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Original Article

Herbal-based Community Training for Hypertension Prevention Using TENSITEA

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Abstract

Hypertension remains one of the most prevalent non-communicable diseases worldwide and is increasingly becoming a health burden in Indonesian communities. Limited knowledge about hypertension and the lack of access to preventive strategies contribute to its high incidence in rural areas. This community empowerment program was conducted to improve public understanding of hypertension and to provide practical training on the production of a herbal tea formulation, known as Tensi Tea, using locally available ingredients such as breadfruit leaves, bay leaves, and cinnamon. The activity took place in Mandalawangi Village and involved community members, local health cadres, and students. The program was implemented in several stages, including educational sessions on hypertension prevention, interactive discussions, and hands-on training in harvesting, processing, and packaging herbal ingredients into tea bags. Participants were actively engaged, demonstrated high enthusiasm, and were able to produce the herbal tea product independently by the end of the training. The results showed an increase in community knowledge regarding risk factors and prevention of hypertension, as well as enhanced skills in producing a simple herbal preparation that has the potential to support both health promotion and local economic opportunities. In conclusion, education on hypertension prevention, accompanied by training on herbal tea, is an effective strategy to empower communities. It is recommended that similar programs be expanded to other rural areas and supported by local health services to ensure sustainability.

Keywords: community empowerment; herbal tea; hypertension; prevention; training

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Introduction

Hypertension is one of the most prevalent non-communicable diseases worldwide and a major risk factor for cardiovascular morbidity and mortality (World Health Organization, 2021). In Indonesia, the prevalence of hypertension increased from 25.8% in 2013 to 34.1% in 2018, with only about 46.5% of cases being aware of their condition (Ministry of Health Republic of Indonesia, 2018). This underdiagnosis highlights the urgent need for improving community health literacy and preventive interventions.

Rural populations, such as those in Mandalawangi Village, are particularly vulnerable because of limited access to healthcare facilities, low awareness of risk factors, and lifestyle behaviours such as high salt intake, smoking, and physical inactivity. A study in rural East Java reported a hypertension prevalence of 35.9% and identified advanced age and obesity as significant determinants (Amelia et al., 2022). These findings indicate that innovative and participatory approaches are required to effectively engage communities in prevention.

The use of local herbal ingredients represents a culturally acceptable and practical strategy. Previous studies have shown that bay leaves (*Syzygium polyanthum*) and cinnamon (*Cinnamomum burmannii*) possess antihypertensive and antioxidant properties. A quasi-experimental study demonstrated that consuming herbal tea made from bay leaves and cinnamon significantly reduced blood pressure among hypertensive patients (Asriani et al., 2023). Furthermore, a recent umbrella meta-analysis reported that cinnamon intake contributed to modest but significant reductions in both systolic and diastolic blood pressure (Li et al., 2024).

Based on these considerations, this community empowerment program was developed to enhance knowledge and awareness of hypertension prevention in Mandalawangi Village through education sessions and to provide hands-on training in producing a herbal beverage called *Tensi Tea*, formulated from breadfruit leaves (*Artocarpus altilis*), bay leaves, and cinnamon. The program actively involved community members, health cadres, and students to ensure interactive participation and local ownership. By integrating health education with skill-based training, this initiative aimed to strengthen community resilience against

hypertension while creating opportunities for local economic empowerment.

Method

This community empowerment program was carried out in Mandalawangi Village, Cianjur Regency, West Java, Indonesia, in August 2025. The activity aimed to increase knowledge about hypertension prevention and to provide hands-on training for the preparation of *Tensi Tea*. The implementation was conducted systematically through the following stages:

1. Preparation Stage

The target location was determined through coordination with the village head and local health cadres. Participants were purposively selected, including 30 community members, consisting of men, women, and local health volunteers. Research instruments in the form of pre-test and post-test questionnaires were prepared to measure participants' knowledge, attitudes, and practices related to hypertension and herbal utilization. The questionnaires were validated by two experts in pharmacy and community health, and pilot-tested to ensure clarity. Cronbach's alpha coefficient was 0.82, indicating good internal consistency (Taber, 2018).

2. Educational Session

An interactive lecture and discussion session was conducted to explain hypertension, including its definition, risk factors, complications, and prevention strategies. The material also highlighted the role of lifestyle modifications, such as diet and exercise, in reducing the risk of hypertension. Participants were actively involved in question-and-answer sessions to address their challenges and beliefs regarding hypertension management.

