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The Relationship Between Participation in Elderly Gymnastics and Hypertension Incidence at Kalirejo Public Health Center

Rita Oktavia Andriani[1], Eka Yulianti[1], Nova Nurwinda Sari[1]
[1]*Department of Nursing, Universitas Mitra Indonesia, Indonesia*

Correspondence author: Rita Oktavia Andriani
Email: ritaoktaviaandrani07@gmail.com
Address: Bima sakti, Negeri Besar, Way Kanan. Lampung. Indonesia Telp. 082279136527
DOI:

ABSTRACT

Introduction: Elderly gymnastics is a structured physical activity designed to enhance the functional health of older adults. As hypertension remains a leading cause of outpatient visits at Kalirejo Health Center, Negeri Katon District, the effectiveness of elderly gymnastics as a preventive strategy warrants investigation.
Objective: This study aimed to examine the relationship between participation in elderly gymnastics and the incidence of hypertension among elderly individuals at the Kalirejo Health Center in 2024.
Method: This research used a quantitative approach with a descriptive correlational method and cross-sectional design. The sample consisted of 80 elderly respondents selected using the Slovin formula. study used an observation sheet as a data collection tool where the data collected was a recapitulation of the attendance list of elderly gymnastics participants and the Community Health Center medical records (patient visit records).Data were analyzed using a chi-square statistical test.
Result: Findings showed that most respondents who actively participated in elderly gymnastics did not have hypertension. Statistical analysis yielded a p-value of 0.020, indicating a significant relationship between the level of participation and the incidence of hypertension.
Conclusion: There is a significant relationship between elderly gymnastics participation and the incidence of hypertension. Active involvement in regular physical activity such as elderly gymnastics may help reduce hypertension risk. Future research should explore factors influencing elderly participation to enhance program effectiveness.

Keywords: aging population, elderly gymnastics, hypertension, physical activity

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Introduction

Posyandu, an abbreviation for Pos Pelayanan Terpadu (Integrated Health Service Post), is a community-based health effort (Upaya Kesehatan Berbasis Masyarakat or UKBM) that aims to monitor and improve public health, particularly among pregnant women and young children. One of the essential activities organized by Posyandu is elderly gymnastics, which serves to promote physical well-being in the aging population (BKKBN, 2023).

The elderly stage represents the final phase in the human life cycle and is characterized by inevitable biological and psychological changes. Individuals in this stage commonly experience a decline in physical and mental functions, including diminished strength, cognition, and emotional stability (Haryanto et al., 2022).

Elderly gymnastics is defined as a structured, systematic, and routine set of physical movements designed to enhance the body's functional capacity. These exercises aim to maintain cardiovascular and respiratory health, muscle strength, endurance, flexibility, metabolic regulation, and weight stability. Additionally, they help in reducing blood pressure, lowering blood lipid levels, preventing bone density loss, decreasing the risk of cardiovascular diseases, and improving mental health and self-confidence (BKKBN, 2023).

Globally, the aging population is increasing rapidly. By 2030, it is estimated that one in six individuals will be aged 60 years or older. The number is expected to grow from 1 billion in 2020 to 1.4 billion by 2030, and reach 2.1 billion by 2050. Moreover, the population aged 80 years and above is projected to triple, reaching 426 million by 2050 (WHO, 2024). While aging was initially most prominent in high-income countries such as Japan, where over 30% of the population is elderly, low- and middle-income countries are now experiencing the fastest demographic shifts. By 2050, nearly two-thirds of the global elderly population will reside in these regions (WHO, 2024).

In Indonesia, data from Susenas (March 2023) revealed that approximately 41.49% of the elderly reported experiencing health complaints in the past month, with a morbidity rate of 19.72%. Common complaints include fever, cough, diarrhea, headaches, and chronic illnesses. These conditions often disrupt daily functioning. Unhealthy lifestyle habits such as smoking remain prevalent, with 23.92% of the elderly still smoking in the past month (BPS, 2023).

