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The Effect of Bay Leaf Decoction on Blood Pressure Reduction in Patients with Hypertension

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ABSTRACT

Hypertension affects approximately 1.28 billion people worldwide and remains a major contributor to morbidity and mortality, particularly in Indonesia. Conventional pharmacological management often leads to poor adherence, highlighting the need for complementary therapies. This study aimed to examine the effect of bay leaf (*Syzygium polyanthum*) decoction on reducing blood pressure in patients with hypertension in Cibeunying, Bandung. This quantitative study employed a quasi-experimental design. A total of 30 hypertensive patients were selected using a non-probability purposive sampling technique and divided into an intervention group and a control group. Blood pressure was measured using a digital sphygmomanometer following standard operating procedures. The intervention group received bay leaf decoction for five consecutive days. Before the intervention, 60.0% of participants in the intervention group were classified as having stage 1 hypertension. After the intervention, only 20.0% remained in stage 1 hypertension, while most participants shifted to the pre-hypertension category. Statistical analysis using the Marginal Homogeneity test showed a significant reduction in blood pressure ($p = 0.02$; $\alpha = 0.05$). The findings indicate that bay leaf decoction has a significant effect on lowering blood pressure in patients with hypertension. Therefore, bay leaf decoction may be considered as a complementary non-pharmacological therapy for blood pressure management.

Keywords: bay leaf, decoction, hypertension, quasi-experimental study

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INTRODUCTION

Hypertension is a major global health problem and a leading cause of cardiovascular morbidity and mortality worldwide (WHO, 2023). It is defined as a systolic blood pressure ≥140 mmHg and/or diastolic blood pressure ≥90 mmHg based on repeated measurements (Kemenkes RI, 2018). Due to its asymptomatic nature in early stages, hypertension is commonly referred to as the “silent killer.”

Globally, approximately 1.28 billion adults are affected by hypertension, with more than two-thirds living in low- and middle-income countries (WHO, 2023). In Indonesia, hypertension prevalence continues to rise, while awareness and treatment adherence remain low, increasing the risk of stroke, coronary heart disease, and renal failure (Fitriyatun & Putriningtyas, 2023).

Complementary therapies are increasingly explored to improve blood pressure control and treatment adherence. One such therapy is bay leaf (Syzygium polyanthum), which has

been traditionally used in Indonesia and contains bioactive compounds with antihypertensive, antioxidant, and diuretic effects (Tika, 2021; Rochmah et al., 2025).

Bay leaf decoction has been reported to improve vascular function, reduce fluid retention, and lower low-density lipoprotein (LDL) cholesterol, which may collectively contribute to blood pressure reduction (Muliyah et al., 2020). As a low-cost and easily prepared intervention, bay leaf decoction can be implemented independently at home.

Preliminary observations in RW 16, Cibeunying, revealed inconsistent visits to health centers and complaints of fatigue related to long-term antihypertensive medication use. Interviews with hypertensive patients indicated that bay leaf decoction had not previously been applied as an alternative therapy in this community (Aminullah & Septiany, 2024).

Therefore, this study aimed to evaluate the effect of bay leaf decoction on blood pressure reduction among patients with hypertension in Cibeunying, Bandung.

METHOD

This study employed a quantitative quasi-experimental design with a pretest–posttest approach involving an intervention group and a control group. The population consisted of patients diagnosed with hypertension living in RW 16, Cibeunying, Bandung. A total of 30 respondents were selected using purposive sampling. Baseline blood pressure was measured prior to the intervention. The intervention group received bay leaf decoction once daily for five consecutive days, while the control group received routine blood pressure monitoring without herbal intervention. Blood pressure was re-measured on the final day of observation. Data were analyzed using the Marginal Homogeneity test with a significance level of α = 0.05.

