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The Effect Of Balance Leaf Boiling On Changes In High Blood Pressure In Menopause Women

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ABSTRACT

Hypertension is a common health problem experienced by menopausal women due to decreasing estrogen levels, which affects cardiovascular function. One non-pharmacological therapy that can be used to help lower blood pressure is bay leaf decoction (Syzygium polyanthum). This study aims to determine the effect of bay leaf decoction on changes in high blood pressure in menopausal women at the Singosari Community Health Center. The study used a quantitative method with a quasi-experimental design using a one-group pretest-posttest design. The study sample consisted of 20 menopausal women with hypertension selected using a purposive sampling technique. Blood pressure measurements were taken before and after administration of bay leaf decoction. The data were analyzed using statistical tests with a significance level of $\alpha = 0.05$. The results showed changes in blood pressure after administration of bay leaf decoction. The statistical test results obtained a p-value of 0.000 ($p < 0.05$), indicating that bay leaf decoction has an effect on changes in high blood pressure in menopausal women. It was concluded that bay leaf decoction is effective as a non-pharmacological therapy in helping to lower blood pressure in menopausal women.

Keywords: Bay Leaves, Hypertension, Menopause, Blood Pressure.

INTRODUCTION

Menopause is a physiological process characterized by the permanent cessation of menstruation due to decreased ovarian function and estrogen production. This period generally occurs in women aged 45–55 years and is often accompanied by various physical and psychological changes, such as sleep disturbances, mood swings, weight gain, and an increased risk of cardiovascular disease, particularly hypertension. The decline in estrogen levels during menopause reduces the hormone's protective effect on the cardiovascular system, resulting in increased vascular resistance and blood pressure (Tirtanirmala et al.,

2024; Wahyudi et al., 2024). Therefore, menopausal women are among those vulnerable to high blood pressure and complications such as heart disease and stroke.

Hypertension remains a significant global health problem. The World Health Organization reports that more than 1.28 billion adults worldwide have hypertension, and nearly two-thirds of these live in low- and middle-income countries. In Indonesia, hypertension is a non-communicable disease with a steadily increasing prevalence and is a leading cause of death from cardiovascular disease. The risk of hypertension is known to increase in women after menopause due to hormonal changes (Hartono et al., 2025; Eryta, 2025). Several studies have shown that the prevalence of hypertension is higher in menopausal women than in premenopausal women due to reduced estrogen levels, which play a role in maintaining blood vessel elasticity and balancing blood pressure (Sumiati et al., 2026; Tirtanirmala et al., 2024).

Based on its severity, hypertension can be categorized as mild, moderate, and severe. Mild hypertension (Grade 1) is characterized by a systolic blood pressure of 140–159 mmHg and/or a diastolic blood pressure of 90–99 mmHg. At this stage, most sufferers do not yet show typical symptoms, but the risk of target organ damage increases if blood pressure is not promptly controlled (Unger et al., 2020; Williams et al., 2023).

Moderate hypertension (Grade 2) is characterized by systolic blood pressure of 160–179 mmHg and/or diastolic blood pressure of 100–109 mmHg. This condition increases the heart's workload and increases the risk of complications such as coronary heart disease, heart failure, stroke, and kidney dysfunction compared to mild hypertension (World Health Organization [WHO], 2023; Williams et al., 2023).

Severe hypertension (Grade 3) is characterized by systolic blood pressure ≥180 mmHg and/or diastolic blood pressure ≥110 mmHg. Severe hypertension requires immediate treatment because it can rapidly cause target organ damage, such as stroke, heart failure, hypertensive retinopathy, and kidney failure. The higher a person's blood pressure, the greater the risk of morbidity and mortality from cardiovascular disease (WHO, 2023; Hinkle & Cheever, 2022).

If not controlled, hypertension can cause serious complications such as stroke, coronary heart disease, kidney failure, and decreased quality of life (Hartono et al., 2025; Sumiati et al., 2026).

