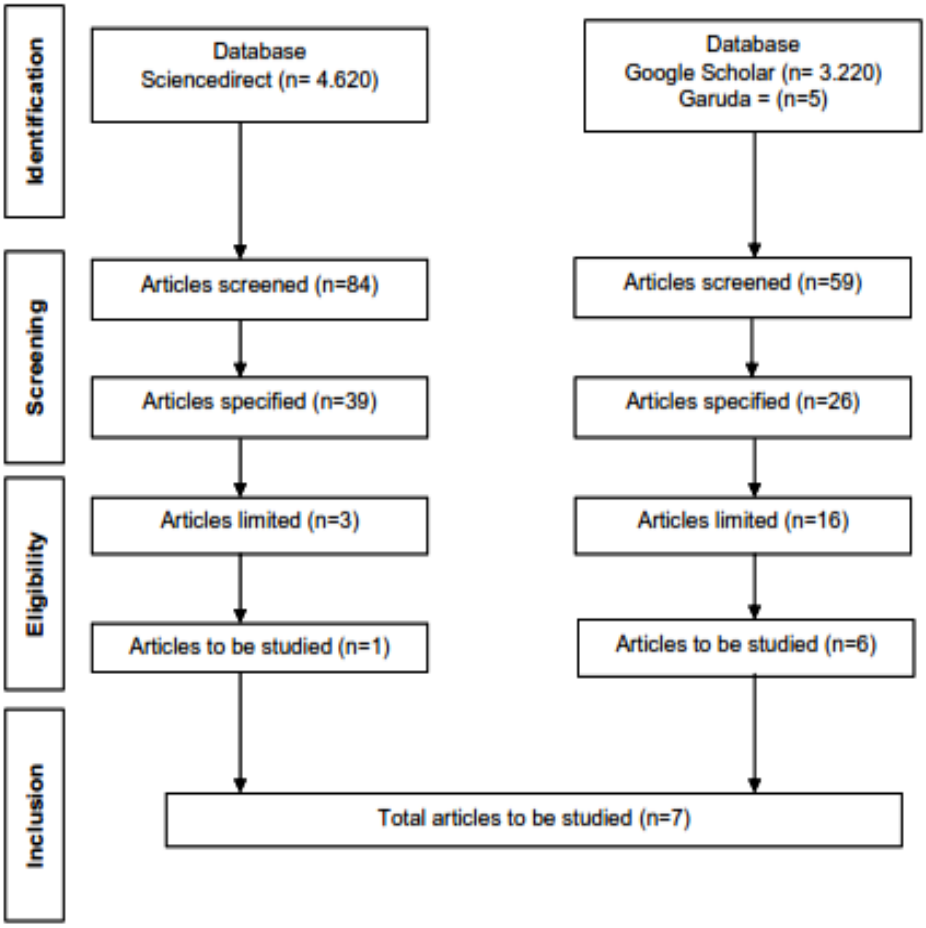

Figure 1. Prisma flow chart

On search beginning found (ScienceDirect = 4.620, Google Scholar = 3.220, Garuda = 5). Researchers conducted filtering by criteria exclusion and inclusion: article journal with English and Indonesian, type articles used is articles Research Articles, articles Full Text can be accessed and downloaded, articles with year published 2018-2022. So that got English articles=84, Indonesian articles = 59. The author does limitation repeat using Boolean Logic filters back to English article = 3, Indonesian article = 6. After getting results from the process of inclusion and exclusion, the writer will test the eligibility (Eligibility) article found (English = 1, Indonesian articles = 6). So, the total number of journals to be examined is as many as 7 articles journal.

3. RESULTS

The results of this literature review demonstrate that progressive muscle relaxation (PMR) therapy significantly contributes to the reduction of both systolic and diastolic blood pressure among individuals with hypertension, particularly within familial contexts. Across the seven selected studies, all reported measurable decreases in blood pressure following regular PMR sessions lasting between 20 to 30 minutes.

In a pre-experimental study conducted by Rahayu et al. (2020), significant reductions in both systolic and diastolic blood pressure were observed among elderly participants in Bandung ($p = 0.000$). Similarly, Rahmawati et al. (2018) found statistically significant differences in systolic and diastolic pressures before and after PMR intervention among patients participating in chronic disease management programs at a health center in Lumajang. The mean decrease was 10 mmHg for systolic and 9.23 mmHg for diastolic pressure, with $p < 0.05$.

