

## Optimizing Elderly Health Through The Smart Elderly Program In Overcoming Hypertension In RW 02 Nangkaan Village Bondowoso Regency

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### Abstract

The elderly population is increasing every year. Hypertension is one of the degenerative diseases commonly found among the elderly. Uncontrolled hypertension can lead to complications and increase mortality. The aim of the "Smart Elderly" community service program is to improve the health of elderly individuals with hypertension. The community service methods included health examinations, health education, and the implementation of a healthy lifestyle through the DASH diet and autogenic relaxation techniques. The program involved 20 elderly participants in RW 02, Nangkaan Village, Bondowoso District. The results showed that before the educational sessions, the elderly, health cadres, and family members had limited understanding of hypertension management and the DASH diet. After the education sessions, their understanding improved significantly. The average blood pressure before autogenic relaxation was 150 mmHg systolic and 80 mmHg diastolic. After the relaxation session, the average blood pressure decreased to 130 mmHg systolic and 70 mmHg diastolic, reflecting a reduction of 20 mmHg in systolic and 10 mmHg in diastolic pressure. The "Smart Elderly" program is expected to assist the elderly, their families, and health cadres in improving the health of elderly individuals with hypertension.

**Keywords:** Autogenic relaxation , Elderly , Health education, Hypertension

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### Introduction

Elderly individuals (older adults) represent the final stage of human growth and a normal phase of development experienced by every individual during the life cycle. Globally, the population of older adults is increasing in nearly every country. Hypertension is one of the most common degenerative diseases found in this age group. The number of people with hypertension continues to rise each year, with an estimated 1.5 billion individuals expected to be affected by 2025. Furthermore, it is projected that approximately 10.44 million people will die annually due to hypertension and its complications (Pusdatin Kemenkes RI, 2019, 2019). Uncontrolled hypertension can progress and lead to complications and death. The complications associated with hypertension include heart disease, stroke, kidney disease, retinopathy (damage to the retina), peripheral vascular disease, neurological disorders, and cerebral (brain) impairments (Kementerian Kesehatan RI, 2019). The higher the blood pressure, the greater the risk of damage to the heart and blood vessels in major organs such as the brain and kidneys (Buku Pedoman Hipertensi, 2024).

The global elderly population in 2020 reached 727 million people aged 65 years and older. This number is projected to continue increasing to 1.5 billion by 2050. In 2019, the

morbidity rate among older adults was 26.20%, with 23.93% in urban areas and 28.73% in rural areas. In 2021, 42.22% of the elderly reported experiencing health complaints in the past month, half of whom (22.48%) had their daily activities disrupted or experienced illness. Approximately 81.08% of older adults self-treated their health complaints, while 45.42% sought outpatient care. Around 5.26% of the elderly had been hospitalized in the past year (Badan Pusat Statistik, 2021). In a preliminary study conducted in RW 2, Nangkaan Village, Bondowoso District, data showed that 25 elderly individuals were suffering from hypertension. From the assessment results, 11 of them experienced anxiety, and 4 had moderate to high levels of stress. Managing stress is necessary to help older adults control their blood pressure.

Hypertension in older adults needs to be properly managed to ensure they achieve an optimal quality of life and to prevent complications (Amanda et al., n.d.). Hypertension management can be carried out by providing education to increase the knowledge of older adults and their families. Support from family members and health cadres, along with the implementation of a healthy lifestyle such as following the DASH diet and stress management can play a crucial role. Educating patients and their families about preventive measures against hypertension complications is expected to help control blood pressure in individuals with hypertension. Knowledge about hypertension and its risk factors is useful for disease prevention and management. However, there is still a lack of understanding regarding behavioral risk factors related to hypertension and the importance of knowledge in adopting health-promoting behaviors and controlling hypertension (Robert E. Kowalski, 2022).

Previous research has shown a relationship between family support and knowledge of hypertension with the healthy lifestyle of individuals with hypertension. The study reported the following results: family support (40.8%), hypertension knowledge (42.7%), and the lifestyle of individuals with hypertension (50.5%). In this study, hypertension knowledge was assessed in terms of understanding the condition, medical care, medication adherence, lifestyle, diet, and complications. In this community service program, the knowledge of elderly individuals with hypertension and their families will be enhanced through education on hypertension management and the DASH diet (Millenia Kolinug et al., n.d.).

The causes of high blood pressure or hypertension generally stem from unhealthy lifestyle patterns and habits. Lifestyle factors such as being overweight due to lack of physical activity and smoking at the age of 40 and above contribute to impaired blood circulation and increased blood pressure. A healthy lifestyle among individuals with controlled hypertension is significantly better compared to those who do not manage their condition properly.

(Damayanti et al., 2024). The recommended healthy lifestyle to prevent and control hypertension includes maintaining a balanced diet and limiting the intake of sugar, salt, and fat (PERHI, 2021). Maintain an ideal body weight and waist circumference (less than 90 cm for men and less than 80 cm for women), adopt an active lifestyle or engage in regular exercise, stop smoking, and avoid consuming alcohol (Pusdatin Kemenkes RI. 2019, 2019).

