

PREVENT HEART DISEASE FROM AN EARLY STAGE: EDUCATION ON THE USE OF ANTIHYPERTENSIVE MEDICATION AND HEALTHY LIFESTYLE PRACTICES

Nadiya Nurul Afifah *, Reinaldo Pradama, Siaw Yi Ping, Fadhila Auliya Putri

¹Department of Pharmacy, Faculty of Health Sciences, Universitas Esa Unggul
Jl. Arjuna Utara No. 9, Tol Tomang, Kebon Jeruk, West Jakarta 11510, Indonesia
Email: nadiya.nurul@esaunggul.ac.id

Abstract

Hypertension is a major risk factor for cardiovascular disease, with a prevalence that continues to increase. Efforts to control hypertension do not rely solely on pharmacological therapy but also require improved public knowledge and behavioral changes. This community service activity aimed to evaluate blood pressure profiles and community knowledge levels before and after educational interventions regarding the use of antihypertensive medications and healthy lifestyle practices. The method involved health education sessions accompanied by blood pressure measurements and assessment of knowledge levels using questionnaires. The results showed variations in participants' blood pressure, with 31% remaining in the hypertensive category. In addition, participants' knowledge scores increased by 54% after the educational intervention. This activity is expected to enhance community awareness and understanding of hypertension prevention and control in Block A.8, Jl. Perumahan Kebon Jeruk Baru No. 29 Block A3, RT 5/RW 8, Kebon Jeruk District, West Jakarta, Indonesia.

Keywords: Hypertension, Health Education, Blood Pressure, Community Knowledge, Community Service

INTRODUCTION

Hypertension is one of the major public health problems that remains a leading cause of increased morbidity and mortality due to cardiovascular diseases, such as coronary heart disease and stroke. The World Health Organization (WHO) has reported that hypertension contributes significantly to the global burden of disease and is a major risk factor for premature death worldwide. The high prevalence of hypertension is often exacerbated by low public awareness of individual blood pressure status, resulting in many cases being diagnosed at a late stage. This condition underscores the need for strong preventive and promotive approaches through community health education (WHO, 2021; WHO,2023).

In Indonesia, hypertension remains a major health challenge, particularly among adults and the elderly population. The Ministry of Health of the Republic of Indonesia has emphasized that hypertension control is still suboptimal due to low levels of public knowledge, poor adherence to treatment, and unhealthy lifestyle behaviors. High salt intake, low levels of

physical activity, smoking habits, and stress are dominant factors contributing to increased blood pressure. Various reports indicate that community-based interventions, particularly health education programs, play an important role in improving public awareness and understanding of hypertension prevention and control (Farah *et al.*, 2024), (Kemenkes, 2021).

In addition to lifestyle factors, adherence to antihypertensive medication is a crucial aspect of blood pressure control. Many patients discontinue medication when symptoms subside or take antihypertensive drugs only when they perceive an increase in blood pressure, which may lead to long-term complications. Recent studies have shown that appropriate education regarding treatment goals, medication timing, and potential side effects can improve patient adherence and help maintain controlled blood pressure levels. Therefore, the role of healthcare professionals and academics in providing accurate and easily understood education is essential to reduce the incidence of hypertension-related complications (Alfian *et al.*, 2025; American Heart Association, 2023).

This community service activity was conducted in Block A.8, Jl. Perumahan Kebon Jeruk Baru No. 29, Block A3, RT 5/RW 8, Kebon Jeruk Subdistrict, West Jakarta, Special Capital Region of Jakarta 11530, Indonesia. The implementation of this activity was part of the Tri Dharma of Higher Education in commemoration of the 8th Anniversary (Dies Natalis) of the Pharmacy Study Program, Esa Unggul University. The activity was carried out under the theme “*Prevent Heart Disease from an Early Stage: Education on the Use of Antihypertensive Medication and Healthy Lifestyle Practices*”, with a focus on improving community knowledge and early detection through blood pressure screening. The evaluation of the program’s effectiveness was based on participants’ blood pressure profiles and changes in knowledge levels measured using pre-test and post-test assessments. This activity is expected to contribute to promotive and preventive efforts to reduce the risk of cardiovascular disease in the community (Kemenkes, 2021; World Health Organization, 2023).

