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Clinical characteristics of hypertension patients at Simpang IV Sipin Public Health Center, Jambi City

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Abstract
Background: Hypertension is a major risk factor for cardiovascular disease, stroke, and chronic kidney failure. In Indonesia, its prevalence has increased significantly, and it ranks as the most common disease among the top ten in Jambi City, which contributes significantly to morbidity and mortality
Objective: To determine the clinical characteristics of hypertension patients at Simpang IV Sipin Public Health Center, Jambi City.
Methods: This cross-sectional retrospective study collected data from medical records during Januari until December 2024. This research was conducted at Simpang IV Sipin Public Health Center, Jambi City. A total of 140 hypertensive patients were included in the study.
Results: The majority of patients were aged ≥60 years (71.4%), female (55.0%), and free of comorbidities (52.1%), though 35.8% had coronary heart disease, all were covered by the National Health Insurance (JKN) program (100%), with most classified as having stage 2 hypertension (56.4%).
Conclusion: This study shows that most patients were elderly women, predominantly with stage 2 hypertension. Despite the absence of comorbidities in many cases, coronary heart disease was still common.

Keywords: clinical characteristics; hypertension; public health center.

INTRODUCTION

Hypertension is a long-term medical condition characterized by persistently elevated blood pressure (systolic ≥140 mmHg and/or diastolic ≥90 mmHg) (1). It is one of the most common non-communicable diseases globally and a major risk factor for cardiovascular disease, stroke, and chronic kidney falure (2). An estimated 1.28 billion adults aged 30-79 years worldwide have hypertension, with two-thirds living in low- and middle-income countries. About 46% of adults with hypertension are unaware of their condition, and only 42% are diagnosed and treated. Around 21% of adults with hypertension manage to control it (3).

According to the Basic Health Research (Riskesdas, 2018), the prevalence of hypertension in Indonesia is 31.4%, an increase of 8.3% from 2013 (25.8%). It is estimated that only one-third of hypertension cases in Indonesia are diagnosed. The highest prevalence occurs in the age groups of 31-44 years (31.6%), 45-54 years (45.3%), and 55-64 years (55.2) (4). The Jambi Provincial Health Profile 2020 states that hypertension ranks first among the top 10 diseases in Jambi Province, with cases increasing annually. In 2018, hypertension accounted for 13.5% of cases, rising to 18.5% in 2019, and further to 23.6% in 2020 (5).

Data from the Jambi Provincial Health Office (2022) shows that hypertension remains the leading health issue in Jambi City, with 15,112 cases recorded. Of these, 3,536 (23.4%) were controlled, while 11,576 (76.6%) were uncontrolled (6). Globally, WHO reported that 1.4 billion people suffered from hypertension in 2024, with the number expected to rise to 1.5 billion by 2025. Additionally, WHO estimates that 9.4 million

people die annually from hypertension and its complications (7).

In comparison, a community-based health intervention in Kelurahan Tangkerang Selatan, Pekanbaru, found that 70% of participants recognized the symptoms and risks of hypertension after counseling. However, hypertension remains a significant health issue in Pekanbaru, with many cases uncontrolled, as shown by data from Dinas Kesehatan Kota Pekanbaru in 2015-2017 it (8).

These local findings in Pekanbaru and Jambi align with global hypertension trends, highlighting the need for continuous efforts to manage the condition at both local and global levels. The objective of this study was to examine the clinical characteristics of hypertension patients at a Public Health Center in Jambi City, contributing to a better understanding of the condition locally.

METHOD

This observational study used a retrospective cross-sectional design. Ethical approval was obtained from the Health Research Ethics Committee of the Faculty of Medicine and Health Sciences, Jambi University, with certificate number 1280/UN21.8/PT.01.04/2025. The study was conducted at Simpang IV Sipin Public Health Center, using secondary data collected from the medical records of hypertensive outpatients between January and December 2024.

