

Effectiveness of Providing Progressive Muscle Relaxation Therapy and Mindfulness Meditation Therapy on Blood Pressure in Hypertension Sufferers

Anisya Fitri Amalia¹, Susaldi²
Kemiri Muka Health Center¹
Indonesia Maju University²
Email: anisyafitriamalaia@gmail.com¹

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Abstract

Background: Hypertension is a condition where a person experiences an increase in blood pressure above normal. Blood pressure is usually described as the ratio of systolic pressure to diastolic pressure, with normal values for systolic pressure of 110 to 130 mmHg and diastolic pressure of 80 to 90 mmHg.

Objectives: To determine the effectiveness of providing progressive muscle relaxation therapy and mindfulness meditation therapy on blood pressure in hypertension sufferers at Posbindu Buncis in the working area of Kemiri Muka Health Center, Depok City in 2022

Methods: This research uses quantitative research. This type of research is Quasi Experimental Design with a Two Group Pre-test and Post-test Without Control Group Design approach involving 40 pre-elderly and elderly people who have high blood pressure. The data collection tool was carried out offline using the interview method. The research instruments used were a sphygmomanometer and a stethoscope. Statistical tests use the Wilcoxon test.

Results: Based on the results of the Wilcoxon p-value <0.05. Ha is accepted and H0 is rejected, it is said that there is effectiveness in providing progressive muscle relaxation therapy and mindfulness meditation therapy on both systolic blood pressure

Conclusion: So it can be concluded that Ha is accepted and H0 is rejected, which means there is a difference in the effectiveness of providing progressive muscle relaxation therapy and mindfulness meditation therapy on blood pressure in hypertension sufferers in the working area of the Kemiri Muka Community Health Center, Depok City in 2022.

Keywords: hypertension, mindfulness meditation therapy, progressive muscle relaxation therapy

Introduction

Heart and blood vessel (Cardiovascular) disease commonly known as hypertension is the biggest health problem in developed and developing countries. According to the World Health Organization (WHO), normal blood pressure is 120-140 mmHg for systolic and 80-90 mmHg for diastolic. So, a person is said to have hypertension if the systolic blood pressure is

≥ 140 mmHg and diastolic ≥ 90 mmHg. Hypertension remains the main cause of death throughout the world every year.¹

The World Health Organization (WHO) estimates that up to 1.13 billion people worldwide will suffer from hypertension in 2019, the majority of them living in low- and middle-income countries. One of the global goals for non-communicable diseases is to reduce the prevalence of hypertension by 25% by 2025.² Based on 2018 Riskesdas data, it shows that the prevalence of hypertension has increased from 25.8% to 34.1% with an estimated number of cases of hypertension in Indonesia amounting to 63,309,620 people, with deaths due to hypertension amounting to 427,218 people.³ According to the Ministry of Health (2018), the increasing flow of globalization in all fields, the growth of technology and industry have resulted in many changes in people's behavior and lifestyle, and the regional atmosphere, for example changes in food consumption patterns, reduced physical activity and increased regional pollution. These changes have unwittingly influenced changes in the level of health that have triggered epidemiological transitions in degenerative diseases or non-communicable diseases, one of the non-communicable diseases is hypertension (high blood pressure).⁴

Progressive muscle relaxation therapy is a form of relaxation that involves tightening the muscles and then relaxing the muscles. This exercise can be done in various places such as at home, can be done with simple preparation, is cheap and can reduce blood pressure by 5-10 mmHg if done according to the procedure.⁵ Apart from the above understanding, meditation can also affect the central nervous system by relaxing blood vessels, improving blood flow and lowering blood pressure.⁶

Apart from progressive muscle relaxation intervention, another alternative that can be used to reduce blood pressure is mindfulness meditation therapy. This therapy leads to a better mood and can handle stress. Apart from that, meditation can also provide a relaxing and refreshing experience both mentally and physically, which can regulate emotions, relieve stress, and regulate blood pressure. Based on the background that the researchers have explained above, this research was conducted to determine the effectiveness of providing progressive muscle relaxation therapy and mindfulness meditation therapy on blood pressure in hypertension sufferers at Posbindu Buncis in the Kemiri Muka Community Health Center Working Area, Depok City in 2022.

