INDOGENIUS

ISSN 2828-1365

Volume 4, Issue 1, February (2025) : 160-167

The Relationship Between Gender and Hypertension Severity in the Working Area of Puskesmas Cempaka Putih, Banjarmasin

Rian Tasalim[1]

[1]*Universitas Sari Mulia, Kalimantan Selatan, Banjarmasin*

Article Info

Article History :

Revised: January 2025

Available online: February 2025

Keywords :

Blood Pressure, Gender, Hypertension, Risk Factors

Corresponding Author :

Rian Tasalim

E-mail : rtasalim@gmail..com

Phone Number : 082156392333

ABSTRACT

Background & Objective: Hypertension is a global health issue, increasing morbidity and mortality due to cardiovascular complications. Gender differences affect blood pressure regulation, with men generally having higher blood pressure before menopause, while postmenopausal women face a greater risk due to hormonal changes. However, research on gender and hypertension severity remains inconclusive in Indonesia. This study aims to analyze the relationship between gender and hypertension severity at Puskesmas Cempaka Putih, Banjarmasin. **Method:** This cross-sectional study used a quantitative approach. A total of 68 hypertensive patients were selected through purposive sampling. Blood pressure was measured using a sphygmomanometer, while secondary data were obtained from medical records. The Chi-Square test was used to assess the relationship between gender and hypertension severity. **Result:** Among respondents, 38.2% were men and 61.8% were women. Of the men, 65.4% had Grade 1 hypertension, while 34.6% had Grade 2 hypertension. Among women, 50% had Grade 1 hypertension, and 50% had Grade 2 hypertension. The Chi-Square test yielded p = 0.214, indicating no significant association between gender and hypertension severity. **Conclusion:** Although gender differences in hypertension severity were observed, no significant correlation was found. Other factors, such as lifestyle and adherence to antihypertensive treatment, may play a more significant role. Future research with a larger sample and additional variables is recommended to further investigate gender differences in hypertension severity.

Introduction

Hypertension is one of the most prevalent non-communicable diseases and remains a global health challenge, including in Indonesia. According to a report by the World Health Organization (WHO), hypertension contributes to 13% of global deaths annually, primarily due to complications such as heart disease, stroke, and kidney failure (WHO, 2023). In Indonesia, the prevalence of hypertension continues to rise. Data from the 2018 Basic Health Research (Riskesdas) indicate that hypertension affects 34.1% of the population, with higher rates among older adults and individuals with unhealthy lifestyles (Ministry of Health RI, 2019).

In South Kalimantan, the incidence of hypertension is also significantly high. Reports from the South Kalimantan Provincial Health Office (2022) show that hypertension is among the most frequently treated diseases in primary healthcare facilities. Specifically, at Puskesmas Cempaka Putih Banjarmasin, annual reports indicate an increasing number of hypertension cases over the past three years. This suggests that hypertension remains a public health concern requiring further attention. Hypertension not only affects individual health but also impacts patients' quality of life, family financial burden, and national healthcare costs. Individuals with uncontrolled hypertension are at greater risk of developing complications such as coronary heart disease, stroke, and chronic kidney failure, which can lead to disability and premature death (Mills et al., 2020).

Biological differences between men and women may influence hypertension severity. Studies suggest that men generally have higher blood pressure than women before menopause, whereas postmenopausal women face an increased risk of hypertension due to hormonal changes (Reckelhoff, 2018). Additionally, lifestyle factors such as diet, smoking, alcohol consumption, and physical activity levels may contribute to varying degrees of hypertension severity in both genders.

From a physiological perspective, blood pressure regulation is influenced by several factors, including hormonal systems, sympathetic nervous activity, and genetics. Research suggests that gender differences in blood pressure regulation are mediated through hormonal mechanisms, where estrogen in women provides protective effects against hypertension before menopause (Oliver-Williams et al., 2019).

