



## THE COMBINATION OF DEEP BREATHING, ISOMETRICITY, AND RELIGIOUS PRAYER ON REDUCING BLOOD PRESSURE IN ELDERLY PARENTS WITH HYPERTENSION

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### ABSTRACT

Hypertension treatment therapy needs to be supported by non-pharmacological therapy because it has fewer side effects, one of which is exercise, but so far it has not been widely done by hypertension sufferers. The study was to analyze the effect of the combination of NADA ISME RELIGI (deep breathing, isometrics and religious prayers) on reducing blood pressure in elderly with hypertension. A quasi-experimental study with a pretest-posttest with a control group design was used in 66 elderly with hypertension recruited using purposive sampling. The research variables were the combination of NADA ISME RELIGI and blood pressure. Data analysis using paired sample t-test and independent t-test. The results of inferential testing showed that in the intervention group the pre and post-test values of blood pressure were  $p = 0.000$  ( $p < 0.05$ ), so it can be concluded that the combination intervention of RELIGIOUS NADA ISME has a significant effect on blood pressure in hypertension sufferers. The combination of RELIGIOUS NADA ISME (Deep Breathing, Isometric and Religious Prayer) can reduce blood pressure in the elderly with hypertension, as evidenced by the results of research in the intervention group showing a decrease in blood pressure.

Keywords: deep breathing; elderly; hypertension; isometric; prayer; religion

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## INTRODUCTION

Hypertension is often referred to as the silent killer because it does not show visible signs and symptoms and is a leading cause of death globally. If not treated promptly, it can lead to complications such as heart, brain, and kidney disease (Maulidina, et al., 2019). Hypertension therapy management has so far focused largely on pharmacological treatment, namely the use of drugs, but the use of drugs also has long-term side effects for sufferers (Andri et al., 2019). Based on the results of a national survey, the target success rate of hypertension treatment only reaches around 30-40%, the contributing factors being non-compliance with therapy, poor lifestyle including poor diet, physical activity, rest, and stress management (Andari et al., 2020; Andri, 2021). Pharmacological treatment that has been given should be supported by non-pharmacological therapy because non-pharmacological therapy has fewer side effects, one of which is exercise or sports activities, but so far it has not been widely practiced by hypertension sufferers.

According to the World Health Organization (WHO), the number of people with hypertension worldwide reached 1.28 billion in 2023, with 83.3% of them adults aged 30-79 years, with a prevalence rate of 33.4%. This means that 1 in 3 people worldwide will be diagnosed with hypertension. By 2025, 1.5 billion people will suffer from hypertension, and 10.44 million people will die annually from hypertension and its complications (Ministry of Health of the Republic of Indonesia, 2025). The global prevalence of hypertension in the elderly also continues to increase, reaching 29.2% in 2025. Data on hypertension in Indonesia in 2025 showed a figure of 34.1% in the adult population. The percentage of hypertension sufferers in younger age groups has increased significantly, with 4.5% among the 18-24 age group, 5.4% among the 25-34 age group, and 6.8%

among the 35-44 age group. Meanwhile, the prevalence of hypertension among the elderly in Indonesia is quite high, reaching 34.1%. Several risk factors for hypertension in the elderly include advanced age, an unhealthy lifestyle (such as lack of physical activity, an unhealthy diet, smoking, and alcohol consumption), and routine monitoring and use of antihypertensive medication. In 2025, life expectancy in Indonesia is expected to be 71.44 years, placing Indonesia in sixth place in the ASEAN region, indicating a lower life expectancy than other countries (Ministry of Health, 2025).

