

Education on the use of herbal medicine against Hypertension with Joyoboyo Health Community, Kediri

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ABSTRACT

Hypertension (high blood pressure) is a major global health concern. According to the National Health Profile (Riskesmas), it was reported that 450.126 cases occurred in Indonesia (2022), with 38.204 confirmed in Kediri Regency (2023), where hypertension has become the most common non-communicable condition in East Java, which was detected in the aged 15 years old. Generally, people still consume conventional medicine to lower their blood pressure. Contrarily, herbal medicine, often regarded as a complementary or alternative option. Thus, educational strategies for integrating herbal medicine into hypertension management are needed. In Kediri, the Joyoboyo health community plays an important role in spreading awareness about hypertension. During the community service activity, 61 Joyoboyo health cadre volunteers participated in these educational sessions to help them share accurate information with the wider community. These sessions covered topics such as correct dosage, possible interactions with prescription drugs, and the importance of evidence-based herbal use for treatment. These points were reinforced through discussion and supported by analyzing the recent clinical research. A statistical evaluation was conducted to assess the program's effectiveness. Overall, the results of this activity underline the need for a multidisciplinary approach combining traditional and scientific knowledge to optimize the management of hypertension.

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1. INTRODUCTION

In Kediri, the Joyoboyo health community, cadres from the health center (Puskesmas) located in Sukorame, Kediri City, East Java, play an essential role in educating the public in preventing non-communicable diseases like hypertension and promoting healthy living practices within the community, including herbal medicines. The cadres are primarily women aged 35–60 years, actively involved in community health programs. Despite their proactive engagement, these cadres often lack access to structured training and scientifically validated knowledge, particularly concerning hypertension management and the safe use of traditional or herbal medicine, which is widely practiced but often misunderstood in their community.

Hypertension, or high blood pressure, has become an emerging global health concern that often leads to serious complications such as stroke, kidney failure, and cardiovascular diseases (Fuchs & Whelton, 2020; Kario et al., 2024). Hypertension is quite common in Indonesia, as reflected in the national health profile (Riskesdas), which shows that many Indonesians have experienced this condition (Dinas Kesehatan Provinsi Jawa Timur, 2022). Unfortunately, most cases go undiagnosed or untreated, further escalating the risks. The prevalence of hypertension continues to rise, driven by shifts in lifestyle and demographic factors. In East Java, hypertension has become the most common non-communicable disease based on the Riskesdas data (Dinas Kesehatan Provinsi Jawa Timur, 2022). Specifically in Kediri, it has been reported that approximately 450.126 confirmed cases occurred in 2022, and 38.204 cases were detected among individuals as young as 15 in 2023, indicating an alarming rise in youth hypertension. Moreover, hypertension also becomes a burden, which leads to low productivity in the Kediri social economy (Utari & Rochmah, 2019). Meanwhile, conventional antihypertensive medications are widely used worldwide to manage the condition, herbal remedies are gaining attention as potential alternatives (Salm et al., 2023; Yuan et al., 2016). Traditional medicine, including herbal medicine, has long been a part of Indonesian culture, but it has not been widely incorporated into contemporary healthcare systems, particularly in the treatment of hypertension (Badan BPOM, 2020). People only hear about traditional or herbal medicine from their ancestors, when it hasn't been scientifically proven (Elfahmi et al., 2014). In addition, most people prefer to consume them directly, not in the traditional way. Hence, this raises significant safety concerns, especially given the potential for adverse interactions between traditional therapies and the lack of awareness about proper dosages and indications. Thus, education on its research and validation should be socialized to the people. This will teach people to select and manage which traditional medicines are suitable for their symptoms.

To address this issue, our collaborative research teams with the Joyoboyo cadres, Sukorame Health Center, arranged a day workshop for socialization and education on how herbal medicine is used for hypertension treatment. This workshop includes education on Hypertension treatment using herbal medicine regarding proper dosages, potential interactions with conventional treatments, and the importance of evidence-based practices based on scientifically proven research regarding traditional or herbal medicines (Bhatt et al., 2021; Kamyab et al., 2020; Salm et al., 2023), and the Ministry of Health pocketbook (Kementerian Kesehatan Republik Indonesia, 2015; Kementerian Kesehatan Republik Indonesia, 2021). This workshop was followed by about 90 Joyoboyo cadres of various ages, enough to be educated on the use of herbal medicine to treat hypertension. Presentations and open discussions were arranged, resulting in the educated Joyoboyo cadres on hypertension treatment. We aim to address the growing demand for alternative hypertension treatments by exploring the role of herbal medicine and its integration into modern healthcare. The intervention aimed to equip Joyoboyo cadres with accurate knowledge, enabling them to serve as reliable health educators and advocates in the broader community.