However, in clinical practice, there are still disparities in the early detection and management of hypertension between men and women. Studies indicate that men tend to have lower adherence to antihypertensive therapy than women, whereas women are more likely to have undiagnosed hypertension, as their blood pressure tends to be lower at a younger age (Gupta et al., 2021).

In the Puskesmas Cempaka Putih Banjarmasin, there has been no specific research investigating the relationship between gender and hypertension severity. Understanding gender-related factors in hypertension can help healthcare professionals develop more effective prevention and treatment strategies.

Several previous studies have examined the relationship between gender and hypertension severity. Research by Ji et al. (2020) found that men tend to have higher blood pressure than women before the age of 50, but postmenopausal women face a greater risk of hypertension. Another study by Doumas et al. (2019) suggested that lifestyle factors such as alcohol consumption and smoking habits have a greater influence on hypertension in men than in women.

In Indonesia, a study conducted by Sari et al. (2021) found that men have a higher risk of hypertension than women, especially in the productive age group. However, this study did not specifically analyze hypertension severity patterns by gender in South Kalimantan, particularly in Puskesmas Cempaka Putih Banjarmasin.

A preliminary study conducted at Puskesmas Cempaka Putih Banjarmasin involving 10 hypertensive patients revealed that six were men and four were women. Among them, four men had Grade 2 or higher hypertension, while only one woman had Grade 2 hypertension. This suggests a potential relationship between gender and hypertension severity, which requires further research to obtain more comprehensive data.

Based on the above findings, it is crucial to investigate the relationship between gender and hypertension severity in the Puskesmas Cempaka Putih Banjarmasin. The results of this study are expected to contribute to better hypertension management and serve as a foundation for health policies aimed at preventing and treating hypertension based on gender-related risk factors.

Objective

This study aims to determine the relationship between gender and the severity of hypertension in the working area of Puskesmas Cempaka Putih, Banjarmasin. Specifically, this study seeks to identify the distribution of gender among hypertensive patients in the area and analyze the distribution of hypertension severity based on its classification, namely Grade 1, Grade 2, and Grade 3 hypertension.

Method

This study employs a quantitative method with a cross-sectional design to observe the relationship between gender and hypertension severity at a single point in time without intervention. The study population includes all hypertensive patients at Puskesmas Cempaka Putih, Banjarmasin. A purposive sampling technique was used, with inclusion criteria being hypertensive patients aged ≥18 years who agreed to participate, while exclusion criteria included patients with severe comorbidities or those uncooperative in the study. The sample size was determined using Slovin's formula, with a 5% margin of error, resulting in 68 respondents.

Data were collected from primary and secondary sources. Primary data included blood pressure measurements using a sphygmomanometer, demographic information through questionnaires, and medical records. Blood pressure was measured twice, with a five-minute interval for accuracy. Secondary data were obtained from medical records at Puskesmas Cempaka Putih.

The research instruments included respondent identity forms and blood pressure measurement tools. Validity was tested using Pearson Product Moment, while reliability was assessed through test-retest reliability using Cronbach's Alpha (>0.70). Data analysis involved univariate analysis for frequency distribution and bivariate analysis using the Chi-Square test to examine the relationship between gender and hypertension severity. If Chi-Square assumptions were not met, Fisher's Exact Test was applied. The results were presented in the form of tables, graphs, and descriptive narratives.

The study was conducted from October to December 2024, with approval from Puskesmas Cempaka Putih (Approval No.: 400.7.22/03331-X/PKM CP/2024) and

ethical clearance from the institution (Ethical Approval No.: 465/KEP-UNISM/X/2024).

