



Community Service Report

Utilization of Family Medicinal Plants (TOGA) for Hypertension Prevention in Bontopanno Hamlet

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ABSTRACT

Hypertension is a non-communicable disease whose prevalence continues to increase and remains a major risk factor for cardiovascular diseases such as stroke and coronary heart disease. Limited public knowledge regarding risk factors and preventive measures constitutes a significant barrier to hypertension control efforts. This study aimed to evaluate the effectiveness of an educational intervention in improving community knowledge regarding the utilization of family medicinal plants (*Tanaman Obat Keluarga* / TOGA) as an alternative approach to hypertension prevention. The intervention employed lectures, pamphlets, and group discussions and involved 31 respondents. The results demonstrated a significant increase in participants' knowledge regarding hypertension prevention through TOGA utilization following the intervention, with a p-value of 0.000. These findings highlight the important role of health education in strengthening non-communicable disease prevention efforts and improving overall community health status.

1. Introduction

Hypertension is one of the most prevalent non-communicable diseases (NCDs) worldwide and represents a leading cause of morbidity and mortality. According to the World Health Organization (WHO, 2023), the global number of individuals living with hypertension increased from 650 million in 1990 to 1.3 billion in 2019. Nearly one in three adults globally is affected by hypertension, which contributes to approximately 10.8 million deaths annually due to cardiovascular complications such as stroke, kidney failure, and coronary heart disease. These data indicate that hypertension remains a major public health challenge, including in Indonesia.

In Indonesia, the 2023 Indonesian Health Survey (*Survei Kesehatan Indonesia / SKI*) reported a hypertension prevalence of 30.8% among individuals aged ≥ 18 years. Although this figure reflects a slight decrease compared to earlier reports (34.1%), it remains relatively high, indicating that hypertension prevention and control efforts—particularly at the community level—still require strengthening. One of the primary contributors to the high prevalence of hypertension in Indonesia is limited public awareness and knowledge regarding risk factors and preventive strategies. Many individuals lack adequate understanding of the importance of healthy dietary patterns, regular physical activity, and stress management in preventing hypertension.

Conversely, Indonesia possesses abundant natural resources in the form of traditional medicinal plants that have long been utilized within community-based health practices. Family Medicinal Plants (TOGA) represent a valuable local resource that can be leveraged for promotive and preventive health efforts, including hypertension prevention. Several plants—such as celery (*Apium graveolens*), bay leaf (*Syzygium polyanthum*), bilimbi (*Averrhoa bilimbi*), and garlic (*Allium sativum*)—have been shown to exert antihypertensive effects through natural diuretic properties and vasodilation mechanisms. A study by Widyarani and Kustanti (2024) demonstrated that community training on TOGA utilization, particularly celery, significantly improved knowledge related to hypertension control and encouraged the adoption of traditional remedies at the household level.

However, in rural areas such as Bontopanno Hamlet, Parangloe District, Gowa Regency, TOGA utilization has not yet been optimized. Preliminary field observations indicated that most residents remain reliant on conventional medical treatment and possess limited knowledge regarding the use of family medicinal plants for hypertension prevention. This situation reflects a gap between the availability of local health resources and community knowledge. Effective utilization of TOGA could provide a cost-effective, safe, and culturally appropriate preventive solution.

In response to this issue, the present study was conducted to address the identified gap through a health education intervention focusing on TOGA utilization for hypertension prevention. Health education approaches are considered effective in enhancing community knowledge and awareness regarding NCD prevention through healthy behaviors (Ningrum, 2023). Moreover, this initiative aligns with the Indonesian Ministry of Health's vision to strengthen community-based promotive and preventive strategies for NCD control at the village level.

2. Method

This study employed a quantitative pre-experimental design using a one-group pre-test and post-test approach to evaluate the effectiveness of an educational intervention on TOGA utilization in improving knowledge related to hypertension prevention. The activity was conducted in October 2025 in Bontopanno Hamlet, Belabori Village, Parangloe District, Gowa Regency, involving 31 respondents who voluntarily participated throughout the program.

The educational intervention was implemented in several structured stages. Initially, a pre-test was administered to assess baseline knowledge regarding hypertension and family medicinal plants. This was followed by an educational session delivered through lectures supported by PowerPoint presentations and pamphlets. Group discussions were then conducted to reinforce key messages and encourage active participant engagement.