A quasi-experimental study by Ekarini et al. (2019) involving 74 respondents showed a significant difference in diastolic blood pressure between the intervention and control groups after PMR therapy ($p = 0.000$). Another quasi-experimental study by Akhriansyah (2019) demonstrated that systolic pressure decreased from an average of 159.3 mmHg to 130.6 mmHg, while diastolic pressure dropped from 108 mmHg to 90 mmHg following PMR interventions among elderly residents in a social care home in Palembang.

Sabar and Lestari (2020) reported a decrease of 22 mmHg in systolic pressure and 5.34 mmHg in diastolic pressure after PMR training in Makassar, which was statistically significant ($p = 0.027$ and $p =$

0.041, respectively). In Medan, P. Indra Hizkia et al. (2018) found that 57.1% of elderly participants initially had stage 1 hypertension, but after PMR intervention, 46.4% had prehypertensive readings based on the Wilcoxon Sign Rank Test (p = 0.000).

Moreover, Arisjulyanto (2018) conducted a quasi-experimental study in Mataram and found a mean reduction of 10.306 mmHg in systolic blood pressure in the intervention group compared to only 1.425 mmHg in the control group, with a statistically significant p -value of 0.000 in the intervention group.

Demographically, most participants across the reviewed studies were aged between 40 and 68 years, aligning with established evidence that age is a key risk factor for hypertension due to decreased vascular elasticity (Perry & Potter, 2005). Approximately 70% of participants were female, consistent with epidemiological trends showing increased hypertension risk in women over the age of 55 (Kemenkes RI, 2019). Many participants also reported unhealthy lifestyle habits such as excessive salt intake, lack of physical activity, and consumption of processed foods factors known to exacerbate hypertension. However, family support played a crucial role in promoting adherence to PMR and healthy lifestyle changes.

These findings indicate that PMR therapy has a consistent and measurable impact on lowering blood pressure, particularly when practiced regularly and integrated into daily routines. The simplicity and accessibility of PMR make it a feasible non-pharmacological intervention for implementation at home or in community settings.

Table 1. Comparison of the final respiratory frequency before and after the application of Pursed Lips Breathing. *(Continues to page 125)*

Name/Author	Title	Goal/ Problem	Method	Results
Rahayu et al. (2020)	Effect of Relaxation Techniques Muscle Progressive to Elderly Blood Pressure with Hypertension	Examining the Effect of Progressive Muscle Relaxation Technique on Blood Pressure in Elderly Hypertensives.	Pre Experimental Sample: 22 respondents	The results of the study showed that systolic and diastolic blood pressure obtained a value of 0.000 (<0.05), which means that there is an effect of progressive muscle relaxation techniques on blood pressure in elderly people with hypertension in the Bojong Soang Health Center Work Area, Bandung Regency.
Rahmawati et al. (2018)	The effectiveness of Progressive Muscle	To determine the effectiveness of PMR therapy in reducing blood pressure in	Pre Experimental Sample: 24 respondents	The results of the study showed that there was a difference in blood pressure before and after PMR therapy with a difference of 10 in

Name/Author	Title	Goal/ Problem	Method	Results
	Relaxation (PMR) on Decrease Blood Pressure in Patients Hypertension	hypertensive patients in the Prolanis group in the Jatiroto Health Center working area, Lumajang Regency.		systolic blood pressure and a difference of 9.23 in diastolic blood pressure. This is evidenced by the p value through the T test obtained a p value of 0.000 where the p value <0.05 and the 95% Confidence Interval value did not pass zero.
Hizkia et al. (2018)	Influence Relaxation Muscle Progressive to Decrease Blood Pressure in the Elderly with Hypertension in Hamlet IV Tanjung Anom Medan in 2018	To determine the effect of progressive muscle relaxation on reducing blood pressure in elderly hypertensive patients in Dusun IV Tanjung Anom Medan in 2018.	Pre Experimental Sample: 28 respondents	Data analysis shows that the results of pre-intervention blood pressure were mostly in grade 1 hypertension as many as 16 people (57.1%) and post-intervention blood pressure was mostly in prehypertension as many as 13 people (46.4%). The results of the Wilcoxon Sign Rank Test statistical test showed a value of p = 0.000 (p <0.05) meaning that there was an effect of progressive muscle relaxation on reducing blood pressure in elderly hypertensives in Dusun IV Tanjung Anom Medan in 2018.
Ekarini et al. (2019)	Influence Therapy Relaxation Muscle Progressive to Response Physiological Patient Hypertension	To determine the effect of progressive muscle relaxation therapy on the physiological response of hypertensive patients at the Cipayung Community Health Center, East Jakarta.	Quasi Experiment Sample: 74 respondents	Respondents were divided into 2 groups, namely 37 respondents in the intervention group and 37 respondents in the control group. The results showed that there was a difference in diastolic blood pressure between the intervention group and the control group after progressive muscle relaxation intervention (p = 0.000).
Akhriansyah (2019)	The effect of Progressive Muscle Relaxation (PMR) on Decrease Blood Pressure in the Elderly Hypertension in Social Homes Tresna Palembang City Hall , South Sumatra Province 2018	To determine the relationship between the effect of progressive muscle relaxation on reducing blood pressure in elderly with hypertension at the Tresna Social Home, Palembang City Hall, South Sumatra Province in 2018.	Quasi Experiment Sample: 30 respondents	Research result show that anxiety that gets intervention condition systolic decrease in a way significant (p value < 0.05) from 159.3 mmHg to 130.6 mmHg in in category pre-hypertension. While in the group control pressure blood systolic No experience significant decrease (p value > 0.05) from 160.6 mmHg to 155.3 and entered in hypertension degree 1. The research results also show that elderly who get intervention condition diastolic decrease in a way significant (p value < 0.05) from 108 mmHg to 90 mmHg on admission in category hypertension degree 1. While in the group control pressure blood diastolic No experience significant decrease (p value > 0.05) from 110 mmHg to 107 mmHg and entered in category hypertension degree 2.

