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The relationship between anxiety levels and hypertension among older adults

Jita Gabela*, Suryani, Zubaida Rohmawati

Universitas 'Aisyiyah Yogyakarta

Corresponding author: *E-mail: jitagabela2@gmail.com

Abstract

Background: Hypertension is known as the silent killer because it often does not cause specific complaints or symptoms. Normally, a person's blood pressure ranges from 100-140 mmHg systolic and 60-90 mmHg diastolic. Blood pressure is not only influenced by physical factors, but also psychological conditions. Anxiety is one psychological aspect that is closely related to hypertension. The prevalence of hypertension in Yogyakarta was highest in 2022 at 28.420 cases and lowest in 2018 (18.057 people).

Purpose: To determine the relationship between anxiety levels and hypertension among older adults.

Method: A quantitative research design with an analytical observation method and a cross-sectional approach on 75 elderly people suffering from hypertension using total sampling. The measurement tools used to collect data on anxiety levels were the GAI questionnaire and blood pressure measurements using a digital sphygmomanometer. The data analysis used was univariate and bivariate analysis. Bivariate analysis used Kendall's tau test.

Results: The results showed that 53.3% of respondents had stage 2 hypertension, and 60% of them experienced severe anxiety. The bivariate test on the variable of anxiety level with the incidence of hypertension was p value = 0.001 with a significance level of $\alpha = 0.05$, which means that there is a significant relationship between anxiety level and the incidence of hypertension in the elderly.

Conclusion: There is a relationship between anxiety levels and the incidence of hypertension in the older adults.

Keywords: Anxiety; Blood Pressure; Elderly; Hypertension.

INTRODUCTION

Hypertension is often referred to as the "silent killer" because it frequently develops without causing specific symptoms or complaints (Anasari & Trisnawati, 2025). Normal blood pressure generally ranges from 100–140 mmHg systolic and 60–90 mmHg diastolic; however, blood pressure levels may vary among individuals depending on factors such as age and physical activity (Dewati, Natavany, Putri, Nurfaizi, Rumbrawer, & Rejeki, 2023).

According to the World Health Organization (WHO), the global prevalence of hypertension is approximately 22% of the world's population. In Indonesia, the highest prevalence of hypertension has been reported in South Kalimantan Province, reaching 44.13% (Halim & Sutriyawan, 2022). In the Special Region of Yogyakarta (DIY), the number of

individuals receiving standard hypertension health services was highest in 2022, with 28,420 cases, and lowest in 2018, with 18,057 cases. This prevalence places Yogyakarta as the fourth-highest province in Indonesia in terms of hypertension cases (Kodriati, Ningsih, Wuryandani, Arum, Purnama, Fitria, & Addabani, 2024).

Previous studies have shown that the majority of respondents (81.7%) experienced Stage 1 hypertension, followed by 7.5% with Stage 2 hypertension. Only a small proportion of respondents were classified as having normal blood pressure (4.5%) or prehypertension (6.7%) (Irawan & Imania, 2023). Blood pressure is influenced not only by physical factors such as dietary habits and physical activity but also by psychological conditions. Anxiety

is one of the psychological factors frequently associated with hypertension. Anxiety can trigger the body's stress response, leading to increased blood pressure through hormonal and neural mechanisms. Anxiety is a psychosocial condition that represents a significant mental health concern among older adults, characterized by persistent feelings of fear, worry, and uncertainty (Hidayati, Luthfah, & Aspihan, 2025). Anxiety-induced fear may contribute to the development of hypertension. During periods of anxiety, adrenaline levels increase, causing the heart to pump blood more rapidly and consequently raising blood pressure. Uncontrolled hypertension significantly increases the risk of cardiovascular mortality and morbidity worldwide. Therefore, it is essential to assess the prevalence of hypertension, consider genetic and ethnic risk factors, monitor blood pressure regularly, and provide appropriate antihypertensive treatment (Setiani & Wulandari, 2023). Hypertension can lead to severe complications affecting various target organs, including coronary heart disease, heart failure, ischemic stroke, and hemorrhagic stroke (Kusuma & Ariwibowo, 2024).

A preliminary study for this research was conducted on July 9, 2025, through interviews with older adults (Integrated Health Service Post) cadres in Cambahan Village, Sleman, Yogyakarta. According to the interview results, the elderly population aged 60

years and above consisted of 75 individuals based on routine health screening records. Among them, 17 individuals (42.5%) had normal blood pressure, while 23 individuals (57.5%) were diagnosed with hypertension. These findings indicate that more than half of the elderly population experienced elevated blood pressure, which may increase their risk of cardiovascular disease and other health complications.

