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Hypertension Control Strategy Through Health Checks And Elderly Exercise In Hamlet Iii, Suka Sari Village, Kepahiang Regency

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Abstract. Hypertension is one of the most common non-communicable diseases among the elderly and is influenced by dietary patterns, physical activity, and environmental conditions. Dusun III in Suka Sari Village, a highland area with low temperatures and limited access to health services, presents a higher risk for hypertension, particularly among older adults. This community service program aimed to strengthen early detection of hypertension and metabolic risks through health screening and elderly exercise activities. The methods included blood pressure measurement before and after a 25-minute elderly exercise session, as well as random blood glucose (RBG) and uric acid testing using rapid diagnostic tools. The results showed that most participants were in the pre- hypertensive and stage 1 hypertension categories. After the exercise session, a decrease in both systolic and diastolic blood pressure was observed in the majority of participants. Several participants also showed elevated RBG and uric acid levels, indicating previously undetected metabolic risks. This program demonstrates that simple, low-cost, community-based interventions can effectively support hypertension control, enhance health awareness, and serve as an early detection approach for metabolic conditions in rural highland communities.

Keywords: *Hypertension, Elderly, Health Screening, Elderly Exercise.*

INTRODUCTION

Hypertension is a non-communicable disease (NCD) with a high prevalence in Indonesia and is a leading cause of morbidity and mortality in adults and the elderly. Basic Health Research (Riskesdas) data shows that the national prevalence of hypertension has reached 34.1% and continues to increase, particularly in communities with less active lifestyles and excessive sodium consumption (Ministry of Health, 2019). Uncontrolled hypertension can lead to serious complications such as stroke, kidney failure, and coronary heart disease, making it a public health problem requiring ongoing promotive and preventive management (WHO, 2021).

This condition is more prominent in rural communities, especially those living in highland areas with lower temperatures. Mountainous environments can trigger vasoconstriction of blood vessels, leading to increased blood pressure, especially in vulnerable groups such as the elderly (Nugroho & Pramudita, 2020). Hamlet III of Suka Sari Village in Kepahiang Regency has these characteristics, making the community at a higher risk of developing hypertension. Furthermore, community consumption patterns, such as the habit of consuming high-salt foods, including salted fish and locally processed salt, exacerbate this risk (Astuti & Lestari, 2021).

In addition to environmental and behavioral factors, low access to and frequency of health checkups in rural communities also contribute to the high number of undetected hypertension cases. Many elderly people are unaware of their blood pressure due to the lack of regular

checkups or active elderly health posts (Posyandu), so hypertension is only discovered when it causes symptoms or complications (Rahmawati, 2022). Early detection through blood pressure, random blood sugar (GDS), and uric acid levels is crucial to prevent worsening health conditions.

Community-based promotive and preventive efforts, such as elderly exercise, are a proven effective strategy in helping control blood pressure. Regular light and moderate physical activity can increase blood vessel elasticity, improve cardiovascular function, and lower systolic and diastolic blood pressure (Setyawan & Widodo, 2020). Various studies have also shown that elderly exercise can improve physical fitness, reduce joint pain, and enhance the overall quality of life for the elderly (Sari & Lubis, 2022).

Based on these conditions, a comprehensive public health intervention is needed in Hamlet III, Suka Sari Village, including blood pressure checks, blood glucose (GDS) tests, uric acid tests, and education through elderly exercise. These activities not only help detect hypertension cases early but also increase community understanding of hypertension prevention and management. Through a community-based approach involving KKNT students and health cadres, it is hoped that the community will be able to implement sustainable healthy behavior changes and encourage the establishment of elderly community health posts (Posyandu) that are more active and responsive to local needs.

RESEARCH METHODS

This community service activity used a descriptive participatory approach involving the elderly in Hamlet III, Suka Sari Village. Health checks included blood pressure measurements, random blood sugar (GDS), and uric acid levels using a rapid test kit. Blood pressure was measured twice, before and after the 25-minute elderly exercise session to assess any physiological changes.