RESEARCH OBJECTIVES

This study aims to enhance efforts in preventing heart disease through education on the use of antihypertensive medication and the adoption of healthy lifestyle practices within the community. Specifically, the objectives of this study are as follows:

1. To provide education to the local community regarding hypertension, the rational use of antihypertensive medications, and the importance of adopting healthy lifestyle practices as an effort to prevent heart disease.
2. To evaluate community blood pressure levels as an early screening measure to identify the occurrence of hypertension.
3. To assess community adherence to antihypertensive medication use before and after the educational intervention in order to evaluate the effectiveness of the educational program

IMPLEMENTATION METHOD

The community service activity was conducted on July 2, 2025, at RPTRA Jeruk Manis, West Jakarta, targeting members of PKK, dasawisma, posbindu, and local residents. A total of 35 participants took part in the activity.

The methods of the activity included:

1. Health education, covering three main topics: the pathophysiology of hypertension and heart disease, healthy lifestyle practices for hypertension prevention, and education on the proper use of antihypertensive medications.
2. Blood pressure measurement, conducted using a sphygmomanometer to obtain participants' systolic and diastolic blood pressure data.
3. Knowledge evaluation, carried out through pre-test and post-test questionnaires consisting of five questions related to normal blood pressure values, the use of antihypertensive medications, the objectives of hypertension therapy, medication timing, and potential side effects of antihypertensive drugs.

Blood pressure data were analyzed descriptively. Participants' knowledge levels were also analyzed descriptively by comparing pre-test and post-test results to identify improvements in understanding following the educational intervention.

RESULTS

This results section presents the main findings of the community service activity, including participants' blood pressure profiles and the evaluation of knowledge levels before and after the educational intervention. The results are presented descriptively to provide an overview of the health status of the target community and to assess the effectiveness of the educational intervention.

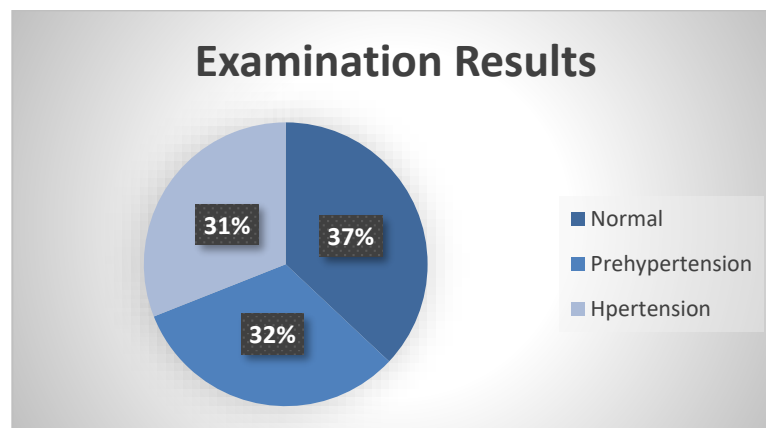


Figure 1. Blood Pressure Measurement Results

A total of 35 participants took part in the blood pressure examination. The measurement results showed that participants' systolic blood pressure ranged from 75 to 190 mmHg, while diastolic blood pressure ranged from 70 to 115 mmHg. The majority of participants were classified as having normal to prehypertensive blood pressure levels; however, several

participants were found to have blood pressure values $\geq 140/90$ mmHg, which fall into the hypertension category.

These findings indicate that although a portion of the community has blood pressure within normal limits, the risk of hypertension remains relatively high in the target population. This condition highlights the importance of early detection and the need for continuous interventions through health education and regular blood pressure monitoring.

