INDONESIAN NURSING SCIENCE JOURNAL
journal homepage: https://jurnal.panengeninsani.com/index.php/insj/

THE APPLICATION OF PROGRESSIVE MUSCLE RELAXATION ON BLOOD PRESSURE REDUCTION IN ELDERLY PATIENTS WITH HYPERTENSION AT OUTPATIENT INSTALLATION OF KARISMA CIMAREME HOSPITAL 2024

Nurahmi Zulkhaid[1*], Halimatusyadiah[1] Budi Rianto[1]
College of Health Sciences Budi Luhur Kota Cimahi[1]

Digital Object Identifier
DOI:

Article History

Received:
December 21, 2024
Revised:
January 13, 2025
Accepted:
February 16, 2025
Available online:
April 4, 2025

Keywords
hypertension, elderly, progressive muscle relaxation

Corresponding Author
Nurahmizh@gmail.com

Abstract

Elderly is a process that cannot be stopped. Many elderly suffer from hypertension. According to the Riskesdas 2021 in the Ministry of Health, hypertension is suffered by 34.1% of the population, this is an increase from 25.8% in the data Riskesdas 2013. The prevalence of hypertension in West Java grew from 34.5% to 39.6% in 2020. Hypertension is also one of the diseases with a fairly large number of visits, with an average of 1,343 cases per month at the Outpatient Installation of Karisma Cimareme Hospital. Blood pressure is the energy that the blood seeks to pass through each area of the blood vessel wall, arising from the pressure on the artery wall. Hypertension is a condition in which a person experiences an increase in blood pressure above normal, which causes pain and even death. One of the non-pharmacological managements of hypertension is progressive muscle relaxation therapy. This study uses a quasi-experimental approach design, namely a non-equivalent pretest-posttest control group design. The sampling technique used was accidental sampling with a total of 58 respondents. The data analysis used was univariate and bivariate, with the Wilcoxon test obtaining a p-value of 0.000 < α = 0.05. This showed a difference in blood pressure before and after being given progressive muscle relaxation therapy in elderly with hypertension at the outpatient installation of Karisma Cimareme Hospital with an average decrease in blood pressure of 25.83 mmHg, which means that progressive muscle relaxation therapy can reduce high blood pressure in the elderly.

1. Background

Non-communicable diseases (NCDs) are diseases that are not transmitted from person to person, have a slow development, and are chronic in nature. Seventy out of a hundred people with NCDs do not acknowledge that they have the disease, and as a result, they delay treatment, worsening their condition. Aging is an inevitable process that alters the anatomical and physiological structure of the body as a whole. Compared to younger individuals, older adults are more

likely to suffer from various diseases, especially degenerative diseases. Chronic degenerative diseases have a significant impact on a person's productivity and quality of life. Many older adults suffer from hypertension, a degenerative disease.

Hypertension, or high blood pressure, is defined as an increase in systolic blood pressure greater than 140 mmHg and diastolic blood pressure greater than 90 mmHg in two measurements taken five minutes apart while at rest or in a relatively calm condition. Due to its high frequency and long-term potential, hypertension can cause pressure-related issues that, if not addressed, may threaten the kidneys, heart, and brain, as well as lead to stroke. Age-related changes in arterial wall flexibility can affect high blood pressure in the elderly. Due to the reduced elasticity of blood vessel walls, systolic pressure becomes more important than diastolic pressure.

According to WHO (World Health Organization) data, the African region has the highest prevalence of hypertension (27%), while the Americas have the lowest prevalence (18%). According to Riskesdas from the Indonesian Ministry of Health in 2021, the prevalence of hypertension in Indonesia was 34.1%, an increase from 25.8% in the 2013 Riskesdas. The 2020 prevalence of hypertension was derived from the 2018 Riskesdas data, where the prevalence in West Java Province increased from 34.5% to 39.6%. Data from the daily morbidity list of outpatient patients at Karisma Cimareme Hospital shows that hypertension is one of the diseases with a considerable number of visits over the last three months. In December 2023, there were 1,343 cases, in January 2024, a slight decrease to 1,330 cases, and an increase in February to 1,357 cases, with an average of 1,343 cases per month.

