



THE EFFECTIVENESS OF A COMBINATION OF MINDFULNESS MEDITATION AND SPIRITUAL CARE IN LOWERING BLOOD PRESSURE IN HYPERTENSION PATIENTS

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ABSTRACT

Hypertension is a global health problem known as a silent killer because it often presents without symptoms but can lead to serious complications such as stroke, kidney failure, and heart attack. In Pringsewu Regency, hypertension cases have continued to increase from 2021 to 2023, yet the coverage of healthcare services remains low. Non-pharmacological approaches such as mindfulness meditation and spiritual care have been proven to reduce blood pressure and improve the quality of life for individuals with hypertension. Objective to determine the effectiveness of a combination of mindfulness meditation and spiritual care in lowering blood pressure among individuals with hypertension in Pringsewu Regency. This study used a one-group pretest-posttest design. A total of 100 respondents were selected using purposive sampling based on the inclusion criteria. The intervention, consisting of a combination of mindfulness meditation and spiritual care, was administered during the period of June up to July 2025. Blood pressure was measured before and after the intervention and analyzed using the Paired Samples T-Test. The majority of respondents were female (55%), aged 36–55 years (44%). In terms of smoking history, most respondents were non-smokers (61%), and based on family history, most did not have a family history of hypertension (59%). The results of the Paired Samples T-Test showed a $p\text{-value} = 0.000$ ($p \leq 0.05$), indicating a significant difference in blood pressure before and after the intervention. The combination of mindfulness meditation and spiritual care is effective in lowering blood pressure among individuals with hypertension in Pringsewu Regency.

Keywords: blood pressure; hypertension; mindfulness meditation; spiritual care

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INTRODUCTION

Hypertension, or high blood pressure, is a significant health issue both nationally and globally (Riyada et al., 2024). It is defined as a systolic blood pressure ≥ 140 mmHg and/or diastolic pressure ≥ 90 mmHg based on at least two measurements. Hypertension is often referred to as a “silent killer” because it frequently presents without symptoms, yet it can lead to severe complications such as stroke, heart attack, and kidney failure (Ministry of Health of the Republic of Indonesia, 2024). According to the World Health Organization (WHO), hypertension is a major risk factor for heart disease and stroke, which are the two leading causes of premature death globally. It is estimated that around 1.28 billion people worldwide suffer from hypertension, but only 42% manage to control their blood pressure, with nearly two-thirds of cases occurring in developing countries such as Indonesia. Overall, hypertension is estimated to contribute to around 10 million deaths each year, both directly and indirectly, making it one of the leading causes of death globally (World Health Organization, 2023).

In Indonesia, based on the 2023 Indonesian Health Survey, there were 598,983 reported cases of hypertension. Nationally, West Java Province recorded the highest number with 107,290 cases, followed by East Java with 93,307 cases, and Central Java in third place with 82,117 cases. Meanwhile, Lampung Province reported 19,843 cases, making it the eighth highest province in

terms of hypertension cases nationwide (Ministry of Health of the Republic of Indonesia, 2023). In Pringsewu Regency, the number of hypertension cases has shown a significant upward trend over the past three years. In 2021, there were 77,503 cases, which increased to 78,352 in 2022, and rose again to 79,181 cases in 2023. However, in 2023, only 30,622 patients approximately 38.7% received healthcare services. The consistent increase in case numbers from year to year, along with the low healthcare coverage for hypertensive patients, indicates that hypertension remains a serious public health issue in Pringsewu Regency and requires special attention in both its prevention and management efforts (Pringsewu District Health Office, 2023).

