



The Effect of Meditation on Blood Pressure in Middle Adult Hypertension Sufferers in the Pandanwangi Community Health Center Area, Malang City

Imam Subekti^{1*}, Nugrahani Candra Kartika²,
Edy Suyanto³

¹ Nursing Study Programs,
Poltekkes Kemenkes Malang,
Indonesia

² Bachelor of Applied Nursing Study
Programs, Poltekkes Kemenkes
Malang, Indonesia

³ Nursing Diploma Programs,
Poltekkes Kemenkes Malang,
Indonesia

Correspondence

Imam Subekti
Poltekkes Kemenkes Malang,
Jl. Besar Ijen No.77C, Klojen,
Malang City, East Java 65119,
Indonesia
E-mail: imamsubekti12@yahoo.co.id

Article History

Submitted: 24-05-2023

Revised: 26-03-2024

Accepted: 28-03-2024

This is an open-access article under
the CC BY-SA license.



ABSTRACT

Hypertension is the most common chronic disease suffered by people in Indonesia and is the main cause of death every year. Hypertension is called the silent killer because it is often experienced without complaints, and causes serious complications, especially in middle adulthood. Management of hypertension can be done with non-pharmacological therapy, one of which is meditation. This study aims to analyze the effect of meditation on reducing blood pressure in middle-aged hypertensive sufferers in the Pandanwangi Health Center working area, Malang City on April 2022. The research design was quasi experimental with a pre-test post-test design with control group. The total sample was 42 respondents divided into two groups (treatment and control). Statistical analysis uses the Mann Whitney test. The results showed that there was a decrease in the average systolic blood pressure from 148.33 mmHg to 139.28 mmHg and diastolic blood pressure from 89.04 mmHg to 83.57 mmHg in the treatment group after being given meditation for 3 sessions. The statistical test results show that the p-value for measuring post-treatment systolic blood pressure between the treatment group and the control group is $0.022 \leq \alpha 0.05$, and the p-value for measuring post-treatment diastolic between the treatment group and the control group is $0.005 \leq \alpha 0.05$. So, it can be concluded that there is an effect of meditation on reducing blood pressure in middle-aged hypertensive sufferers. It is hoped that in future research can be continued on the effect of meditation on blood pressure in other age groups (elderly age) by analyzing factors that can influence blood pressure, such as stress, physical activity and sleep patterns.

KEYWORDS

Meditation, Blood Pressure, Hypertension

How to cite:

Subekti, I., Kartika, N. C., & Suyanto, E. (2024). The Effect of Meditation on Blood Pressure in Middle Adult Hypertension Sufferers in the Pandanwangi Community Health Center Area, Malang City. *Journal of Rural Community Nursing Practice*. 2(1), 61–69. <https://doi.org/10.58545/jrcnp.v2i1.254>

1. BACKGROUND

Hypertension is a condition where systolic blood pressure increases to more than or equal to 140 mmHg and diastolic

blood pressure to more than or equal to 90 mmHg (Yonata & Pratama, 2016). Hypertension can cause disorders of the blood vessels which result in a decrease in

the supply of oxygen and nutrients ([Setya & Suratih, 2017](#)). Based on the 2019 Riskesdas, the prevalence of hypertension in middle adults, namely the 45-54 years age group, was 45.3%, 55-64 years old were 55.2% ([Indonesian Ministry of Health, 2020](#)). East Java Province Health Profile Data for 2019, the estimated number of hypertension sufferers in East Java Province is around 11.952.694 people, with the proportion of men being 48% and women being 52%. The prevalence of hypertension in the city of Malang in 2019 was 221.539 sufferers and ranked second in the top 10 list of diseases for the last three years ([Dinkes Prov Jatim, 2020](#)).