The management of hypertension is divided into two categories: pharmacological and non-pharmacological treatments. Pharmacological treatment involves taking prescribed antihypertensive medication to control the patient's blood pressure and prevent complications. Non-pharmacological treatment options include complementary therapy, such as relaxation therapy, music therapy, aerobic exercise, cupping therapy, and yoga. There are various types of relaxation techniques for hypertensive patients, one of which is progressive muscle relaxation. Progressive muscle relaxation is a form of therapy that involves giving instructions to a person in the form of systematic movements to relax both the mind and muscles and return the body from a tense state to a relaxed, normal, and controlled state, from hand movements to foot movements. Progressive muscle relaxation is a deep muscle relaxation technique that does not require imagination, instructions, or advice, and can be performed anytime and anywhere.

After conducting a preliminary study at the Outpatient Installation of Karisma Cimareme Hospital in March 2024 using interviews during patient anamnesis, 15 patients diagnosed with hypertension mentioned that they had never practiced progressive muscle relaxation. The actions they took to lower their high blood pressure, besides using the medications prescribed by doctors, included reducing foods with excessive salt content. Based on the background above, the researcher is interested in studying the application of progressive muscle relaxation in lowering blood pressure in elderly hypertensive patients at the Outpatient Installation of Karisma Cimareme Hospital.

2. Methods

This research method uses an experimental research design with a Quasi-Experiment approach and a quantitative approach. This study consists of an experimental group applying progressive muscle relaxation techniques to lower blood pressure, while the control group does not apply progressive muscle relaxation. The quasi-experimental design used is a nonequivalent pretest-posttest control group design. This design consists of two groups, both of which are given a pretest to determine the initial conditions and whether there are differences between the experimental group and the control group. The sample used in this study consisted of 58 respondents in the experimental group and 58 respondents in the control group. Sampling was carried out using Incidental/Accidental Sampling. Accidental Sampling is a sampling technique based on coincidence, meaning that any patient who happens to meet the researcher can be used as a sample, if the person encountered is deemed suitable as a data source.

The inclusion criteria for this study are: experiencing systolic blood pressure greater than or equal to 140 mmHg and diastolic blood pressure greater than or equal to 90 mmHg, being in the elderly age range of 60-74 years, patient

https://doi.org/10.1016/j.ijnurstu.2025.105016

consciousness being compos mentis, having no movement range limitations, no physical or mental disabilities, willing to be a respondent, and willing to follow all activities. The exclusion criteria are: patients who do not have systolic blood pressure greater than or equal to 140 mmHg and diastolic blood pressure greater than or equal to 90 mmHg, those younger than 60 or older than 74 years, non-compos mentis patients, those with movement range limitations, those with physical or mental disabilities, and those who are unwilling to be respondents or unwilling to follow all activities.

The data analysis used is univariate and bivariate analysis. For the bivariate analysis, normality tests are conducted first. Data is said to be normally distributed if the Skewness ratio value (skewness/SE Skewness) is between -2 and 2, the Kurtosis ratio value (kurtosis/SE kurtosis) is between -2 and 2, or the Kolmogorov-Smirnov value gives a P-value > 0.05. If these conditions are met, parametric testing can be continued with a paired dependent two-group test (Paired Simple T Test). If the data is not normally distributed, the alternative test used is the Wilcoxon Signed Rank Test. The testing criteria are that if the P-value < α, then the null hypothesis (Ho) is rejected and the alternative hypothesis (Ha) is accepted, while if the P-value > α, then the alternative hypothesis (Ha) is rejected and the null hypothesis (Ho) is accepted.

This study was conducted at the Outpatient Installation of Karisma Cimareme Hospital. Data collection was done in August 2024, and each respondent was researched for a duration of 15 minutes. The instruments used in the study include a calibrated sphygmomanometer with a valid calibration period, observation sheets, and SOP sheets for progressive muscle relaxation.