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This workshop focused on the safe and effective use of herbal medicine for hypertension, which is supported by a growing body of scientific research demonstrating its measurable health benefits. Several studies have shown that specific herbal treatments in hypertension, such as *Hibiscus sabdariffa* (Jalalyazdi et al., 2019), chayote (Apriyani et al., 2020), green tea (Peng et al., 2014), and garlic (Ried, 2019), can significantly reduce systolic and diastolic blood pressure when administered correctly. In addition, we emphasize that integrating community health education into non-communicable disease management has proven effective. For example, Megayanti et al. (2025) demonstrated cadre-led health programs with interprofessional education and collaboration, Kusrinanti et al. (2024) who provides a variety of extracurricular activities based on elderly health, and Yunanto et al. (2024) with agronursing in rural communities to hypertension prevention. These findings validate the potential of our activities to deliver significant and quantifiable improvements in hypertension awareness and control through targeted education of community health cadres, specifically in Kediri within the Joyoboyo community.

In summary, this activity is expected to improve the knowledge and proper use of herbal medicine for hypertension among Joyoboyo cadres, as demonstrated by the results of pre- and post-training evaluations. These quantitative measures will serve as benchmarks to assess the effectiveness of the program in improving health outcomes and strengthening the cadres' role as educators and influencers within their communities. By combining evidence-based research with traditional practices, this initiative aims to advance the integration of traditional medicine into hypertension management in Indonesia.

2. METHODS

The community service activity programs were conducted as a day workshop. This community service activity involved delivering materials and conducting discussions related to herbal medicines for hypertension treatment. The program was carried out in the house of one of the Joyoboyo cadres, on 25 July 2024 in Kediri City, following the invitation of the Sukorame Health Center. All activities were attended by 90 Joyoboyo cadres as the target, 2 representatives from Sukorame Health Center, and 8 people from collaborative teams of the National Research and Innovation Agency (BRIN), IIK Bhakti Wiyata Kediri, and Pancasila University. In general, we delivered materials using the lecture method to provide education regarding the herbal medicine for hypertension treatments, considering the scientific validation and clinical perspective. Every lecture was conducted in a single session, lasting about 20 minutes each for each speaker from BRIN, University of Pancasila, and IIK Bhakti Wiyata Kediri, respectively. The lectures include the introduction of the program and team, followed by details related to hypertension in general, technical aspects of hypertension treatment with herbal medicine, technical aspects of hypertension risk diagnosis, and types of herbal medicine that can be used. After the lecture session, we conducted a discussion session so that the cadres could improve their knowledge. In short, the program started at about 9:00 am and finished at noon. Before the activity started, the Joyoboyo cadres were given a pre-test, and then a post-test after the session to assess the effectiveness of this community activity program.

In the implementation of this activity program, the cadres' understanding was then evaluated using variable measures statistically based on pre- and post-test questionnaires. The target knowledge was categorized into weak, middle, and good regarding their answers on the questionnaires. The *Mann-Whitney U* test was used to evaluate the success of this activity. We note that only the completed pre- and post-test questionnaires were considered. Here, we outline the stages of the activity program that can be seen in Table 1. We followed the Planning, Organizing, Actuating, and Controlling (POAC) method to conduct the program activity. The implementation of the main program activity is in the actuating and controlling stage.

Introduction: Pre-test

The introduction started with opening remarks from the host and BRIN representatives. Before the workshop began, our team delivered a questionnaire (pre-test) through Google Forms to measure community knowledge regarding traditional or herbal medicines in hypertension treatment. This pre-test was then shared with Joyoboyo cadres to fill in at least ten minutes before the program started. In addition, the details of the questionnaires can be accessed at <https://forms.gle/UiDsnKMM27F1K7sz9>.

Table 1. Stages of activity implementation

Stages of Community Service Activities		
1st Activity	Planning	Time
Activity	<ul style="list-style-type: none"> - Coordination with all teams from BRIN, IIK Bhakti Wiyata Kediri, PDPOTJI - Coordination with the community leaders and Sukorame Health Center, Kediri, regarding the education of herbal medicine in hypertension treatment 	June 2024 First week of July 2024
Objective	Identifying the research target and challenges, and knowing the knowledge level of Joyoboyo cadres in terms of herbal medicine for hypertension.	
2nd Activity	Organizing	
Activity	<ul style="list-style-type: none"> - Discussion with a doctor of herbal medicine regarding hypertension - Technical meeting - Preparing the questionnaire - Testing the questionnaire - Evaluation 	June - 2 nd week of July 2024
Objective	To make sure the community service is well-prepared.	
3rd Activity	Actuating	
Activity	Implementation of the program: Pre-test questionnaire, education, and learning session regarding herbal medicine on hypertension treatments.	25 July 2024
Objective	Deliver materials to the Joyoboyo cadres regarding herbal medicine for hypertension treatment.	
4th Activity	Controlling/Evaluation	
Activity	Discussion (Question and answer) and post-test questionnaire after the education session.	25 July 2024
Objective	Knowing the knowledge level of the community target (Joyoboyo cadres) regarding hypertension treatment using herbal medicine.	