Given the high suffer from of hypertension and its significant impact on public health, blood pressure control efforts are crucial. Various strategies have been implemented to address this issue, both through pharmacological and non-pharmacological therapies. One non-pharmacological approach that is increasingly being developed is the practice of meditation, such as mindfulness and spiritual care, which has been proven to help lower blood pressure while also improving the quality of life for individuals with hypertension. A study by Mir et al. (2024) showed that mindfulness interventions can serve as an early preventive and supportive measure for adults with high blood pressure, with significant results in reducing both systolic and diastolic blood pressure. Similar findings were reported in a study by Zhang et al. (2024), which found that mindfulness-based interventions not only reduced blood pressure but also alleviated symptoms of depression and improved self-efficacy in hypertensive patients experiencing anxiety. Another meta-analysis by Chen et al. (2024) also confirmed that mindfulness-based meditation practices effectively reduce both systolic and diastolic blood pressure in individuals with hypertension.

Spiritual care has also been shown to play an important role in managing hypertension. According to a study by Intarakamhang et al. (2020), spiritual interventions can reduce blood pressure by activating the parasympathetic nervous system and decreasing sympathetic nerve activity, thereby reducing stress hormones such as cortisol. Similarly, a study by Yanti et al. (2024) found that spiritual and religious-based interventions can promote relaxation, reduce stress, and improve the mental and physiological health of individuals with chronic illnesses, including hypertension. The combination of mindfulness meditation and spiritual care is believed to be an effective strategy because the two approaches complement each other. Mindfulness fosters calmness and full awareness to reduce stress and anxiety, while spiritual care, such as reciting *istighfar* (seeking forgiveness), promotes inner peace, strengthens the spiritual connection with God, and stimulates the release of positive hormones such as endorphins and serotonin. The combined effects of these therapies not only provide psychological calm but also contribute to stabilizing blood pressure through autonomic nervous system regulation. Based on this background, the present study focuses on the effectiveness of combining mindfulness meditation and spiritual care in reducing blood pressure among individuals with hypertension in Pringsewu Regency.

METHOD

This study employed a pre-experimental one-group pretest-posttest design, in which an intervention combining mindfulness meditation and spiritual care was administered to a single group without a control group for comparison. Blood pressure was measured before (pre-test) and after (post-test) the intervention to assess its effectiveness. The study was conducted in the working area of Pringsewu Public Health Center since June up to July 2025, with the population consisting of all individuals with hypertension residing in the area. The population of this study consisted of 134 hypertensive patients who met the inclusion criteria. By using the purposive sampling technique and the Slovin formula at an error rate of 5%, a sample of 100 respondents was obtained. The collected data were first tested for normality and then analyzed using the Paired Samples T-Test to determine the difference in mean blood pressure before and after the intervention.

RESULT

Table 1, the majority of respondents were female (55%). In terms of age distribution, most respondents were in the 36-55 age group (44%). Regarding smoking history, the majority were non-smokers (61%), and in terms of family history, most had no family history of hypertension (59%).

Table 1.
Characteristics of Respondents (n = 100)

Respondent Characteristics	Category	f	%
Gender	Male	45	45%
	Female	55	55%
Age	25–35 years	15	15%
	36–55 years	44	44%
	>55 years	41	41%
Smoking History	Smoker	39	39%
	Non-Smoker	61	61%
Family History	With Hypertension History	41	41%
	Without Hypertension History	59	59%

Table 2.
Effectiveness of the Combination of Mindfulness Meditation and Spiritual Care in Lowering Blood Pressure in Hypertensive Patients

Paired Samples Test				
	Paired Differences	t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference
				Lower
Pre-Systolic – Post-Systolic	10.71000	5.56739	0.55674	9.60531
Pre-Diastolic – Post-Diastolic	8.66000	4.26927	0.42693	7.81288

Source: Primary Data, 2025

Table 2 above, using the Paired Samples T-Test, the p-value for both systolic and diastolic blood pressure is 0.000 ($p \leq 0.05$). This indicates a significant difference between the blood pressure measurements before (pre-test) and after (post-test) the intervention in combining mindfulness meditation and spiritual care.