4. Results

Table 1 : Frequency Distribution of Characteristics Based on Gender of Elderly Patients with Hypertension

Group	Variable	f	%
Intervention	Gender		
	Male	27	46,6
	Female	31	53,4
Total		58	100,0
Control	Gender		
	Male	20	34,5
	Female	38	65,5
Total		58	100,0

Based on Table 1, it shows that in the intervention group, more than half of the respondents were female, with 31 people (53.4%), and less than half were male, with 27 people (46.6%). Similarly, in the control group, more than half of the respondents were female, with 38 people (65.5%), and less than half were male, with 20 people (34.5%).

Table 2 : Frequency Distribution of Characteristics Based on Age in Elderly Patients with Hypertension

Variable	Group	N	Mean	Median	SD	Min	Max
Age	Intervention	58	65	65	3,863	60	74
	Control	58	66	65	4,214	60	74

Based on Table 2, it shows that the age of respondents in both the intervention and control groups can be interpreted as the average age of the respondents being 66 years, with the youngest age being 60 years and the oldest age being 74 years. The standard deviation for the intervention group is 3.863, while the standard deviation for the control group is 4.214.

https://doi.org/10.1016/j.ijnurstu.2025.105016

Table 3 : Frequency Distribution of Systolic Blood Pressure

Group	Variable	N	Mean	Median	Std. Deviation	Min	Max
Intervention	Blood Pressure Before	58	159,14	160,00	7,022	150	173
	Blood Pressure After		133,31	134,00	4,907	122	140
Control	Blood Pressure 1	58	160,48	160,00	9,447	145	193
	Blood Pressure 2		155,41	155,00	9,042	140	182

Based on Table 3, it shows that in the intervention group, before receiving progressive muscle relaxation therapy, the average blood pressure of the respondents was 159.14 mmHg, with a median of 160.00 mmHg, and a standard deviation of 7.022 mmHg, with a maximum blood pressure of 173 mmHg and a minimum of 150 mmHg. After the intervention, the average blood pressure decreased to 133.31 mmHg, with a median of 134.00 mmHg, and a standard deviation of 4.907 mmHg, with a maximum blood pressure of 140 mmHg and a minimum of 122 mmHg.

In the control group, the initial blood pressure had an average of 160.48 mmHg, with a median of 160.00 mmHg, and a standard deviation of 9.447 mmHg, with a maximum blood pressure of 193 mmHg and a minimum of 145 mmHg. After the second measurement, the average blood pressure decreased to 155.41 mmHg, with a median of 155.00 mmHg, and a standard deviation of 9.042 mmHg, with a maximum blood pressure of 182 mmHg and a minimum of 140 mmHg.

Table 4 : Normality Test of Respondents' Blood Pressure Data

Group	Variable	Kolmogorov Smirnof
Intervention	Blood Pressure Before	0,007
	Blood Pressure After	0,001
Control	Blood Pressure 1	0,086
	Blood Pressure 2	0,200

Based on Table 4, it shows that for the blood pressure data in the intervention group, the P-value before the intervention was 0.007 < α = 0.05, and the P-value after the intervention was 0.001 < α = 0.05, indicating that the data is not normally distributed. Therefore, it was analyzed using the non-parametric dependent two-sample test (Wilcoxon test).

Meanwhile, for the blood pressure data in the control group, the P-value before the intervention was 0.086 > α = 0.05, and the P-value after the intervention was 0.200 > α = 0.05, indicating that the data is normally distributed. Thus, it was analyzed using the parametric dependent t-test (Paired t-test).

Table 5 : Distribution of Average Systolic Blood Pressure in the Intervention Group with the Wilcoxon Test

Variable	Mean Rank	Sum Of Rank	P Value	Z	N
Blood Pressure Before	29,50	1711,00	0,001	-6,626	58
Blood Pressure After	0,00	0,00			

Based on Table 5, it shows that the average systolic measurements before and after the intervention for each of the 58 respondents who received progressive muscle relaxation therapy were as follows: the mean rank before the

https://doi.org/10.1016/j.ijnurstu.2025.105016

intervention was 29.50 mmHg, and after the intervention, the mean rank was 0.00 mmHg. The results of the Wilcoxon test showed a P-value of <0.001 < α = 0.05, which means that the null hypothesis (Ho) is rejected and the alternative hypothesis (Ha) is accepted. Therefore, it can be concluded that with a 5% significance level, there is a difference in the systolic blood pressure of elderly patients before and after receiving progressive muscle relaxation intervention at the Outpatient Installation of Karisma Cimareme Hospital.

