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THE RELATIONSHIP BETWEEN STRESS LEVELS AND HYPERTENSION INCIDENCE AMONG POLICE OFFICERS IN THE SAMAPTA UNIT OF KAPUAS POLICE DEPARTMENT

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Abstract

Hypertension is one of the most prevalent cardiovascular diseases worldwide, including in Indonesia. One of the contributing factors to hypertension is stress, especially among individuals with high work pressure, such as police officers. The Samapta Unit of Kapuas Police Department has complex and high-risk duties, which increase stress levels and may impact their overall health. This study aims to analyze the relationship between stress levels and the incidence of hypertension among police officers in the Samapta Unit of Kapuas Police Department. This research employs a quantitative design with a cross-sectional approach. The study sample consists of all officers in the Samapta Unit of Kapuas Police Department who met the inclusion criteria, totaling 36 respondents. Data were collected using the Perceived Stress Scale (PSS-10) questionnaire to measure stress levels and sphygmomanometer measurements to assess blood pressure. Data analysis was conducted using the Chi-Square test and Fisher's Exact Test. The results show that 50% of respondents experienced mild stress, 47.2% had moderate stress, and 2.8% had severe stress. Additionally, 38.89% of respondents were diagnosed with hypertension. The statistical test using Fisher's Exact Test yielded a p-value of 0.009, indicating a significant relationship between stress levels and hypertension incidence among police officers in the Samapta Unit of Kapuas Police Department. These findings confirm that stress levels are significantly associated with hypertension among police officers. Proper stress management strategies should be implemented to reduce the risk of hypertension among law enforcement personnel.

Keywords: Hypertension, Police Officers, Stress

Introduction

Hypertension is one of the most prevalent cardiovascular diseases worldwide, including in Indonesia. It is often referred to as a *silent killer* because it frequently presents without symptoms until severe complications arise, such as heart disease, stroke, and kidney failure [1,2]. According to the World Health Organization (WHO), the global prevalence of hypertension is approximately 22%, with a continuously increasing number of cases each year. By 2025, an estimated 1.5 billion people worldwide will suffer from hypertension [3].

In Indonesia, hypertension has also increased significantly. Based on data from the National Basic Health Research (Riskesdas), the prevalence of hypertension rose from 25.8% in 2013 to 34.1% in 2018 [4]. Professions with high occupational stress, such as law enforcement, have a greater risk of hypertension than other professions [5]. Data show that police officers, military personnel, and civil servants have a hypertension prevalence rate of 36.91%, with contributing risk factors including work stress, unhealthy dietary habits, lack of physical activity, and smoking [6].

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Stress is one of the primary risk factors for hypertension. According to the Directorate of Prevention and Control of Non-Communicable Diseases (P2PTM, 2020), stress is a physical and emotional response to environmental changes requiring adaptation [7]. Unmanaged stress can lead to increased blood pressure by activating the sympathetic nervous system, which raises adrenaline secretion and increases heart rate and blood pressure [8]. Several studies have demonstrated a significant relationship between stress levels and hypertension. A study by Pujiastuti (2022) found a strong correlation between stress levels and hypertension in inpatients at Mardi Rahayu Hospital [9]. Similarly, a study by Febriyanti (2024) found that higher stress levels were associated with an increased risk of hypertension among patients at Posbindu Kenanga, Curug Public Health Center, Tangerang Regency [10].

Police officers, particularly those in the Samapta Unit, face highly demanding and stressful job responsibilities, such as traffic control, security enforcement, patrols, crowd control, and search and rescue operations [11]. These conditions increase psychological stress, which in turn raises the risk of hypertension. A study by Iqbal (2022) found that work stress in police officers significantly increased blood pressure, particularly due to the high psychological pressure and demanding nature of law enforcement duties [12].

A preliminary study conducted at Kapuas Police Department showed that out of 188 officers who underwent routine health examinations in February 2024, 71 (37.77%) had high blood pressure. Among them, 15 personnel were from the Samapta Unit, which experiences higher levels of stress than other divisions. This indicates a potential correlation between stress levels and hypertension in police officers in the Samapta Unit of Kapuas Police Department [13].

Based on these issues, this study aims to analyze the relationship between stress levels and the incidence of hypertension among police officers in the Samapta Unit of Kapuas Police Department. This research is expected to provide valuable scientific insights into stress management among law enforcement personnel and contribute to more effective hypertension prevention strategies.

Method

This study employed a quantitative approach with a cross-sectional design to analyze the relationship between stress levels and the incidence of hypertension among police officers in the Samapta Unit of the Kapuas Police Department. The research was conducted from October to November 2024 at the Kapuas Police Department, Central Kalimantan. The population consisted of all police officers in the Samapta Unit who met the inclusion criteria. A total sampling technique was applied, resulting in 36 respondents as the study sample.