DISCUSSION

Based on the research findings, the prevalence of hypertension was found to be higher among women (55%) compared to men. This condition can be explained by hormonal factors, particularly the decline in estrogen levels after menopause. Estrogen has a protective effect on the cardiovascular system, such as maintaining blood vessel elasticity and helping regulate blood pressure. When this hormone decreases, the risk of hypertension in women significantly increases. This finding is consistent with a study by Sammulia et al. (2022), which showed that the prevalence of hypertension rises more sharply in postmenopausal women than in men in the same age group. Similarly, Nurshahab et al. (2022) stated that women are more prone to hypertension due to the influence of estrogen. Estrogen plays a vital role in blood pressure regulation, and its cessation due to aging directly impacts blood pressure increase in women. In addition to hormonal factors, lifestyle also plays a role. Most women tend to spend more time at home managing household tasks, while men are more active outside the home due to work. The lack of physical activity among women at home may increase the risk of hypertension (Mayefis et al., 2022).

Moreover, the age group 36–55 years was the most affected by hypertension. This age range represents a transitional phase into midlife, where body metabolism begins to decline, risk factor exposure accumulates, and occupational and social stressors become more dominant. Increased vascular stiffness with age is also a key physiological factor. A study by Pratiwi & Mutmainnah (2021) indicated that in older individuals, blood vessels tend to stiffen and lose elasticity, thereby

increasing peripheral resistance. Since blood pressure is influenced by cardiac output and peripheral resistance, any factor affecting either will impact blood pressure (Mayefis et al., 2022).

In addition, arterial walls thicken due to collagen buildup in the muscle layers, causing gradual narrowing and stiffening of the vessels. As age increases, arteries widen and stiffen, reducing their recoil capacity, which significantly elevates systolic pressure (Ningsi & Arofah, 2021). Aging also affects neurohormonal mechanisms such as the renin-angiotensin-aldosterone system (RAAS), which becomes impaired. Furthermore, increased plasma concentration, glomerulosclerosis, and interstitial fibrosis due to aging may lead to heightened vasoconstriction and vascular resistance. These conditions ultimately contribute to elevated blood pressure or hypertension (Nurshahab et al., 2022).

Lifestyle factors also contribute to hypertension risk, one of which is smoking. Smoking is known to damage blood vessel endothelium, increase oxidative stress, and activate the sympathetic nervous system, all of which elevate blood pressure (Sulistiyowati et al., 2025). A study by Rachmawati et al. (2023) emphasized that active smokers are at a higher risk of developing hypertension compared to non-smokers, and this risk increases with the duration of smoking. Mechanistically, nicotine in cigarettes is absorbed through the small blood vessels in the lungs and carried to the brain. The brain then signals the adrenal glands to release epinephrine (adrenaline), which causes blood vessels to constrict, making the heart work harder and increasing blood pressure. Additionally, carbon monoxide in cigarette smoke replaces oxygen in the blood, forcing the heart to pump harder to meet the oxygen demands of organs and tissues. This condition makes smokers significantly more prone to hypertension (Nurshahab et al., 2022).

Besides individual and lifestyle factors, family history of hypertension is also an important variable. Individuals with parents or close relatives who have a history of hypertension are more likely to develop the condition. This is influenced not only by genetic factors but also by shared family lifestyle patterns, such as high-sodium diets or low physical activity levels (Ningsi & Arofah, 2021). A study by Nurshahab et al. (2022) showed that a family history of hypertension can increase the risk by up to twofold compared to individuals without such a history. Genetic factors are associated with increased intracellular sodium levels and a lower potassium-to-sodium ratio. Individuals whose parents have hypertension are twice as likely to develop the condition compared to those without such a family history; in fact, 70-80% of essential hypertension cases are found in individuals with a family history of the condition. Thus, this study's findings indicate that the prevalence of hypertension is influenced by a combination of biological factors (such as gender and age), behavioral factors (such as smoking), and hereditary factors (family history). A comprehensive understanding of these factors is crucial for designing more effective prevention and control programs for hypertension, particularly among vulnerable groups such as middle-aged women, smokers, and individuals with a family history of hypertension.

