

GERCEP (Gerakan Cegah Hipertensi) : Hypertension Prevention Initiative to Raise Public Awareness Regarding Prevention in Kwadungan Village

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ABSTRACT

Hypertension is a major public health problem and a risk factor for cardiovascular disease, stroke, and kidney disorders. Sustained promotive and preventive efforts are needed to improve community awareness and blood pressure control. This community service activity aimed to increase knowledge and awareness of hypertension prevention through physical activity, health education, and blood pressure monitoring. The GERCEP (Gerakan Cegah Hipertensi) program was conducted on August 19, 2026, at Kwadungan Village Hall and targeted adults and older adults from Kwadungan Village RT 01 through RT 01 who were at risk of or had a history of hypertension. A total of 28 participants were involved. The activity consisted of pre-intervention blood pressure measurement, hypertension-specific exercise, health education on hypertension and healthy lifestyles, and post-activity blood pressure measurement. Blood pressure was measured by the community service team, and data were analyzed descriptively by comparing blood pressure categories before and after the intervention. Complete pre- and post-intervention data were available for 20 participants. Fifteen participants experienced a decrease in blood pressure, while five experienced an increase. The number of participants with normal blood pressure increased from 3 to 8, while those with stage 1 hypertension decreased from 6 to 3 and stage 2 hypertension decreased from 6 to 4. These findings indicate an improvement in blood pressure categories following the activity. The GERCEP program has potential as a promotive and preventive community-based strategy through integrated physical activity, health education, and blood pressure monitoring. Sustainable implementation involving community health centers, health cadres, village officials, and residents is recommended.

Keywords : Health Education, Hypertension, Physical Activity, Prevention.

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INTRODUCTION

Hypertension is a major public health concern that requires attention because it often occurs without symptoms but can increase the risk of cardiovascular disease, stroke, kidney disease, and various complications if left uncontrolled (Saco-Ledo et al., 2021). This condition makes hypertension a health problem that requires not only treatment but also preventive and control measures through behavioral changes. Factors contributing to hypertension include age, genetic factors, overweight or obesity, insufficient physical activity, a high-salt diet, alcohol consumption, and tobacco use (World Health Organization, 2025). Regular blood pressure monitoring is necessary because individuals may have hypertension without experiencing specific symptoms.

Hypertension has a relatively high prevalence both globally and nationally. In Indonesia, the 2023 Indonesian Health Survey reported that the prevalence of hypertension based on blood pressure measurements reached 30.8% among adults aged ≥ 18 years, whereas the prevalence based on physician diagnosis was only 8.6%. Based on the 2023 Indonesian Health Survey (SKI), the prevalence of hypertension determined by blood pressure measurements among the population aged 15 and older in East Java was 32.8% (Ministry of Health of the Republic of Indonesia, 2023). Meanwhile, data for Kediri Regency indicates an estimated 452,571 individuals aged 15 and older suffering from hypertension of this group, only 198,830 people (43.9%) received health services. This difference indicates a gap between hypertension detected through blood pressure measurements and hypertension that has been recognized or diagnosed, highlighting the need to strengthen early detection (Kementerian Kesehatan Republik Indonesia, 2023). A similar concern exists in Kwadungan Village. Based on CKG data from RT 01–RT 06, the number of residents with hypertension was 10 in RT 01, 9 in RT 02, 8 in RT 03, 19 in RT 04, 12 in RT 05, and 14 in RT 06. RT 04 had the highest number of cases, indicating the need to strengthen hypertension prevention and control efforts at the community level.

Based on these conditions, efforts are needed to increase community awareness of blood pressure status while encouraging healthy lifestyle practices. Physical activity is an important component of hypertension management (Islam et al., 2023). A meta-analysis showed that various forms of exercise, including aerobic, resistance, combined, and interval training, can reduce systolic and diastolic blood pressure (Edwards et al., 2023). Among individuals with hypertension, longer durations of aerobic exercise have also been associated with dose-response reductions in blood pressure (Ganjeh et al., 2024). In addition to physical activity, the involvement of health cadres is needed to expand the dissemination of health information and support the sustainability of community-based activities (Igarashi, 2023). Health education on blood pressure measurement and hypertension exercise among health cadres has been shown to improve their knowledge and skills in blood pressure measurement and hypertension exercise practices (Wahyuni et al., 2023).