The independent variable in this study was stress levels, measured using the Perceived Stress Scale (PSS-10), a validated questionnaire designed to assess perceived stress. The dependent variable was hypertension incidence, determined through direct blood pressure measurements using a sphygmomanometer. Data collection was conducted through questionnaire distribution and direct observation of blood pressure readings.

The collected data were analyzed in two stages. Univariate analysis was performed to describe the frequency distribution of each variable, while bivariate analysis used the Chi-Square test and Fisher's Exact Test to examine the relationship between stress levels and hypertension incidence. A significance level of $p < 0.05$ was considered statistically significant.

Ethical considerations were upheld throughout the study by ensuring informed consent, respondent anonymity, and data confidentiality. Additionally, ethical clearance was obtained from the Research Ethics Committee of Universitas Sari Mulia, Banjarmasin.

Results

Table 1. Frequency Distribution of Respondents Based on Stress Levels

Stres Level	Frequency	Percentage (%)
Mild Stres	18	50.00
Moderate Stres	17	47.22
Severe Stres	1	2.78
Total	**36**	**100%**

The findings of this study indicate that stress levels among police officers in the Samapta Unit of Kapuas Police Department vary in intensity. Based on Table 1, the most prevalent stress classification is mild stress, experienced by 18 respondents (50.00%), while the least common is severe stress, found in only one respondent (2.78%).

Tabel 2. Frequency Distribution of Respondents Based on Hypertension Status

Status Hipertensi	Frequency	Percentage (%)
Normal / No Hypertension	22	61.11
Hypertension	14	38.89
Total	**36**	**100%**

Regarding the distribution of hypertension status, Table 2 shows that the majority of respondents have normal blood pressure, accounting for 22 respondents (61.11%), while 14 respondents (38.89%) have hypertension. This finding suggests that while hypertension is not the majority condition, a significant proportion of officers are affected.

Table 3. Crosstabulation Analysis of the Relationship Between Stress Levels and Hypertension Incidence

Stress Levels Among Police Officers in the Samapta Unit of Kapuas Police Department	Hypertension Incidence Among Police Officers in the Samapta Unit						*p-value*
	Normal Blood Pressure	%	Hypertension	%	Total	%	
Mild Stres	15	41.7%	3	8.3%	18	50%	**0.009**
Moderate Stres	7	19.4%	10	27.8%	17	47.2%	
Severe Stres	0	0	1	2.8%	1	2.8%	
Total	**22**	**61.1%**	**14**	**38.9%**	**36**	**100**	

Analysis of Table 3, which examines the relationship between stress levels and hypertension incidence, reveals specific trends. Among respondents with mild stress, 15 officers (41.7%) had normal blood pressure, while 3 officers (8.3%) experienced hypertension. Among those with moderate stress, 7 officers (19.4%) had normal blood pressure, whereas 10 officers (27.8%) were diagnosed with hypertension. Meanwhile, the single respondent (2.8%) who experienced severe stress also had hypertension.

To determine statistical significance, the Chi-Square test was initially performed. However, due to the presence of expected frequencies less than 5 in 33.3% of cases (exceeding the 20% threshold), the Fisher's Exact Test was conducted as an alternative. The test yielded a p-value of 0.009 (<0.05), indicating a statistically significant relationship between stress levels and hypertension incidence among police officers in the Samapta Unit of Kapuas Police Department.

Discussion

The data obtained from Table 1, which illustrates the frequency distribution of respondents based on stress levels, indicate that mild stress was the most prevalent category, affecting 18 respondents (50%), while moderate stress was experienced by 17 respondents (47.22%). The relatively similar distribution between mild and moderate stress suggests that the majority of respondents were experiencing some degree of stress at the time of the study.

Analysis of the Perceived Stress Scale (PSS-10) questionnaire results revealed that respondents with mild and moderate stress exhibited symptoms such as irritability, impatience, difficulty resting, fatigue, and prolonged anxiety lasting for several hours to days. This finding aligns with Psychology Foundation of Australia (2022), which states that individuals experiencing stress commonly display emotional instability and increased sensitivity to external stimuli [11].

Observations made during the study indicated that several respondents were in an unstable or fatigued condition, which is consistent with Rizky et al. (2019), who described the psychological impact of stress as including emotional exhaustion, inability to regulate emotions, and a decline in work performance [7].

Furthermore, one respondent (2.78%) was classified as experiencing severe stress, as seen in Table 1. The questionnaire analysis for this individual showed signs of difficulty making decisions, a condition persisting for several weeks to months. This is in line with Rizky et al. (2019), who identified behavioral impacts of stress, such as impaired cognitive function, negative perception processing, and indecisiveness [7].

Field observations revealed that the respondent experiencing severe stress was primarily affected by a high workload, which supports the theory of the Psychology Foundation of Australia (2022). According to this theory, chronic stress lasting several weeks to months can lead to severe emotional distress, feelings of hopelessness, and a lack of positive emotions, ultimately resulting in mental and physical exhaustion [11].