Results

TABLE 1. Characteristics of Respondents

Variable	N	%
Gender		
Men	26	38.2
Women	42	61.8
Hypertension		
Grade 1	38	55.9
Grade 2	30	44.1

Table 1 presents the characteristics of respondents based on gender and hypertension severity. Out of a total of 68 respondents, 26 individuals (38.2%) were male, while 42 individuals (61.8%) were female. The distribution of hypertension severity indicates that the majority of respondents fell into the Grade 1 hypertension category, accounting for 38 individuals (55.9%), while the remaining 30 individuals (44.1%) were classified as having Grade 2 hypertension. These findings suggest that the prevalence of hypertension was higher among females than males, with most respondents experiencing Grade 1 hypertension.

TABLE 2. Crosstabulation results between gender and hypertension severity

Variable		*Derajat Hipertensi*		Total
		Grade 1	Grade 2	
Gender	Men	17	9	26
	Women	21	21	42
Total		38	30	68

Table 2 presents the crosstabulation results between gender and hypertension severity. Among the 26 male respondents, 17 individuals (65.4%) had Grade 1 hypertension, while 9 individuals (34.6%) experienced Grade 2 hypertension. In contrast, among the 42 female respondents, 21 individuals (50%) had Grade 1 hypertension, and 21 individuals (50%) had Grade 2 hypertension. These findings indicate that males tend to have a higher prevalence of Grade 1 hypertension compared to females, while females exhibit a more balanced distribution between Grade 1 and Grade 2 hypertension.

TABLE 3. Chi-Square Test

x	Asymp. Sig. (2-Sided)
Pearson Chi-Square	**0.214**

Table 3 presents the statistical analysis results using the Chi-Square test to examine the relationship between gender and hypertension severity. The analysis yielded a Pearson Chi-Square value of 0.214, with an Asymp. Sig. (2-Sided) greater than 0.05. This indicates that there is no statistically significant relationship between gender and hypertension severity in the studied population. Thus, although variations in hypertension distribution based on gender were observed, these differences are not statistically strong enough to conclude a significant association.

Discussion

Table 1 presents the characteristics of respondents based on gender and hypertension severity. Among the 68 respondents, the majority were female (61.8%),

while male respondents accounted for only 38.2%. The distribution of hypertension severity indicates that most respondents experienced Grade 1 hypertension (55.9%), whereas 44.1% were classified as having Grade 2 hypertension. This data provides an initial overview of the proportion of hypertensive patients in the study and the distribution based on gender factors.

The higher proportion of females compared to males may reflect differences in healthcare access or awareness of early detection of hypertension. Previous studies suggest that women tend to seek healthcare services more actively than men, particularly for non-communicable diseases such as hypertension (Gupta et al., 2021). Additionally, the higher prevalence of hypertension among females in this study may be associated with hormonal factors, especially in postmenopausal women. Estrogen is known to have a protective effect on blood pressure, and its decline after menopause increases the risk of hypertension (Reckelhoff, 2018).

Among males, despite their lower proportion compared to females, hypertension remains a significant concern. Studies indicate that men generally have higher blood pressure than women before menopause, primarily due to testosterone's impact on vascular resistance, as well as lifestyle factors such as smoking, alcohol consumption, and unhealthy diets (Ji et al., 2020).

The high prevalence of Grade 1 hypertension aligns with previous research, which indicates that many hypertensive patients are diagnosed at the early stage of the disease. This highlights an opportunity for early intervention to prevent the progression to more severe hypertension. However, the fact that 44.1% of respondents had Grade 2 hypertension suggests that many patients may not be receiving optimal hypertension management. This could be attributed to poor adherence to antihypertensive therapy, lack of awareness about healthy lifestyle choices, or delayed diagnosis and treatment (Mills et al., 2020).

Overall, the characteristics of respondents in this study indicate that hypertension remains a major public health issue, particularly among women, who represent the majority of cases. These findings emphasize the importance of comprehensive prevention and management strategies, including health education and lifestyle modification for both genders. Additionally, efforts to increase awareness among men regarding hypertension should be strengthened, given their tendency to pay less attention to health compared to women.