Education and Socialization

In this stage, there are several approaches used for education and socialization, such: (1) Clinical Approach. The clinical perspective was delivered as a glimpse of knowledge regarding hypertension, including the definition in general, characteristics, genetics-related, how to diagnose, and the risk of hypertension (Kementerian Kesehatan Republik Indonesia, n.d.); (2) Scientific approach. The scientific approach was delivered to educate the cadres that we need to understand the importance of scientific validation to ensure the efficacy and safety of herbal medicines, including the dosage, production, method of use, and side effects; (3) Q&A. After the presentations, we have a Q&A session with the audience. During discussion time, we explained the answers to the pre-test questions along with counseling to the

cadres regarding family medicinal plants (*Tanaman Obat Keluarga*–TOGA) as the basic herbal medicines for hypertension treatments that should be cultivated in a home garden (Atmojo & Darumurti, 2021; Handayani et al., 2022).

Controlling/Evaluation: Post-test

The evaluation method was a post-test questionnaire through Google Forms regarding the workshop program to assess whether there was an improvement in knowledge among Joyoboyo cadres regarding hypertension treatments using herbal medicines, how the service was communicated during the program activity, and the future work. The data obtained will be processed using the IBM SPSS Version 27 statistical software (George & Mallery, 2021). Statistical calculations are used in quantitative research data analysis techniques. Data analysis is carried out to process and analyze data to conclude the research. The test that can be used is the *Mann-Whitney U* test. This test is also used to find out the comparison of the median of 2 independent groups in the dependent variable data scale is ordinal or interval/ratio, but not normally distributed, with the hypothesis used if the sig. value > 0.05, then there is no difference in the data.

3. RESULTS AND DISCUSSION

Results

The activities started with a pre-test for the Joyoboyo health community, which was delivered by our team through a Sukorame health center representative before the socialization program began. BRIN and the collaborative herbal science teams held this workshop along with the monthly Joyoboyo meeting program, which will be held the day after the community service program. About 99 people participated, including the Joyoboyo cadres, the representative of Sukorame Health Center, BRIN, IIK Bhakti Wiyata Kediri, and the University of Pancasila teams. This program is important to improve Joyoboyo cadres' knowledge of treating hypertension through traditional herbal medicines. Moreover, most of them can be planted in our home garden.

Education and socialization of the use of herbal medicines for hypertension

The activities began with an opening ceremony, an introduction of the teams, a lecture presentation by our team regarding the clinical and scientific aspects of herbal medicines for hypertension, followed by a discussion of the pre-test results and questions and answers. Finally, we conducted a post-test to evaluate our program activities.

Clinical and scientific approach

During the education and socialization process, the community attentively received lectures and education. In these activities, we presented two approaches regarding the use of herbal medicines for hypertension treatments based on a clinical and scientific approach. Each of us delivered the material in turns while answering questions from the audience during socialization or after the program (Figure 1 & 2).

We explained that this education and socialization program is a part of our research regarding the scientification of herbal medicines against hypertension. The purpose is to determine the level of knowledge of the people of East Java Province in the use of traditional herbal medicines in hypertension

treatment. To fulfill that purpose, we specifically chose Kediri as a sample for this program under the invitation of the Sukorame Health Center. After that, we delivered the materials to the audience. For clinical approaches, we introduced the basic definition of hypertension, which is commonly referred to as high blood pressure (Fuchs & Whelton, 2020), including the causes, the types, risk factors, and treatment management. Based on Kementerian Kesehatan (Kementerian Kesehatan Republik Indonesia, n.d.), hypertension is diagnosed when blood pressure readings consistently exceed 140/90 mmHg, with 129–130 mmHg categorized as prehypertension. In addition, hypertension can be classified into two types: primary (genetic) and secondary hypertension (caused by lifestyle). High-risk groups include individuals with obesity, a genetic predisposition, advanced age, physical inactivity, an imbalanced diet, stress, and smoking habits. Blood pressure readings above 160/100 mmHg should be followed up with a medical consultation to prevent complications. Generally, conventional medicines like amlodipine, furosemide, captopril, ramipril, vbloc, and propranolol are common medicines used to treat hypertension (Kementerian Kesehatan Republik Indonesia, 2024). Unfortunately, some of them have side effects in certain patients, like metabolic imbalance or diuretic effects (Wright et al., 2018; Zisaki et al., 2015). Thus, balanced treatment is needed to control and prevent hypertension from becoming acute. Changing lifestyle, consuming healthy food, reducing salt intake, communicating with doctors, and regularly doing exercises are important factors in controlling blood pressure. Figure 3 shows some relevant materials we presented in terms of the clinical approach.