Hypertension that is not managed well can cause serious harm to body health, especially in middle adulthood. This will have quite a complex impact on life in middle adulthood, considering that this age is included in the productive age ([Maulana et al., 2023](#)). Alternative efforts that can be made to lower blood pressure without causing side effects are non-pharmacological therapy ([Permatasari, 2023](#)). One type of non-pharmacological therapy that can be used to lower blood pressure in hypertension sufferers is meditation. Meditation is a form of self-training that directs the body to relax and

calm the mind ([Bolm, 2022](#)). Meditation is also a form of mental exercise that influences bodily functions, can enable a person to control their attention, focus, intentions and choices so that they are not influenced and controlled by the external environment ([Yang, Wu, & Wang, 2017](#)). Meditation is an alternative therapy or non-pharmacological intervention therapy and is known to be beneficial in controlling depression, anxiety, sleep disorders, pain, fatigue and stress levels, as well as blood pressure ([Kim et al., 2013](#)). The benefits of meditation include calming the brain, reducing stress and depression, significantly lowering blood pressure, and increasing the body's immune response ([Thibodeaux, & Rossano, 2018](#)). Meditation done regularly can lower blood pressure, improve the immune system, improve sleep quality, and increase body vitality ([Gathright et al., 2019](#)).

Based on the results the effect of meditation on reducing blood pressure in hypertension sufferers with a total of 42 respondents, the average systolic blood pressure before therapy was 165.24 mmHg, and decreased to 144.29 mmHg after meditation practice, as much as 3 sessions. Meanwhile, diastolic blood pressure decreased from 96.19 mmHg to 91.43 mmHg ([Paskahananti, 2018](#)). Another study entitled

The impact of transcendental meditation on depressive symptoms and blood pressure in adults with cardiovascular disease resulted in an average reduction in blood pressure after being given meditation, namely systolic pressure of 3.46 mmHg and diastolic pressure of 3.47 mmHg. The research can be concluded that there is an effect of meditation therapy on reducing blood pressure in hypertension sufferers ([Gathright et al., 2019](#)).

2. METHODS

The design of this research was pre-experimental with a two-group design with pretest-posttest design, where the sample was divided into two treatment groups and a control group. The total sample was 21 people in each group with inclusion criteria, namely middle adult age (40-60 years), systolic blood pressure ≥ 140 mmHg and diastole ≥ 90 mmHg, not taking anti-hypertension medication before the intervention was carried out. This research was conducted in Pandanwangi Community Health Center area, Malang City in April 2022. The sampling technique in this research was quota sampling. Blood pressure measurements using a digital blood pressure monitor were carried out before treatment and after 3 sessions of meditation. Each

session lasts 15 minutes. The meditation techniques taught are breathing exercises, calming or relaxing the body and controlling the mind in a focused manner led by researchers. The statistical analysis test uses the Wilcoxon test with the limitation that if the p-value is $\leq \alpha 0.05$, it means that H_0 is rejected and H_a is accepted, meaning that there is an effect of meditation on reducing blood pressure between the treatment group and the control group.

3. RESULTS

This research was conducted in April 2022 on 42 respondents suffering from hypertension in middle adulthood. Most of the respondents were aged 51-60 years, namely 36 people (85.71%) and the remaining 6 people aged 40-60 years (14.29%). Most of the respondents were female, namely 26 people (61.90%) and a small number, 16 people (38.10%) were male. Family history showed that the majority of respondents had a family history of hypertension, 32 people (76.19%) and the remainder had no family history of hypertension, 10 people (23.81%). Treatment history also showed that the majority of respondents consumed hypertension medication, 31 people (73.81%) and the remaining 11 people (26.19%) did not consume hypertension medication.

