



Community Service Report

The Use of Household Medicinal Plants (TOGA) for the Prevention of Hypertension in Bontopanno Hamlet

Abd Majid HR Lagu*¹

¹ Department of Public Health, Faculty of Medical and Health Science, Universitas Islam Negeri Alauddin Makassar

* Corresponding Author: abd.majid@uin-alauddin.ac.id

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ABSTRACT

Hypertension is a non-communicable disease with a steadily increasing prevalence worldwide and constitutes a major risk factor for cardiovascular diseases, including stroke and coronary heart disease. Insufficient public knowledge regarding risk factors and preventive strategies remains a significant barrier to effective hypertension control. This study aimed to assess the effectiveness of a health education intervention in improving community knowledge regarding the use of family medicinal plants (Tanaman Obat Keluarga [TOGA]) as an alternative preventive approach for hypertension. The intervention was conducted using lectures, printed educational materials (pamphlets), and group discussions, involving a total of 31 respondents. The results demonstrated a statistically significant improvement in participants' knowledge of hypertension prevention through the utilization of TOGA following the educational intervention ($p < 0.000$). These findings underscore the crucial role of structured health education in strengthening non-communicable disease prevention efforts and enhancing community health outcomes.

1. Introduction

Hypertension is a non-communicable disease (NCD) with a continually increasing global prevalence, making it a leading cause of morbidity and mortality worldwide. According to the World Health Organization (WHO, 2023), the number of people with hypertension increased from 650 million in 1990 to 1.3 billion in 2019. Nearly one in three adults globally suffers from hypertension, and the disease is responsible for approximately 10.8 million deaths annually due to cardiovascular complications such as stroke, kidney failure, and coronary heart disease (WHO, 2023). This condition indicates that hypertension remains a major challenge for public health systems in various countries, including Indonesia.

In Indonesia, the results of the 2023 Indonesian Health Survey (Survei Kesehatan Indonesia/SKI) showed that the prevalence of hypertension among the population aged ≥ 18 years was 30.8%. This marks a slight decrease compared to previous figures (various sources recorded 34.1% in earlier data). This data emphasizes that despite the decline, the rate remains relatively high and indicates that efforts to prevent and control hypertension still need to be strengthened, especially at the community level. One of the main factors contributing to the high prevalence of hypertension in Indonesia is the low level of public awareness and knowledge regarding its risk factors and prevention methods. Many people have yet to understand the importance of a healthy diet, regular physical activity, and stress management in preventing hypertension.

On the other hand, Indonesia possesses a wealth of natural resources in the form of traditional medicinal plants that have long been used in the community's healthcare system. Family Medicinal Plants (Tanaman Obat Keluarga or TOGA) represent a local potential that can be utilized for promotive and preventive efforts against hypertension. Several plants, such as celery (*Apium graveolens*), Indonesian bay leaf (*Syzygium polyanthum*), bilimbi (*Averrhoa bilimbi*), and garlic (*Allium sativum*), are known to have blood pressure-lowering effects through natural diuretic mechanisms and blood vessel vasodilation. A study conducted by Widyarani & Kustanti (2024) demonstrated that training on the use of TOGA, particularly celery, can improve public knowledge about hypertension control and encourage the application of traditional medicine practices in households (Widyarani & Kustanti, 2024).

However, in several rural areas, such as Dusun Bontopanno, Parangloe Subdistrict, Gowa Regency, the utilization of TOGA has not been optimal. Based on preliminary field observations, the majority of the community still relies on medical treatments and lacks sufficient knowledge regarding the utilization of family medicinal plants for hypertension prevention. This condition highlights a gap between the potential utilization of local resources and the community's level of knowledge. In fact, if the community can properly utilize family medicinal plants, it could serve as a preventive solution that is affordable, safe, and suited to the local context.

In response to this issue, this study was conducted to address the gap through a health education approach regarding the use of TOGA as an effort to prevent hypertension. The educational approach is considered effective because it can increase community knowledge and awareness of the importance of preventing non-communicable diseases through healthy lifestyle behaviors (Ningrum, 2023). Furthermore, this activity aligns with the vision of the Indonesian Ministry of Health in strengthening community-based promotive and preventive efforts, particularly in the control of non-communicable diseases at the village level.

2. Method

This study employed a quantitative pre-experimental design using a One-Group Pretest-Posttest approach to evaluate the effectiveness of a health education intervention on the utilization of Family Medicinal Plants (*Tanaman Obat Keluarga* or TOGA) regarding the level of knowledge about hypertension prevention. This research was conducted in October 2025 in Dusun Bontopanno,

Belabori Village, Parangloe Subdistrict, Gowa Regency, involving 31 respondents who voluntarily and actively participated in the entire process (Figure 1).



Figure 1. *Community involvement in intervention activities*

The educational intervention was carried out through several structured stages, beginning with the administration of a pre-test to assess baseline knowledge regarding hypertension and family medicinal plants. Subsequently, the educational intervention was delivered through a lecture method utilizing PowerPoint presentations and pamphlets. This was followed by a discussion session aimed at reinforcing key messages and encouraging the active participation of the attendees.