East Java Province has a hypertension prevalence of 34.5%. This figure indicates that hypertension in East Java Province is still above the national average. An estimated 472,618 people aged 15 years and older in East Java Province in 2019. By gender, the percentage of hypertension in women is 39.4%, higher than in men, at 35%. Meanwhile, the prevalence of hypertension in Tulungagung Regency reached 28,868 cases, with 43.72% of those suffering from hypertension being elderly (over 60 years old). This indicates a high number of elderly people with hypertension in Tulungagung Regency (Astutik et al., 2021). Based on interviews with hypertension sufferers, only 52 (23.5%) were actively involved in treatment, lifestyle changes, and interventions such as prayer and exercise to lower their blood pressure. A survey of five elderly hypertensive sufferers aged 60 and over attributed their hypertension to an unhealthy lifestyle and diet, and stated that they never participated in activities that could lower their blood pressure. They concluded that medication was the best way to lower their blood pressure.

The high number of hypertension cases, if not regularly treated, can worsen the disease and lead to complications such as stroke, heart disease, kidney failure, and even death (Susmadi, Sunita, and Mulyo, 2022). The number of complications leading to other diseases can increase the state's burden in terms of healthcare costs for chronic diseases, and the cost of treatment for patients' families also increases. The high number of hypertension cases requires alternative interventions to lower blood pressure, including non-pharmacological interventions. One therapy that can be applied to elderly people with hypertension is through non-pharmacological supportive therapy, namely regular physical exercise. Physical exercise, which is given with the principle of not being too strenuous, is carried out regularly and can have an impact on lowering blood pressure (Putri and Sumarni, 2021). Until now, not many elderly people have engaged in physical exercise due to factors such as fatigue, lack of motivation, and low levels of community activity. This has led to them tending to stay at home and laze around (Biggie Baffour-Awuah et al., 2023).

Previous research on deep breathing combined with prayer in elderly hypertensive patients for three days found a decrease in blood pressure, with systolic blood pressure decreasing by 11.53 mmHg and diastolic blood pressure decreasing by 9.58 mmHg. Similarly, research on the effect of isometric exercise twice a week for two weeks, for 30-45 minutes, also demonstrated a reduction in blood pressure and pulse rate (Butar, Gamayana, and Yemina, 2022; Susmadi, Sunita, and Mulyo, 2022). Furthermore, research on prayer, relaxation, and deep breathing has also shown a significant impact on lowering blood pressure in hypertensive patients (Dikson, Wida, and Mukin, 2021; Sani et al., 2024). The simple movements in isometric exercises focus on controlling the respiratory system, stimulating the release of endorphins and promoting relaxation. These hormones can function as a natural sedative produced by the brain, providing a sense of well-being and increasing endorphin levels in the body, reducing high blood pressure (Febriyanti, 2021).

The combination of these three interventions, which significantly reduced blood pressure, has led researchers to consider applying this therapy to older adults with hypertension. Treatment for hypertension involves medications that can have side effects (Andri et al., 2019). Therapy with fewer side effects is needed for hypertensive patients. One exercise that can control blood pressure is isometric exercises, which directly impact the contractility of the heart and blood vessels (Loaiza-Betancur et al., 2020; B Baffour-Awuah et al., 2023).

Deep breathing, isometric exercises, and religious prayer have all been shown to positively impact blood pressure. The mechanism of action involves modifying autonomic nervous system activity, structural and functional changes in blood vessels, and neuroendocrine modulation, which plays a role in blood pressure regulation. Integrating these three interventions can be an effective complementary approach in hypertension management, especially when used in conjunction with prescribed pharmacological therapy. This combination is not intended to replace current hypertension therapy, but is expected to promote a sense of comfort and relaxation. This aligns with Calista Roy's suggestion that the goal of nursing is to enhance adaptive responses through the six-step nursing process: behavioral assessment, stimulus assessment, nursing diagnosis, goal setting, intervention, and evaluation (Pardede, 2021).

Nursing interventions focus on managing environmental stimuli by changing, increasing, decreasing, removing, or maintaining these stimuli (Sinaga et al., 2022). Roy's adaptation model guides individuals to maintain and enhance adaptive behaviors to transform ineffective behaviors into effective ones (Rahayu et al., 2022). Through Roy's adaptation theory approach, through the given stimulus and through both regulatory and cognator processes, it is hoped that it can lower blood pressure. This study aimed to analyze the effect of the combination of NADA ISME RELIGI (deep breathing, isometrics, and religious prayer) on lowering blood pressure in elderly people with hypertension.

