

## Physical activity as an effort to prevent hypertension in the elderly

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### ABSTRACT

**Introduction** hypertension is one of the common health problems in the elderly population and can increase the risk of cardiovascular disease and other complications. Physical activity is effective in preventing and managing hypertension in the elderly.

**Objectively** identify and evaluate different types of physical activity that can help prevent hypertension in the elderly.

**Methods** is a type of quantitative research with a case-control approach. The total population is 42 respondents. Data collection using questionnaires. Data analysis using the Chi-square test.

**Results** show that physical activity can prevent hypertension in the elderly. The chi-square test results show a p-value of 0.634, meaning physical activity is not a risk factor for causing hypertension.

**Conclusion** regular and diverse physical activity is an important strategy in preventing hypertension in the elderly. Physical activity programs tailored to individual needs and abilities should be encouraged and widely implemented to maintain heart health and reduce the risk of hypertension in the elderly population. Further efforts are needed to increase public awareness of the importance of physical activity in maintaining heart health and preventing cardiovascular disease in the elderly.

**Keywords:** *elderly; hypertension; physical activity*



## INTRODUCTION

Population ageing is a significant phenomenon worldwide. These demographic changes have changed the population structure in many countries, with an increasing proportion of the elderly or elderly population. Seniors are generally 60 and older, although this definition may vary depending on social, cultural, and health contexts. Elderly COVID-19 patients should re-think their lifestyle habits to consider a physical activity level adjusted to their abilities to decrease the risk of a severe disease course and limit further symptoms' number and duration (Kapusta *et al.*, [2023](#)). The policies and programs to optimize government spending and modify the current chronic condition management practices (Madavanakadu Devassy, Baby John, and Scaria, [2023](#))—still have room for improvement in the participation of middle-aged and older adults in lung function testing. Among the propensity factors, the factor that affects the rate of lung function tests is the highest degree of education, which determines the degree of patients' attention to lung function tests (Jiang *et al.*, [2023](#)). The ageing process and a chronic sedentary lifestyle in the elderly due to physical restrictions during the COVID-19 pandemic induce oxidative stress through oxygen supply and antioxidant activity imbalance, which in turn cause degenerative diseases (Boy, Lelo, and Sagiran, [2023](#)).

Hypertension, or high blood pressure, is one of the significant health problems worldwide, affecting millions of people of different age groups. In recent decades, the Prevalence of hypertension has increased significantly, both in developed and developing countries. It is becoming a leading cause of heart disease, stroke, kidney failure, and other health complications. For perimenopausal women, calf circumference measurements can be used to predict cardiac metabolic risk factors, which can be detected by observing blood pressure, blood glucose, and blood lipids (Bian *et al.*, [2023](#)). This nationwide community-based study shows that depressive symptoms are associated with lower HbA1C, reminding us that more attention should be paid to the presence of depressive symptoms in those with lower HbA1C. Further research is needed to clarify the causal relationship (Liu *et al.*, [2023](#)). Emphasize the importance of addressing osteosarcopenia in the elderly population to improve their well-being (Vahdani *et al.*, [2023](#)). Epidemiological studies about the effect of essential metal mixtures on fasting plasma glucose levels among older adults are sparse (Wang *et al.*, [2023](#)). Smoking describes overt behavior were smokers inhale tobacco. High blood pressure represents systolic blood pressure  $\geq 140$  mmHg and diastolic  $\geq 90$  mmHg twice, checking blood pressure measurements within 5 minutes in calm conditions (Suprpto, Mulat and Norma Lalla, [2021](#)).

Physical activity is an important part of a healthy lifestyle and is key to maintaining overall health and well-being. With lifestyles increasingly inclined to sedentary patterns and lack of movement, physical activity is becoming increasingly important in keeping the body healthy and preventing various chronic diseases, including heart disease, diabetes, obesity, and hypertension. The importance of physical activity in maintaining health and well-being significantly impacts the level of individuals, communities, and health systems as a whole. Here are some recognizable implications: 1) Individual health and regular physical activity can help individuals maintain a healthy weight, reduce the risk of heart disease, diabetes, hypertension, and cancer, and improve mental health and sleep quality. These implications suggest that physical activity is an investment in the long-term health of individuals; 2) public health, the level of physical activity in a community, can significantly impact the population's overall health. Physically active

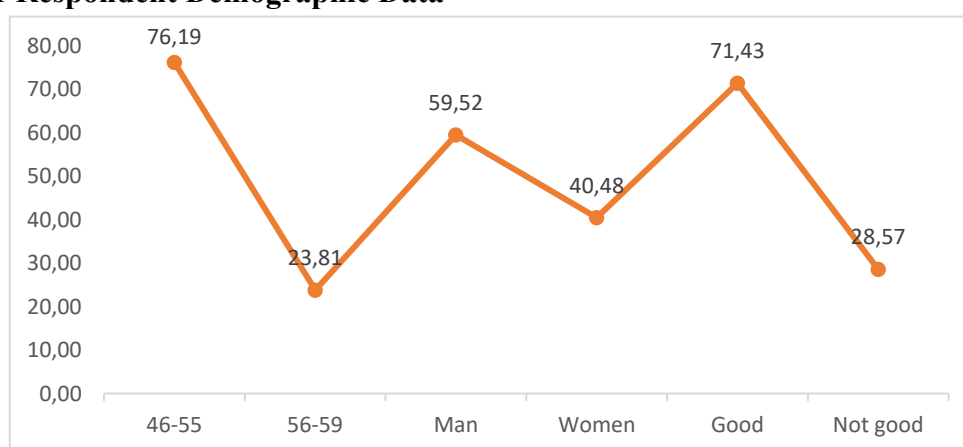
societies tend to have lower rates of obesity and its associated diseases, which in turn can reduce health system burdens and healthcare costs. This study aims to identify and evaluate different types of physical activity that can help prevent hypertension in the elderly.