Hypertension can be managed through pharmacological and non-pharmacological therapies. Long-term use of antihypertensive drugs sometimes causes side effects, prompting people to utilize herbal-based complementary therapies. One plant widely used traditionally in Indonesia is the bay leaf (Syzygium polyanthum). Bay leaves are known to contain flavonoids, tannins, saponins, alkaloids, essential oils, and phenolic compounds that have the potential to provide antihypertensive effects through vasodilation, antioxidant activity, and inhibition of enzymes that play a role in increasing blood pressure (Tirtanirmala et al., 2024; Wahyudi et al., 2024). Several studies have shown that consuming boiled bay leaves can significantly lower systolic and diastolic blood pressure in hypertensive patients (Nurtanti & Sulistiyoningsih, 2022; Hana, 2023; Hartono et al., 2025).

Recent research conducted on menopausal women with hypertension also showed that bay leaf decoction therapy resulted in lowering blood pressure after regular administration. This effectiveness is thought to be related to the flavonoid content, which can increase blood vessel elasticity, reduce peripheral resistance, and improve endothelial function, thus improving blood pressure control (Sumiati et al., 2026; Eryta, 2025). Besides being readily available, inexpensive, and relatively safe to use, bay leaves are also a plant that has long been used by Indonesians as a traditional medicine.

Based on this description, the high incidence of hypertension in menopausal women and the potential of bay leaves as a non-pharmacological therapy provide an important basis for conducting research on the effect of boiled bay leaves on changes in high blood pressure in menopausal women. The results of this study are expected to provide a safe, easy-to-implement, and beneficial alternative therapy to help control blood pressure in menopausal women.

METHOD

This study used a quantitative research method with a Quasi-Experimental design using a One Group Pretest-Posttest Design approach. The study was conducted at the Singosari Community Health Center, Malang Regency. The population in this study were all menopausal women with hypertension who underwent health checks at the Singosari Community Health Center. The research sample consisted of 20 respondents selected

using a purposive sampling technique in accordance with the inclusion and exclusion criteria set by the researcher.

Data collection was carried out through observation and direct measurement of respondents' blood pressure.The collected data were analyzed univariately to describe the characteristics of the respondents and bivariately to determine the effect of boiled bay leaves on changes in blood pressure. The statistical test used was the Wilcoxon Signed Rank Test with a significance level of $\alpha = 0.05$.

RESULTS AND DISCUSSION

Univariate Analysis

Table 1. Frequency Distribution of Respondent Characteristics

Information	n	%
Mother's age		
45-50 years	5	25
51-55 years old	9	45
56-60 years	6	30
Mother's Education		
JUNIOR HIGH SCHOOL	6	30
SENIOR HIGH SCHOOL	13	65
PT	1	5
Mother's Job		
Housewife	15	75
Work	5	25
Parity		
Primipara	3	15
Multipara	16	80
Grandemultipara	1	5
Total	**20**	**100**

Based on the frequency distribution table of respondent characteristics, it is known that of the total of 20 respondents, the majority were in the 51–55 years age group (9 people) (45%), followed by the 56–60 years age group (6 people) (30%), and the 45–50 years age

group (5 people) (25%). This indicates that the majority of respondents were in the late menopause age range, namely 51–55 years.

Based on education level, the majority of respondents (13 respondents) had a high school education, followed by 6 respondents (30%) with a junior high school education, and 1 respondent (5%) with a tertiary education. This data indicates that the majority of respondents had a secondary education.

Based on occupation, the majority of respondents were housewives (15 respondents, 75%), while 5 respondents (25%) were employed. This indicates that the majority of menopausal women in this study did not have jobs outside the home.

Based on parity, the majority of respondents were multiparous (16 people) (80%), followed by primiparous (3 people) (15%), and grandemultiparous (1 person) (5%). These results indicate that most respondents had given birth more than once.

Overall, the characteristics of respondents in this study were dominated by menopausal women aged 51–55 years, with high school education, housewives, and a history of giving birth more than once (multiparous).

Bivariate Analysis

Table 2. Effect of Bay Leaf Decoction on Blood Pressure in Menopausal Women

		Posts				P-value
		normal	mild hypertension	moderate hypertension	Total	
Pretest	moderate hypertension	7	4	0	11	
	severe hypertension	0	6	3	9	
Total		7	10	3	20	0,000

Based on the results of the study on 20 respondents, it was found that before being given the bay leaf decoction intervention, 11 respondents (55%) experienced moderate hypertension and 9 respondents (45%) experienced severe hypertension. After being given the intervention, there was a change in the blood pressure category in the respondents. Of the 11 respondents who previously experienced moderate hypertension, 7 respondents (35%) experienced a decrease to the normal category and 4 respondents (20%)

experienced mild hypertension. Meanwhile, of the 9 respondents who previously experienced severe hypertension, 6 respondents (30%) experienced a decrease to mild hypertension and 3 respondents (15%) experienced moderate hypertension.