Research methods

This research uses quantitative research. This type of research is a Quasy Experimental Design with a Two Group Pre-test and Post-test Without Control Group Design approach, namely to reveal cause and effect relationships by involving two groups of subjects. Subject groups were observed before administration intervention, and then observed again after the intervention was given. In this research, the researcher chose a sampling technique using the Total Sampling method. The respondents of this study involved 40 pre-elderly and elderly people who had high blood pressure. The data collection tool was carried out offline using the interview method. The research instruments used were a sphygmomanometer and a stethoscope. Statistical tests use the Wilcoxon test.

Results

Table 1. Characteristics of Respondents Based on Gender and Age in the Progressive Muscle Therapy Intervention Group

Variable	N	Percentage
Age		
45-59 years old	13	65,0

>60 years old	7	35,0
Total	20	100,0
Gender		
Male	3	15,0
Female	17	85,0
Total	20	100,0

Based on table 1, a description of the characteristics of age respondents when providing progressive muscle relaxation therapy, it was found that the majority of the age group of respondents were 45-59 years old, totaling 13 people (56.0%) at Posbindu Buncis in the Kemiri Muka Community Health Center Working Area, Depok City in 2022.

Table 2. Characteristics of Respondents Based on Gender and Age in the Mindfulness Therapy Intervention Group

Variable	N	Percentage
Age		
45-59 years old	5	25,0
>60 years old	15	75,0
Total	20	100,0
Gender		
Male	3	15,0
Female	17	85,0
Total	20	100,0

Based on table 2 above, this research shows that the majority of respondents are >60 years old, numbering 15 people (75.0%) and the majority of respondents are women, numbering 17 people (85.0%).

Table 3. Test of the Effectiveness of Providing Progressive Muscle Relaxation Therapy and Mindfulness Meditation Therapy on Blood Pressure in Hypertension Sufferers at Posbindu Buncis in the Kemiri Muka Community Health Center Working Area, Depok City

Variable	Treatment	N	Z	P-value
Systolic BP progressive muscle relaxation therapy	Pre and post systole progressive muscle relaxation therapy	20	-4,008	0,000
Diastolic BP progressive muscle relaxation therapy	Pre and post diastolic progressive muscle relaxation therapy	20	-3,663	0,000
Systolic BP mindfulness meditation therapy	Pre and post systolic mindfulness meditation therapy	20	-3,783	0,000
Diastolic BP mindfulness meditation therapy	Pre and post diastolic mindfulness meditation therapy	20	-3,247	0,001

Based on table 3 of the Wilcoxon test, the Z-count value for systolic blood pressure for progressive muscle relaxation therapy is -4.008 with a p-value of 0.000 and it is said that the p-value = <0.05 and Z-count for diastolic blood pressure for progressive muscle relaxation therapy is -3.663 with a p-value of 0.000 and it is said that p-value = <0.05. There are also Wilcoxon test results for administering mindfulness meditation therapy, the calculated z value for systolic blood pressure is -3.783 with a p-value of 0.000 and it is said that the p-value = <0.05 and the calculated Z value for diastolic blood pressure for mindfulness meditation therapy is -3.247 with p-value 0.001 and it is said p-value = <0.05. So it can be concluded based on the results of the Wilcoxon test p-value <0.05. Ha is accepted and H0 is rejected, it is said that there

is effectiveness in providing progressive muscle relaxation therapy and mindfulness meditation therapy on blood pressure, both systolic and diastolic, in hypertension sufferers at Posbindu Buncis in the Kemiri Muka Health Center Working Area, Depok City in 2022.

Discussion

Based on the description of the characteristics of age respondents when providing progressive muscle relaxation therapy, it was found that the majority of respondents aged 45-59 years, totaling 13 people (56.0%) at Posbindu Buncis, Kemiri Muka Health Center Working Area, Depok City in 2022. This is in line with research conducted by Luh Putu Ekarini (2019) showed that the average age in the intervention group and control group were both in the age range of 40-65 years.⁷ Apart from age characteristics in providing progressive muscle relaxation therapy, there are also age characteristics in providing mindfulness meditation therapy. Based on the description of the characteristics of age respondents when providing mindfulness meditation therapy, it was found that the majority of the age group of respondents were >60 years old, totaling 15 people (75.0%) at Posbindu Buncis, Kemiri Muka Health Center Working Area, Depok City in 2022. In line with research conducted by Elina Situmorang (2022) shows that aged 60-70 years 8 people (47.1%), and aged >70 years 9 people (52.9%). other research states that meditation plays a real role in lowering blood pressure for those over 60 years old.⁷