Stress management in older adults can be achieved through Autogenic Relaxation. Autogenic relaxation is a self-generated relaxation technique that relies on personal awareness to reduce stress and muscle tension, which in turn may help lower blood pressure and alleviate headaches. This relaxation method will be included as one of the activities in the community service program, aiming to reduce blood pressure and maintain the health of elderly individuals with hypertension. Autogenic relaxation has been shown to have a positive effect in lowering blood pressure among individuals with hypertension (Rizki Wahyu Mahendra, n.d.). Based on the data above, the community service team has planned a program consisting of health check-ups for the elderly and health education focused on managing hypertension through autogenic relaxation and the Dietary Approaches to Stop Hypertension (DASH) diet for individuals with hypertension. The “Smart Elderly Program” (CERDAS: *Cek Kesehatan Lansia, Edukasi Pengelolaan Hipertensi, Relaksasi Autogenik, and Diet DASH*) represents the contribution of community nurses in optimizing the quality of life of elderly individuals with hypertension. (Millenia Kolinug et al., n.d.)

### **Identification of Problems**

The elderly population in RW 02 Nangkaan continues to increase; however, many older adults with hypertension still lack understanding of how to manage their condition effectively. Families and health cadres also have limited knowledge regarding healthy diets and relaxation techniques as strategies for controlling hypertension. Therefore, a structured program is needed to improve the health of the elderly population.

### **Implementation Methodology**

The implementation method of the community service program will follow a systematic series of activities based on a situational analysis. These include conducting a site survey to collect data on areas with elderly individuals suffering from hypertension, preparing a community service proposal, and completing administrative procedures for obtaining permission to use the designated location. Preparations will also include organizing health screenings for the elderly and developing educational materials for the “Smart Elderly (CERDAS)” program. The activity was carried out in RW 2,

Nangkaan Village, Bondowoso Regency, involving 25 elderly participants with hypertension. The implementation method of the *Smart Elderly (CERDAS)* program included health examinations, health education, and the adoption of a healthy lifestyle through the application of the DASH diet and autogenic relaxation techniques. The program was conducted over two sessions within one month. During the first session, health examinations were performed to measure blood pressure, blood glucose, uric acid, and cholesterol levels. The second session focused on hypertension management education and DASH diet counseling for health cadres, families, and elderly individuals with hypertension, followed by the implementation of autogenic relaxation therapy. The methods used in the program included health education sessions supported by educational media and interactive discussions (Q&A).

## Results and Discussion

### Results

The first activity of the *Smart Elderly (CERDAS)* Program was health screening for the elderly. This activity was conducted in RW 02, Nangkaan Village, and was attended by 25 elderly participants. The community service program involved the active participation of elderly health cadres in the area. All participants attended the session according to the agreed schedule. The health screening included blood pressure measurement, blood glucose testing, uric acid testing, and cholesterol testing, adjusted to the complaints and needs of each elderly participant. This health examination served as part of the early detection effort for hypertension cases in the Bondowoso District.

Table 4.1 Elderly Health Examination Results

Kategori	Mean	Std. Deviasi	Min - Max
Usia	65.44	4.953	60-77
Sistole (mmHg)	151.32	26.116	109-227
Diastole (mmHg)	79.18	14.325	57-111
GDS (mg/dl)	153.80	72.390	91-514
Asam Urat (mg/dl)	7.86	2.187	4-12
Kolesterol (mg/dl)	239.84	48.345	131-350



Figure 1. Question-and-Answer Session Between Participants and the Presenter

The second activity of the *Smart Elderly (CERDAS)* Program was education on hypertension management for the elderly and education on the DASH diet. The purpose of this activity was to improve the knowledge of older adults, their families, and health cadres. All participants attended according to the agreed schedule. During this community service activity, the team conducted pre-tests and post-tests related to the materials on hypertension management and DASH diet education for health cadres, families, and elderly individuals with hypertension. The pre-test results showed an average score of 60, while after the educational session, the post-test results increased to an average score of 80 among the 25 participants.



Figure. Blood Glucose and Blood Pressure Screening

Table 4.2 Distribution of Pre-Test and Post-Test Scores

Variabel	Nilai Pre Test	Nilai Post Test
Knowledge	60	80

The final activity of the *Smart Elderly (CERDAS)* Program was Autogenic Relaxation. This activity aimed to promote physical relaxation, emotional calmness, and reduce blood pressure among the elderly participants. The average blood pressure before the autogenic relaxation session was 157.16 mmHg systolic and 78.18 mmHg diastolic. After the relaxation session, the average blood pressure decreased to 139.59 mmHg systolic and 76.49 mmHg diastolic. This indicates an average reduction of 17.57 mmHg in systolic pressure and 2.69 mmHg in diastolic pressure.