3. Training Session

The training focused on the preparation of *Tensi Tea*, a herbal formulation using breadfruit leaves (*Artocarpus altilis*), bay leaves (*Syzygium polyanthum*), and cinnamon (*Cinnamomum burmannii*). Participants practiced step by step, starting from harvesting, washing, slicing, drying, mixing in the ratio 2:1:1, and packaging the herbs into tea bags using food-grade filter paper. This hands-on approach ensured that each participant acquired practical skills in producing the herbal tea.

4. Knowledge and Behavioural Assessment

A structured questionnaire was administered before and after the intervention. The questionnaire consisted of items covering (1) knowledge about hypertension, (2) attitudes toward hypertension prevention and treatment, (3) practices related to lifestyle and medication adherence, and (4) knowledge, perception, and intention regarding *Tensi Tea*. Response options included dichotomous (yes/no), Likert scales, and frequency categories, depending on the item.

5. Data Analysis

Data were analyzed descriptively by comparing pre-test and post-test results to identify changes in participants' knowledge and attitudes. Frequencies and percentages were calculated for each item. To evaluate the statistical significance of changes between pre-test and post-test categorical responses, McNemar's test was applied, with a p-value <0.05 considered statistically significant (Devita et al., 2025). Qualitative data from observations and participant feedback during training were also thematically analyzed to capture engagement and perceived benefits of the program.

Results

1. Participant Characteristics

This community service program was attended by 30 participants, consisting of residents and health cadres from Mandalawangi Village. The majority were women (60%), while men accounted for 40%. Participants' ages ranged from 25 to 65 years, with the most significant proportion in the 41–55 years group (40%). Most participants were housewives responsible for managing family nutrition, while the rest were health cadres and community figures who play important roles in supporting public health activities. These characteristics illustrate that participants act not only as individuals but also as agents of health education within their families and communities.

Table 1. Characteristics of participants (n=30)

Variable	Category	n	%
Gender	Male	12	40.0
	Female	18	60.0
Age group	25–40 years	10	33.3
	41–55 years	12	40.0
	≥56 years	8	26.7
Role	Community member	22	73.3
	Health cadre	8	26.7

2. Improvement of Knowledge about Hypertension

Knowledge was assessed using pre-test and post-test questionnaires. Prior to the intervention, many participants had limited understanding of hypertension and its health risks. Only about 40% knew that hypertension is diagnosed when blood pressure is ≥140/90 mmHg. Awareness of its complications, such as heart disease and stroke, was also relatively low (46.7%).

After the educational session, knowledge improved significantly. More than 80% of participants correctly identified the definition of hypertension, its complications, and triggering factors such as high salt intake. Understanding that regular physical activity helps prevent hypertension increased from 53.3% to 93.3%. Importantly, misconceptions that hypertension always presents with symptoms such as headache or dizziness decreased substantially; only 30% answered correctly in the pre-test, compared to 76.7% in the post-test. Overall, statistical analysis indicated a significant difference between pre-test and post-test results ($p < 0.05$), demonstrating the effectiveness of the educational intervention in improving knowledge.

Table 2. Comparison of participants' knowledge before and after the intervention (n=30)

Statement	Pre-test (% correct)	Post-test (% correct)
Hypertension is blood pressure >140/90 mmHg	40.0	83.3
Hypertension increases the risk of heart attack/stroke	46.7	86.7
High-salt foods can trigger hypertension	50.0	90.0
Regular exercise helps prevent hypertension	53.3	93.3
Misconception : Hypertension always causes headache/dizziness	30.0	76.7

3. Changes in Attitudes and Practices

In addition to knowledge, participants' attitudes and practices showed positive changes. Initially, most participants were not accustomed to routine blood pressure checks. Following the intervention, the majority strongly agreed that regular monitoring is important. Support for adopting a healthy lifestyle also increased, reflected in higher agreement toward reducing

salt consumption and engaging in physical activity.

Regarding practice, participants became more aware of the importance of regular exercise and limiting salty foods, although real-life application still requires further encouragement. There was also a change in perception regarding medication adherence. Before the intervention, some participants believed that medication should only be taken when symptoms appear. After the session, most participants recognized the importance of following prescribed therapy consistently.

Table 3. Distribution of participants' attitudes (n=30)

Statement	SA (%)	A (%)	D (%)
Importance of routine blood pressure checks	50.0	43.3	6.7
Hypertension can be controlled by healthy lifestyle	56.7	40.0	3.3
Medication is only needed when feeling unwell	10.0	16.7	73.3
Agree to reduce salt consumption	63.3	33.3	3.3

Note:
SA: Strongly Agree, A: Agree, D: Disagree

4. Acceptance of *Tensi Tea*

As part of the session, participants were introduced to *Tensi Tea* as a potential herbal supplement for supporting blood pressure control. The response was highly positive. A total of 83.3% believed that herbal drinks can support blood pressure health, 80% expressed interest in trying *Tensi Tea*, and 73% indicated willingness to recommend it to family members. Furthermore, most participants acknowledged that *Tensi Tea* is not a replacement for prescribed medication but rather a complementary measure to support a healthy lifestyle.