RESEARCH METHOD

A quantitative research design using an analytical observational method with a cross-sectional approach. The study population consisted of 75 older adults aged 60 years or older who met the study criteria. The sampling technique used was total sampling, a method in which all members of the population who met the study criteria were included in the sample, resulting in a sample of 45 older adults. The measurement tools used to collect data on anxiety levels were the GAI questionnaire, and blood pressure was measured using a digital sphygmomanometer. To test for the presence or absence of a relationship between the anxiety level variable and the incidence of hypertension, Kendall's tau analysis was used, with a significance level of $\alpha = 0.05$.

RESEARCH RESULTS

Table 1. Characteristics of respondents (N = 45)

Variable	Results	P-Value	Correlation Coefficient
Age (n/%) (Mean$\pm$SD) (Range) (Year)	(68.7 $\pm$ 4.9) (60-90)		
60-74	40/88.9		
75-90	5/11.1		
Gender (n/%)			
Male	9/20.0		
Female	36/80.0		
Occupation (n/%)			
Housewife	23/51.1		
Laborer	12/26.7		
Self-employed	5/11.1		
Retired	1/2.2		
Unemployed	4/8.9		

Jita Gabela*, Suryani, Zubaida Rohmawati

Universitas 'Aisyiyah Yogyakarta

Corresponding author: *E-mail: jitagabela2@gmail.com

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Education (n/%)			
Elementary School	30/66.7		
Junior High School	9/20.0		
High School	5/11.1		
Bachelor's Degree	1/2.2		
Anxiety Level (n/%)			
Normal or Mild	2/4.4	0.001	1.000/0.867
Moderate	16/35.6		
Severe	27/60.0		
Prevalence of Hypertension (n/%)			
Prehypertension	4/8.9		
Stage 1 Hypertension	17/37.8		
Stage 2 Hypertension	24/53.3		

Table 1 presents the demographic characteristics of the respondents, anxiety levels, prevalence of hypertension, and the relationship between anxiety and hypertension. The respondents had a mean age of 68.7 ± 4.9 years, ranging from 60 to 90 years. Most respondents were aged 60–74 years (88.9%), while 11.1% were aged 75–90 years. The majority of respondents were female (80.0%), whereas males accounted for 20.0% of the sample. Regarding occupation, more than half of the respondents were housewives (51.1%), followed by laborers (26.7%), self-employed individuals (11.1%), unemployed respondents (8.9%), and retirees (2.2%). In terms of educational background, most respondents had completed elementary school (66.7%), followed by junior high school (20.0%), high school (11.1%), and bachelor's degree education (2.2%).

Assessment of anxiety levels showed that 60.0% of respondents experienced severe anxiety, 35.6% experienced moderate anxiety, and only 4.4% had normal or mild anxiety. Regarding blood pressure status, the majority of respondents had Stage 2 hypertension (53.3%), followed by Stage 1 hypertension (37.8%) and prehypertension (8.9%). The statistical analysis demonstrated a significant relationship between anxiety level and hypertension prevalence ($p = 0.001$). The correlation coefficient ($r = 0.867$) indicated a very strong positive correlation, suggesting that higher levels of anxiety were associated with a greater prevalence and severity of hypertension among older adults.

DISCUSSION

The results of this study showed that most respondents were aged 60–74 years (elderly), accounting for 40 respondents (88.9%), while 5 respondents (11.1%) were aged 75–90 years (old elderly). According to the World Health Organization (WHO), older adults are classified into middle age (45–59 years), elderly (60–74 years), old elderly (75–90 years), and very old (>90 years) (Siregar, Efendy, & Nasution, 2023). The respondents in this study were predominantly elderly individuals. Blood pressure tends to increase with advancing age due to a decline in the sensitivity of blood pressure regulation mechanisms, particularly baroreceptor reflexes. In addition, arteries gradually become stiffer and narrower as they lose their elasticity. This transition places older adults at a higher risk of developing non-communicable diseases (NCDs), with hypertension being one of the most prevalent health problems (Rohmawati, Suryani, & Khasanah, 2026).

Most respondents were female, comprising 36 individuals (80.0%), while males accounted for 9 individuals (20.0%). Gender is one of the non-modifiable risk factors associated with hypertension. Previous studies have reported that hypertension is more common among women than men, with prevalence rates of 62.5% and 37.5%, respectively. Women entering menopause are at a higher risk of developing hypertension due to reduced estrogen production, which contributes to elevated blood pressure. Hormonal changes during menopause

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Universitas 'Aisyiyah Yogyakarta

Corresponding author: *E-mail: jitagabela2@gmail.com

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increase the susceptibility of women to hypertension (Nurbaiti, Adawiah, Chantika, & Haerani, 2025).