## **METHOD**

This research is a quasi-experimental study consisting of two stages. The first stage involved the development of research modules and media through literature review, interviews, and expert consultations. The second stage used a quasi-experimental study with a pretest-posttest control group design. The first phase of the research was conducted through literature studies, interviews, expert consultations, and module development. The second phase of the research was conducted on 66 elderly people with hypertension who were divided into intervention and control groups recruited using purposive sampling. The research variables were a combination of RELIGIOUS NADA ISME (deep breathing, isometrics, and religious prayer) and blood pressure. The instrument provided intervention in the form of SOPs in the form of Modules given for 15 minutes each time, 3 times a day, namely morning, afternoon, and evening for 3x24 hours and a sphygmomanometer. Data analysis used paired sample t-test and independent t-test. This research has received an ethical clearance certificate from the Health Research Ethics Committee with certificate number 116/KEPK/FVII/FIK/2025.

## **RESULT**

Based on the table 1, the age of the respondents in the intervention group was the same between 60-65 years and 66-70 years as much as 36.36%, in the control group the age of the respondents was 66-70 years as much as 42.42%. The education of the respondents in the intervention group was mostly high school or equivalent (36.36%) the same as the control group, namely high school or equivalent (27.27%). The occupation of respondents in the intervention and control groups was mostly unemployed. Both groups had the longest duration of being diagnosed with hypertension was 10 years or more, with the routine of the control group in carrying out medical check-ups being 39.39% while the intervention group was 36.36%. Based on the homogeneity statistical test, the p-value showed that all characteristics had no significant differences with a p-value >0.05 between the treatment and control groups. So the data for both groups was declared homogeneous.

Table 1.  
Characteristics of study participants (n=66)

Characteristics	Category	Intervention Group		Control Group		P-value
		n	%	n	%	
Age	60-65 year	12	36,36	11	33,33	0,112
	66-70 year	12	36,36	14	42,42	
	> 70 year	9	27,27	8	24,24	
Education	Bachelor	3	9,09	3	9,09	0,333
	Vocational	4	12,12	5	15,15	
	Senior high school	12	36,36	9	27,27	
	Junior high school	7	21,21	8	24,24	
	Elementary school	7	21,21	8	24,24	
Job	Civil servant	3	9,09	4	12,12	0,426
	Do not working	23	69,70	24	72,73	
	Entrepreneur	5	15,15	4	12,12	
	Privat employee	2	6,06	1	3,03	
Long of diagnostic	1-4 years	3	9,09	4	12,12	0,520
	5-9 years	5	15,15	9	27,27	
	10 years above	25	75,76	20	60,61	
Medical check up	Yes	13	39,39	12	36,36	0,946
	No	20	60,61	21	63,64	

Table 2  
Pre and Post Test Descripted Results (n=66)

Variable	Pretest			Post-test		
	Median	Minimu m	Maximu m	Median	Minimu m	Maximu m
Systolic Blood pressure						
Intervention	147,78	140	155	131,08	120	140
Control	147,27	140	159	146,73	140	158
Diastolic Blood pressure						
Intervention	95,08	90	99	80,81	70	90
Control	93,73	90	99	93,41	90	99

The pretest results for the control group showed a systolic blood pressure of 140 mmHg and a maximum of 159 mmHg. However, the posttest results showed no significant changes, with the lowest values being 140 mmHg and the highest being 158 mmHg. In the intervention group, which received the NADA ISME RELIGI combination, the lowest systolic blood pressure before the intervention was 140 mmHg and the highest was 155 mmHg. After the intervention, the lowest systolic blood pressure was 120 mmHg and the highest was 140 mmHg. The diastolic blood pressure measurements for the control group showed a pretest value of 90 mmHg and a maximum of 99 mmHg. The posttest results were similar, with no visible changes. However, in the intervention group given the combination of RELIGIOUS NADA ISME, it was shown that the pretest diastolic blood pressure, which initially had the lowest value of 90 mmHg and the highest of 99 mmHg, showed a decrease to the lowest value of 70 mmHg and the highest of 90 mmHg.