Overall, the posttest results showed that 7 respondents (35%) were in the normal category, 10 respondents (50%) were in the mild hypertension category, and only 3 respondents (15%) were still in the moderate hypertension category. No further respondents experienced severe hypertension after being given the bay leaf decoction.

The statistical test results obtained a p-value = 0.000 ($p < 0.05$), so H_0 was rejected and H_1 was accepted. This indicates that there is a significant effect of administering boiled bay leaves on changes in blood pressure in menopausal women at the Singosari Community Health Center. Thus, boiled bay leaves are proven to be effective in helping to lower blood pressure, as indicated by a shift in the blood pressure category from moderate hypertension and severe hypertension to mild hypertension and even normal after the intervention was given.

The results of the study showed that before the intervention, the majority of respondents were in the moderate hypertension category (55%) and severe hypertension (45%). After being given boiled bay leaves (Syzygium polyanthum), there was a significant improvement in blood pressure, namely 35% became normal, 50% became mild hypertension, and only 15% remained with moderate hypertension. The results of the statistical test showed a p-value = 0.000 ($p < 0.05$), which means there is a significant effect of giving boiled bay leaves on reducing blood pressure in menopausal women.

These changes in blood pressure align with the theory that postmenopausal women are at higher risk of hypertension due to decreased estrogen levels, which leads to decreased blood vessel elasticity and increased peripheral vascular resistance (Zhang et al., 2023; Yuliana & Rahmawati, 2024). This condition makes blood pressure more likely to rise and is difficult to control without appropriate intervention.

The reduction in blood pressure in this study is thought to be influenced by the active compounds in bay leaves, such as flavonoids, tannins, saponins, and essential oils. Flavonoids act as antioxidants that can reduce oxidative stress and improve blood vessel endothelial function, thereby promoting vasodilation and lowering blood pressure (Tirtanirmala et al., 2024; Wahyudi et al., 2024). Furthermore, flavonoids can inhibit

angiotensin converting enzyme (ACE), which plays a role in the mechanism of increased blood pressure (Roiyan et al., 2024).

The results of this study also align with previous studies showing that consuming boiled bay leaves can significantly lower systolic and diastolic blood pressure in people with hypertension (Purwono et al., 2024; Aji & Sani, 2021). Other studies have also shown that bay leaf extract has antihypertensive activity through a mild diuretic mechanism and increased sodium excretion, thus helping to reduce blood volume (Wahyudi et al., 2024; Darni et al., 2024).

Furthermore, the antioxidant effects of bay leaves play a significant role in lowering blood pressure. Oxidative stress is known to be a major factor in endothelial dysfunction in people with hypertension. The flavonoid compounds in bay leaves can ward off free radicals, thereby improving blood vessel function and reducing peripheral pressure (Anggitasari et al., 2023; Rissa, 2022).

In menopausal women, herbal therapy, such as bay leaf decoction, is an effective non-pharmacological alternative because it is safer, more readily available, and has fewer side effects than long-term drug therapy. This supports previous research suggesting that herbal therapy can be used as a complementary therapy in the management of mild to moderate hypertension (Haryanto et al., 2023; WHO, 2023).

Thus, the results of this study strengthen the scientific evidence that bay leaf decoction has a significant effect in lowering blood pressure in menopausal women through the mechanisms of vasodilation, diuretic effects, and antioxidant activity contained in its active compounds.

CONCLUSION AND SUGGESTIONS

Based on the research results, it can be concluded that there is a significant effect of administering boiled bay leaves (Syzygium polyanthum) on reducing blood pressure in menopausal women at the Singosari Community Health Center, Malang Regency, with a p-value of 0.000 ($p < 0.05$). After the intervention, there was a decrease in the blood pressure category from moderate and severe hypertension to mild and even normal hypertension.

Menopausal women with hypertension are advised to use bay leaf decoction as a complementary non-pharmacological therapy to help control blood pressure, in addition

to continuing medical treatment from a healthcare professional. Healthcare professionals are expected to provide education on the safe and appropriate use of herbal therapies as an alternative support for hypertension management.

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