Based on the description of the characteristics of respondents who were given progressive muscle relaxation therapy, it was found that the majority of respondents were women, numbering 17 people (85.0%) in the Posbindu Buncis Working Area of the Kemiri Muka Community Health Center, Depok City in 2022. In line with Armina's (2019) research, it shows that the majority of genders are women with a total of 70 people (70.0%).⁸ Apart from gender characteristics in providing progressive muscle relaxation therapy, there are also gender characteristics in providing mindfulness meditation therapy. Based on the description of the characteristics of respondents who provided mindfulness meditation therapy, it was found that the majority of respondents were women, numbering 17 people (85.0%) in the Posbindu Buncis Working Area of the Kemiri Muka Community Health Center, Depok City in 2022. Line with research by Analya et al (2021) shows that the majority of gender is female 17 people (100%).⁹

Based on the Frequency Distribution of Systolic and Diastolic Blood Pressure Before Progressive Muscle Relaxation Therapy in this study showed that the majority of the systolic blood pressure was grade 1 hypertension 140-159 mmHg (65.0%) as many as 17 respondents, while the diastolic blood pressure was 9 respondents with hypertensive blood pressure. grade 1 90-99 mmHg (45.0%), and grade 2 hypertension diastolic blood pressure 100-109 mmHg (35.0%) as many as 7 respondents. In line with research conducted by Muhammad Nurman (2017), it is known that the average value of systolic blood pressure in respondents before being given progressive muscle relaxation therapy was 147.33 mmHg, with the lowest systolic blood pressure being 140 mmHg and the highest systolic blood pressure being 160 mmHg. while the average value of diastolic blood pressure in respondents before being given progressive muscle relaxation therapy was 84.67 mmHg with the lowest diastolic blood pressure being 70 mmHg and the highest diastolic blood pressure being 90 mmHg.¹⁰

Based on the Frequency Distribution of Systolic and Diastolic Blood Pressure Before Giving Mindfulness Meditation Therapy, it shows that the majority of the systolic blood pressure was grade 2 hypertension 160-179 mmHg (60.0%) as many as 12 respondents, while the diastolic blood pressure was 9 respondents with grade 1 hypertension blood pressure 90- 99 mmHg (45.0%), and grade 2 hypertension 100-109 mmHg (35.0%) as many as 7 respondents. In line with research by Agus Riyanto (2022), it is known that the average value of systolic blood pressure in respondents before carrying out mindfulness meditation therapy was 175.59

mmHg for 17 respondents, while the average value of diastolic blood pressure in respondents before carrying out mindfulness meditation therapy was 95.47 as many as 17 respondents.¹¹ The results of research conducted by Neti Juniarti (2022) showed that $P\text{-value} = 0.000 < 0.05$, meaning that there was a significant difference in blood pressure before and after mindfulness meditation therapy.¹²

Based on The Frequency Distribution of Systolic and Diastolic Blood Pressure After Giving Progressive Muscle Relaxation Therapy in this study, shows that after giving progressive muscle relaxation therapy the majority of systolic blood pressure was normal, high 130-139 mmHg (45.0%) as many as 9 respondents, while diastolic blood pressure after administering normal progressive muscle relaxation therapy of 80-84 mmHg (55.0%) to 11 people.

In line with Muhammad Nurman's research (2017) that the decrease in systolic blood pressure before and after being given progressive muscle relaxation therapy, the difference before doing the progressive muscle relaxation technique was 147.33 mmHg and after giving progressive muscle relaxation therapy was 128.00 mmHg, whereas The decrease in diastolic blood pressure between before being given progressive muscle relaxation therapy was 84.67 mmHg and after giving progressive muscle relaxation therapy was 79.33 mmHg.¹⁰ The results of research conducted by Shinde (2022) showed that there was a significant difference in pre- and post-intervention blood pressure. Statistically, the results showed a significant decrease in systolic blood pressure ($p < 0.01$) while diastolic blood pressure ($p < 0.05$). significant after carrying out progressive muscle relaxation therapy.¹³

Based on the Frequency Distribution of Systolic and Diastolic Blood Pressure After Giving Mindfulness Meditation Therapy, it shows that after giving mindfulness meditation therapy, the majority of systolic blood pressure was grade 1 hypertension 140-159 mmHg (40.0%) as many as 8 respondents, and grade 2 hypertension was 160-179 mmHg (40.0%) as many as 8 respondents and diastolic blood pressure after administering mindfulness meditation therapy was normal 80-84 mmHg (55.0%) as many as 11 people.

