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The Effect Of Consumptionambon Banana On Blood Pressure And Pulse Rate In Menopausal Women At Karang Anyar Rt. 49, Tarakan City, North Kalimantan

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ABSTRACT
Hypertension is a non-communicable disease that often occurs in menopausal women due to hormonal changes and decreased blood vessel elasticity. One non-pharmacological therapy that can be used to help lower blood pressure is consuming Ambon bananas because they contain high levels of potassium and magnesium. This study aims to determine the effect of Ambon bananas on blood pressure and pulse in menopausal women with hypertension in Karang Anyar Village, RT. 49, Tarakan City, North Kalimantan. The study used a quasi-experimental design with a one-group pretest-posttest approach. The study population was 79 menopausal women with hypertension with a sample of 44 respondents selected using simple random sampling. Data were collected using blood pressure and pulse observation sheets, then analyzed using the Wilcoxon test. The results showed that before the intervention, most respondents had moderate blood pressure (84.1%), while after the intervention, most were in the normal category (70.5%). Pulse rates before the intervention were mostly normal (63.6%) and after the intervention increased to 91%. Statistical test results showed a significant difference in blood pressure of p=0.000 and pulse rate of p=0.046, indicating that Ambon bananas have an effect on blood pressure and pulse rate in menopausal women with hypertension. The potassium and magnesium content in Ambon bananas plays a role in helping vasodilate blood vessels and maintain stable heart function. Consuming Ambon bananas can be used as an alternative non-pharmacological therapy to help control hypertension in menopausal women.

Keywords: Ambon Banana, Blood Pressure, Hypertension, Menopause, Pulse

INTRODUCTION

Hypertension is a non-communicable disease that is a leading cause of morbidity and mortality worldwide. Hypertension is often referred to as a silent killer because many sufferers are unaware of their condition until serious complications such as stroke, coronary heart disease, kidney failure, and other blood vessel disorders develop. According to the World Health Organization (WHO), hypertension occurs when systolic blood pressure is ≥140 mmHg and diastolic blood pressure is ≥90 mmHg. The prevalence of hypertension continues to increase every year, especially in the elderly and postmenopausal women.(Gita Maringga and Yunia Sari 2020; Susanti and Usman n.d.).

Postmenopausal women have a higher risk of developing hypertension than women of reproductive age. This is due to a decrease in the hormone estrogen, which functions to protect the cardiovascular system and maintain blood vessel elasticity. This decrease in estrogen causes increased peripheral resistance, blood vessel stiffness, and disruption of the autonomic nervous system balance, resulting in unstable blood pressure and pulse. In addition to hormonal factors, hypertension is also influenced by age, family history, obesity, diet, excessive salt

consumption, lack of physical activity, stress, smoking, and alcohol consumption. (Coylewright, Reckelhoff, and Ouyang 2008; Wardani, Wulan, and Aisyah 2023).

WHO data from 2024 shows that more than 1.28 billion people worldwide aged 30–79 years have hypertension. In Indonesia, hypertension is a major health problem with a steadily increasing prevalence. According to data from the North Kalimantan Health Office in 2023, cases of hypertension in those aged 45 years and above have increased significantly, including in Tarakan City. A preliminary study in Karang Anyar Village, RT.49, Tarakan City, showed that many postmenopausal women still experience hypertension and are not yet optimally managing their blood pressure.

Hypertension can be managed pharmacologically or non-pharmacologically. Non-pharmacological therapy is a safe and easily implemented alternative, one of which is through consuming potassium-rich fruits. Ambon bananas are known to be high in potassium and magnesium and low in sodium. Potassium plays a role in helping lower blood pressure through vasodilation, reducing peripheral resistance, and inhibiting the renin-angiotensin system. Furthermore, potassium also helps maintain a stable heart rate. (Andriani and Marpaung 2025; Yanes and Reckelhoff 2011).

Several previous studies have shown that consuming Ambon bananas can help lower blood pressure in people with hypertension. However, research examining the effect of Ambon bananas on blood pressure and pulse rate simultaneously in menopausal women is limited. Therefore, this study was conducted to analyze the effect of Ambon bananas on blood pressure and pulse rate in menopausal women with hypertension in Karang Anyar Village, RT.49, Tarakan City, North Kalimantan.

METHODS

This study used a quasi-experimental design with a one-group pretest-posttest approach. The study was conducted in Karang Anyar Village, RT.49, Tarakan City, North Kalimantan in 2026. The study population was all 79 menopausal women with hypertension.

The sampling technique used was simple random sampling, with a sample size of 44 respondents. Inclusion criteria included postmenopausal women with hypertension, willingness to participate, and ability to participate in the entire study. Respondents were given an intervention in the form of consuming Ambon bananas, as per the study's standard operating procedures.

The independent variable in this study was the administration of Ambon bananas, while the dependent variables were blood pressure and pulse rate. Data collection was conducted using blood pressure and pulse observation sheets before and after the intervention. Blood pressure was measured using a sphygmomanometer and pulse rate using a stopwatch.