Table 2 illustrates the distribution of hypertension severity by gender using crosstabulation analysis. Among 26 male respondents, 65.4% had Grade 1 hypertension, while 34.6% had Grade 2 hypertension. In contrast, among 42 female respondents, 50% had Grade 1 hypertension, and 50% had Grade 2 hypertension.

These findings indicate that males in this study were more likely to have Grade 1 hypertension compared to females. This difference may be associated with physiological characteristics between men and women, where men typically have higher blood pressure from an early age due to hormonal factors, particularly testosterone's role in increasing vascular resistance (Ji et al., 2020). However, this result may also reflect early detection patterns, where women undergo more frequent health check-ups than men, allowing hypertension to be diagnosed at an earlier stage (Gupta et al., 2021).

The more balanced distribution of hypertension severity among females may be attributed to hormonal changes after menopause. Before menopause, estrogen has a protective effect on blood pressure, but after menopause, women experience a

significant increase in hypertension risk, sometimes exceeding that of men in certain populations (Reckelhoff, 2018). Therefore, women with Grade 2 hypertension in this study may primarily be postmenopausal women or those with additional risk factors such as obesity and a sedentary lifestyle.

The findings also suggest that women may be more susceptible to higher hypertension severity than men. This may be due to factors such as higher stress levels, increased sodium intake, and poor dietary habits. A study by Doumas et al. (2019) reported that women with hypertension tend to have more difficulty controlling their blood pressure than men, particularly if they do not receive appropriate treatment.

These results highlight the importance of gender-specific health interventions in hypertension management. While males had a higher proportion of Grade 1 hypertension, early education and preventive strategies should be implemented to prevent progression to Grade 2 hypertension. Meanwhile, for females, particularly those in the postmenopausal stage, regular blood pressure monitoring and lifestyle modifications are essential to managing Grade 2 hypertension effectively.

Table 3 presents the Chi-Square test results used to analyze the relationship between gender and hypertension severity. The analysis yielded a Pearson Chi-Square value of 0.214, with an Asymp. Sig. (2-Sided) greater than 0.05. This result indicates no statistically significant relationship between gender and hypertension severity in the study population.

Although descriptive analysis shows that females had a more balanced distribution between Grade 1 and Grade 2 hypertension, while males had a higher proportion of Grade 1 hypertension, statistical analysis confirms that these differences are not strong enough to be considered statistically significant. In other words, gender is not a direct factor influencing hypertension severity in this study.

This finding is consistent with previous research suggesting that while physiological differences exist between men and women in blood pressure regulation, other factors such as lifestyle, diet, physical activity, stress, and adherence to antihypertensive treatment play a more significant role in determining hypertension severity than gender alone (Gupta et al., 2021; Ji et al., 2020). For example, men are at higher risk of hypertension before age 50, but postmenopausal women become more vulnerable to increased blood pressure due to hormonal changes (Reckelhoff, 2018).

Additionally, the lack of statistical significance may be due to the limited sample size. With only 68 respondents, this study may not have had enough statistical power to detect significant differences between gender and hypertension severity. Future research with a larger sample size and additional control variables, such as Body Mass Index (BMI), smoking habits, salt consumption patterns, and psychosocial stress factors, may provide a clearer understanding of gender's impact on hypertension severity.

From a clinical perspective, these findings suggest that hypertension prevention and management strategies should not solely focus on gender differences but rather target key risk factors, such as lifestyle choices and medication adherence. While gender-based interventions may still be relevant, they should be combined with a broader, more holistic approach to effectively manage hypertension in the general population.

Conclusion

This study aims to analyze the relationship between gender and hypertension severity in the Puskesmas Cempaka Putih, Banjarmasin. The results indicate that the majority of respondents were female (61.8%), and most hypertensive patients were classified as having Grade 1 hypertension (55.9%). The distribution analysis shows that males were more likely to experience Grade 1 hypertension than females, whereas females had a more balanced distribution between Grade 1 and Grade 2 hypertension.