At the end of the session, the participants completed a post-test questionnaire to evaluate changes in their knowledge levels. The data were analyzed using a paired statistical test to compare the 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 demonstrate the effectiveness of the intervention.

3. Results & Discussion

The health education activity on hypertension prevention utilizing Family Medicinal Plants (Tanaman Obat Keluarga or TOGA) was conducted in October 2025 in Dusun Bontopanno, Belabori Village, Parangloe Subdistrict, Gowa Regency, involving 31 respondents. This activity began with the completion of a pre-test questionnaire, followed by an educational intervention and a discussion. The educational materials covered the definition, causes, prevention methods, and the utilization of family medicinal plants. At the end of the session, participants were given a post-test questionnaire to assess changes in their knowledge levels following the intervention.

Table 1 shows that the participants' average pre-test and post-test scores increased after the health education was conducted, with a p-value of <0.05 . Therefore, it can be concluded that the

health education activity had a significant effect on improving community knowledge regarding the utilization of TOGA for hypertension prevention.

Table 1. *Distribution of Differences in Respondents' Knowledge Levels*

Level of Knowledge	Minimal	Maximal	Mean	P-value
Pre-test	13	21	17.13	0.000
Post-test	18	22	21.20	

Health education is conducted to convey health messages to the community or target groups in accordance with the health issues they face (Iyong et al., 2020). Through health education, information is provided, and community knowledge regarding health issues can be assessed by measuring it before and after the intervention is delivered.

The utilization of family medicinal plants (TOGA) is a traditional medicinal effort recognized as a primary healthcare system for the community. Hypertension is a frequently occurring degenerative disease characterized by an increase in systolic blood pressure of more than 140 mmHg and diastolic blood pressure of more than 90 mmHg. The use of traditional medicine from TOGA is considered safer for managing hypertension, although in cases of acute hypertension with complications, routine medical treatment and consultation with healthcare professionals are highly recommended (Haikal & Harum, 2024).

These findings align with the study by Ruslin et al. (2024), which explained that the utilization of family medicinal plants can serve as an effective community-based intervention to lower blood pressure and increase public awareness of the importance of a healthy lifestyle. The increase in community knowledge post-education demonstrates that such educational activities have a tangible impact on understanding and behavior in preventing non-communicable diseases, particularly hypertension. Furthermore, the statistical analysis using a paired sample t-test showed a significant difference between the average scores before and after the intervention, with a p-value of <0.05, indicating that the health education was effective in improving community knowledge about hypertension.

Health education is also a crucial part of health promotion aimed at changing community behavior towards healthier practices. It is an effort to instill healthy values, attitudes, and habits that can elevate the community's health status. In the context of hypertension prevention, health education serves as a medium for conveying information about risk factors such as high-salt diets, smoking habits, stress, and physical inactivity. Combining health education with hands-on practice regarding the utilization of family medicinal plants makes the activity not only educational but also applicable, enabling the community to apply the acquired knowledge in their daily lives.

Family medicinal plants (TOGA) offer various benefits that can support hypertension prevention. Several types of plants, such as celery leaves (*Apium graveolens*), bilimbi (*Averrhoa bilimbi*), and cat's whiskers (*Orthosiphon aristatus*), are known to contain active compounds like flavonoids, saponins, and potassium, which act as natural diuretics and help lower blood pressure (Gayatri & Aarsal, 2022). Other studies indicate that the routine consumption of boiled celery leaves

can reduce systolic blood pressure by an average of 10–15 mmHg in individuals with mild hypertension (Rahmawati et al., 2021). This demonstrates that the utilization of TOGA as a complementary therapy has a scientific basis and can be used as a supportive alternative to medical treatment.

In addition to increasing knowledge, health education on the utilization of family medicinal plants can foster community awareness regarding the importance of self-reliance in maintaining health. According to a study by Gayatri & Aarsal (2022), TOGA training and educational activities in Lanna Village, Gowa Regency, successfully improved residents' understanding of identifying and caring for medicinal plants, as well as processing them into simple concoctions for hypertension prevention. Efforts like this align with the government's strategy to strengthen the "healthy paradigm" through the development of safe and beneficial traditional health services.

Thus, the results of this study confirm that health education on hypertension prevention using family medicinal plants has a positive impact on increasing community knowledge and awareness. This education-based intervention is expected to be implemented sustainably through Community Health Center (Puskesmas) programs, elderly integrated healthcare posts (Posyandu Lansia), and other community activities to reduce the incidence of hypertension and improve the community's quality of life. Nevertheless, the utilization of family medicinal plants must still be balanced with routine blood pressure checks and medical consultations to avoid unwanted side effects or drug interactions.

4. Conclusion

Conclusions and suggestions consist of 1-2 paragraphs without bullets, containing 200-500 words. The conclusion must indicate the results that answer the researcher's question. The contribution of findings to public health. The suggestions or inputs are given to several parties aimed at the regional/central government or the institution where the research is conducted or recommendations for other researchers.

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