As an effort to address these problems, Gerakan Cegah Hipertensi (GERCEP) program was implemented in Kwadungan Village by integrating blood pressure measurement, hypertension exercise, and health education. Community-based hypertension programs integrating screening, education, and physical activity have been reported to improve hypertension-related knowledge and blood pressure control among community participants (Yudanari et al., 2024). Hypertension exercise was selected as a simple form of physical activity that can be adapted to the physical abilities of adults and older adults. The educational sessions covered hypertension, risk factors, healthy lifestyles, regular physical activity, medication adherence, and periodic blood pressure monitoring (World Health Organization, 2024). The involvement of health cadres, RT leaders, and community representatives was

expected to expand the reach of health information and support the sustainability of activities within their respective communities. Empowering community health cadres through training and hypertension exercise has been shown to improve their knowledge, screening skills, and ability to lead hypertension-related activities in the community (Purwanta et al., 2023). GERCEP program aimed to improve community understanding of hypertension, its risk factors, and strategies for its prevention and control through physical activity and health education, while also providing an overview of changes in blood pressure before and after the series of activities.

METHOD

This community service activity used a descriptive pre-test and post-test design to evaluate changes in participants' blood pressure following the implementation of the Gerakan Cegah Hipertensi (GERCEP) program. The activity was conducted on August 19, 2026, at the Kwadungan Village Hall, Kediri Regency, starting at 07:40 Western Indonesia Time until completion. The activity focused on hypertension prevention and control through hypertension exercise and health education. Hypertension exercises or education on hypertension control were provided to the community approximately 20 minutes. The activity included conducting hypertension exercises and delivering brief information about hypertension.

The target population consisted of adults and older adults, health cadres, neighborhood association leaders, and community representatives in Kwadungan Village. Populations of this activity are Kwadungan Village RT 01 through 17, specifically adults and the elderly at risk for or with a history of hypertension with a sample size of 28 individuals. Participants were selected based on the planned representation of each neighborhood association and their willingness to participate. The target included representatives from RT 01 to RT 17, with three representatives from each RT consisting of a neighborhood association leader, a health cadres, and a community representative. A total of 28 participants attended the activity, only 20 had complete blood pressure data from both before and after the event. Meanwhile, the remaining 8 participants while still taking part in the activity lacked complete pre-test and post-test data and were therefore excluded from the analysis of blood pressure changes.

The variables evaluated were participants' systolic and diastolic blood pressure before and after the GERCEP activity. The intervention consisted of hypertension health education and hypertension exercise. The health education was delivered directly to participants during the blood pressure measurement process. Educational information was provided verbally and supported by a leaflet containing key information on hypertension prevention and control. The leaflet was subsequently shared through the participants WhatsApp group after the hypertension exercise to reinforce the information provided during the activity.



Figure 1. GERCEP Educational Media
Source: Developed by the GERCEP Team, 2026.

The educational materials covered the definition of hypertension, factors influencing hypertension, the benefits and importance of hypertension exercise, healthy lifestyle, regular physical activity, medication adherence, and routine blood pressure monitoring. Participants were also provided with guidance on preparation before exercise, including warm-up, wearing comfortable clothing and footwear, maintaining adequate hydration, and adjusting exercise intensity according to individual physical ability. The hypertension exercise consisted of warm-up, core movements, and cool-down and was performed at light to moderate intensity.

Blood pressure was measured using a blood pressure monitor before the activity (pre-test) and after the entire series of activities (post-test). Blood pressure measurements were recorded in millimeters of mercury (mmHg) and categorized according to the blood pressure classification applied in the activity. The data were analyzed descriptively by comparing systolic and diastolic blood pressure values and changes in blood pressure categories before and after the program. Participant attendance, participation, and enthusiasm during the activity were also observed as part of the program evaluation.

The activity did not involve an experimental control group, and the post-test was conducted after the entire series of activities rather than immediately after the hypertension exercise. Therefore, changes in blood pressure were interpreted as descriptive changes following the overall GERCEP program and were not used to establish a causal effect of hypertension exercise. The activity was conducted with attention to participant safety, voluntary participation, and confidentiality of blood pressure measurement results. Participants were informed about the purpose and procedures of the activity before participation.

RESULTS

The community service activity entitled GERCEP (Gerakan Cegah Hipertensi) was conducted on Wednesday, 19 August 2026, at Kwadungan Village Hall, Kediri Regency. The activity started at 07.40 WIB and involved 28 participants consisting of health cadres, neighborhood representatives, and community members. The activities included blood pressure measurement, hypertension exercise, and health education related to hypertension prevention and control.

The activity began with participant registration and blood pressure measurement as the initial assessment (pre-test). Participants then participated in hypertension exercise consisting of warm-up, core movements, and cool-down movements. The movements were adjusted to the physical abilities of adults and older adults. Similar community-based programs combining blood pressure measurement, health education, and hypertension exercise have reported improvements in blood pressure following the intervention (Cristina et al., 2022).