RESULTS

This study involving 30 respondents with hypertension in in Cibeunying Bandung. As follow:

1. Blood Pressure Before and After Bay Leaf Decoction in Neighborhood

Table 1: Frequency Distribution of Blood Pressure Images After and Before Giving Boiled Bay Leaves

	Before		After	
Blood Pressure	**Frequency**	**Percent**	**Frequency**	**Percent**
Pre-Hypertension	2	13,3	12	80,0%
Hypertension stage 1	9	60,0	3	20,0%
Hypertension stage 2	4	26,7	0	0%
Total	15	100,0%	15	100.0%

Based on those table 1, the results of the analysis regarding the description of the effect of boiled bay leaves before being given boiled bay leaves are that most of the 9 peapel (60%) experienced Stage 1 Hypertension, there are 4 peaple (26.7%) experienced Stage 2 Hypertension, and 2 peaple (13.3%) experienced Prehypertension. And after giving boiled bay leaves to hypertension sufferers, there were 12 people (80.0%), suffering from Pre-Hypertension, there were 3 people (20%) with Stage 1 Hypertension, and there was no Stage 2 Hypertension.

2. Blood Pressure Before and After Examination of the Variable Control

Table 2: Frequency Distribution of Blood Pressure for the Control Variable before and after giving Examination

	Before		After	
Blood Pressure	**Frequency**	**Percent**	**Frequency**	**Percent**
Pre-Hypertension	0	00,0%	3	20,0%
Hypertension Stage 1	4	26,7%	6	40,0%
Hypertension Stage 2	11	73,3%	6	40,0%
Total	15	100,0%	15	100,0%

Based on the table, the analysis results are obtained as in table 2 regarding the description of blood pressure before examination on the control variable of hypertension sufferers in in Cibeunying Bandung, Cibenying Kidul sub-district, Padasuka Health Center working area, namely there are 11 people (73.3%) with Stage 2 Hypertension, there are 4 people (26.7%) with Stage 1 Hypertension and no Pre-Hypertension. And blood pressure after examination on the control variable in Hypertension sufferers, namely there are 6 people (40.0%) with Stage 2 Hypertension, 6 people (40.0%) with Stage 1 Hypertension, and 3 people (20.0%) with Pre-Hypertension.

3. Determine the effect before and after administration of bay leaf decoction on reducing blood pressure in hypertensive patients.

Table 3. Results of the analysis of the effect of bay leaf decoction on reducing blood pressure in hypertensive patients.

Before	**After**			**Total**	**p**
	Pre-Hypertension	**HT Stage 1**	**HT Stage 2**		
Pre-Hypertension	4	0	0	4	
Hypertension stage 1	4	0	0	4	0,0002
Hypertension stage 2	1	5	1	7	
T o t a l	9	5	1	15	

Based on the data analysis results in Table 3, using analysis by marginal homogeneity test showed that there where p_{value} = 0,0002 less than 0,05, it means that the bay leaf decoction had a significant effect on lowering blood pressure intervention was statistically proven effective.

4. Effect of blood pressure reduction before and after examination in hypertension patients (variable control)

Table 4. Analysis results of blood pressure reduction before and after examination in hypertension patients as a control variable.

Before without bay leaf decoction	**After without bay leaf decoction**			**Total**	**p**
	Pre-Hypertension	**HT Stage 1**	**HT Stage 2**		
Pre-Hypertension	0	0	0	0	
Hypertension stage 1	3	1	0	4	0,0005
Hypertension stage 2	0	5	6	11	
T o t a l	3	6	6	15	

Based on the data analysis in the table 4, analysis by Marginal Homogeneity test results indicate that blood pressure monitoring had p_{value} = 0,0005 less than 0.05. a significant effect, it is it mean that the bay leaf decoction had a significant effect on lowering blood pressure intervention was statistically proven effective. but if comparated by the experiment bay leaf decoction, the experimental bay leaf decoction more effectiv for lowering blood pressure.

DISCUSSION

The findings of this study demonstrate that bay leaf (*Syzygium polyanthum*) decoction has a significant effect on reducing blood pressure in patients with hypertension. A clear shift in blood pressure categories was observed after the intervention, with most participants moving from stage 1 and stage 2 hypertension to the pre-hypertension category. This indicates that the intervention produced not only statistical significance but also clinically meaningful improvement in blood pressure control (Rhamadan et al., 2022).

The blood pressure reduction observed in this study may be explained by the pharmacological properties of bay leaves. Bay leaves contain bioactive compounds such as flavonoids, tannins, and essential oils, which have been shown to exert vasodilatory and diuretic effects. These mechanisms contribute to reduced peripheral vascular resistance and decreased intravascular fluid volume, both of which play a crucial role in lowering blood pressure (Tika, 2021; Rochmah et al., 2025). The diuretic effect, in particular, facilitates sodium and water excretion, thereby reducing cardiac workload and arterial pressure.