Regarding occupation, most respondents were housewives (51.1%), followed by laborers (26.7%) and self-employed individuals (11.1%). A smaller proportion were unemployed (8.9%) or retired (2.2%). Heavy workloads, busy schedules, and demanding life goals may contribute to stress and psychological pressure, which can subsequently increase blood pressure.

Low educational attainment is often associated with limited health knowledge and reduced access to health information provided by healthcare professionals. Previous studies have demonstrated that education influences hypertension because individuals with lower educational levels tend to have less knowledge about healthy lifestyles and disease prevention. In contrast, those with higher educational attainment are generally more likely to adopt appropriate health-maintenance behaviors (Satiyem, Murtiningsih, & Pradessty, 2024).

The findings revealed that most older adults at Posyandu Uswatun Hasanah experienced severe anxiety (60.0%), followed by moderate anxiety (35.6%), while only 4.4% experienced normal or mild anxiety. Severe anxiety among older adults is often influenced by interconnected physical, psychological, and social factors. Declining health conditions frequently result in excessive worry, and chronic diseases such as hypertension, diabetes mellitus, and post-stroke complications are among the major contributing factors (Sutomo & Isnaeni, 2025). Hypertension is a common health problem among older adults and can negatively affect physical, psychological, economic, and spiritual well-being, thereby increasing stress levels (Tobing, 2022).

Anxiety may manifest physically through symptoms such as excessive worry, nervousness, trembling, excessive sweating, headaches, and dry mouth or throat. Behavioral manifestations include avoidance, dependency, and fearfulness. Cognitive symptoms include persistent worry about future events, heightened awareness of potential threats, fear of losing control, repetitive thoughts, difficulty concentrating, and perceptions that situations are beyond one's control.

The results further indicated that the majority of respondents had Stage 2 hypertension (53.3%), followed by Stage 1 hypertension (37.8%) and

prehypertension (8.9%). According to the Seventh Report of the Joint National Committee (JNC VII), prehypertension is defined as systolic blood pressure of 120–139 mmHg and/or diastolic blood pressure of 80–89 mmHg. Stage 1 hypertension is defined as systolic blood pressure of 140–159 mmHg and/or diastolic blood pressure of 90–99 mmHg, while Stage 2 hypertension is defined as systolic blood pressure ≥ 160 mmHg and/or diastolic blood pressure ≥ 100 mmHg (Lumi, Terok, & Budiman, 2018). The predominance of Stage 2 hypertension among respondents is concerning because prolonged uncontrolled hypertension may lead to serious complications (Hartini, 2023). These complications include coronary heart disease, heart failure, ischemic and hemorrhagic stroke, myocardial infarction, kidney failure, visual impairment, and other cardiovascular disorders associated with poorly controlled blood pressure (Azratul, 2025).

This study also showed that 27 respondents (60.0%) experienced severe anxiety, and the majority of them presented with Stage 2 hypertension (53.3%). Moderate anxiety was reported by 16 respondents (35.6%), most of whom experienced Stage 1 hypertension (37.8%). Meanwhile, respondents with mild anxiety accounted for 2 individuals (4.4%), and prehypertension was identified in 4 respondents (8.9%).

Previous studies have demonstrated a significant relationship between anxiety levels and the occurrence of hypertension among older adults (Yolanda, Harahap, & Hamidi, 2024). Individuals aged 60 years and above are at greater risk of developing hypertension, with blood pressure frequently reaching or exceeding 140/90 mmHg (Ramadhan & Prajayanti, 2023). This is primarily due to degenerative processes that reduce vascular elasticity, causing arteries to become stiffer and narrower. Consequently, blood must flow through more restricted vessels, resulting in increased blood pressure with each heartbeat.

Anxiety among older adults is often associated with physical decline, including impaired vision, postural changes, wrinkled skin, and reduced physical endurance. Many older adults report becoming easily fatigued and unable to perform activities they once managed during their younger years. In addition, the burdens and challenges faced during old age contribute to elevated anxiety levels. These physical limitations and psychosocial stressors may explain

Jita Gabela*, Suryani, Zubaida Rohmawati

Universitas 'Aisyiyah Yogyakarta
Corresponding author: *E-mail: jitagabela2@gmail.com

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the high prevalence of moderate to severe anxiety observed among older adults (Asda & Wawo, 2024).

CONCLUSION

The majority of older adults have hypertension, with 53.3% of respondents having stage 2 hypertension and 60% experiencing severe anxiety. The high prevalence of hypertension among older adults may be due to degenerative processes that reduce blood vessel elasticity, increasing the risk of heart disease. Therefore, it is important to raise awareness and improve health management among the older adult population to prevent further complications.

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Jita Gabela*, Suryani, Zubaida Rohmawati

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Corresponding author: *E-mail: jitagabela2@gmail.com

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