Table 1. The results of blood pressure on middle adult hypertension suffering group

Middle Adult Hypertension Suffering Group	Average (Mean) Blood Pressure Before Meditation		Average (Mean) Blood Pressure After Meditation	
	Sistole	Diastole	Sistole	Diastole
	Intervention group	148.33 mmHg	89.04 mmHg	139.28 mmHg
Control group	151.42 mmHg	88.80 mmHg	146.19 mmHg	87.61 mmHg

The results of blood pressure measurements before meditation treatment in the treatment group showed an average systolic blood pressure of 148.33 mmHg, and after giving meditation the average systolic blood pressure decreased to 139.28 mmHg. Diastolic blood pressure measurements before meditation averaged 89.04 mmHg

and after meditation the average decreased to 83.37 mmHg

In the control group, the average pre-systolic blood pressure was 151.42 mmHg and post-systolic blood pressure was 146 mmHg. Meanwhile, the average pre-diastolic blood pressure was 88.80 mmHg and post-diastolic was 87.61 mmHg.

Table 2. Wilcoxon Test results in the treatment group and in the control group

Middle Adult Hypertension Suffering Group	Average (Mean) Blood Pressure Before Meditation		Average (Mean) Blood Pressure After Meditation		P value
	Sistole	Diastole	Sistole	Diastole	
	Intervention group	148.33 mmHg	89.04 mmHg	139.28 mmHg	
Control group	151.42 mmHg	88.80 mmHg	146.19 mmHg	87.61 mmHg	

The results of statistical test analysis using the Wilcoxon test, which compared the results of post-treatment systolic blood pressure measurements between the treatment group and the control group, showed a p-value of 0.022 ($p\text{-value} \leq \alpha 0.05$). From these results it can be concluded that H_0 is rejected and H_a is accepted, meaning that there is an effect of meditation on reducing systolic blood pressure between the treatment group and the control group. Meanwhile, the results of statistical tests that compared the results of

post-treatment diastolic blood pressure measurements between the treatment group and the control group showed a p-value of 0.005 ($p\text{-value} \leq \alpha 0.05$). From these results it can be concluded that H_0 is rejected and H_a is accepted, meaning that there is an effect of meditation on reducing diastolic blood pressure between the treatment group and the control group.

4. DISCUSSION

The results of blood pressure measurements before meditation treatment

in the treatment group showed an average systolic blood pressure of 148.33 mmHg. After meditation the average systolic blood pressure decreased to 139.28 mmHg. The average diastolic blood pressure measurement before meditation was 89.04 mmHg. After being given meditation, the average diastolic blood pressure decreased to 83.5 mmHg. So, the decrease in systolic blood pressure after meditation in the treatment group was 9.05 mmHg and the decrease in diastolic blood pressure was 5.23 mmHg. The statistical test results also show that the p-value for systolic blood pressure is 0.022 and the p-value for diastolic blood pressure is 0.005. This shows that there is an effect of meditation on reducing blood pressure in middle-aged hypertensive sufferers.

These results are in line with research regarding the Effect of Meditation Therapy on the Incident of Hypertension in BPSTW Budi Luhur Unit, Kasongan, Bantul, Province of Yogyakarta, the results obtained were p -value = 0.000 ($p < 0.05$) for systolic blood pressure and p -value = 0.028 (< 0.05) for diastolic blood pressure. In this study, it was concluded that there was an effect of meditation therapy on changes in systolic and diastolic blood pressure in the elderly (Asmarani, 2018). The other research at

Nene Mallomo Regional Hospital, Sidenreng Rappang Regency, the average systolic blood pressure before meditation in hypertensive patients was 174 mmHg (min. 140 mmHg, max. 210 mmHg), and the average systolic blood pressure after meditation was 142 mmHg (min. 83.33 mmHg, max. 163.33 mmHg) (Purnika et al., 2019). Meanwhile, the average diastolic blood pressure before meditation in hypertensive patients was 104 mmHg (min. 90 mmHg, max. 140 mmHg), and the average diastolic blood pressure after meditation was 93.55 mmHg (min. 80 mmHg, max. 106.67 mmHg). From the results of the paired T test, the p value was 0.000, the p value < 0.05 , which means the results of this study show that giving meditation can reduce blood pressure in hypertensive patients