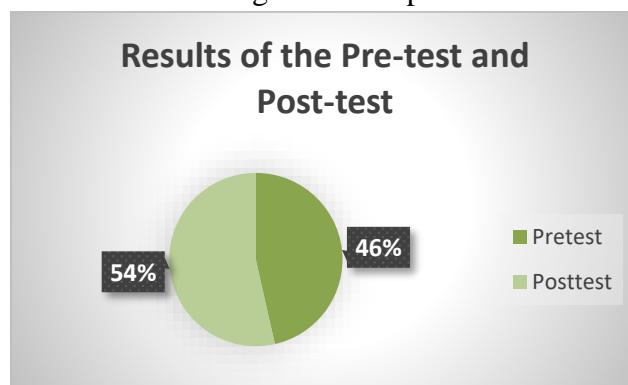


Figure 2. Percentage of Correct Responses in the Pre-Test and Post-Test

The evaluation of knowledge levels was conducted to assess participants' understanding of hypertension, the use of antihypertensive medications, and the adoption of healthy lifestyle practices before and after the educational activity. The assessment was carried out using pre-test and post-test instruments consisting of five main questions. The evaluation results indicated an improvement in participants' understanding following the educational intervention. During the pre-test phase, some participants demonstrated limited or inaccurate understanding of normal blood pressure values, the objectives of hypertension therapy, and the timing and proper use of antihypertensive medications. After the health education sessions and interactive discussions, the post-test results showed an increase in the number of correct responses for nearly all questions.

Furthermore, the final assessment administered at the end of the activity reinforced these findings, with the majority of participants able to answer the questions correctly, particularly those related to the relationship between hypertension and heart disease, the importance of physical activity, reduced salt intake, and adherence to medication use. These results indicate that the educational activity had a positive impact on improving community knowledge.

DISCUSSION

The results of this community service activity indicate that hypertension remains a concern among the target population, although some participants had blood pressure levels within the normal to prehypertensive range. The wide variation in blood pressure values, including the presence of participants with blood pressure $\geq 140/90$ mmHg, suggests that the risk of cardiovascular disease remains substantial and requires serious attention. This finding is consistent with national and global reports indicating that hypertension is often undetected at an early stage and is frequently identified only after direct blood pressure measurements are conducted within the community. Therefore, simple screening activities such as blood pressure measurement in community service programs play a strategic role in early detection and the prevention of further complications (Syahrizal *et al.*, 2025).

In addition to physiological factors, the results of this activity also emphasize that hypertension is closely related to behavioral and knowledge aspects within the community. During the initial evaluation, some participants demonstrated inadequate understanding of normal blood pressure values, the objectives of hypertension therapy, and the proper use of antihypertensive medications. This reflects the existence of health information gaps at the community level, particularly regarding chronic diseases that require long-term therapy. Such limited understanding may lead to poor medication adherence, inappropriate medication use, and failure to achieve optimal blood pressure control (Jekris Ens Laturmas *et al.*, 2025)

The improvement in participants' knowledge following the educational intervention indicates that community-based educational approaches are effective in enhancing public understanding of hypertension. Educational activities delivered directly, supported by interactive discussions and real-life examples, facilitated participants' comprehension of medical information. These findings support previous studies suggesting that increased knowledge plays an important role in shaping health attitudes and behaviors, including medication adherence and the adoption of healthy lifestyle practices. Thus, education serves not only as a means of information transfer but also as an effort to empower communities to manage their health independently (Ayu *et al.*, 2025).

Despite the observed improvement in knowledge, changes in health behavior could not be directly measured in this activity due to limitations in time and study design. Increased knowledge does not necessarily result in immediate or sustained behavioral changes, such as consistent medication adherence, reduced salt intake, or increased physical activity. Therefore, follow-up efforts in the form of continuous education, assistance, and periodic monitoring are necessary to ensure that improvements in knowledge are translated into sustainable behavioral changes with tangible health impacts.

CONCLUSION

Based on the implementation of the community service activity through education on the use of antihypertensive medications and the adoption of healthy lifestyle practices, the following conclusions can be drawn:

1. The evaluation results demonstrated an increase in post-test scores following the structured educational intervention on the pathophysiology of hypertension and pharmacotherapy. This improvement reflects an increased level of community understanding in identifying hypertension risk factors, comprehending the general mechanisms of action of antihypertensive medications, and recognizing the importance of adherence to therapy.
2. Clinical risk identification: Direct blood pressure measurements successfully identified significant clinical variations among participants, including several cases of stage 2 hypertension (systolic >160 mmHg) that require immediate medical intervention. These findings emphasize the importance of routine screening at the community level.
3. Effectiveness of preventive education: Educational materials on lifestyle modification, including low-sodium diets and the use of natural ingredients with anticoagulant properties, were well received by participants. This indicates that community-based educational approaches are effective in promoting preventive awareness of cardiovascular disease complications.

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