Figure 1. Joyoboyo community enthusiastically received education related to the use of herbal medicine for hypertension

Figure 2. Education and socialization process of herbal medicines for hypertension

For scientific approaches, we introduced the concept of medicinal family plants (TOGA), their use in hypertension treatments, dosage, production, method of use, side effects, and potential for business. We emphasized the importance of the preparation of herbal remedies, including proper dosing, heating, and processing methods, which will significantly impact the nutrients retained in the final product. For example, herbal drinks like *jamu* must be prepared using a stainless steel or clay pot with boiling water

Education on the use of herbal medicine against Hypertension with Joyoboyo Health Community, Kediri
 Maulida Mazaya, Ratna Surya Alwi, Reza Alrayan, Esti Ambar Widyaningrum, Evi Kurniawati, Maratu Soleha, Mukh Fajar Nasrulloh,
 Andri Prasetyo, Inggrid Tania

to ensure safety and preserve efficacy. For example, herbal medicines like apples, mulberries, soybeans, Indian snakeroot, and cucumber have different methods of preparation. They should be eaten or drunk together with their juice dregs or mixed with some other herbs. We described them in more detail in Table 2.



Figure 3. Some materials were presented during lecture sessions (<http://bit.ly/4kvz0ol>)

Table 2. Herbal medicines for hypertension remedy

Herbal Medicines	Preparation	References
Cucumber	Wash and clean, and can be eaten directly	(Paramita et al., 2018)
Celery	One clump of its roots, finely crushed, add 1 glass of boiled water then strain and drink once a day (morning)	(Handayani et al., 2022; Herawati, 2023)
Chayote	Grate half a large fruit, squeeze the juice and drink	(Apriyani et al., 2020; Fauziah et al., 2019)
Apples	Wash and clean, can be eaten directly	(Sun et al., 2025)
Soybean	Wash then boil and drink with the dregs	(Mosallanezhad et al., 2021; Wei et al., 2020)
Mulberries	Wash and clean, can be eaten directly or boiled, and drink the water	(Aghdam et al., 2024; Park et al., 2019)
Indian snakeroot	Wash and clean the leaves, boil or brew to make tea and drink	(Lobay, 2015)
Indonesian bay leaf	Wash and clean the leaves, boil or brew to make tea and drink	(Muhidin et al., 2024; Paramita et al., 2018)
Green chiretta	Wash and clean the leaves, boil or brew to make tea and drink	(Jayakumar et al., 2013)
Cat's whiskers	Wash and clean the leaves, boil or brew to make tea and drink	(Chung et al., 2020)
Lemon	Make tea using lemon juice without sugar	(Susilawati & Kasron, 2019)

Questions and answers

After finishing the lectures and education, we continued to question and question-and-answer sessions. Many Joyoboyo cadres gave some questions regarding the example of herbal medicines they can easily grow at home, whether these remedies can be safely consumed alongside prescribed medications from doctors, how proper preparation techniques to consume them, the safety of herbal medicines sediments or remaining after used, whether they need to do precise measurements before consuming, and many insights on using animal products in conjunction with medicinal plants. This

interactive session allowed participants to clarify their doubts and better understand the use of herbal medicines for managing health conditions effectively.

Evaluation

Of 61 Joyoboyo Health community members, only 30 completed the pre-post test questionnaire with varied backgrounds. As can be seen in Table 3, the respondents are originally aged between 17 to 65 years old, who have different educational backgrounds with different jobs. The majority of respondents 14 people or 46.67 percent came from the age category of 45-55 years, followed by 11 people or 36.67 percent from 36-45 years, 28 people or 14.50 percent from 25-29 years, and the fewest respondents from the age range of 17-25 years, 1 person and 26-35 years and 56-65 years it's 2 people each or 6.67 percent.

Table 3. Respondent age rate

Age Rate	Total	Percent (%)
17-25	1	3.33
26-35	2	6.67
36-45	11	36.67
46-55	14	46.67
56-65	2	6.67

Table 4. Question to evaluate respondent's knowledge

Question(s)	Total Pre-Test	Percent (%)	Total Post-Test	Percent (%)
Hypertension is a condition of an increase in high blood pressure.	28	93.33	30	100
Normal blood pressure is 120/80 mmHg	21	70	28	93.33
Garlic can be used as a herb to treat hypertension.	19	63.33	28	93.33
Celery cannot be used as a therapy for hypertension	27	90	28	93.33
Headaches, a feeling of heaviness in the neck, and blurred vision are signs of hypertension.	25	83.33	27	90
Cucumber cannot be used as a therapy for hypertension	26	86.67	27	90
All herbal plants must be heated or boiled if they are to be used as herbal medicine.	24	80	26	86.67
TOGA = Family Medicinal Plants	25	83.33	29	96.67
TOGA cannot be used to alleviate health problems	20	66.67	25	83.33
Utilization of TOGA can only be carried out by health workers	27	90	26	86.67

In Table 4, we can see the question evaluation to know the respondent's level of knowledge regarding hypertension and herbal medicines. Meanwhile, the detail level of knowledge of the respondents can be seen in Table 5.

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Table 5. Respondents' level of knowledge regarding herbal medicine

Categories	Total Pre-Test	Percent (%)	Total Post-Test	Percent (%)	Sig.
Weak	1	3.33	0	0	0.020
Midle	8	26.67	2	6.67	
Good	21	70	28	93.33	

The results of the statistical output calculations above show the differences in data in the data groups before and after being given education, which shows significant differences. This can be seen from the significance (*Sig.*) value of 0.020. In addition, we classified the respondents' characteristics into three classes: respondents who know about hypertension, herbal medicine, and conventional medicine (Figure 4).