The difference in methodology in this research from previous studies is in terms of the duration of meditation time. In previous research, meditation was carried out in 3 sessions with a duration of 10 minutes for each session. Meanwhile, in this study, meditation was still given in 3 sessions, but the duration of each session was 15 minutes. The additional 5 minutes is based on considerations so that the elderly can concentrate more in meditating

The relaxation stages in meditation in the form of regulating deep breathing and calming yourself, controlling your thoughts or focusing your mind so you can feel relaxed within 15 minutes, can make the sympathetic nerves in the brain reduce emotional stimulation (Peper, 2019). A decrease in stimulus from the sympathetic nerves in a relaxed state causes a decrease in norepinephrine secretion, where the heart organ will slightly reduce its contractility and the pressure on the vessels will decrease, resulting in a decrease in systolic and diastolic blood pressure. This happened in the treatment group given meditation (Ooi et al., 2017). Relaxation in meditation exercises that position the body in a calm condition so that the body and emotions are in a balanced condition (Andrena & Kurdi, 2023). Relaxation in meditation has basic movements that train focus on breathing which can increase oxygen circulation to the respiratory muscles, thereby causing the respiratory muscles to experience a state of relaxation. A similar thing also happens to blood vessels. In a relaxed condition, the body will respond to parasympathetic nerves to produce endorphin hormones which can increase smooth muscle relaxation and vasodilation of blood vessels. As a result,

cardiac output and blood volume decrease, resulting in a decrease in blood pressure.

5. CONCLUSION

Meditation performed on middle-aged hypertensive sufferers has been proven to reduce blood pressure, both systolic and diastolic. Relaxation in meditation by practicing deep breathing accompanied by calming the body and focusing the mind to be calm which can increase oxygen circulation to the respiratory muscles, thereby causing the respiratory muscles to experience a state of relaxation. This relaxed condition will affect the heart by reducing its contractility and the pressure on the vessels will decrease, resulting in a decrease in blood pressure. It is hoped that in future research can be continued on the effect of meditation on blood pressure in other age groups (elderly age) by analyzing factors that can influence blood pressure, such as stress, physical activity and sleep patterns.

ACKNOWLEDGMENT

We extend our gratitude and thanks to the respondents and chief of Pandanwangi Community Health Center area, Malang City for their participation.

AUTHOR CONTRIBUTIONS

Substantial contributions to conception, data collection, and analysis: Imam Subekti, Nugrahani Candra Kartika, and Edy Suyanto. Manuscript revisions: Imam Subekti.

CONFLICT OF INTEREST

The author declares that there is no conflict in the preparation of this article.

DATA AVAILABILITY STATEMENT

The data obtained in this study is available from the author and is not published for certain reasons.

REFERENCES

Andrena, D., & Kurdi, F. (2023). Application of Relaxation Therapy on Chronic Pain in the Elderly with Hypertension at UPT PSTW Jember: A Case Study. *Jurnal Kesehatan Komunitas Indonesia*, 3(1), 59–80.
<https://doi.org/10.58545/jkki.v3i1.58>

Asmarani, F. L. (2018). Pengaruh Terapi Meditasi Terhadap Kejadian Hipertensi Pada Lansia Di Bpstw Provinsi Di Yogyakarta Unit Budi Luhur Kasihan Bantul. *Jurnal Keperawatan Respati Yogyakarta*, 5(1), 327–330. DOI: <https://dx.doi.org/10.35842/jkry.v5i1.176>

Bolm, S. L., Zwaal, W., & Fernandes, M. B. (2022). Effects of mindfulness on occupational stress and job satisfaction of hospitality and service workers. *Research in Hospitality Management*, 12(1), 61-70.
<https://doi.org/10.1080/22243534.2022.2080954>

Dinkes Prov Jatim. (2020). Profil Kesehatan Provinsi Jawa Timur 2019. Profil Kesehatan Provinsi Jawa Timur. <https://dinkes.jatimprov.go.id/userfile/dokumen/PROFIL%20KESEHATAN%202020.pdf>

Gathright, E. C., Salmoirago-Blotcher, E., DeCosta, J., Balletto, B. L., Donahue, M. L., Feulner, M. M., Cruess, D. G., Wing, R. R., Carey, M. P., & Scott-Sheldon, L. A. J. (2019). The impact of transcendental meditation on depressive symptoms and blood pressure in adults with cardiovascular disease: A systematic review and meta-analysis. *Complementary Therapies in Medicine*, 46(March), 172–179.
<https://doi.org/10.1016/j.ctim.2019.08.009>

Kemenkes. (2019). Hipertensi penyakit paling banyak diidap masyarakat.