Participants were selected using an accidental sampling technique based on their attendance and willingness to participate. Data were collected through direct measurements and brief interviews regarding health complaints and lifestyle habits. Data were analyzed descriptively to illustrate the distribution of hypertension and metabolic risk categories. All activities were conducted with the consent of the participants and involved village health cadres as companions to ensure continued follow-up in the community.

RESULTS AND DISCUSSION

A health screening in Hamlet III, Suka Sari Village, was attended by 30 participants, consisting of elderly people and adults at risk of hypertension. Initial blood pressure tests showed that most participants were pre-hypertensive and stage 1 hypertension, while several others had normal blood pressure and stage 2 hypertension. This pattern aligns with the village's geographical location in the highlands and the habit of high salt consumption, which contributes to high blood pressure.

After the 25-minute elderly exercise session, blood pressure was re-measured to evaluate acute physiological changes. The results showed a decrease in systolic and diastolic blood pressure in the majority of participants. The pre-hypertensive and stage 1 hypertension groups showed a more significant decrease than the other groups. Participants also reported feeling lighter, warmer, and more relaxed after the exercise, supporting the physiological measurement results.

Random blood sugar (BG) tests showed that most participants were in the normal range, but there were several participants with BG values ≥200 mg/dL, which had not been previously detected. This condition indicates a potential risk of diabetes mellitus in some residents and demonstrates the importance of routine health screening in rural communities.

Furthermore, uric acid level testing revealed that several participants had results above the normal range. Participants with high uric acid levels generally also reported joint pain, particularly in cold weather. These findings reinforce the need for education regarding dietary management and early detection of hyperuricemia in the elderly. Overall, the results of this activity not only provide a snapshot of the health status of the Dusun III community but also demonstrate that simple interventions such as elderly exercise have a direct impact on lowering blood pressure. This activity generated important baseline data for village health cadres for long-term monitoring and supports community-level non-communicable disease prevention efforts.

Table 1. Blood Pressure Distribution Before Elderly Exercise

Normal	<130/80	4	13.3%
Pre-hypertension	130–139 / 80–89	9	30.0%
Hypertension Degrees 1	140–159 / 90–99	13	43.3%
Hypertension Degrees 2	≥160/100	4	13.3%
Total	–	30	100%

Table 1 shows that the majority of participants were in the abnormal blood pressure category. Of the 30 participants, only 4 (13.3%) had blood pressure within the normal range. The largest group was in the grade 1 hypertension category, with 13 (43.3%), followed by pre-hypertension with 9 (30%). Furthermore, there were 4 participants (13.3%) were in the grade 2 hypertension category. This distribution pattern shows that the majority of participants have a risk of increasing blood pressure and require further monitoring.

Table 2. Change Pressure Blood Before And After Exercise Elderly

Parameter	Before Gymnastis (Average)	After Exercise (Average)	Change (Δ)
Pressure blood systolic (mmHg)	148	139	- 9
Pressure blood diastolic (mmHg)	92	87	- 5
Pulse pulse (x/minute)	84	79	- 5

Table 2 shows changes in blood pressure before and after elderly exercise. The average systolic blood pressure of participants before exercise was 148 mmHg and decreased to 139 mmHg after exercise, a decrease of 9 mmHg. A decrease was also seen in diastolic blood pressure, from 92 mmHg before exercise to 87 mmHg after exercise. In addition, there was a decrease in the average pulse rate from 84 mmHg. to 79 times per minute. Change this shows existence response physiological immediately after physical activity.

Table 3. Summary Results Measurement Pressure Blood

Domination pre-hypertension & hypertension degrees 1	Majority participant own pressure blood in above normal.
Decline pressure blood after exercise	Mean systolic decline 9 mmHg and diastolic 5 mmHg.
Response physiological positive	Participant feel body more light And warm after exercise.
Potential risk health	Results show the need monitoring continuation for at-risk groups.

Table 3 summarizes the key findings regarding blood pressure distribution and changes before and after the intervention. Most participants experienced a decrease in blood pressure after exercise, particularly in the pre-hypertension and stage 1 hypertension categories. This narrative confirms that the measurement results demonstrate a significant difference in values and can serve as a basis for follow-up monitoring of the participants' health.