Table 3.  
The effect of RELIGIOUS NADA ISME to Blood Pressure (n = 66)

Variable	Intervention Group			Control Group		
	SD	Effect size	p	SD	Effect size	p
Pre and Post Test Systolic Blood Pressure	10,87	1,54	0,000	2,39	0,23	0,177
Pre and Post Test Diastolic Blood Pressure	5,57	2,56	0,000	3,88	0,08	0,614

The results of inferential testing using paired t-test analysis showed that the pre- and post-test values for systolic and diastolic blood pressure in the intervention group were  $p = 0.000$  ( $p < 0.05$ ), thus concluding that the NADA ISME RELIGI combination intervention had a significant effect on blood pressure in hypertensive patients. In the control group, which did not receive the intervention, the p value showed  $>0.05$ , indicating no significant reduction in blood pressure in hypertensive

patients. The results of the effect size calculation for systolic blood pressure before and after the intervention in the intervention group using the Cohen's method yielded  $d = 1.54$ , and for diastolic blood pressure,  $d = 2.56$ . This indicates a very large effect size for these variables. Based on the effect size calculation in the intervention group, it can be concluded that the NADA ISME RELIGI combination clinically has a significant effect on blood pressure in hypertensive patients. However, the control group showed a small  $d$  value.

Table 4.  
*Independent T-test* The effect of RELIGIOUS NADA ISME to Blood Pressure (n = 66)

Variable	Intervention Group			Control Group			P value
	Median	Minimum	Maximum	Median	Minimum	Maximum	
Pretest							
TD Systolic	147,78	140	155	146,73	140	159	0,725
TD Diastolic	95,08	90	99	93,73	90	99	0,728
Post-test							
TD Systolic	131,08	120	140	146,73	140	158	0,000
TD Diastolic	80,81	70	90	93,41	90	99	0,000

The results of the inter-group data testing showed that in the pre-test of the control group and the intervention group, the  $p$ -value showed  $>0.05$ , so it was concluded that there was no significant difference between the control and intervention groups in blood pressure values before the intervention. After the intervention, the results showed a significant change between the control and treatment groups in the post-test blood pressure results, as evidenced by a  $p$ -value  $<0.05$ .

## DISCUSSION

Research on the combined effect of non-pharmacological interventions consisting of Deep Breathing, Isometric Exercise, and Religious Prayer, combined under the NADA ISME RELIGI concept, has shown significant results in reducing blood pressure in elderly people with hypertension. The research findings discussed here primarily stem from several empirical studies integrating deep breathing relaxation techniques, isometric muscle contraction exercises, and spiritual or religious practices such as prayer, dhikr, and religious music therapy. One case study in Demak applied a combination of deep breathing exercise and religious music therapy to elderly people with hypertension for three days (Andrianto and Harsismanto, 2021). The results showed a significant reduction in blood pressure, from an average of 179/80 mmHg to 156/70 mmHg on the third day of the intervention. Similarly, research by Noor Fitriyani and Fakhrudin Nasrul Sani (2021) recorded a decrease in systolic blood pressure from 161.00 mmHg to 148.50 mmHg and a decrease in diastolic blood pressure from 99.00 mmHg to 89.50 mmHg after administering this combination therapy.