- <https://www.kemkes.go.id/article/view/19051700002/hipertensi-penyakit-paling-banyak-diidap-masyarakat.html>
- Kim, Y. H., Kim, H. J., Ahn, S. Do, Seo, Y. J., & Kim, S. H. (2013). Effects of meditation on anxiety, depression, fatigue, and quality of life of women undergoing radiation therapy for breast cancer. *Complementary Therapies in Medicine*, 21(4), 379–387. <https://doi.org/10.1016/j.ctim.2013.06.005>
- Maulana, M. A., Susanto, T., Rasni, H., Ma'fuah, S., & Kurdi, F. (2023). Relationship of Physical Activity and Blood Pressure: Data Analysis of the Integrated Non-Communicable Diseases Development Post (Posbindu PTM) Jenggawah Public Health Center in Jember Regency at 2020. *Journal of Rural Community Nursing Practice*, 1(1), 102–111. <https://doi.org/10.58545/jrcnp.v1i1.78>
- Ooi, S. L., Giovino, M., & Pak, S. C. (2017). Transcendental meditation for lowering blood pressure: An overview of systematic reviews and meta-analyses. *Complementary Therapies in Medicine*, 34(April), 26–34. <https://doi.org/10.1016/j.ctim.2017.07.008>
- Peper, E., Harvey, R., & Lin, I. M. (2019). Mindfulness training has elements common to other techniques. *Biofeedback*, 47(3), 50-57. <https://doi.org/10.5298/1081-5937-47.3.02>
- 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>
- Paskahananti, R. E. (2018). Pengaruh Meditasi Terhadap Penurunan Tekanan Darah Pada Lansia Hipertensi Di Desa Tampir Kulon Kecamatan Candimulyo Kabupaten Magelang. *Skripsi Politeknik Kesehatan Kemenkes Semarang*. <https://repository.poltekkes-smg.ac.id/index.php>
- Purnika, R., Roesmono B., & Kassaming (2019). Pengaruh Meditasi Dzikir Terhadap Perubahan Tekanan Darah Pada Pasien Hipertensi. *Jurnal Ilmiah*

Kesehatan Diagnosis, 14(4), 338-342.
<https://jurnal.stikesnh.ac.id/index.php/jikd/article/view/286>

<http://joke.kedokteran.unila.ac.id/index.php/majority/article/view/1030>

Setya, H., & Suratih. (2017). Pengaruh Terapi Pijat Refleksi Kaki Terhadap Tekanan Darah Pada Penderita Hipertensi Primer. E-Journal Stikes Aisyiyah, 1. <http://www.jurnal.stikes-aisyiyah.ac.id/index.php/gaster/article/view/199>

Thibodeaux, N., & Rossano, M. J. (2018). Meditation and immune function: The impact of stress management on the immune system. *OBM Integrative and Complementary Medicine*, 3(4), 1-23. <http://dx.doi.org/10.21926/obm.icm.1804032>

Yang, H., Wu, X., & Wang, M. (2017). The Effect of Three Different Meditation Exercises on Hypertension: A Network Meta-Analysis. *Evidence-based complementary and alternative medicine: eCAM*, 2017, 9784271. <https://doi.org/10.1155/2017/9784271>

Yonata, A., & Pratama, A. S. P. (2016). Hipertensi sebagai Faktor Pencetus Terjadinya Stroke. *Jurnal Majority*, 5(3), 17-21.