Healthcare-seeking behavior among the elderly also varies. Over half (52.90%) manage their symptoms independently, while 25.06% combine self-treatment with outpatient care. Meanwhile, 17.90% seek outpatient care exclusively, and 4.14% do not seek any treatment at all. When accessing outpatient services, elderly individuals most commonly visit private doctors (33.87%), community health centers or puskesmas (26.72%), and clinics (14.93%). Additionally, 5.52% of elderly individuals reported being hospitalized in the past year, with an average stay of 5–6 days. Access to health insurance plays a critical role, with 55.47% of outpatients and 78.60% of inpatients utilizing schemes such as BPJS, Jamkesda, and other public or private insurance programs (BPS, 2023).

At the Kalirejo Public Health Center in Negeri Katon District, hypertension has been identified as the leading cause of outpatient visits among the top 20 diseases. In September 2023, there were 5,928 visits with 210 new cases; in October 2023, visits increased to 6,143 with 215 new cases; and in the following month, 6,493 visits were recorded with 235 new cases. In 2023, Lampung Province recorded 1,440.67 standardized hypertension cases, with 71,891 cases reported specifically in Pesawaran Regency (Lampung Provincial Health Office, 2023).

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Hypertension, defined as excessive pressure of blood against vessel walls, forces the heart to work harder to circulate blood. If unmanaged, this condition can lead to cardiovascular diseases and stroke. Physical activity such as exercise has been shown to benefit cardiovascular function by strengthening the heart and promoting more efficient blood circulation. It also helps in achieving a healthy body weight, thereby preventing obesity, one of the major risk factors for hypertension (Widiyono, 2022; Setiawan et al., 2018).

Kalirejo Health Center has implemented elderly gymnastics as a targeted intervention for older adults. However, despite this ongoing program, an increase in hypertension cases has been observed from September to October 2023. A pre-survey conducted with 10 elderly individuals revealed that 80% participated regularly in the exercise program, while 20% did not. Among them, 60% were diagnosed with hypertension, and 40% were not. This initial observation indicates a possible association between participation in elderly gymnastics and the prevalence of hypertension.

Considering the increasing elderly population, the high prevalence of hypertension, and the implementation of elderly gymnastics as a preventive strategy, this study aims to investigate the relationship between participation in elderly gymnastics and the incidence of hypertension at Kalirejo Public Health Center, Negeri Katon District, Pesawaran Regency in 2024. The findings are expected to serve as a reference for stakeholders, including governmental and private institutions, in planning and optimizing similar elderly health programs.

Objective

This study aimed to develop an educational leaflet tailored for prospective couples, focusing on genetic counseling and premarital screening for thalassemia. The leaflet is designed to enhance awareness, provide clear information, and encourage informed decision-making among couples.

Method

This research employed a quantitative approach using a descriptive correlational method with a cross-sectional design. The study population consisted of 100 elderly individuals who participated in elderly gymnastics activities. The sample size was determined using the Slovin formula, resulting in a total of 80 respondents selected for inclusion in the study.

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Result

Table 1. Relationship between participation in elderly gymnastics and the incidence of hypertension

Participation	Hypertension		Total	ρ value
	Not Hypertension	Hypertension		
Active	29	12	41	0.020
	70.7%	29.3%	100.0%	
Quite active	8	15	23	
	34.8%	65.2%	100.0%	
Active Less	9	7	16	
	56.3%	43.8%	100.0%	
Total	46	34	80	
	57.5%	42.5%	100.0%	

Based on the data presented in Table 1, the majority of respondents with active participation in elderly gymnastics did not experience hypertension, totaling 29 individuals (70.7%). In contrast, the smallest group consisted of respondents with low participation who experienced hypertension, accounting for 7 individuals (43.8%). The statistical analysis yielded a p-value of 0.020. Since the p-value is less than the significance level of 0.05 ($p < 0.05$), the null hypothesis (Ho) is rejected. These findings indicate a statistically significant relationship between the level of participation in elderly gymnastics and the incidence of hypertension among respondents at the Kalirejo Health Center, Negeri Katon District, Pesawaran Regency in 2024.

Discussion

The findings of this study indicate a significant relationship between participation in elderly gymnastics and the incidence of hypertension, as evidenced by a p-value of 0.020 ($p < 0.05$). These results are consistent with prior research that highlights the beneficial impact of physical activity—particularly elderly or Prolanis gymnastics—on blood pressure control.