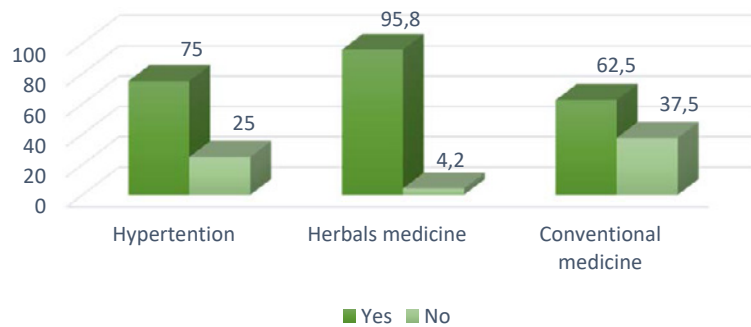


Figure 4. Summary of respondents' characteristics

Based on those respondents, most people with hypertension who have been treated by medical doctors also consumed herbal medicines. They prefer herbal medicines over conventional medicines because they think it is safer since it has been used from generation to generation. Cucumber, lemon, celery, chayote, Indonesian bay leaf, green chiretta, and cat's whiskers leaves are common herbal medicines the Joyoboyo health community is familiar with in hypertension treatment. Figure 5 illustrates the summary of the respondents' opinions regarding the use of herbal medicine in hypertension treatments.

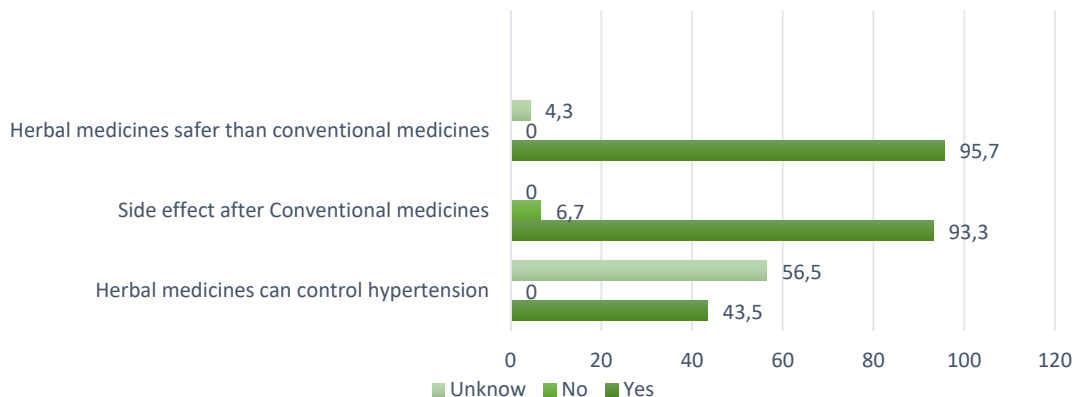


Figure 5. Summary of respondents' opinion

Discussion

The educational workshop on the scientific use of herbal medicine for hypertension, conducted within the Joyoboyo Health Community in Kediri, produced notable and measurable results. Although not all Joyoboyo cadres completed the pre- and post-workshop evaluation, all participants expressed satisfaction and supported the continuation of similar programs. These results suggest a meaningful improvement in participants' understanding, awareness, and involvement, highlighting the value of combining traditional knowledge with scientifically grounded education in community health initiatives, specifically the herbal medicines in hypertension treatments. In comparison to similar community-based health efforts, this program stands out for integrating both clinical and scientific perspectives. Research by [Atmojo & Darumurti \(2021\)](#) and [Susilawati & Kasron \(2019\)](#) emphasized the importance of direct education in enhancing community herbal practices, showing reductions in blood pressure after guided herbal interventions. However, unlike previous studies that focused primarily on knowledge dissemination or clinical outcomes, this program also incorporated critical thinking on key issues such as herbal safety, correct dosages, and interactions between herbs and conventional medications—factors often overlooked in grassroots health interventions.

The Joyoboyo cadres' network played a crucial role in this program's success. As active health agents within their communities, these cadres were ideally positioned to disseminate validated knowledge among residents. The workshop not only improved their ability to absorb information but also equipped them with the skills to effectively share this knowledge, an essential element in driving sustainable behavioral change at the community level. This approach aligns with the concept of community empowerment through peer educators, a strategy shown to be effective in increasing adherence to health practices, as observed by [Kusrinanti et al. \(2024\)](#), [Megayanti et al. \(2025\)](#), [Paramita et al. \(2018\)](#), who found that guidance from trained peers led to better compliance with herbal medicine use. Furthermore, the workshop contributed to technology and knowledge transfer (IPTEK) by introducing scientifically validated methods for preparing traditional herbs. This included teaching correct preparation techniques, such as boiling or steeping, the selection of non-reactive containers, and safe storage practices. The herbs discussed, such as *Andrographis paniculata*, *Orthosiphon stamineus*, and *Apium graveolens* ([Jayakumar et al., 2013](#)), were supported not only by anecdotal evidence but also by references from ethnopharmacological studies and clinical trials. This integration of scientific methods elevates traditional herbal practices from intuitive cultural knowledge to structured, reproducible health strategies, thus bridging the gap between ethnomedicine and modern pharmacology ([Bhatt et al., 2021](#); [Elfahmi et al., 2014](#)). In addition to improving participants' health knowledge, the workshop laid the foundation for community-based innovations, including cultivating home gardens with "Taman Obat Keluarga" (TOGA) and potentially developing value-added herbal products for household use or micro-entrepreneurship. These efforts align with Indonesia's broader movement to integrate traditional herbal medicine into primary healthcare and promote socioeconomic development ([Badan BPOM, 2020](#); [Kementerian Kesehatan Republik Indonesia, 2023](#)).