Although differences in hypertension distribution based on gender were observed, the Chi-Square test results indicate no statistically significant relationship between gender and hypertension severity ($p = 0.214$). This suggests that gender is not a primary factor determining hypertension severity in the studied population. Instead, modifiable risk factors such as lifestyle, dietary habits, physical activity, and adherence to antihypertensive treatment may have a greater influence on hypertension severity than biological gender differences.

The implications of this study highlight that hypertension prevention and management strategies should focus more on modifiable risk factors, including healthy eating habits, physical activity, and early hypertension detection education, rather than emphasizing gender differences. However, further research with a larger sample size and a multivariate approach is necessary to explore the relationship between gender and hypertension severity and to identify additional contributing factors that may influence hypertension progression.

Acknowledgement

The researchers express their deepest gratitude to Puskesmas Cempaka Putih, Banjarmasin, for granting permission and providing support in collecting the necessary data for this study. Appreciation is also extended to the healthcare professionals and staff who assisted in the data collection process, ensuring the smooth completion of this research.

The researchers are also sincerely grateful to all respondents who willingly participated in this study, contributing valuable information that made this research possible. Additionally, special thanks are given to colleagues for their constructive feedback and continuous support throughout the research process. It is hoped that the findings of this study will contribute to scientific advancement and the improvement of healthcare services.

References

1. Dinas Kesehatan Provinsi Kalimantan Selatan. (2022). **Laporan Tahunan Data Hipertensi di Kalimantan Selatan**. Banjarmasin: Dinas Kesehatan Kalimantan Selatan.
2. Doumas, M., Papademetriou, V., Faselis, C., & Kokkinos, P. (2019). Gender Differences in Hypertension: Myths and Reality. **Current Hypertension Reports**, 21(10), 1-10. https://doi.org/10.1007/s11906-019-0981-7
3. Gupta, R., Xavier, D., Hypertension: Trends in Prevalence, Awareness, Treatment and Control. (2021). **Nature Reviews Cardiology**, 18(5), 277-278. https://doi.org/10.1038/s41569-021-00516-4
4. Ji, H., Kim, A., Ebinger, J. E., Niiranen, T. J., Claggett, B. L., Bairey Merz, C. N., & Cheng, S. (2020). Sex Differences in Blood Pressure Trajectories Over the Life

Course. **JAMA Cardiology**, 5(3), 255–262. https://doi.org/10.1001/jamacardio.2019.5306

5. Kementerian Kesehatan Republik Indonesia. (2019). **Hasil Utama Riset Kesehatan Dasar 2018**. Jakarta: Badan Penelitian dan Pengembangan Kesehatan, Kemenkes RI.
6. Mills, K. T., Stefanescu, A., & He, J. (2020). The Global Epidemiology of Hypertension. **Nature Reviews Nephrology**, 16(4), 223-237. https://doi.org/10.1038/s41581-019-0244-2
7. Oliver-Williams, C., Glisic, M., Shahzad, S., et al. (2019). The Association Between Hormone Replacement Therapy and Hypertension: A Systematic Review and Meta-analysis. **Menopause**, 26(4), 407-417. https://doi.org/10.1097/GME.0000000000001223
8. Reckelhoff, J. F. (2018). Gender Differences in the Regulation of Blood Pressure. **Hypertension**, 71(6), 978-983. https://doi.org/10.1161/HYPERTENSIONAHA.118.11060
9. Sari, Y. R., Putri, F. A., & Widodo, Y. (2021). Analisis Faktor Risiko Hipertensi pada Masyarakat Perkotaan. **Jurnal Kesehatan Masyarakat**, 16(2), 78-85. https://doi.org/10.15294/kemas.v16i2.26142
10. World Health Organization (WHO). (2023). **Hypertension Fact Sheet**. Retrieved from https://www.who.int/news-room/fact-sheets/detail/hypertension