Name/Author	Title	Goal/ Problem	Method	Results
Sabar and Lestari (2020)	The Effectiveness of Progressive Muscle Relaxation Training on Decrease Blood Pressure In Patients Hypertension In Makassar	To determine the effectiveness of progressive muscle relaxation on blood pressure in hypertension patients.	Quasi Experiment Sample: 18 respondents	The results of the study showed that after Progressive Muscle Relaxation (PMR) exercise, there was a decrease in systolic blood pressure of 22 mmHg and diastolic blood pressure decreased by 5.34 mmHg. The conclusion of this study is that Progressive Muscle Relaxation (PMR) exercise can significantly reduce systolic blood pressure (p = 0.027) and also reduce diastolic blood pressure (p = 0.041).
Arisjulyanto (2018)	The Effect of Progressive Muscle Relaxation Techniques to Decrease Blood Pressure for Patients with Hypertension in Mataram	To determine the average incidence of hypertension in hypertension patients at the Cakranegara Health Center before and after being given muscle relaxation techniques.	Quasi Experiment Sample: 27 respondents	The results of this study indicate that the calculation of the t-test using Quasi Experiment Design shows that the average difference in hypertension rates before and after being given progressive muscle relaxation techniques is 10.306 mmHg in the intervention group and 1.425 mmHg in the control group. The p value in the intervention control group is 0.000 smaller than = 0.05 and the p value in the control group is 0.431 greater than = 0.05.

4. DISCUSSION

Progressive muscle relaxation (PMR) therapy has emerged as a promising non-pharmacological intervention for managing hypertension, particularly among individuals with a family history of the condition. The findings from this literature review consistently support the efficacy of PMR in reducing both systolic and diastolic blood pressure levels. This aligns with previous studies that suggest PMR induces a state of physical and mental relaxation by systematically tensing and relaxing muscle groups, thereby decreasing sympathetic nervous system activity (Ekarini et al., 2019; Karang, 2018). As a result, hormonal secretions such as corticotropin-releasing hormone (CRH) and adrenocorticotropic hormone (ACTH) are reduced, leading to lower adrenaline and noradrenaline levels—key contributors to elevated blood pressure.

The physiological benefits of PMR were observed across various age groups, although the majority of participants in the reviewed studies were aged between 40 and 68 years. This is consistent with epidemiological data indicating that aging is a significant risk factor for hypertension due to decreased vascular elasticity (Perry & Potter, 2005). Moreover, 70% of the respondents in these studies were women,

reflecting gender disparities in hypertension prevalence after the age of 55, where women tend to exhibit higher risk than men (Kemenkes RI, 2019). These demographic insights highlight the importance of tailoring PMR interventions to specific populations, especially middle-aged and elderly individuals.

A notable finding was the absence of smoking history among most participants, which may be attributed to cultural norms where smoking is less prevalent among women (Aziz, 2017). However, many participants reported unhealthy lifestyle habits such as excessive salt intake, lack of physical activity, and consumption of processed foods—all known contributors to hypertension. This underscores the need for integrating PMR with broader lifestyle modifications to achieve optimal blood pressure control. Family support also played a critical role in sustaining healthy behaviors and ensuring adherence to PMR practices, as emphasized by Nadirawati (2018).