Table 6 : Distribution of Average Systolic Blood Pressure in the Control Group with the Paired T-Test

Variable	Mean	Std. Error of Mean	Std. Deviation	P Value	N
Blood Pressure1	160,48	1,240	9,447	0,001	58
Blood Pressure 2	155,41	1,187	11,458		

Based on Table 6, it shows that the average systolic measurements before and after for each of the 58 respondents in the control group were as follows: the average systolic before was 160.48 mmHg, with a standard error of 1.240 mmHg, and a standard deviation of 9.447 mmHg. The average systolic after was 148.40 mmHg, with a standard error of 1.505 mmHg, and a standard deviation of 11.458 mmHg. The results of the parametric paired two-sample test showed a P-value of <0.001 < α = 0.05, indicating that the null hypothesis (Ho) is rejected and the alternative hypothesis (Ha) is accepted. Therefore, it can be concluded that there is a difference in systolic blood pressure before and after in the control group of elderly patients with hypertension at the Outpatient Installation of Karisma Cimareme Hospital.

Discussion

Based on the results of the study conducted on 58 respondents aged between 60 and 74 years, it was found that the average systolic blood pressure before receiving progressive muscle relaxation therapy was 159.14 mmHg. The characteristics of the respondents in this study were dominated by females, making up 53.4% of the sample. This is consistent with the fact that before menopause, women are protected from cardiovascular diseases, including coronary artery diseases. However, during the premenopausal phase, women gradually lose the estrogen hormone, which helps protect blood vessels from damage. Estrogen levels naturally decrease between the ages of 45 and 55, which may explain the higher prevalence of hypertension in older women. These findings align with the study by Yunus et al. (2021) at the Haji Pemanggilan Health Center in Anak Tuha District, Lampung Tengah, where 59.7% of the 268 respondents were women. Similarly, a study by Andri et al. (2021) at the Telaga Dewa Health Center in Bengkulu showed that 53.3% of respondents were female.

After progressive muscle relaxation therapy was given at the Outpatient Installation of Karisma Cimareme Hospital in 2024, the average blood pressure in the intervention group decreased to 133.31 mmHg. This study indicates that patients with hypertension who received progressive muscle relaxation therapy showed a significant reduction in blood pressure, from an average of 159.14 mmHg before the intervention to 133.31 mmHg afterward. Progressive muscle relaxation significantly impacted lowering high blood pressure in hypertensive patients. This is because progressive muscle relaxation works to reduce peripheral resistance and increase vascular elasticity. The muscles and circulatory system become more efficient in absorbing and distributing oxygen, and progressive muscle relaxation acts as a vasodilator, expanding blood vessels and lowering blood pressure. These findings are consistent with research by Fadli, which demonstrated the effect of progressive muscle relaxation on blood pressure changes in hypertensive patients, with a p-value of 0.001. This therapy provides significant benefits for nursing care of hypertensive patients, as progressive muscle relaxation is highly effective in reducing both systolic and diastolic blood pressure.

In this study, progressive muscle relaxation was applied to 58 respondents, and changes in blood pressure were observed. The relaxation was conducted in one session lasting 15 minutes. The results from the Wilcoxon test in the

https://doi.org/10.1016/j.ijnurstu.2025.105016

intervention group showed a significant difference between blood pressure before and after the intervention, with a p-value of 0.001 (P < 0.05), and an average systolic blood pressure reduction of 25.83 mmHg. Although the Paired T-test results for the control group indicated a change in blood pressure with a p-value of 0.001 (P < 0.05), the average reduction was only 5.07 mmHg. Additionally, 7 respondents in the control group experienced an increase in blood pressure, with an average increase of 8.28 mmHg. These findings provide strong evidence that progressive muscle relaxation therapy is effective in lowering blood pressure.