Figure 2. Blood Pressure Measurement Before the Activity
Source: GERCEP Activity in Kwadungan, 2026 (personal documentation).

Blood pressure measurement was conducted before the activity to obtain the participants' initial blood pressure condition.

The activity continued with health education regarding hypertension, factors affecting blood pressure, the benefits of physical activity, healthy lifestyle practices, medication adherence, and the importance of regular blood pressure monitoring. Participants followed the exercise and educational activities actively.



Figure 3. Hypertension Exercise Activities

Source: GERCEP Activity in Kwadungan, 2026 (personal documentation).

Participants performed hypertension exercise with movements adapted to the physical abilities of adults and older adults.



Figure 4. Hypertension Health Education Activities

Source: GERCEP Activity in Kwadungan, 2026 (personal documentation).

Health education was provided regarding hypertension prevention and control, risk factors, physical activity, healthy lifestyle, medication adherence, and regular blood pressure monitoring.

At the end of the activity, blood pressure was measured again as the final assessment (post-test). Of the 28 participants who attended, 20 participants had complete pre-test and post-test blood pressure data. Among the participants with complete data, 15 experienced a decrease in blood pressure, while 5 experienced an increase. A similar pre-test and post-test approach was used by Tarisa et al. (2025), who evaluated hypertension management through early detection, health education, and hypertension exercise in a community setting.

Table 1. Changes in Participants' Blood Pressure Before and After the GERCEP Activity

Indicator	Number
Participants with decreased blood pressure	15
Participants with increased blood pressure	5
Total Participants with complete data	20

Of the 20 participants with complete blood pressure data, 15 experienced a decrease and 5 experienced an increase in blood pressure after the GERCEP activity.

One example of a decrease was observed in a participant whose blood pressure decreased from 188/108 mmHg before the activity to 177/83 mmHg after the activity. Among the six participants initially classified as having stage 2 hypertension, two were classified into a lower blood pressure category after the activity.

The distribution of blood pressure categories before and after the activity is presented in Table 2. The number of participants classified as normal increased from 3 to 8 participants. The number of participants classified as stage 1 hypertension decreased from 6 to 3 participants, while stage 2 hypertension decreased from 6 to 4 participants. The number of participants in the prehypertension category remained at 5 participants.

Table 2. Distribution of Blood Pressure Categories Before and After the GERCEP Activity

Blood Pressure Category	Before Activity	After Activity	Difference
Normal (Systolic <120 and Diastolic <80)	3	8	↑ 5 participants
Prehypertension (Systolic 120–129 and Diastolic 80–89)	5	5	No Difference
Hypertension Stage 1 (Systolic 140–149 and Diastolic 90–99)	6	3	↓ 3 participants
Hypertension Stage 2 (Systolic ≥160 and Diastolic ≥100)	6	4	↓ 2 participants

The distribution of blood pressure categories showed an increase in participants classified as normal and a decrease in participants classified as stage 1 and stage 2 hypertension after the activity.



Figure 5. Blood Pressure Measurement After the Activity
Source: GERCEP Activity in Kwadungan, 2026 (personal documentation).

Blood pressure was measured after completion of the activity sequence as the final assessment. Supporting data from the Community Health Check (CKG) in RT 01–RT 06 showed variations in the number of people with hypertension. RT 04 had the highest number of people with hypertension, with 19 people, followed by RT 06 with 14 people and RT 05 with 12 people. RT 03 had the lowest number, with 8 people.

Table 3. Supporting Data on Hypertension Cases in RT 01–RT 06

Neighborhood	Number of People with Hypertension
RT 01	10
RT 02	9
RT 03	8
RT 04	19
RT 05	12
RT 06	14

RT 04 had the highest number of recorded people with hypertension, while RT 03 had the lowest number among the recorded RT areas.

Overall, the GERCEP activity was implemented according to the planned activity sequence. The involvement of health cadres and neighborhood representatives provided an opportunity to disseminate hypertension prevention information and hypertension exercise to residents who were unable to attend the activity directly. Community-based training has also been reported to improve cadres’ knowledge and skills in blood pressure measurement and hypertension prevention activities (Bustamam et al., 2022).

DISCUSSION

GERCEP (Gerakan Cegah Hipertensi/Hypertension Prevention Movement) program showed that 15 of 20 participants with complete blood pressure data experienced a decrease in blood pressure, while 5 participants experienced an increase. Changes in blood pressure categories were also observed, with the number of participants in the normal category increasing from 3 to 8 participants. Meanwhile, stage 1 hypertension decreased from 6 to 3 participants and stage 2 hypertension decreased from 6 to 4 participants. These findings show a descriptive shift in blood pressure categories toward more favorable levels after the GERCEP activity.