In summary, this program achieved measurable improvements in public knowledge, strengthened the role of health cadres as informed educators, and demonstrated the feasibility of integrating scientifically supported herbal practices into community health interventions. With its interdisciplinary foundation, cultural relevance, and replicable framework, this model offers significant potential for expansion into other regions, promoting both preventive healthcare and IPTEK-based community development.

4. CONCLUSION AND RECOMMENDATIONS

This community services program was held to educate Joyoboyo cadres regarding the use of herbal medicine in hypertension treatment, especially in the Kediri region, as the gateway to direct communications with citizens. Herbal medicines offer potential benefits in supporting the management of hypertension, especially when used along with a healthy lifestyle and conventional treatments. Based on our analysis of the workshop pre- and post-test results, it can be seen that the differences in the data groups before and after being given education show significant differences. This suggests that our community service program can improve the Joyoboyo cadres' knowledge. The educational workshop regarding herbal medicines was running well in Sukorame Health Center with Joyoboyo cadres, but several aspects were not considered, especially the use of herbal medicine for hypertension treatment. There is a need to continue this education, as well as the demo program, in developing the right consummation method of herbal medicine, and how to measure the proper dosage of herbal medicine to treat hypertension. Specifically in Kediri, not only the Joyoboyo cadres but also the local community need to be acknowledged regarding how to produce, manage, and consume the herbal medicine near them in a proper amount of size based on their need. Thus, they can improve and prevent health disease contamination from inappropriate measurements of herbal medicines.

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REFERENCES

- Aghdam, M. A., Pagán, A., García-Estañ, J., & Atucha, N. M. (2024). Evaluation of the effects of mulberry leaf extracts *Morus alba* L. on cardiovascular, renal, and platelet function in experimental arterial hypertension. *Nutrients*, 17(1), 49. <https://doi.org/10.3390/nu17010049>
- Apriyani, D., Djamil, M., & Kumorowulan, S. (2020). Effectiveness of Chayote extract on lowering blood pressure of post partum hypertension. *STRADA Jurnal Ilmiah Kesehatan*, 9(2), 801-812. <https://doi.org/10.30994/sjik.v9i2.370>
- Atmojo, M., & Darumurti, A. (2021). Pemberdayaan masyarakat melalui Tanaman Obat Keluarga (TOGA). *Jurnal Abdimas BSI: Jurnal Pengabdian Kepada Masyarakat*, 4(1), 100-109. <https://doi.org/10.31294/jabdimas.v4i1.8660>
- Bhatt, L. K., Selokar, I., Raut, D., & Hussain, T. (2021). Novel targets for hypertension drug discovery. *Current Hypertension Reports*, 23, 1-14. <https://doi.org/10.1007/s11906-021-01137-6>
- Badan BPOM. (2020, February 19). *Potensi obat herbal Indonesia*. Badan BPOM. Retrieved from: <https://www.pom.go.id/siaran-pers/potensi-obat-herbal-indonesia>