The therapy in this study was conducted only once during the research. If progressive muscle relaxation is practiced twice a day for 15 minutes per session, the reduction in blood pressure would likely be more pronounced. If this relaxation therapy is done regularly for at least one week, it can significantly lower and stabilize blood pressure. These results are consistent with the study by Suratini, which showed that progressive muscle relaxation positively influenced the systolic blood pressure of elderly hypertensive patients, with a p-value of 0.0017 (P < 0.05).

Suggestions

The results of this study can serve as a valuable source of information for future research and contribute to the development of knowledge regarding the application of progressive muscle relaxation for reducing blood pressure in elderly patients with hypertension. Additionally, it is recommended that future researchers explore providing progressive muscle relaxation therapy over multiple sessions rather than just a single session. This research can be further expanded to include hypertensive patients from various age groups, not just the elderly, and can also be conducted when hypertensive patients are not taking antihypertensive medications.

Healthcare providers can promote progressive muscle relaxation therapy, especially for hypertensive patients, as an alternative non-pharmacological treatment option to lower high blood pressure. This could be done by creating educational media, such as videos of progressive muscle relaxation exercises, which can be displayed on television screens in the Outpatient Installation of Karisma Cimareme Hospital. This way, hypertensive patients can utilize progressive muscle relaxation as a self-care intervention, empowering them to manage their blood pressure more effectively. Given that the results of this study demonstrate a reduction in blood pressure in patients practicing progressive muscle relaxation, this could become a beneficial tool for nursing interventions.

Conclusion

Based on the data analysis and discussion of the results from the study conducted in August 2024 at the Outpatient Installation of Karisma Cimareme Hospital with 58 elderly patient respondents in both the intervention and control groups, it can be concluded that the average systolic blood pressure before receiving progressive muscle relaxation therapy in the intervention group was 159.14 mmHg, and after receiving the therapy, the average systolic blood pressure decreased to 133.31 mmHg.

There was a significant difference in systolic blood pressure before and after the progressive muscle relaxation therapy, with a P-value of 0.001 < α = 0.05, and an average systolic blood pressure reduction of 25.83 mmHg. As a result, the null hypothesis (Ho) is rejected, and the alternative hypothesis (Ha) is accepted. Therefore, it can be concluded that with a 5% significance level, there is a significant difference in systolic blood pressure before and after the progressive muscle relaxation intervention in elderly patients at the Outpatient Installation of Karisma Cimareme Hospital.

References

Suparyanto (2020), "Gambaran Dukungan Keluarga Pada Diet Penderita Hipertensi," Suparyanto Dan Rosad (2015, Vol. 5, No. 3, Pp. 248 – 253, 2020.

A. Nuzulia, "Penerapan Terapi Relaksasi Otot Progresif Dalam Pemenuhan Kebutuhan Rasa Nyaman Nyeri Pada Lansia," Angew. Chemie Int. Ed. 6(11), 951 – 952., Pp. 5 – 24, 1967.

Z. Nuranti, M. Maimaznah, And A. A. Anggraini, "Pengaruh Pendidikan Kesehatan Dan Pemberian Daun Salam Pada

https://doi.org/10.1016/j.ijnurstu.2025.105016

Pasien Dengan Asam Urat Di Wilayah RT 10 Kelurahan Murni," J. Abdimas Kesehat., Vol. 2, No. 1, P. 50, 2020, Doi: 10.36565/Jak.V2i1.90.

W. Lazdia Et Al., "Pengaruh Rebusan Daun Seledri Untuk Menurunkan Tekanan Darah Pada Penderita Hipertensi," Empower. Soc. J., Vol. 1, No. 1, Pp. 26 – 32, 2020.

J. Purwono, R. Sari, A. Ratnasari, And A. Budianto, "Pola Konsumsi Garam Dengan Kejadian Hipertensi Pada Lansia," J. Wacana Kesehat., Vol. 5, No. 1, P. 531, 2020, Doi: 10.52822/Jwk.V5i1.120.

Et. A. Siti Zahra, "Gambaran Peningkatan Pengetahuan Tentang Penggunaan Obat Hipertensi Melalui Video Edukasi Pada Pasien Hipertensi Di Puskesmas Gunung Tanjung 2022," Pp. 1 – 5, 2019.

Anjeliza, "Faktor-Faktor Yang Berhubungan Dengan Kejadian Hipertensi," 2013.