The Effectiveness of the Combination of Mindfulness Meditation and Spiritual Care in Lowering Blood Pressure in Hypertensive Patients

The statistical test using the Paired Samples T-Test showed a p-value = 0.000 ($p \leq 0.05$), indicating that the combination of mindfulness meditation and spiritual care is effective in reducing blood pressure in hypertensive patients. This combination involves a technique that merges relaxation practices with religious elements such as sermons, *dhikr* (remembrance), and *sholawat* (praises), which physiologically affect the autonomic nervous system and hypothalamus, stimulating the release of endorphins as natural pain relievers, particularly useful for relieving neck pain, a common symptom of hypertension, as well as dopamine, the “happiness hormone,” both of which contribute to stabilizing blood pressure. This study aligns with the findings of Mu’afiro et al. (2024), who reported that mindfulness therapy significantly reduces sympathetic and parasympathetic nerve activity and suppresses cortisol hormone release. These effects reduce peripheral resistance, heart rate, and cardiac output, ultimately lowering systolic and diastolic blood pressure. Similarly, Geiger

et al. (2023) confirmed that mindfulness-based interventions (MBIs) are effective in lowering both systolic and diastolic blood pressure. Another study by Lee et al. (2020) found that mindfulness interventions improved endothelial function indicators such as flow-mediated dilation, reduced blood pressure, lowered anxiety and depression, and improved self-efficacy in hypertensive patients. In addition to lowering blood pressure, mindfulness has broader health benefits, such as reducing anxiety and depression, and lowering the risk of cardiovascular diseases, including coronary heart disease, stroke, heart failure (arrhythmia), and peripheral artery disease (Dewi & Fuaida, 2023). Mindfulness serves not only as a symptomatic intervention for hypertension but also as a promotive and preventive strategy to support long-term health and improve quality of life.

In addition to mindfulness, spiritual care plays an important role in lowering blood pressure. As a complementary therapy, especially through consistent practices of *istighfar* (seeking forgiveness), *dhikr*, and prayer, it has been shown to reduce anxiety, enhance hope and self-efficacy, and provide spiritual meaning that suppresses chronic stress responses. This mechanism reduces sympathetic nerve activity and cortisol levels, alleviates blood vessel constriction, and helps prevent fluid and sodium retention through effects on the RAAS system, leading to reductions in both systolic and diastolic blood pressure (Sopiah et al., 2024). A study by Adivtian Ragayasa et al. (2022) demonstrated that psycho-religious therapy based on *dhikr* significantly improves self-efficacy and lowers blood pressure. Similar findings were reported by Teixeira et al. (2025), who found that spiritual interventions in patients with stage I–II hypertension reduced systolic blood pressure by approximately 7.6 mmHg and improved endothelial function.

The combined implementation of mindfulness and spiritual care has been shown to complement one another and produce synergistic effects. Mindfulness reduces stress reactivity and improves autonomic nervous system regulation, while spiritual care fosters inner peace and strengthens the psychospiritual dimension. Spiritual interventions are known to lower blood pressure by activating the parasympathetic nervous system and suppressing sympathetic activity associated with increased blood pressure. Additionally, spiritual practices have been shown to promote relaxation, reduce stress, and improve both the mental and physiological health of individuals with hypertension. Therefore, combining these two interventions offers dual benefits: lowering blood pressure and enhancing the quality of life for hypertension patients. Given the evidence, mindfulness and spiritual care are worthy of consideration as safe, easily applicable, and holistically beneficial non-pharmacological strategies for hypertension management.

CONCLUSION

Based on the findings of this study, it can be concluded that the implementation of a combined mindfulness meditation and spiritual care intervention is effective in reducing blood pressure in individuals with hypertension. This intervention helps patients achieve calmness, reduce stress, enhance spiritual well-being, and lower sympathetic nervous activity and cortisol levels. It serves as a viable non-pharmacological alternative for managing hypertension.

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