The results of this study are consistent with previous research demonstrating the antihypertensive effects of bay leaf decoction. Studies conducted in community and clinical settings have reported significant reductions in both systolic and diastolic blood pressure following regular consumption of bay leaf decoction over short intervention periods (Muliyah et al., 2020; Aminullah & Septiany, 2024). These findings support the use of bay leaf decoction as a complementary therapy, especially in populations with limited access to healthcare services or low adherence to long-term pharmacological treatment.

In the control group, a reduction in blood pressure was also observed after routine blood pressure monitoring. This phenomenon may be attributed to increased health awareness, behavioral modification, and improved self-care practices following regular monitoring, such as dietary regulation and physical activity. Similar findings have been reported in previous studies, where routine monitoring alone was associated with modest improvements in blood pressure levels (Sudja & Meirina, 2014). However, the magnitude of blood pressure reduction in the control group was smaller compared to the intervention group, indicating that bay leaf decoction provided an additional therapeutic benefit.

From a nursing perspective, the findings of this study align with self-care theory, which emphasizes patient empowerment and active participation in health management. The use of bay leaf decoction allows patients to engage in simple, low-cost, and culturally acceptable self-care practices at home. This approach may enhance treatment adherence and long-term blood pressure control, particularly among pre-elderly and elderly populations who often experience fatigue from lifelong medication use (Orem, as cited in Irdawati, 2010).

Despite the positive findings, this study has several limitations. The relatively small sample size limits the generalizability of the results, and the short duration of the intervention may not reflect the long-term effects of bay leaf decoction on blood pressure control. In addition, dietary intake, physical activity, and medication adherence were not strictly controlled, which may have influenced blood pressure outcomes. These limitations are consistent with those reported in similar quasi-experimental studies evaluating herbal interventions (Sugiyono, 2019).

Future research should employ randomized controlled trial designs with larger sample sizes and longer follow-up periods to confirm the effectiveness and safety of bay leaf decoction. Further studies should also explore optimal dosage, duration of intervention, and potential interactions between bay leaf decoction and antihypertensive medications to support evidence-based integration into clinical and community health practice (Rochmah et al., 2025).

CONCLUSION

Based on the discussion of the study entitled "The Effect of Bay Leaf Decoction on Lowering Blood Pressure in Pre-Elderly Hypertensive Patients in Neighborhood Association in Cibeunying Bandung, Cibeunying Kidul District," which was conducted from January to July 2025, there were 30 respondents, one in the intervention group and the other in the control group. The general objective of this study was to determine the effect of bay leaf decoction on lowering blood pressure in hypertensive patients in Neighborhood Association in Cibeunying Bandung.

1. Blood pressure before administering bay leaf decoction in hypertensive patients in Neighborhood Association in Cibeunying Bandung, was mostly Stage 2 Hypertension, namely 9 patients (60.0%).
2. Blood pressure after administering bay leaf decoction in hypertensive patients in Neighborhood Association in Cibeunying Bandung, decreased to pre-hypertension in 12 patients (80.0%).
3. The Marginal Homogeneity test results obtained a p-value of 0.0002 less than 0.05, indicating that the administration of boiled bay leaves has an effect on reducing blood pressure in hypertensive patients in in Cibeunying Bandung.
4. Blood pressure before the examination, as a control variable, in hypertensive patients in RW 16, Cibeunying Kidul District, was mostly Stage 2 Hypertension, namely 11 people (73.3%).
5. Blood pressure after the examination, as a control variable, in hypertensive patients in in Cibeunying Bandung, decreased to Stage 2 Hypertension, namely 4 people (40.0%).
6. The Marginal Homogeneity test results obtained a p-value of 0,0005 less than 0,05, indicating that there is an effect on reducing blood pressure in hypertensive patients in in Cibeunying Bandung.

RECOMMENDATION

The results of this study serve as a reference for additional literature, specifically regarding the effect of boiled bay leaves on lowering blood pressure in hypertension sufferers in in Cibeunying Bandung. It is also recommended that these results be used as a reference for community service by lecturers and students in efforts to reduce and prevent hypertension. It is hoped that future researchers can conduct research on the effect of boiled bay leaves on lowering blood pressure in hypertension sufferers, to add to the references and broaden readers' knowledge.

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