M. Rahmadhani, "Faktor-Faktor Yang Mempengaruhi Terjadinya Hipertensi Pada Masyarakat Di Kampung Bedagai Kota Pinang," J. Kedokt. STM (Sains Dan Teknol. Med., Vol. 4, No. 1, Pp. 52 – 62, 2021, Doi: 10.30743/Stm.V4i1.132.

H. Mukhlis, N. Sefa, A. Hermawan, J. Purwono, And D. A. Wahyudi, "Cupping Therapy For Hypertensive Patiens : A Quasi-Experimental Research," J. Crit. ⋯, Vol. 7, No. 14, Pp. 1437–1443, 2020, Doi: 10.31838/Jcr.07.14.326.

C. O. Azizah, U. Hasanah, A. T. Pakarti, A. K. Dharma, And W. Metro, "Penerapan Teknik Relaksasi Otot Progresif Terhadap Tekanan Darah Pasien Hipertensi Implementation Of Progressive Muscle Relaxation Techniques To Blood Pressure Of Hypertension Patients," J. Cendikia Muda, Vol. 1, No. 4, Pp. 502 – 511, 2021.

Musakkar And T. Djafar, "Promosi Kesehatan: Penyebab Terjadinya Hipertensi," Pendidik. Dan Promosi Kesehat., P. 200, 2020, [Online]. Available: Https://Osf.Io/34yna/Download

T. Fauziah, Nurmayni, R. Putri, S. Pidia, And S. Sari, Hipertensi Si Pembunuh Senyap "Yuk Kenali Pencegahan Dan Penangananya." 2021.

A. Pratiwi, "Pengaruh Slow Deep Breathing Terhadap Tekanan Darah Pada Pasien Hipertensi," Masker Med., Vol. 8, No. 2, Pp. 263 – 267, 2020, Doi: 10.52523/Maskermedika.V8i2.414.

K. Bahri, M. Firmansyah, S. Lestari, I. L. Rahayu, S. S. Febriyanti, And D. Manisingsari, "Penurunan Tekanan Darah Dengan Teknik Relaksasi Otot Progresif Pada Pasien Hipertensi Di Desa Sumur Batu Bogor," J. Kreat. Pengabdi. Kpd. Masy., Vol. 6, No. 1, Pp. 52 – 61, 2023, Doi: 10.33024/Jkpm.V6i1.7999.

S. Susanti And C. S. Sulistyana, "Pengaruh Posisi Tubuh Terhadap Tekanan Darah Pada Lansia Penderita Hipertensi Di Wilayah RW 06 Kelurahan Bongkaran Sejahtera Kecamatan Pabean Cantian Surabaya," J. Ners Dan Kebidanan (Journal Ners Midwifery), Vol. 7, No. 1, Pp. 116 – 122, 2020, Doi: 10.26699/Jnk.V7i1.Art.P116-122.

P. P. D. Yanthi, "Asuhan Keperawatan Nyeri Akut Dengan Terapi Akupresur Pada Pasien Hipertensi Di Banjar Aseman Kangin, Desa Tibubeneng, Kecamatan Kuta Utara, Kabupaten Badung Tahun 2022," Poltekes Denpasar Repos., Pp. 1 – 8, 2022, [Online]. Available: Http://Repository.Poltekkes-Denpasar.Ac.Id/9335/

R. N. Fadillah And A. Y. Rindarwati, "Pengaruh Edukasi Terapi Non Farmakologi Pada Pasien Hipertensi," J. Ilm. Kesehat. Delima, Vol. 5, No. 2, Pp. 117 – 121, 2023, Doi: 10.60010/Jikd.V5i2.97.

B. A. B. Ii And A. T. Pustaka, "NYSSA, M. (2022). Hubungan Pelayanan Informasi Obat Dengan Tingkat Kepatuhan Pasien Hipertensi Di Puskesmas Cilacap Tengah I (Doctoral Dissertation, Universitas Al-Irsyad Cilacap).," Pp. 7 – 36, 2019.