Several studies included in this review employed quasi-experimental or pre-experimental designs to assess the impact of PMR on blood pressure. For instance, Rahayu et al. (2020) found statistically significant reductions in systolic and diastolic pressures after PMR sessions among elderly patients in Bandung. Similarly, Sabar and Lestari (2020) reported a 22 mmHg decrease in systolic pressure and a 5.34 mmHg drop in diastolic pressure following regular PMR training in Makassar. These results corroborate the findings of Arisjulyanto (2018), who demonstrated that PMR significantly lowered blood pressure compared to control groups.

One of the key advantages of PMR is its simplicity and accessibility. It does not require special equipment or a clinical setting and can be practiced independently or with minimal guidance from family members (Sartika et al., 2018). This makes it a feasible option for implementation at home or in community health centers, particularly in resource-limited settings. Furthermore, because PMR can be performed while sitting or lying down, it is well-suited for elderly individuals or those with mobility limitations.

Despite its benefits, certain precautions must be considered before implementing PMR. As noted in the conclusion of the original paper, PMR should not be administered to individuals with acute musculoskeletal injuries, severe coronary artery disease, or those under strict bed rest. Additionally, future research should explore the long-term effects of PMR and its integration with other complementary therapies, such as

slow deep breathing exercises or warm foot baths, which have shown synergistic effects in lowering blood pressure (Miftahurroziqin et al., 2024; Nopriani et al., 2018; Sartika et al., 2018).

The thematic analysis used in this literature review allowed for a comprehensive synthesis of findings across diverse studies, highlighting common themes such as stress reduction, improved physiological responses, and enhanced patient autonomy. However, the reliance on self-reported outcomes and the limited duration of interventions in some studies may affect the generalizability of the results. Future systematic reviews should include larger, randomized controlled trials with longer follow-up periods to strengthen the evidence base for PMR in hypertension management.

In conclusion, the evidence supports the incorporation of progressive muscle relaxation therapy into both individual and family-centered care plans for hypertension. Given its ease of use, cost-effectiveness, and measurable benefits, PMR can serve as a valuable adjunct to pharmacological treatment. Health professionals, particularly nurses, are encouraged to promote PMR through educational programs and group-based interventions to improve blood pressure control within families and communities affected by hypertension.

5. CONCLUSION

Progressive muscle relaxation (PMR) therapy has been shown to be an effective non-pharmacological intervention for reducing blood pressure among individuals with hypertension, particularly within family settings. The findings from this literature review indicate that regular practice of PMR for 20–30 minutes can significantly lower both systolic and diastolic blood pressure. This effect is attributed to the reduction of sympathetic nervous system activity, leading to decreased secretion of stress hormones such as cortisol, adrenaline, and noradrenaline. These physiological changes contribute to a relaxed state, reduced heart rate, and improved blood vessel function, ultimately lowering blood pressure.

Given its simplicity and accessibility, PMR can be practiced independently or with family support at home without special equipment or professional supervision. It is especially beneficial for middle-aged and elderly individuals, who are at higher risk for hypertension. However, PMR should not be administered to individuals with acute musculoskeletal injuries, severe coronary artery disease, or

those on strict bed rest. Integrating PMR into family-centered health education programs can enhance adherence and promote long-term lifestyle changes, making it a valuable complementary approach in hypertension management.

AUTHOR CONTRIBUTIONS

The author contributes in conceptualization, data collection and analysis Nurul Huda, Evy Aristawati, Endang Fauziah Susilawati. Writing and manuscript revisions: Hasri Yudha Kusumadayanti, Saidatus Salamah.

ACKNOWLEDGMENT

The author want to thank you for Faculty of Nursing Universitas Jember that facilitated this research.

CONFLICT OF INTEREST

The authors declare that there are no conflicts of interest in this research.

DATA AVAILABILITY STATEMENT

The data are available from the corresponding author upon reasonable request.