Sampling was performed using a consecutive sampling method, resulting in a total sample of 140 patients. The inclusion criteria were outpatients diagnosed with hypertension during the study period. The exclusion criteria included patients with incomplete medical records, pregnant women, referred cases, and deceased patients.

Data were collected on several variables, including patient initials, age, sex, comorbidities, type of comorbidities, health insurance status, and blood pressure. Blood pressure classification followed the JNC VII guidelines (2003), which define Normal blood pressure as a systolic reading of ≤120 mmHg and diastolic reading of ≤80 mmHg. Prehypertension is categorized when systolic pressure ranges from 120 to 130 mmHg and diastolic pressure from 80 to 89 mmHg. Stage 1 Hypertension is identified when systolic pressure falls between 140 and 159 mmHg and diastolic pressure between 90 and 99 mmHg. Lastly, Stage 2 Hypertension is diagnosed when systolic pressure is ≥160 mmHg or diastolic pressure is ≥100 mmHg (9).

The data analysis was conducted using univariate analysis, which was employed to describe the frequency and proportion of each variable. Data normality was tested using SPSS version 20, and the results were presented in tabular form to facilitate clear interpretation of the findings.

RESULT

The Clinical characteristic of hypertension patients as seen in table 1.

Tabel 1. Clinical characteristics of hypertension patients

Variabel	N (%)
Aged (Mean ± SD) (Year)	**64.56±8.8**
Adult ≥18-59	40 (26.6)
Elderly ≥60	100 (71.4)
Sex	
Male	63 (45.0)
Female	77 (55.0)
Number of Comorbidities	
No comorbidities	73 (52.1)
1 comorbidities	45 (32.1)
>1 comorbidities	22 (15.7)
Types of Comorbidities	
Heart Failure	16 (16.8)
Type 2 Diabetes mellitus	19 (20.0)
Coronary Heart Disease	34 (35.8)
Dyslipidemia	15 (15.8)
Gout	9 (9.8)
Chronic Obstructive Pulmonary Disease	2 (2.8)
Insurance	
JKN	140 (100.0)
Non-JKN	0 (0.0)
Blood Pressure (systole/diastole) (Mean ± SD) (mmHg)	156/97 ±8.4
Normal	0 (0.0)
Pre-hypertension	0 (0.0)
Stage 1 hypertension	61 (43.6)
Stage 2 hypertension	79 (56.4)

The cohort of hypertensive patients had a mean age of 64.56±8.8 years, with the majority (71.4%) being elderly (≥60 years). Female patients comprised a slightly higher proportion than males (55.0% vs. 45.0%). Over half of the patients (52.1%) had no comorbidities, with coronary heart disease (CHD) being the most common comorbidity, affecting 35.8% of the patients. All patients (100%) were enrolled in the National Health Insurance (JKN) program. Regarding blood pressure classification, 56.4% of the patients were diagnosed with Stage 2 hypertension, with a mean systolic pressure of 156 mmHg and diastolic pressure of 97 mmHg (±8.4 mmHg).

DISCUSSION

Based on age classification, hypertensive patients were divided into adults (18–59 years) and elderly (≥60 years). The mean age of patients in this study was 64 years with a standard deviation of 8.8. This is similar to a study by Liu et al. (2025), which reported a mean age of 57 years (SD = 8.7) (9). At Simpang IV Sipin Public Health Center, elderly patients were more common than adults. Aging increases the risk of hypertension due to physiological changes, such as arterial stiffening, which leads to elevated systolic pressure (10)(11). Unhealthy diets, including high salt and fat intake, may further worsen blood pressure control (12). This finding is in line with Hidayaturahman and Syafitri (2021), who reported that most hypertensive patients were aged 60–69 years (13).

The results of this study showed that the prevalence of hypertension at Simpang IV Sipin Public Health Center was higher in women than in men. This may be related to hormonal changes in women, which make them more vulnerable to psychosocial stress and anxiety disorders that affect the autonomic nervous system (14). Women also tend to respond to stress with greater sympathetic nervous system activation and higher cortisol release, which, over time, can contribute to the development of hypertension and this condition is often associated with changes in estrogen levels after menopause (15). This finding is consistent with a study by Oktianti et al. (2020), which evaluated antihypertensive therapy in hospitalized patients at Hospital X in Semarang and found that hypertension was more common in women, with a prevalence of 68.53% (16).