Modul Hipertensi. [Online]. Available: Http://Fikumj.Ac.Id

Yulia, "Penerapan Terapi Relaksasi Otot Progresif Pada Penderita Hipertensi Dengan Nyeri Akut," Poltekkes Kemenkes Palembang J., Pp. 1 – 43, 2021, [Online]. Available: Https://Repository.Poltekkespalembang.Ac.Id/Items/Show/2781

A. Z. Dan D. Yusri, "Asuhan Keperawatan Nyeri Akut Pada Pasien Hipertensi Dengan Pemberian Aromaterapi Lavender," J. Ilmu Pendidik., Vol. 7, No. 2, Pp. 809 – 820, 2020.

H. Machmuddin, "Terapi Komplementer Pada Penyakit Hipertensi," 2023.

R. J. Ferdisa And E. Ernawati, "Penurunan Nyeri Kepala Pada Pasien Hipertensi Menggunakan Terapi Relaksasi Otot

https://doi.org/10.1016/j.ijnurstu.2025.105016

Progresif," Ners Muda, Vol. 2, No. 2, P. 47, 2021, Doi: 10.26714/Nm.V2i2.6281.
F. Ladyani, A. Febriyani, T. Prasetia, And I. Berliana, "Hubungan Antara Olahraga Dan Stres Dengan Tingkat Hipertensi Pada Lansia," J. Ilm. Kesehat. Sandi Husada, Vol. 10, No. 1, Pp. 82–87, 2021, Doi: 10.35816/Jiskh.V10i1.514.
D. Ananda, J. Purwono, And A. Keperawatan Dharma Wacana Metro, "Implementation Of Progressive Muscle Relaxation Techniques To Reduce Blood Pressure In Hypertension Patients In The Working Area Of Puskesmas Purwosari Kec. North Metro," J. Cendikia Muda, Vol. 1, No. 1, P. 7, 2021.
E. Listiana And F. Faradisi, "Penerapan Relaksasi Otot Progresif Terhadap Penurunan Tekanan Darah Pada Pasien Hipertensi," Pros. Semin. Nas. Kesehat., Vol. 1, No. 4, Pp. 799–805, 2021, Doi: 10.48144/Prosiding.V1i.755.
N. Handayani Et Al., "Handayani, Penerapan Relaksasi Otot Progresif 255," J. Cendikia Muda, Vol. 2, Pp. 255–263, 2022, [Online]. Available: Http://Jurnal.Akperdharmawacana.Ac.Id/Index.Php/JWC/Article/View/344
H. Kadri And S. Fitrianti, "Penatalaksanaan Hipertensi Dengan Relaksasi Otot Progresif Pada Lansia Di Panti Sosial Tresna Werdha Budi Luhur Kota Jambi," J. Abdimas Kesehat., Vol. 1, No. 2, P. 138, 2019, Doi: 10.36565/Jak.V1i2.40.
N. M. I. M. Dewi, "Gambaran Kualitas Tidur Pada Lansia Di Desa Mambang Kecamatan Selemadeg Timur Kabupaten Tabanan Tahun 2022," Poltekkes Denpasar Repos., Pp. 1–13, 2020.
V. Alapj á n-, "Buku Ajar Lansia," Pp. 1–23, 2022.
U. Muhammadiyah Et Al., "Prosiding Seminar Nasional Kesehatan Lembaga Penelitian Dan Pengabdian Masyarakat Penerapan Relaksasi Otot Progresif Terhadap Penurunan Tekanan Darah Pada Pasien Hipertensi," Semin. Nasionalkesehatan, P. 2021, 2021.
K. B. Syariah And G. Ilmu, "Konsep Teori Keperawatan Self Care Orem," No. September 2016, Pp. 1–6.
Sugiyono, "Sugiyono, Metode Penelitian Pendidikan Pendekatan Kuantitatif, Dan R & D , Bandung: Alfabeta, 2008," JPBIO (Jurnal Pendidik. Biol., Pp. 27–36, 2008.
A. Fernando, "Metodologi Penelitian," Andrew's Dis. Ski. Clin. Dermatology., 20AD.
N. Y. Cahyani, "Pengaruh Service Quality Terhadap Kepuasaan Pasien Pada UPT Puskesmas Panceng," Univ. Muhammadiyah Gresik, P. 34, 2020, [Online]. Available: Http://Eprints.Umg.Ac.Id/942/
B. Rianto, I. R. Susanto, And Karwati, Buku Ajar : Analisis Dan Pengolahan Data Untuk Penelitian Kesehatan Aplikasi SPSS, Pertama. Bandung: Penerbit CAKRA, 2022.
D. Kurniasih, Y. Rusfiana, S. Agus, And R. Nuradhawati, "Teknik Analisa," Alf. Bandung, Pp. 1–119, 2021, [Online]. Available: Www.Cvalfabeta.Com
S. Afrioza And G. C. Agustin, "Artikel Penelitian Jurnal Kesehatan, Vol. 12 No. 2 (2023). ISSN 2086-9266 E-ISSN 2654-587x DOI 10.37048/Kesehatan.V12i2.291181 Pengaruh Teknik Relaksasi Otot Progresif Terhadap Tekanan Darah Sistolik Dewasa Di Kelurahan Sukatani Tangerang," J. Kesehat., Vol. 12, No. 2, Pp. 181–188, 2023, Doi: 10.37048/Kesehatan.V12i2.291.
Y. Dianti, "Hubungan Tingkat Pengetahuan Tentang Hipertensi Dengan Perilaku Pencegahan Terjadinya Hipertensi Pada Jemaah Haji Di Wilayah Kerja Puskesmas Kotagede I Yogyakarta," Poltekkes Kemenkes Yogyakarta, Pp. 5–24, 2021, [Online]. Available: Http://Repo.Iain-Tulungagung.Ac.Id/5510/5/BAB 2.Pdf
I. R. Roseyanti, N. D. Iswandari, And S. N. Hasanah, "Analisis Kejadian Hipertensi Pada Wanita Menopause Di Wilayah Kerja Puskesmas Lok Batu," J. Rumpun Ilmu Kesehat., Vol. 4, No. 1, Pp. 37–55, 2023, Doi: 10.55606/Jrik.V4i1.2826.
M. Yunus, I. W. C. Aditya, And D. R. Eksa, "Hubungan Usia Dan Jenis Kelamin Dengan Kejadian Hipertensi Di Puskesmas Haji Pemanggilan Kecamatan Anak Tuha Kab. Lampung Tengah," Vol. 9, No. 1, Pp. 1–13, 2021.
N. W. E. A. Agustini, "Gambaran Asuhan Keperawatan Pemberian Terapi Relaksasi Otot Progresif Untuk Mengatasi Nyeri Akut Pada Pasien Hipertensi Di Wilayah Kerja Upt Puskesmas Banjarangkan I Klungkung Tahun 2020," J. Nurs. Public Heal. Nurs. Public Heal., No. 2013, Pp. 1–23, 2020, [Online]. Available: Http://Repository.Poltekkes-