- Chung, Y. S., Choo, B. K. M., Ahmed, P. K., Othman, I., & Shaikh, M. F. (2020). A systematic review of the protective actions of cat's whiskers (Misai kucing) on the central nervous system. *Frontiers in Pharmacology*, 11, 692. <https://doi.org/10.3389/fphar.2020.00692>
- Dinas Kesehatan Provinsi Jawa Timur. (2022). *Profil kesehatan Provinsi Jawa Timur tahun 2022*. Dinas Kesehatan Provinsi Jawa Timur.
- Elfahmi, E., Woerdenbag, H. J., & Kayser, O. (2014). Jamu: Indonesian traditional herbal medicine towards rational phytopharmacological use. *Journal of herbal Medicine*, 4(2), 51-73. <https://doi.org/10.1016/j.hermed.2014.01.002>
- Fauziah, N. A., Hidajati, K., & Soejoenoes, A. (2019). The effect of chayote extract (*Sechium edule*) on blood pressure in pregnant women with hypertension. *Indonesian Journal of Medicine*, 4(3), 266-277. <https://doi.org/10.26911/theijmed.2019.4.3.205>
- Fuchs, F. D., & Whelton, P. K. (2020). High blood pressure and cardiovascular disease. *Hypertension*, 75(2), 285-292. <https://doi.org/10.1161/HYPERTENSIONAHA.119.14240>
- George, D., & Mallery, P. (2021). *IBM SPSS Statistics 27 step by step: A simple guide and reference* (17th ed.). Routledge. <https://doi.org/10.4324/9781003205333>
- Handayani, S., Malik, A., Mufidah, N. I., Waris, R., Handayani, V., Syarif, R. A., & Wahyudi, D. P. (2022). Ethnopharmacy study of herbal medicine as antihypertension in Simbang District. *Jurnal Fitofarmaka Indonesia*, 9(3), 7-12. <https://doi.org/10.33096/jffi.v9i3.914>
- Jalalyazdi, M., Ramezani, J., Izadi-Moud, A., Madani-Sani, F., Shahlaei, S., & Ghiasi, S. S. (2019). Effect of Hibiscus sabdariffa on blood pressure in patients with stage 1 hypertension. *Journal of advanced pharmaceutical technology & research*, 10(3), 107-111. https://doi.org/10.4103/japtr.JAPTR_402_18
- Jayakumar, T., Hsieh, C. Y., Lee, J. J., & Sheu, J. R. (2013). Experimental and clinical pharmacology of *Andrographis paniculata* and its major bioactive phytoconstituent andrographolide. *Evidence Based Complementary and Alternative Medicine*, 2013(1), 846740. <https://doi.org/10.1155/2013/846740>
- Kamyab, R., Namdar, H., Torbati, M., Ghojzadeh, M., Araj-Khodaei, M., & Fazljou, S. M. B. (2020). Medicinal plants in the treatment of hypertension: A review. *Advanced Pharmaceutical Bulletin*, 11(4), 601-617. <https://doi.org/10.34172/apb.2021.090>
- Kario, K., Okura, A., Hoshide, S., & Mogi, M. (2024). The WHO Global report 2023 on hypertension warning the emerging hypertension burden in globe and its treatment strategy. *Hypertension Research*, 47(5), 1099-1102. <https://doi.org/10.1038/s41440-024-01622-w>
- Kementerian Kesehatan Republik Indonesia. (2015). *Buku saku 1 petunjuk praktis toga dan akupresur*. Kementerian Kesehatan Republik Indonesia.
- Kementerian Kesehatan Republik Indonesia. (2021). *Buku saku 2 petunjuk praktis asuhan mandiri pemanfaatan toga dan akurpesur*. Kementerian Kesehatan Republik Indonesia.
- Kementerian Kesehatan Republik Indonesia. (2023). *Pedoman Nasional Pelayanan Kedokteran (PNPK) tata laksana kanker paru tahun 2023*. Kementerian Kesehatan Republik Indonesia. Retrieved from: <https://kemkes.go.id/id/pnpk-2023—tata-laksana-kanker-paru>
- Kementerian Kesehatan Republik Indonesia. (2024). *Obat hipertensi: Solusi efektif tekanan darah terkendali*. Kementerian Kesehatan Republik Indonesia. Retrieved from: https://keslan.kemkes.go.id/view_artikel/3809/obat-hipertensi-solusi-efektif-tekanan-darah-terkendali

Education on the use of herbal medicine against Hypertension with Joyoboyo Health Community, Kediri

Maulida Mazaya, Ratna Surya Alwi, Reza Alrayan, Esti Ambar Widyaningrum, Evi Kurniawati, Maratu Soleha, Mukh Fajar Nasrulloh, Andri Prasetyo, Inggrid Tania