Furthermore, research involving isometric handgrip exercise and deep breathing therapy in elderly hypertensive patients also showed significant reductions in both systolic and diastolic blood pressure (Sani et al., 2024). This combination of techniques is believed to increase relaxation of vascular smooth muscle, optimize oxygenation, and activate the parasympathetic nervous system, which plays a role in blood pressure regulation (Calisanie and Santika, 2022). Another study evaluating the effects of religious music meditation therapy on elderly hypertensive patients at the Tambakselo village integrated health post (Posyandu) also showed a significant decrease in blood pressure with a  $p$ -value  $<0.05$ . This means that there is a significant effect of implementing religious-based meditation therapy in lowering blood pressure in an elderly population with hypertension (Ragayasa, Rahmawati, and Suprayitno, 2022). Furthermore, the combination of dhikr and deep breathing relaxation can lower blood pressure, as evidenced by a  $p$ -value of 0.002 ( $p < 0.05$ ), indicating that this intervention is effective as a complementary treatment for hypertension in the elderly (Awaludin et al., 2020; Kurniawati and Sari, 2024).

From these field findings, it can be concluded that the NADA ISME RELIGI combination has a significant effect in lowering blood pressure in elderly hypertensive patients, both physiologically (through harmonizing deep breathing relaxation and muscle training), and psychologically and spiritually (with prayer, dhikr, and religious music), which overall improves quality of life and reduces the risk of complications from hypertension. The theoretical basis for the effectiveness of the NADA ISME RELIGI combination in lowering blood pressure in elderly hypertensive patients lies in the integration of physiological, psychological, and spiritual mechanisms. Kanfer's Self-Regulation Theory supports the premise that individuals have the capacity to regulate their physical condition through behavioral interventions, where deep breathing techniques, isometric muscle training, and religious activities contribute to the body's autonomic regulatory processes such as blood pressure (Calisanie and Santika, 2022; Fecchio et al., 2023; Sutrisno, 2023). Deep breathing exercises are based on the physiological principles of deep breathing, where inspiration and expiration are carried out slowly and deeply down to the lower respiratory zone, increasing oxygen intake, improving pulmonary ventilation, and activating the parasympathetic nervous system (Susmadi, Sunita, and Mulyo, 2022). Activation of the parasympathetic system will cause a decrease in heart rate, vasodilation of blood vessels, and ultimately reduce peripheral resistance, which is the main cause of high blood pressure (Asyari et al., 2024). This has been confirmed through empirical research that proves the effectiveness of deep breathing relaxation in reducing blood pressure. Deep breathing relaxation therapy has been suggested as an effective and safe non-pharmacological therapy for elderly patients with hypertension (Butar, Gamayana and Yemina, 2022).

Isometric exercises, such as handgrip exercises, involve muscle contractions without changes in muscle length or joint movement, thus providing a mechanical stimulus to the circulatory system (B Baffour-Awuah et al., 2023). This exercise has been consistently shown to stimulate baroreceptor responses and improve endothelial function, as well as promote the release of nitric oxide (NO) in the vascular endothelium (Biggie Baffour-Awuah et al., 2023). NO acts as a natural vasodilator, relaxing vascular smooth muscle, reducing resistance to blood flow, and lowering pressure on arterial walls. Research on isometric handgrip exercises has shown lower blood pressure in the intervention group compared to the control group, strengthening the scientific basis for the benefits of this exercise for older adults with hypertension (Loaiza-Betancur et al., 2020).

Religious and spiritual aspects, such as dhikr (remembrance of God), prayer, religious music therapy, or listening to murottal (religious recitations), are equally important in contributing to the blood pressure reduction process (Dikson, Wida, and Mukin, 2021). Religious relaxation produces a sense of calm, reduces anxiety, increases a sense of peace, and activates the parasympathetic nervous system through neurohormonal activity (Ragayasa, Rahmawati, and Suprayitno, 2022). Prayer and dhikr, typically recited slowly and rhythmically, have been empirically shown to increase alpha wave activity in the brain, which is closely associated with a relaxed state and reduced psychological stress. High psychological stress has been shown to play a significant role in exacerbating hypertension in the elderly. Several publications have shown a significant association between religiosity/spirituality and a reduced risk of hypertension; those who engage in regular religious practices tend to have better-controlled blood pressure. Religious practice serves as an effective form of spiritual coping, reducing stress, anxiety, and even insomnia, and has the potential to increase commitment to healthy behaviors such as taking medication regularly and maintaining a healthy lifestyle (Awaludin et al., 2020; Kurniawati and Sari, 2024).