https://doi.org/10.1016/j.ijnurstu.2025.105016

Denpasar.Ac.Id/5007/3/BAB II Tinjauan Pustaka.Pdf

S. L. A. Sabar, "Efektifitas Latihan Progressive Muscle Relaxation Terhadap Penurunan Tekanan Darah Pada Pasien Hipertensi Di Makassar," J. Ilm. Kesehat. Pencerah, Vol. 09, No. 1, Pp. 1–9, 2020, [Online]. Available: Https://Stikesmu-Sidrap.E-Journal.Id/JIKP

Z. I. Ulya And N. Faidah, "Pengaruh Terapi Relaksasi Otot Progresif Terhadap Penurunan Tekanan Darah Pada Penderita Hipertensi Di Desa Koripandriyo Kecamatan Gabus Kabupaten Pati," J. Chem. Inf. Model., Vol. 6, No. 2, Pp. 1–9, 2020.

N. Cholifah, F. Z. Astutik, D. Andriani, And E. Pusparatri, "Efektivitas Terapi Relaksasi Benson Terhadap Penurunan Tekanan Darah Pada Pre Eklamsia Dalam Kehamilan," J. Ilmu Keperawatan Dan Kebidanan, Vol. 14, No. 2, Pp. 539–546, 2023,.

https://doi.org/10.1016/j.ijnurstu.2025.105016