At the end of the session, respondents completed a post-test questionnaire to assess changes in knowledge levels. Data were analyzed using paired statistical tests to compare pre-test and post-test scores. A p-value of <0.05 was considered statistically significant, and the results were presented descriptively and in tabular form to illustrate intervention effectiveness.

3. Results & Discussion

The hypertension prevention education program utilizing family medicinal plants was conducted in October 2025 in Bontopanno Hamlet, Belabori Village, Parangloe District, Gowa Regency, and involved 31 respondents. The activity began with the administration of a pre-test questionnaire, followed by the educational intervention and discussion session. Educational materials covered the definition of hypertension, causes, preventive measures, and the utilization of family medicinal plants. A post-test questionnaire was administered at the conclusion of the session to evaluate changes in knowledge levels.

Tabel 1. *Distribusi perbedaan tingkat pengetahuan responden*

Tingkat Pengetahuan	Minimal	Maximal	Mean	P-value
Pre-test	13	21	17.13	0.000
Post-test	18	22	21.20	

Source: Data Primer, 2025

Table 1 indicates an increase in the mean knowledge score from pre-test to post-test following the educational intervention, with a p-value <0.05 . This finding suggests that the educational activity significantly improved community knowledge regarding TOGA utilization for hypertension prevention.

Health education serves as a means of delivering health-related messages to communities or target groups based on their specific health issues (Iyong et al., 2020). Through educational interventions, changes in knowledge can be measured by comparing conditions before and after the intervention.

The utilization of family medicinal plants represents a form of traditional medicine recognized as part of primary health care systems. Hypertension is a degenerative disease characterized by systolic blood pressure exceeding 140 mmHg and diastolic pressure exceeding 90 mmHg. Traditional remedies derived from TOGA are considered relatively safe for hypertension management; however, individuals experiencing acute hypertension with complications are advised to seek regular medical treatment and professional consultation (Haikal & Harum, 2024).

The findings of this study are consistent with those of Ruslin et al. (2024), who reported that TOGA utilization constitutes an effective community-based intervention for lowering blood pressure and enhancing public awareness regarding healthy lifestyles. The significant improvement in post-intervention knowledge indicates that educational activities have a tangible impact on community understanding and behavior related to NCD prevention, particularly hypertension.

Health education is also a fundamental component of health promotion aimed at shaping values, attitudes, and healthy habits that enhance community health status. In the context of

hypertension prevention, educational programs serve as channels for disseminating information on risk factors such as high salt intake, smoking, stress, and physical inactivity. The integration of practical demonstrations of TOGA utilization renders the intervention not only educational but also applicable, enabling participants to implement acquired knowledge in daily life.

Family medicinal plants offer multiple benefits in supporting hypertension prevention. Plants such as celery (*Apium graveolens*), bilimbi (*Averrhoa bilimbi*), and cat's whiskers (*Orthosiphon aristatus*) contain bioactive compounds, including flavonoids, saponins, and potassium, which function as natural diuretics and contribute to blood pressure reduction (Gayatri & Aرسال, 2022). Previous studies have demonstrated that regular consumption of boiled celery leaves can reduce systolic blood pressure by approximately 10–15 mmHg among individuals with mild hypertension (Rahmawati et al., 2021), supporting the scientific basis for TOGA utilization as a complementary therapy.

In addition to improving knowledge, education on TOGA utilization fosters community self-reliance in health maintenance. Gayatri and Aرسال (2022) reported that TOGA training activities in Lanna Village, Gowa Regency, enhanced residents' abilities to identify, cultivate, and process medicinal plants for hypertension prevention. Such initiatives align with government strategies to promote a healthy paradigm through the development of safe and beneficial traditional health services.

Overall, the findings of this study confirm that health education on hypertension prevention through family medicinal plants exerts a positive impact on community knowledge and awareness. This education-based intervention is expected to be sustainably implemented through community health centers, elderly integrated health posts (*posyandu lansia*), and other community activities to reduce hypertension incidence and improve quality of life. Nevertheless, TOGA utilization should be complemented by regular blood pressure monitoring and medical consultation to prevent adverse effects or undesirable drug interactions.

4. Conclusion

The implementation of hypertension prevention education using family medicinal plants enabled residents of Bontopanno Hamlet, Belabori Village, Gowa Regency, to recognize non-pharmacological approaches to hypertension prevention through TOGA utilization. Evaluation results indicated an increase in participants' knowledge scores following the educational intervention. These findings demonstrate that participatory health education represents an effective strategy for modifying perceptions and enhancing community capacity for independent health management.

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