A study conducted by Sugihen et al. (2022) examined the relationship between PROLANIS participation, medication adherence, and nutritional status on blood pressure control among hypertension patients in the Kedaton Health Center, Bandar Lampung. The study revealed significant associations between PROLANIS participation ($p = 0.04$) and medication adherence ($p = 0.004$) with blood pressure control, although nutritional status was not significantly related ($p = 0.602$). These results support the notion that regular participation in health programs, such as elderly gymnastics, can contribute to better blood pressure regulation.

Similarly, research by Saputra et al. (2019) at the Batam Sehat Clinic found that among 155 BPJS patients, those who participated in PROLANIS gymnastics had better blood pressure control (85.5% controlled vs. 14.5% uncontrolled) compared to those who did not participate (44.4% controlled vs. 55.6% uncontrolled). The statistical analysis yielded a highly significant p-value of 0.000, confirming the strong association between PROLANIS participation and blood pressure control.

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Another supporting study by Emilda et al. (2023) found that 78% of respondents performed elderly gymnastics well, and 70% of the sample population had hypertension. The study concluded that there was a significant relationship between elderly gymnastics and blood pressure control, with a significance value of 0.000. It was emphasized that non-pharmacological interventions, such as elderly gymnastics, are effective in managing hypertension and could be preferable to long-term reliance on antihypertensive medication.

Further evidence was provided by Rahmiati et al. (2020), who investigated the effect of elderly gymnastics on blood pressure among older adults with hypertension. After conducting six sessions of gymnastics over a two-week period, a statistically significant difference in blood pressure before and after the intervention was observed ($p = 0.000$). This study concluded that elderly gymnastics had a measurable effect in reducing blood pressure and should be considered a viable nursing intervention for managing hypertension in the elderly.

Physiologically, hypertension arises when the force of blood against the arterial walls is consistently too high, compelling the heart to work harder to circulate blood throughout the body. Prolonged hypertension can lead to serious complications, such as cardiovascular disease or stroke. According to Widiyono (2022), regular exercise strengthens the heart, allowing it to pump blood more efficiently and with less force, thereby helping to regulate blood pressure. Additionally, consistent physical activity aids in maintaining an ideal body weight, which is essential for preventing obesity—a known risk factor for hypertension.

Hypertension is clinically defined by elevated systolic (≥140 mmHg) and/or diastolic (≥90 mmHg) blood pressure values (Kurnia, 2020). If left uncontrolled, it significantly increases the risk of stroke, heart failure, and kidney damage (Wade, 2021). Given these risks, preventive measures such as elderly gymnastics, which incorporates simple but effective movements, are crucial. The findings of the present study show that the majority of respondents who were actively involved in elderly gymnastics did not experience hypertension.

While elderly gymnastics appears to have a beneficial effect, it should be noted that blood pressure is influenced by multiple factors, including diet, medication adherence, stress levels, and comorbidities. Therefore, elderly gymnastics should be considered as part of a broader strategy for hypertension prevention and management. Based on these results, the researchers recommend that elderly individuals actively participate in regular gymnastics sessions as a non-pharmacological approach to improve cardiovascular health and reduce the risk of hypertension.

Conclusion

The majority of respondents who were actively involved in elderly gymnastics tended not to experience hypertension, while those who were less active were more likely to suffer from it. The results of the statistical analysis showed a significant relationship between participation in elderly gymnastics and the incidence of hypertension at the Kalirejo Health Center in 2024. Future researchers are encouraged to explore the factors that contribute to low participation among the elderly to support Posyandu in improving facilities and promoting greater involvement in gymnastics activities.

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Authors' contribution

Each author contributed equally in all the parts of the research. All authors have critically reviewed and approved the final draft and are responsible for the content and similarity index of the manuscript.

Conflict of interest

The researchers stated that there is no conflict of interest related to the implementation and publication of the results of this research. The entire research process, from planning, data collection, analysis, to report preparation, was carried out independently without any influence or pressure from any third party. A commitment to research ethics is upheld throughout the research process, ensuring transparency, accuracy and honesty in reporting results. Respondents' participation was voluntary with informed consent, and their confidentiality and privacy were maintained in accordance with applicable research ethics standards. With this statement, researchers hope that the research results can be trusted and used as a valid reference for the development of science and health practices related to ethnomedicine and reproductive health.

Ethical consideration

Not applicable.

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