Table 4. Participants' acceptance of Tensi Tea (n=30)

Statement	Yes (%)	No (%)	Not sure (%)
Believe herbal drinks support blood pressure health	83.3	6.7	10.0
Interested in trying *Tensi Tea*	80.0	13.3	6.7
Believe *Tensi Tea* is safe if consumed properly	86.7	6.7	6.7
Will continue prescribed drugs while trying *Tensi Tea*	76.7	10.0	13.3

5. Documentation of the Activity

Documentation was collected during the event, focusing on the educational session on hypertension and the introduction of *Tensi Tea*. The photos illustrate the facilitator delivering material, interactive discussions, and participants' enthusiasm in asking questions and sharing experiences. These images provide evidence of active community engagement and reflect the participatory atmosphere during the program.

Figure 1. Community members engaging in discussion with student facilitators during the health education session on hypertension prevention.

Figure 2. Participants filling out pre-test questionnaires guided by student facilitators as part of the empowerment activity.

Discussion

The findings of this community empowerment program demonstrate that targeted educational interventions can effectively enhance community knowledge and attitudes toward hypertension prevention and management. The significant improvement in participants' understanding of hypertension risk factors, diagnostic criteria, and preventive measures aligns with previous studies showing that health education plays a crucial role in modifying health-related knowledge and behavior among community members (Fauzi et al., 2021; WHO, 2022).

One of the key insights from this study is the reduction of misconceptions regarding hypertension symptoms. Many participants initially believed that hypertension always presents with noticeable signs such as headache or dizziness. The intervention helped correct this misconception, indicating that community-based education can successfully address entrenched health myths. This finding is important because late detection of asymptomatic hypertension is a major barrier to prevention in low-resource settings (Sari & Nugroho, 2020).

The program also revealed improvements in participants' attitudes toward routine blood pressure checks and adherence to prescribed medications. This outcome is consistent with previous reports that community education positively influences health-seeking behaviors (Devita et al., 2021). Furthermore, the introduction of *Tensi Tea* as a complementary herbal option was well received, suggesting that integrating culturally acceptable and locally relevant practices into health promotion activities can increase community engagement. While the tea was not intended as a substitute for medical treatment, its acceptance indicates the community's openness to combining modern and traditional health approaches.

The strengths of this program include its interactive format, which allowed active participation and engagement, as well as the integration of local health cadres who are trusted by the community. These factors likely contributed to the high levels of enthusiasm observed during the sessions. The main limitation is that the activity focused primarily on knowledge and attitudes, without direct follow-up on long-term behavioral changes or clinical outcomes. Additionally, the relatively small sample size (30 participants) and the single-village setting limit the generalizability of the findings to broader populations.

Nevertheless, the program provides valuable insights into how community-based education, supported by culturally relevant health messages, can empower local populations to take an active role in preventing and managing hypertension. Future programs should consider incorporating longer-term follow-up and broader coverage to assess sustainability and scalability of the observed changes.

Conclusion

This community empowerment program successfully improved participants' knowledge and attitudes regarding hypertension prevention and management through interactive health education. The method employed, namely participatory lectures and discussions, was well suited to address the community's needs and challenges, particularly the lack of awareness and persistence of misconceptions about hypertension. The program's relevance was further strengthened by integrating local context through the introduction of

Tensi Tea, which was well accepted by participants as a complementary approach to maintaining blood pressure health.

The activity had a positive impact by increasing awareness of routine blood pressure monitoring, encouraging healthier lifestyle practices, and fostering openness toward combining modern medical treatment with culturally relevant health practices. These outcomes indicate that community-based education, when delivered in an interactive and locally contextualized manner, can serve as an effective strategy for empowering rural populations in managing non-communicable diseases.

Future programs should include follow-up activities to evaluate long-term behavioral changes, expand participant coverage beyond a single village, and involve continuous collaboration with local health cadres to ensure sustainability. In addition, integrating practical demonstrations or community-based screenings could further strengthen the impact of such initiatives.

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Conflict of Interests Statement

The authors declare that there is no conflict of interest regarding the community service activity reported in this article. The program was carried out independently without financial, commercial, legal, or professional relationships that could influence the implementation or outcomes of the activity.

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