Data analysis was performed using the Wilcoxon test because the data were not normally distributed. This study adhered to ethical aspects of research, including informed consent, anonymity, and confidentiality.

RESULT

Respondent Characteristics

Table 1. Frequency Distribution of Respondent Characteristics in Karang Anyar Village RT.49, Tarakan City, North Kalimantan.

Characteristics	Frequency(f)	Percentage(%)
Age		
< 50 years	15	34,1
≥ 50 years	29	65,9
Total	44	100

Last education		
Elementary school	4	9,1
JUNIOR HIGH SCHOOL	8	18,2
Senior High School	22	50
University	10	22,7
Total	44	100
Family History of Hypertension		
Yes	30	68,2
No	14	31,8
Total	44	100

Table 1 shows that the majority of respondents were in the 56–65 age range (26 respondents (59.1%). The majority of respondents had junior high school education (15 respondents (34.1%), and the majority of respondents had a family history of hypertension (29 respondents (65.9%).

Special Data

Table 2. Distribution of Blood Pressure and Pulse Frequency Before and After Ambon Banana Intervention

Characteristics	Before Intervention		After Intervention	
	Frequency(f)	Percentage(%)	Frequency(f)	Percentage(%)
Normal (<120/80 mmHg)	0	0	31	70,5
Pre-hypertension (120-139/80-90 mmHg)	37	84,1	10	22,7
Hypertension (≥140/90 mmHg)	7	15,9	3	6,8
Total	44	100	44	100
Brachiardi (<60)	4	9,1	2	4,5
Normal (60-100)	28	63,6	40	91
Tachycardia (>100)	12	27,3	2	4,5
Total	44	100	44	100

Based on table 2, it shows that before the intervention was given, the majority of respondents experienced moderate blood pressure, as many as 37 respondents (84.1%), while after the intervention, the majority experienced normal blood pressure, as many as 31 respondents (70.5%).

In the pulse variable, before the intervention was given, the majority of respondents had a normal pulse rate, as many as 28 respondents (63.6%), whereas after the intervention was given, it increased to 40 respondents (91%).

Statistical Test Results

The Wilcoxon test showed a significance value of p=0.000 (<0.05) for blood pressure, indicating that Ambon bananas had an effect on blood pressure in menopausal women with hypertension. The pulse rate test showed a p=0.046 (<0.05), indicating that Ambon bananas had an effect on the respondents' pulse rate.

DISCUSSION

The study results showed that before the intervention, most respondents had moderate hypertension. This condition is influenced by physiological changes during menopause, particularly the decrease in estrogen, which causes reduced blood vessel elasticity and increased peripheral resistance. Additionally, age, lifestyle, stress, and a family history of hypertension also contribute to increased blood pressure.

After receiving an intervention involving Ambon banana consumption, blood pressure decreased in the majority of respondents. These results indicate that Ambon bananas are beneficial in helping control blood pressure in menopausal women. The potassium content in Ambon bananas works by increasing sodium and water excretion through the kidneys, thereby helping to reduce blood volume and blood vessel resistance. Potassium also aids in vasodilation, improving blood flow (Desnilasari and Lestari 2014).

In addition to affecting blood pressure, consuming Ambon bananas also affected the respondents' pulse rates. Pulse rates became more stable after the intervention. The magnesium and potassium in Ambon bananas help maintain the body's electrolyte balance and support heart muscle function, resulting in a more regular heartbeat.

The results of this study align with those of Yulianti, Prameswari, and Wahyuningrum (2019), which showed that consuming Ambon bananas reduced blood pressure in elderly people with hypertension. Another study by Khairari, Nurlaili, and Aupia (2021) also found significant changes in blood pressure after consuming Ambon bananas in elderly people with hypertension.

The advantage of this study over previous studies is that it not only measured changes in blood pressure but also assessed changes in pulse rate in menopausal women with hypertension. This provides a more comprehensive picture of the physiological effects of Ambon bananas on the cardiovascular system.

This study has several limitations, including the lack of a control group and limited control over external factors such as diet, physical activity, and stress levels of the respondents during the study. Therefore, future research is expected to use a more robust design with a control group and a larger sample size.

CONCLUSION

Ambon banana supplementation has been shown to lower blood pressure and stabilize pulse rates in menopausal women with hypertension in Karang Anyar Village, RT.49, Tarakan City, North Kalimantan. Before the intervention, most respondents had moderate hypertension, while after the intervention, the majority of their blood pressure was in the normal range. Statistical tests showed a significant effect of Ambon banana supplementation on blood pressure and pulse rates.

The potassium and magnesium content in Ambon bananas plays a role in helping maintain blood pressure and heart function. Ambon bananas can be used as an alternative non-pharmacological therapy that is easily implemented by the public, especially menopausal women with hypertension. Future research is expected to use a more robust experimental design and consider other factors that influence blood pressure.

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