- Kementerian Kesehatan Republik Indonesia. (n.d.). *Mengenal penyakit hipertensi*. Kementerian Kesehatan Republik Indonesia. Retrieved from: <https://upk.kemkes.go.id/new/mengenal-penyakit-hipertensi>
- Kusrinanti, N. A., Setyaningtyas, P. F., Hepni, H. A., Adiba, T. N., Saputri, G. Z., Supadmi, W., & Abusri, M. (2024). Cadre school-based elderly health assistance and screening for the prevention of non-communicable diseases. *Abdimas: Jurnal Pengabdian Masyarakat Universitas Merdeka Malang*, 9(4), 876–885. <https://doi.org/10.26905/abdimas.v9i4.13826>
- Lobay, D. (2015). Rauwolfia in the treatment of hypertension. *Integrative Medicine: A Clinician's Journal*, 14(3), 40.
- Megayanti, S. D., Agustini, N. L. P. I. B., Diyu, I. A. N. P., Widiadnyana, I. N., Erawati, N. K., Lestari, P. I. J., & Budiningsih, V. E. (2025). CERDIK and PATUH method to control hypertension with the interprofessional education and collaboration approaches. *Abdimas: Jurnal Pengabdian Masyarakat Universitas Merdeka Malang*, 10(1), 70–81. <https://doi.org/10.26905/abdimas.v10i1.14679>
- Mosallanezhad, Z., Mahmoodi, M., Ranjbar, S., Hosseini, R., Clark, C. C. T., Carson-Chahhoud, K., Norouzi, Z., Abbasian, A., Sohrabi, Z., & Jalali, M. (2021). Soy intake is associated with lowering blood pressure in adults: A systematic review and meta-analysis of randomized double-blind placebo-controlled trials. *Complementary therapies in medicine*, 59, 102692. <https://doi.org/10.1016/j.ctim.2021.102692>
- Muhidin, A., Susaldi, S., & Lestari, N. E. (2024). Effectiveness of combination therapy of bay leaf decoction and honey on blood pressure in hypertension sufferers. *Journal of Complementary Nursing*, 3(1), 239-245. <https://doi.org/10.53801/jcn.v3i1.130>
- Paramita, S., Fitriany, E., Tiyantara, M. S., Setyorini, A., & Cahyasit, T. E. (2018). Comparison of adherence to the use of herbal medicine with conventional medicine in hypertensive patients at lempake public health center, Samarinda city. *Health Science Journal of Indonesia*, 9(2), 82-86. <https://doi.org/10.22435/hsji.v9i2.1080>
- Park, S. W., Shin, K. C., Yoou, S.-K., Park, H. J., Eun, S. H., Bae, Y. M., Lee, H. M., Chae, H.-J., Chae, S.-W., & Choi, B. H. (2019). Effects of an ethanolic extract of mulberry fruit on blood pressure and vascular remodeling in spontaneous hypertensive rats. *Clinical and Experimental Hypertension*, 41(3), 280-286. <https://doi.org/10.1080/10641963.2018.1469645>
- Peng, X., Zhou, R., Wang, B., Yu, X., Yang, X., Liu, K., & Mi, M. (2014). Effect of green tea consumption on blood pressure: A meta-analysis of 13 randomized controlled trials. *Scientific reports*, 4(1), 6251. <https://doi.org/10.1038/srep06251>
- Ried, K. (2019). Garlic lowers blood pressure in hypertensive subjects, improves arterial stiffness and gut microbiota: A review and meta-analysis. *Experimental and Therapeutic Medicine*, 19(2), 1472-1478. <https://doi.org/10.3892/etm.2019.8374>
- Salm, S., Rutz, J., van den Akker, M., Blaheta, R. A., & Bachmeier, B. E. (2023). Current state of research on the clinical benefits of herbal medicines for non-life-threatening ailments. *Frontiers in pharmacology*, 14, 1234701. <https://doi.org/10.3389/fphar.2023.1234701>
- Sun, C., Chen, Y., Guan, Y., Zeng, Y., Li, J., & Chen, L. (2025). The influence of different forms of apple products on all-cause mortality in patients with hypertension. *Frontiers in Nutrition*, 11, 1461196. <https://doi.org/10.3389/fnut.2024.1461196>
- Susilawati, S., & Kasron, K. (2019). Jus lemon untuk menurunkan hipertensi pada warga di Desa Menganti Kabupaten Cilacap. *Journal of Community Engagement in Health*, 2(2), 9-13. <https://doi.org/10.30994/jceh.v2i2.20>

- Utari, A. B., & Rochmah, T. N. (2019). Analisis Burden of Disease Hipertensi pada masyarakat di Kabupaten Kediri. *The Indonesian Journal/Public Health*, 14(2), 138-149. <https://doi.org/10.20473/ijph.v14i2.2019.138-149>
- Wei, J. L., Wang, X. Y., Liu, F. C., Chen, J. C., Cao, J., Li, J. X., Hu, D. S., Shen, C., Lu, F. H., Zhao, Y. X., Huang, J. F., & Lu, X. F. (2020). Associations of soybean products intake with blood pressure changes and hypertension incidence: The China-PAR project. *Journal of Geriatric Cardiology: JGC*, 17(7), 384–392. <https://doi.org/10.11909/j.issn.1671-5411.2020.07.005>
- Wright, J. M., Musini, V. M., & Gill, R. (2018). First line drugs for hypertension. *Cochrane Database of systematic reviews*, 4(4). <https://doi.org/10.1002/14651858.CD001841.pub3>
- Yuan, H., Ma, Q., Ye, L., & Piao, G. (2016). The traditional medicine and modern medicine from natural products. *Molecules*, 21(5), 559. <https://doi.org/10.3390/molecules21050559>
- Yunanto, R. A., Salsabila, A. N., Maysaroh, S., Toni, A. A., Rohmawati, N., & Bumi, C. (2024). Optimizing the empowerment of rural agricultural communities in creating healthy agricultural villages based on agronursing. *Abdimas: Jurnal Pengabdian Masyarakat Universitas Merdeka Malang*, 9(4), 765–776. <https://doi.org/10.26905/abdimas.v9i4.13912>
- Zisaki, A., Miskovic, L., & Hatzimanikatis, V. (2015). Antihypertensive drugs metabolism: an update to pharmacokinetic profiles and computational approaches. *Current pharmaceutical design*, 21(6), 806-822. <https://doi.org/10.2174/1381612820666141024151119>
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