DISCUSSION

The examination results showed that the majority of participants were in the pre-hypertension and stage 1 hypertension categories. This finding confirms that hypertension is a fairly dominant health problem among the elderly in Hamlet III, Suka Sari Village. This condition is likely influenced by environmental factors in the highlands, which have relatively lower temperatures.

Cold temperatures are known to increase sympathetic nervous system activity. This triggers vasoconstriction of blood vessels. This mechanism leads to increased peripheral resistance and spikes in blood pressure, especially in the elderly, whose blood vessel elasticity has decreased (Nugroho & Pramudita, 2020). Furthermore, a high-salt diet—such as salted fish, which is common in rural areas—also accelerates fluid retention and increases intravascular pressure, contributing to a higher risk of hypertension (Astuti & Lestari, 2021). A 25-minute exercise session for the elderly resulted in a significant reduction in blood pressure in most participants.

The decrease in average systolic and diastolic blood pressure indicates a positive physiological response to physical activity. Scientifically, exercise for the elderly can increase vasodilation due to relaxation of vascular smooth muscle, activate the parasympathetic system, reduce stress hormones such as cortisol, and improve peripheral blood flow. These combined effects lead to a decrease in vascular resistance and blood pressure (Setyawan & Widodo, 2020).

These results align with the findings of Sari and Lubis (2022), who reported that light physical activity can lower blood pressure by 5–10 mmHg in the elderly. Therefore, exercise for the elderly can be considered an effective, inexpensive, and easily replicable non-pharmacological intervention in rural communities. In addition to hypertension, this activity also succeeded in identifying several participants with high blood pressure levels. sugar blood when And level sour tendon in on limit normal. Matter This become important This is because the majority of participants admitted to having never undergone metabolic screening before. Early detection like this is crucial for preventing diabetes complications and hyperuricemia, especially in rural communities where access to screening is limited.

The American Diabetes Association (2020) emphasized that community-based screening plays a significant role in preventing the progression of metabolic disease. Furthermore, high uric acid levels in elderly participants can trigger joint inflammation, particularly in cold temperatures, as reported by Yuliana and Prasetyo (2022). These findings provide a strong foundation for further education programs aimed at reducing high-purine foods and increasing

regular physical activity. Involvement of village health cadres in mentoring, recording, and Information delivery is a crucial aspect that strengthens program sustainability. Cadres not only assist in implementing activities but also act as liaisons, ensuring that blood pressure and metabolic monitoring can continue after the community service activities are completed. This aligns with WHO recommendations (2021), which emphasize that controlling non-communicable diseases requires an approach that prioritizes community empowerment and the sustainability of interventions at the village level.

With baseline data, From this activity, cadres can design follow-up activities such as Posbindu PTM, weekly exercise classes, and routine blood pressure recording. Overall, this discussion demonstrates that health checks and elderly exercise activities not only yield clinical findings but also provide a comprehensive picture of the health conditions of rural communities. This community-based intervention has been shown to have a direct impact on lowering blood pressure, increasing public awareness, and helping identify overlooked risks of metabolic diseases.

With minimal resources, such activities can be a model for effective and sustainable promotive-preventive interventions, especially in rural areas with limited access to health services. These findings reinforce the belief that villages can be at the forefront of non-communicable disease control if appropriate, affordable, and community-based interventions are consistently implemented.

CONCLUSION

This community service activity demonstrated that hypertension is a dominant health problem among the elderly in Hamlet III, Suka Sari Village, influenced by highland environmental conditions, high salt consumption patterns, and limited routine health checks. Implementing 25 minutes of elderly exercise was proven effective in lowering systolic and diastolic blood pressure in the majority of participants, thus representing a simple and inexpensive intervention beneficial to the health of the elderly. Random blood sugar and uric acid level tests also successfully identified several participants at risk of previously undetected metabolic diseases. Overall, this activity raised public awareness about the importance of early detection and prevention of non-communicable diseases, and provided baseline data that can be used village health cadres for continuous health monitoring.

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