REFERENCES

Akhriansyah, M. (2019). Pengaruh Progressive Muscle Relaxation (PMR) terhadap Penurunan Tekanan Darah pada Lansia Hipertensi di Panti Sosial Tresna Wherda Palembang Provinsi Sumatera Selatan Tahun 2018. Jurnal Ilmiah Universitas Batanghari Jambi, 19(1), 11. https://doi.org/10.33087/jiubj.v19i1.544

Arisjulyanto, D. (2018). The Effect of Progressive Muscle Relaxation Techniques to Decrease Blood Pressure for Patients with Hypertension in Mataram. Primary Health Care Open Access, 08(04), 10–13. https://doi.org/10.4172/2167-1079.1000309

Aziz, A. (2017). Relasi Gender Dalam Membentuk Keluarga Harmoni (Upaya membentuk keluarga Bahagia). HARKAT: Media Komunikasi Islam Tentang Gebder Dan Anak, 12(2), 27–38. https://doi.org/10.15408/harkat.v13i1.7713

Damanik, H., & Ziraluo, A. A. W. (2018). Pengaruh Teknik Relaksasi Otot Progresif Terhadap Penurunan Tekanan Darah Pada Pasien Hipertensi Di Rsu Imelda. Jurnal

Keperawatan Priority, 1(2), 96–104. http://garuda.ristekdikti.go.id/documents/detail/1069285

Ekarini, N. L. P., Heryati, H., & Maryam, R. S. (2019). Pengaruh Terapi Relaksasi Otot Progresif terhadap Respon Fisiologis Pasien Hipertensi. Jurnal Kesehatan, 10(1), 47. https://doi.org/10.26630/jk.v10i1.1139

Fereday, J., & Muir-Cochrane, E. (2006). Demonstrating Rigor Using Thematic Analysis: A Hybrid Approach of Inductive and Deductive Coding and Theme Development. International Journal of Qualitative Methods, 5(1), 80–92. https://doi.org/10.1177/160940690600500107

Karang, M. T. A. J. (2018). Efektifitas Terapi Relaksasi Otot Progresif Terhadap Penurunan Tekanan Darah Pada Lansia Dengan Hipertensi. Jurnal Ilmiah Ilmu Keperawatan Indonesia, 7(04), 339–345. https://doi.org/10.33221/jiiki.v7i04.71

Kemenkes RI. (2018). Hasil Riset Kesehatan Dasar Tahun 2018. Kementrian Kesehatan RI, 53(9), 1689–1699.

Kemenkes RI. (2019). Hipertensi Si Pembunuh Senyap. Kementrian Kesehatan RI, 1–5. https://pusdatin.kemkes.go.id/resources/download/pusdatin/infodatin/infodatin-hipertensi-si-pembunuh-senyap.pdf

Miftahurroziqin, M. A., Susumaningrum, L. A., Kurdi, F., & Basri, A. A. (2024). Progressive Muscle Relaxation to Reduce Chronic Pain in Elderly with Hypertension: A Case Study. Jurnal Kesehatan Komunitas Indonesia, 4(1), 79–96. https://doi.org/10.58545/jkki.v4i1.163

Nadirawati, N. (2018). Buku Ajar Asuhan Keperawatan Keluarga. Media Informasi.

Nopriani, Y., Primanda, Y., & Makiyah, S. N. N. (2018). The Effectiveness of the Combination of Progressive Muscle Relaxation and Soaking Foot Warm Water on Blood Pressure in Patients with Hypertension. Dinamika Kesehatan, 9 (2), 627–636. https://ojs.dinamikakesehatan.unism.ac.id/index.php/dksm/article/view/366/0

Permatasari, R., Susumaningrum, L. A., Kurdi, F., & Basri, A. A. (2023).

Progressive Muscle Relaxation Therapy in Hypertensive Elderly with Acute Pain. Jurnal Kesehatan Komunitas Indonesia, 3(3), 326–339. https://doi.org/10.58545/jkki.v3i3.79

Rahayu, S. M., Hayati, N. I., & Asih, S. L. (2020). Pengaruh Teknik Relaksasi Otot Progresif terhadap Tekanan Darah Lansia dengan Hipertensi. Media Karya Kesehatan, 3(1), 91–98. https://doi.org/10.24198/mkk.v3i1.26205

s

Sabar, S., & Lestari, A. (2020). Efektifitas Latihan Progressive Muscle Relaxation Terhadap Penurunan Tekanan Darah Pada Pasien Hipertensi Di Makassar. Jurnal Ilmiah Kesehatan Pencerah, 09(1), 1–9. https://jurnal.itkesmusidrap.ac.id/JIKP/issue/archive

Sartika, A., Wardi, A., & Sofiani, Y. (2018). Perbedaan Efektivitas Progressive Muscle Relaxation (PMR) dengan Slow Deep Breathing Exercise (SDBE) terhadap Tekanan Darah Penderita Hipertensi. Jurnal Keperawatan Silampari, 2(1), 356–370. https://doi.org/10.31539/jks.v2i1.380