In line with research by Raditya Utama (2021) that systolic blood pressure before mindfulness meditation therapy was 161.82 mmHg and after mindfulness meditation therapy was 151.25 mmHg, while diastolic blood pressure before mindfulness meditation therapy was 93.75 mmHg and after carried out mindfulness meditation therapy was 87.50 mmHg.¹⁴ The results of research conducted by Adi et al (2020) showed that the systolic results before and after mindfulness meditation therapy had a p-value of 0.000. The results of statistical tests obtained a p-value < 0.05 , meaning that there is effectiveness of mindfulness meditation therapy on changes in blood pressure in elderly people with hypertension.¹⁵

Based on the results of the Wilcoxon test, shows a value of $p = 0.000$ and 0.001 ($\alpha = 0.05$), which means there is a significant difference between the provision of progressive muscle relaxation therapy and mindfulness meditation therapy in reducing blood pressure in hypertension sufferers. Progressive muscle relaxation therapy and mindfulness meditation therapy can reduce blood pressure, a decrease can be seen in progressive muscle relaxation therapy systolic 130-139 mmHg as many as 9 respondents and diastolic 80-84 mmHg as many as 11 respondents, while mindfulness meditation therapy systolic 140-159 mmHg and 160-179 mmHg as many as 8 respondents and diastolic 80-84 mmHg as many as 11 respondents, which means progressive muscle relaxation therapy is more effective in reducing blood pressure in hypertension sufferers.

The results of the same research conducted by Yunita (2023) regarding "the

effectiveness of progressive muscle relaxation on blood pressure in hypertension sufferers" the results of the study showed that there was a significant difference in pre and post-intervention blood pressure, statistically the results were obtained for systolic blood pressure ($p < 0.01$). Diastolic blood pressure ($p = 0.05$) and heart rate ($p < 0.05$) decreased significantly after implementing progressive muscle relaxation therapy.¹⁶

According to Raditya (2021), after carrying out mindfulness meditation, the statistical test results obtained a p -value = 0.000, meaning that there was a significant influence on systolic blood pressure after carrying out the mindfulness meditation intervention for elderly people living in the Sukabumi Nursing Home. In the intervention group and control group, the results of other studies showed a systolic p -value of 0.000 and a diastolic p -value of 0.000. With a value before the intervention of 161.82/75 mmHg and a value after the intervention of 151.25/87.50 mmHg.¹⁵

Conclusion

There is a difference in the effectiveness of providing progressive muscle relaxation therapy and mindfulness meditation therapy on blood pressure in hypertension sufferers at Posbindu Buncis in the Kemiri Muka Community Health Center Working Area, Depok City in 2022.

Conflict of Interest

The researcher declares that this research is independent of individual and organizational conflicts of interest.