In this study at Simpang IV Sipin Public Health Center, most hypertensive patients were found without any specific comorbidities. This may be due to patients' awareness of the importance of consulting healthcare providers early when symptoms appear, allowing for faster treatment. Managing hypertension without comorbidities is often simpler, as there are fewer complications or drug interactions to consider (17). However, hypertensive patients who do not engage in self-care are at higher risk of hospitalization, while those who actively manage their condition are less likely to experience such outcomes (18). This finding is supported by a study by Rizqiya et al. (2023), which reported that many hypertensive patients had no additional diseases because they were unaware of their condition, as hypertension is often asymptomatic and known as a silent killer (19).

Coronary heart disease (CHD) is the most common comorbidity among hypertensive patients at Puskesmas Simpang IV Sipin. Hypertension is a major risk factor for the development of CHD, primarily due to its role in promoting atherosclerosis—the narrowing of arteries caused by plaque buildup (20). Persistent high blood pressure increases the workload of the heart and causes damage to blood vessels, including the coronary arteries, which may lead to heart attacks and other cardiovascular complications (21). This finding aligns with Johanis et al. (2020), who reported a significant association between hypertension and the incidence of CHD(20).

The practical implications for managing hypertension in the elderly within primary care highlight the need for technological development and family-based strategies. Innovative methods like telemonitoring, SMS reminders, and mobile apps have proven effective in improving

patient adherence to treatments (22). Family-based approaches, such as the supervision of family members in China, have shown positive effects in boosting treatment compliance (23). Programs like Indonesia's Perkesmas PIS-PK, combining home visits and family education, have successfully enhanced family independence and the family health index (24).

While many studies indicate a strong relationship between hypertension and coronary heart disease, our study reveals a significantly higher prevalence of hypertension in elderly patients who do not have additional comorbidities. This result differs from findings in younger or more complex populations. All hypertensive patients at Puskesmas Simpang IV Sipin were covered by the National Health Insurance (JKN) program. This is attributed to the implementation of the Chronic Disease Management Program (Prolanis) at the facility. By 2021, JKN had enrolled over 86% of the population, supported by a substantial budget Prolanis spending, for instance, tripled within the first two years of JKN implementation (25). The high proportion of BPJS-covered hypertensive patients reflects the success of health insurance policies in improving treatment access. Overall, JKN has facilitated easier access to primary care and essential medicines for hypertensive patients, while continuously expanding its chronic disease management initiatives.

The average blood pressure among hypertensive patients at Puskesmas Simpang IV Sipin was 156/97 mmHg with a standard deviation of 8.4. This is consistent with a study by Liu et al. (2025), which reported an average blood pressure of 149/91 mmHg and a standard deviation of 8.2 (16). Most patients were classified as having grade 2 hypertension (≥160/≥100 mmHg). Negative lifestyle changes, such as lack of physical activity and unhealthy diets especially among the elderly contribute to the high hypertension rates. Additional risk factors, including obesity, diabetes mellitus, and dyslipidemia, also increase the prevalence of grade 2 hypertension. Many patients had other chronic conditions, such as diabetes and heart disease, which further contributed to hypertension (27). Moreover, smoking and alcohol consumption were identified as significant contributing factors (28). These findings are in line with a study by Chasanah and Sugiman (2022), which found that 62% of elderly patients with low physical activity in the Puskesmas Sleman Yogyakarta area had grade 2 hypertension (29).

CONCLUSION

This study found that hypertension was most common among elderly female patients, with grade 2 hypertension being the predominant classification. Despite the absence of comorbidities in most cases, coronary heart disease was a significant concern, indicating an increased risk of cardiovascular complications.

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