Physical activity is an important component of non-pharmacological hypertension management. Hejazi et al. (2025) reported that various forms of exercise, including aerobic and resistance exercise, can reduce blood pressure among older adults with hypertension. In addition, aerobic exercise has been shown to be associated with reductions in blood pressure among patients with hypertension (Ganjeh et al., 2024). Pratiwi et al. (2023) also reported that hypertension exercise combined with health education was associated with reductions in systolic and diastolic blood pressure among older adults. Wulandari et al. (2024) reported that community-based activities involving hypertension screening, health education, and hypertension exercise could encourage preventive behaviors and improve participants’ understanding of hypertension.

GERCEP program combined hypertension exercise with health education covering hypertension, risk factors, healthy lifestyles, regular physical activity, medication adherence, and blood pressure monitoring. This combination is relevant to community-based hypertension control because health promotion programs involving exercise and education have been associated with improvements in blood pressure among Southeast Asian populations. Liesmayani et al. (2024) also emphasized the importance of combining lifestyle interventions

and health education in hypertension management. Fitriyah et al. (2024) demonstrated that blood pressure screening combined with community exercise can be implemented as a preventive approach to hypertension at the community level. Pranata et al. (2023) also reported that health education accompanied by hypertension exercise can support hypertension management among older adults. Misbach et al. (2023) found that hypertension exercise accompanied by educational materials was associated with increased community knowledge regarding hypertension prevention and management.

The involvement of health cadres and RT representatives can support the sustainability of the program by enabling health information and hypertension exercise to be disseminated to residents who were unable to attend. A systematic review by Mbuthia et al. (2022) found that community health worker interventions commonly included blood pressure monitoring, health education, lifestyle counselling, and behaviour-change support, with positive effects on hypertension management and blood pressure control. Inagaki et al. (2024) similarly highlighted the role of community health workers in hypertension management through health education and blood pressure measurement. Community-based interventions involving health education, hypertension exercise, and health screening have also demonstrated the potential of cadres to support hypertension prevention and control (Elvira et al., 2024). Adawiyah et al. (2023) showed that community health education combined with practical hypertension exercise could improve participants' understanding of hypertension exercise. CKG data further showed that RT 04 had the highest number of residents with hypertension, indicating a potential priority area for subsequent screening, education, and physical activity activities.

Although most participants with complete data experienced a decrease in blood pressure, the results cannot be interpreted as evidence that hypertension exercise directly caused the decrease. The post-test measurement was conducted after the entire activity series, including health education, TOGA planting, and herbal drink preparation. Therefore, changes in blood pressure may have been influenced by other factors, including physical activity and stress (Gunawan et al., 2021). Furthermore, only 20 of the 28 participants had complete pre-test and post-test data. These limitations should therefore be considered when interpreting the findings.

The continuation of GERCEP should focus on regular hypertension exercise, periodic blood pressure monitoring, and health education at the RT level with the involvement of health cadres and RT representatives. Residents with mobility limitations can be reached through home visits. Regular community-based activities may strengthen the promotive and preventive role of GERCEP in supporting hypertension control in Kwadungan Village.

CONCLUSION

GERCEP (Gerakan Cegah Hipertensi) program was implemented as a promotive and preventive community health activity through hypertension exercise, health education, and blood pressure monitoring. Among the 28 participants who attended the activity, 20 had complete blood pressure measurements before and after the activity. From 28 participants who took part in the activity, 8 did not have complete blood pressure data. This was due to some participants leaving the event early for personal reasons such as work or other commitments and limitations regarding the staff available to conduct blood pressure checks on all participants. Consequently, these eight participants were excluded from the analysis of blood pressure changes, and the results were based solely on the 20 participants with complete pre-test and post-test data. Descriptively, 15 participants experienced a decrease in blood pressure, while 5 participants experienced an increase. The number of participants in the normal blood pressure category increased after the activity, accompanied by a decrease in the number of participants in the stage 1 and stage 2 hypertension categories. These

findings indicate a tendency toward improvement in blood pressure following the overall GERCEP program. However, the changes cannot be interpreted as a direct causal effect of hypertension exercise because the activity did not include a control group and post-test measurements were conducted after the entire series of activities. Therefore, continuous implementation of hypertension exercise, health education, and routine blood pressure monitoring involving health cadres and neighborhood representatives is recommended to support sustainable hypertension prevention and control in the community.

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