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References

1. Putu Inge Ruth Suantika, Ni Made Manik Elisa Putri. Penatalaksanaan Hipertensi Pada Pkk Banjar Padang Tawang Cunggu. *Jurnal Abdimas ITEKES Bali*. 2022; DOI: <https://doi.org/10.37294/jai.v1i2.382>
2. Yulianto, Dian Fitra Arismawati. Edukasi Pada Masyarakat Usia Produktif Terkait Kondisi Lingkar Perut Sebagai Faktor Risiko Hipertensi. 2022;V(2). Available from: <http://e-journal.lppmdianhusada.ac.id/index.php/jbca>
3. Syahrir M, Sabilu Y. Hubungan Pemanfaatan Sarana Pelayanan dengan Kejadian Hipertensi Pada Masyarakat Pesisir Kecamatan Kolono Timur. 2020. DOI: <https://doi.org/10.56742/nchat.v1i2.16>
4. Salvita Fitrianti, Miko Eka Putri. Pemberian Relaksasi Otot Progresif pada Lansia Dengan Hipertensi Essensial di Kota Jambi. Vol. 18, *Jurnal Ilmiah Universitas Batanghari Jambi*. 2018. DOI: <http://dx.doi.org/10.33087/jiubj.v18i2.481>
5. Azwalidi, Rumentalia, Erman. Latihan Relaksasi Otot Progresif untuk Menurunkan Tekanan Darah Penderita Hipertensi Di RT 13 Wilayah Kerja Puskesmas Makrayu Palembang. *Jurnal Keperawatan*. 2021; DOI: <https://doi.org/10.32832/abdidos.v5i1.839>
6. Agung Widiastuti, Muzaroah Ermawati Ulkhasanah, Devina Ayuningtyas, Jasita Salma Dellila. Efektifitas Terapi Mindfulness Terhadap Penurunan Tekanan Darah Pada Hipertensi. *Prosiding Seminar Informasi Kesehatan Nasional (SIKESnas)*. 2022;
7. Siti Maryam R, Keperawatan J, Kesehatan Kemenkes P. Pengaruh Terapi Relaksasi Otot Progresif terhadap Respon Fisiologis Pasien Hipertensi [Internet]. Vol. 10, *Jurnal Kesehatan*. Online; 2019. Available from: <http://ejurnal.poltekkes-tjk.ac.id/index.php/JK>
8. Ilham M, Armina A, Kadri H. Efektivitas terapi relaksasi otot progresif dalam menurunkan hipertensi pada lansia. *Jurnal Akademika Baiturrahim Jambi*. 2019;8(1):58–65. DOI: <http://dx.doi.org/10.36565/jab.v8i1.103>

9. Analya P, Yan K, Cakrangadinata C. Pengaruh Mindfulness Terhadap Performa Tugas Kognitif. *Insight: Jurnal Ilmiah Psikologi*. 2021 Aug 9;23(2). DOI: <https://doi.org/10.26486/psikologi.v23i2.1502>
10. Nurman M. Efektifitas Antara Terapi Relaksasi Otot Progresif dan Teknik Relaksasi Nafas Dalam Terhadap Penurunan Tekanan Darah pada Penderita Hipertensi Di Desa Pulau Birandang Wilayah Kerja Puskesmas Kampar Timur Tahun 2017. *Jurnal Ners*. 2017;1(2). DOI: <https://doi.org/10.31004/jn.v1i2.122>
11. Riyanto A. *Aplikasi Metodologi Penelitian Kesehatan*. Yogyakarta: Nuha Medika; 2019.
12. Juniarti N, Hartiah H, Sari CWM, Yani DI. Effectiveness of Telehealth Collaboration between Academic, Health Provider and Community towards People's Participation for COVID-19 Selfreporting. *International Journal of Integrated Care (IJIC)*. 2022;22. DOI: [10.5334/ijic.ICIC21134](https://doi.org/10.5334/ijic.ICIC21134)
13. Shinde V, McNamara J, Gaitonde D. Dynamic interaction between shock wave turbulent boundary layer and flexible panel. *J Fluids Struct*. 2022;113:103660. Available From: <https://doi.org/10.1016/j.jfluidstruct.2022.103660>
14. Utama R, Teguh Kurniawan S, Rakhmawati N. Pengaruh Terapi Meditasi Mindfulness Spiritual Islam Terhadap Perubahan Tekanan Darah Pada Penderita Hipertensi Di Puskesmas Jaten. 2021. Available From: https://eprints.ukh.ac.id/id/eprint/2506/1/Naskah%20Publikasi%20Raditya%20Utama_S17199.pdf
15. Adi M, Tristaningrat N, Tinggi S, Hindu A, Mpu N, Singaraja K. 54 Meditasi Mindfulness Dalam Menjaga Emotional Stability. 2020;1(1). <https://stahnmpukuturan.ac.id/jurnal/index.php/haridracarya/article/view/625>
16. Yunita SR, Maria L. Relaksasi Otot Progresif terhadap Tekanan Darah Pasca Histerektomi pada Lansia. *Jurnal Kesmas Asclepius*. 2023;5(1):25–31. DOI: <https://doi.org/10.31539/jka.v5i1.5853>