### MATERIALS AND METHODS

In this study, researchers used quantitative research methods with a case-control approach. The total population is 42 respondents. The sampling technique uses nonprobability sampling with purposive sampling. This research will be conducted in November 2023. The independent variable is physical activity. The dependent variable is the incidence of hypertension in the elderly. Data collection using questionnaires. Data analysis using the Chi-square test.

### RESULTS

**Grafik 1 Respondent Demographic Data**



The distribution of respondents by age showed that the most dominant age was 46-55, as much as 76.19%, as much as 59.52%, and good physical activity, as much as 71.43%.

**Table 1. Bivariate analysis of square test**

al activity	alue value	OR (95% CI)	Incidence of hypertension			
			Case		Control	
			N	%	N	%
od	,634	0,632 ,094-4,230	2	,5%	3	14,3%
			19	,5%	18	85,7%

The results of data processing using the chi-square test can be seen from the continuity correction sig (2-sided) because the value of 0 cells > 5, which shows that the p-value is 0.634 ( $p > 0.05$ ), which means there is no relationship between physical activity and the incidence of hypertension in the pre-elderly in Mojopurno Village. These results are supported by the value of OR (95% CI) = (0.094-4.230), which means that physical activity is not a risk factor for causing hypertension.

## DISCUSSION

Researchers found that physical activity is not a risk factor for hypertension. Physical activity is not a risk factor for direct hypertension. Adequate and regular physical activity tends to protect heart and blood vessel health and can help control blood pressure. Regular and varied physical activity has been shown to benefit blood pressure and general heart health. Therefore, it is recommended to maintain an active and healthy lifestyle as part of a hypertension prevention strategy, along with controlling other risk factors (Su *et al.*, 2023). The moderate-intensity comprehensive exercise was confirmed as a safe and convenient exercise program (Chen *et al.*, 2023). In the population studied, the prevalence of patients without a diagnosis of diabetes and prediabetes was very high and underestimated. The increased severity of periodontitis in patients with diabetes, in conjunction with the high level of cortisol seen in patients with periodontitis, especially those with diabetes, emphasizes the dysregulation of the immunoinflammatory system (Portes *et al.*, 2023). the population is frail, and one-third is prefrail. The growing older population and the corresponding increase in the prevalence of frailty would significantly impact the already overburdened health services (Meratwal *et al.*, 2023).

Hypertension is a significant evolving issue with high Prevalence in low- middle-income countries and is a risk factor for cardiovascular conditions (Agrawal *et al.*, 2023). The effect of hypertension on physical activity was moderated by age. Factors influencing physical activity levels among adults were income, gender, marital status, education, employment status, and BMI awareness (Cheah *et al.*, 2023)—the influence of motivation on the activeness of older adults with Hypertension in protagonist gymnastics activities. Motivation influences the activeness of older adults with Hypertension in romantic gymnastics activities. High motivation can be an essential factor in encouraging active participation in protagonist gymnastics programs, which in turn can support the management of hypertensive conditions and improve the well-being of older people (Anggeraeni *et al.*, 2024). Hypertension is a health problem often encountered in the elderly, and Prolanis gymnastics has proven beneficial in controlling blood pressure and improving their quality of life (Kamaruddin, 2023). Hypertension or high blood pressure is a chronic, non-communicable disease that can cause complications in organs such as the heart, kidneys, brain, and eyes. Hypertension can cause blood pressure to rise beyond normal limits. In hypertension, systolic blood pressure can reach  $\geq 140$  mmHg and diastolic pressure  $\geq$  mmHg (Aprillia, 2020).

Hypertension is the main precipitating factor for the occurrence of stroke, both hemorrhagic and ischemic stroke (Puspitasari, 2020). implementing the proposed strategies, it is hoped that nurses will be better equipped to provide high-quality care to the community, ultimately improving health outcomes and well-being. The implementation of public health nurses cannot be separated from the role of nurses in a public health centre. Community health nurses in a public health centre have at least six roles and functions, namely, as nursing case finders, health educators, coordinators and collaborators, counsellors, and role models (Suprpto *et al.*, 2024). state that ostrich meat is a dietary and low-calorie product that can be recommended for older adults. The study's practical value lies in optimizing data on the development of meat products for the nutrition of older people and the possible inclusion of ostrich meat in the diet (Abzhanova *et al.*, 2023).

## CONCLUSIONS

It was concluded that physical activity is an important strategy for preventing

hypertension in the elderly. Physical activity programs tailored to individual needs and abilities should be encouraged and widely implemented to maintain heart health and reduce the risk of hypertension in the elderly population. Further efforts are needed to increase public awareness of the importance of physical activity in maintaining heart health and preventing cardiovascular disease in the elderly. Adequate and regular physical activity has a significant positive impact on an individual's physical and mental health.

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