## Discussion

The results of the community service activities conducted by the team through the *Smart Elderly (CERDAS)* program showed a change in the average pre-test and post-test knowledge scores. This indicates an improvement in the knowledge level of the elderly participants. The outcomes of this activity also demonstrated an increase in information and understanding among the community, particularly among the elderly. In addition, participants stated that they had gained a sufficient understanding of hypertension management. Hypertension is a condition in which an individual experiences an increase in blood pressure above normal levels (Joseph., 2020). Hypertension is classified into primary and secondary types. Primary hypertension is defined as a condition in which high blood pressure occurs as a result of an individual's lifestyle and uncontrolled environmental factors, leading to excess body weight or even obesity, which serves as an initial trigger for developing high blood pressure. Meanwhile, secondary hypertension is a condition in which elevated blood pressure occurs as a consequence of other diseases such as heart failure, kidney failure, or hormonal disorders (Novi Berliana, 2021).

The results of this community service activity showed an increase in the elderly's knowledge about hypertension, their ability to independently control blood pressure, and their skills in non-medical hypertension management through autogenic relaxation techniques. The findings also indicated a significant improvement before and after the implementation of the program. Furthermore, the activity demonstrated active participation and engagement from community members. This involvement enabled participants to recall methods for preventing and controlling hypertension, identify herbal remedies that may help reduce hypertension, and

perform hypertension exercise routines together. Non-medical or complementary therapy approaches are also essential in managing hypertension among the elderly (Kementerian Kesehatan RI., 2019).

Non-pharmacological management is often used by many researchers to analyze hypertension prevention strategies among the elderly. Health education for the community, particularly for older adults, is carried out by presenting information supported by educational media about the factors, symptoms, and preventive measures related to hypertension. This approach aims to improve health knowledge and awareness among the elderly (Li'wuliyya, 2024). Lifestyle modification toward healthier habits—including regular physical activity, weight control, smoking cessation, stress reduction, avoidance of excessive alcohol consumption, adherence to a heart-healthy diet, and reduced sodium intake—is highly recommended in preventing hypertension. Individual compliance with these lifestyle interventions can serve as an effective preventive approach to controlling blood pressure (Fuad et al., 2022).

Social support and family functioning also play an important role in the management and prevention of high blood pressure. The involvement of close relatives and companions provides the elderly with a sense of safety, comfort, and confidence in their daily lives. This, in turn, promotes positive thinking patterns and enhances adherence to healthy behaviors, contributing to a better quality of life (Fuad et al., 2022). In many community settings, individuals with limited understanding of self-management related to high blood pressure tend to have lower levels of treatment adherence. It is therefore essential to regularly monitor individual compliance in managing blood pressure, as this can help reduce health risks and improve the quality of life among the elderly (Kustin et al., 2023). However, to achieve this, social support from those around such as family members, healthcare providers, and the individuals themselves is essential (Kustin et al., 2024). The motivation that arises can encourage individuals to adhere to hypertension prevention management. Proper self-management significantly influences the discipline of the elderly in improving their overall health (Cornelya Putri Melanie et al., n.d.).

The risk factors for hypertension can be classified into uncontrollable factors (such as heredity, gender, and age) and controllable factors (such as obesity, lack of physical activity, smoking, and excessive consumption of alcohol and salt). Hypertension involves multiple risk factors that are closely related to the onset of the disease. These risk factors include genetics, race, age, gender, smoking, obesity, and psychological stress. Factors contributing to the recurrence of hypertension include poor diet, smoking, and stress (Maulana Program Studi

Ilmu Keperawatan et al., n.d.). One of the efforts that can be undertaken to manage and prevent hypertension is through diet. Individuals with hypertension should control and regulate their daily eating patterns to ensure a balanced and healthy intake. In dietary management, potassium plays an important role in helping to reduce blood pressure. Consuming fruits and vegetables rich in potassium can improve blood pressure control (Kementeriaan Kesehatan RI, 2019). Management strategies to help prevent and reduce blood pressure include non-pharmacological techniques for individuals with hypertension, such as tomato therapy. Blood pressure control efforts can also focus on reducing the risk of diseases that may arise from hypertension through promotive and preventive actions. Promotive measures include adopting a low-salt diet, engaging in regular physical exercise, and avoiding smoking (Novita Eka Rini et al., n.d.). Preventive measures can be implemented by conducting regular blood pressure checks. Increasing public awareness in controlling hypertension can reduce the potential risk by up to 50% (Syukkur et al., 2022). Non-adherence to antihypertensive medication or non-pharmacological therapy, as well as neglecting the contributing factors of hypertension, will further exacerbate the condition.

## **Conclusion**

The Smart Elderly Community Health Service Program consists of health check-ups and health screenings for the elderly. Activities promoting an active lifestyle, such as hypertension exercise and autogenic relaxation for the elderly, have been carried out successfully. Local government officials, including the village administration, neighborhood associations (RW/RT), community health centers (Puskesmas), health cadres, and the community, were highly cooperative. This program was implemented successfully due to strong coordination between the community service team and local stakeholders. Elderly participants benefited from the Smart Elderly program, as they were able to understand their health status and receive information on activities that could be carried out by themselves and their families to reduce hypertension. The involvement of health cadres in this community service program provided them with knowledge and skills to support hypertension management in the elderly. It is expected that health cadres and community health centers can continue implementing the Smart Elderly program to further enhance the quality of life of older adults.

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