The integration of deep breathing, isometric exercises, and religious practices into a single intervention protocol (NADA ISME RELIGI) represents a holistic approach, in accordance with bio-psycho-social-spiritual principles in nursing and health. This integrated approach has been applied in several studies; for example, the combination of deep breathing and religious music therapy has been shown to be more effective than either intervention alone. Furthermore, research

combining deep breathing relaxation and dhikr (remembrance of God) also demonstrated a statistically and clinically significant reduction in blood pressure compared to a control group or a group receiving only one type of intervention. Another study examining the relationship between spirituality, religiosity, and blood pressure in elderly women found that high levels of religiosity also reduced the risk of hypertension through stress-reducing mechanisms.

Field research also demonstrated that almost all respondents felt better physically, psychologically, socially, and spiritually after regularly practicing religious practices and relaxation techniques. This confirms the effectiveness of a holistic approach, where the combination of physical and spiritual interventions forms a strong foundation for managing hypertension in the elderly, resulting not only in physiological effects such as lowering blood pressure but also in improving overall quality of life. Based on the facts and theories outlined, the researchers argue that the integration of the NADA ISME RELIGI intervention, which combines deep breathing techniques, isometric exercises, and religious spiritual practices such as dhikr or religious music therapy, is an innovative and applicable solution for managing hypertension in the elderly. This approach brings a new nuance to elderly health care, emphasizing not only medical aspects but also accommodating their psychological, social, and spiritual needs. The researchers recommend that all healthcare facilities, especially those serving the elderly population, begin to systematically adopt this holistic approach. Intervention programs should be designed with the availability of respiratory trainers, isometric fitness instructors, and spiritual companions who understand the needs of elderly patients. This activity can be implemented periodically, for example twice a week, under the supervision of health workers. The combined intervention can be carried out in groups at elderly health posts (posyandu), community health centers (Puskesmas), hospitals, or in community-based elderly communities. This not only lowers blood pressure but also serves as a vehicle for increasing social interaction, strengthening solidarity, and providing meaningful benefits in old age.

Furthermore, a spiritual and religious approach can improve adherence in the elderly to managing their chronic diseases, increase motivation for healthy living, and minimize the potential for anxiety, stress, and depression that often accompany chronic illness in old age. Researchers also recommend special training for healthcare workers on the implementation techniques of NADA ISME RELIGI, so they can provide appropriate education and supervision, and manage this program sustainably. The implementation of NADA ISME RELIGI should also be included in hypertension management guidelines for the elderly published by health institutions or departments, and promoted as a recognized and accessible complementary therapy for all levels of society. As a preventive and promotive measure, the integration of NADA ISME RELIGI can be promoted through various educational media, health seminars, and training of health cadres in the community. This way, community knowledge and skills related to hypertension management will not only focus on pharmacological management but also encompass integrated human, religious, and physiological dimensions. Finally, further research is needed to investigate the long-term effectiveness of this intervention and to evaluate the socio-psychological impact and quality of life of seniors who participate in this program on an ongoing basis. Mediation with religious institutions and community organizations can also broaden the program's reach and strengthen its sustainability. Researchers believe that the synergy of scientific and spiritual aspects in managing hypertension in the elderly will become a future trend, bringing multiple benefits to Indonesia's aging population.

## **CONCLUSION**

The combination of NADA ISME RELIGI (Deep Breathing, Isometric and Religious Prayer) reduces blood pressure in the elderly with hypertension, as evidenced by the results of research in the intervention group showing a significant decrease in both systolic and diastolic blood pressure, while in the control group the blood pressure values tend to be the same. The results of the study on the effect of the combination of NADA ISME RELIGI (Deep Breathing, Isometric and Religious Prayer) on reducing blood pressure in the elderly with hypertension are input for health workers,

especially nurses, to carry out complementary therapy and can also be used as a pharmacological support to reduce blood pressure.

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