These findings are further supported by Lisda Sari (2019), who studied factors related to occupational stress in traffic police officers in Langkat Police Department. Using a cross-sectional survey design with a total sample of 97 officers, her study applied Chi-Square analysis with a 95% confidence level (α=0.05). The results demonstrated significant relationships between age (p=0.029), work routine (p=0.025), and relationships with colleagues (p=0.036) and work stress, while length of service (p=0.264) was not significantly associated with stress levels. These findings confirm that age, workload, and work environment play crucial roles in determining stress levels among police officers [6].

Based on these findings, this study concludes that officers experiencing mild to moderate stress are often in a state of physical or emotional fatigue, leading to symptoms such as irritability, difficulty resting, and prolonged anxiety. Meanwhile, officers experiencing severe stress often struggle with decision-making, develop negative perceptions, and exhibit feelings of hopelessness.

Based on Table 2, which presents the frequency distribution of respondents based on hypertension status, it was found that 14 respondents (38.89%) had high blood pressure/hypertension, despite not reporting symptoms such as severe headaches or dizziness. This finding aligns with the American Heart Association (AHA), as cited in Inggriyati (2022), which states that hypertension is often asymptomatic and only becomes apparent after causing damage to vital organs such as the heart, brain, and kidneys [1].

During blood pressure measurements, some respondents reported feelings of nervousness without any specific reason. According to Rohmatul (2020), factors such as anxiety and fear can influence vascular responses to vasoconstrictor stimuli, leading to hypertension. Structural and functional changes in the peripheral vascular system are responsible for fluctuations in blood pressure levels [8].

Further observations revealed that most respondents with high blood pressure had a family history of hypertension, were smokers, and consumed high-salt and caffeinated foods in recent months. This finding supports the theory presented by Janu Purwono et al. (2020), which states that risk factors for hypertension include age, gender, family history, genetic predisposition, smoking habits, obesity, physical inactivity, stress, estrogen use, and excessive salt intake [10]. The causes of hypertension also include the consumption of salty foods, caffeine, and food additives such as monosodium glutamate (MSG), soy sauce, and shrimp paste.

Table 3 presents the relationship between stress levels and hypertension incidence among police officers in the Samapta Unit of the Kapuas Police Department. The findings reveal that among respondents experiencing mild stress, 15 officers (41.7%) had normal blood pressure, while 3 officers (8.3%) were diagnosed with hypertension. Among those with moderate stress, 7 officers (19.4%) had normal blood pressure, while 10 officers (27.8%) were hypertensive. Meanwhile, the single respondent (2.8%) who experienced severe stress also had hypertension.

A Chi-Square test was initially conducted to analyze the relationship between stress levels and hypertension incidence. However, because 33.3% of expected frequencies were <5 (exceeding the 20% threshold), the Fisher's Exact Test was performed instead. The p-value obtained was 0.009 (<0.05), indicating a statistically significant relationship between stress levels and hypertension incidence among police officers in the Samapta Unit of Kapuas Police Department [7].

These findings are consistent with the study conducted by Ahmad Khairudin (2015), which examined the relationship between stress and hypertension among police officers at the Selopamioro State Police School, Yogyakarta (Polda DIY). Using an analytical correlation design with a cross-sectional approach, the study involved 18 respondents selected through purposive sampling. The Kendall Tau test was used to analyze the relationship between the two variables, revealing a p-value of 0.040 (<0.05) with a correlation coefficient of 0.464, confirming a significant relationship between stress and hypertension in police officers [13].

Based on these findings, it can be concluded that stress is a major contributing factor to hypertension. However, hypertension can be prevented through effective stress management. When experiencing stress, the body produces adrenaline, which increases heart rate and, consequently, blood pressure. While stress-induced hypertension may be temporary, chronic stress that is not properly managed can lead to long-term physiological changes, resulting in persistent hypertension [9].

This conclusion aligns with the theory presented by Ladyani et al. (2021), which explains that stress-related hypertension occurs through the activation of the sympathetic nervous system, leading to a gradual increase in blood pressure [8].

Conclusion

Based on the findings of this study regarding the relationship between stress levels and hypertension incidence among police officers in the Samapta Unit of Kapuas Police Department, it can be concluded that there is a significant association between these two variables. The results indicate that higher stress levels correspond to an increased risk of hypertension among officers.

The majority of respondents in this study experienced varying degrees of stress, ranging from mild to severe stress. High workloads, psychological pressure, and challenging working conditions were identified as the main contributing factors to stress among police personnel. Chronic stress was found to trigger increased blood pressure through the activation of the sympathetic nervous system and elevated levels of stress hormones such as adrenaline and cortisol.

Furthermore, the study found that nearly 40% of respondents had hypertension, highlighting the need for greater attention to cardiovascular health within law enforcement environments. The statistical analysis confirmed a significant correlation between stress levels and hypertension,

reinforcing evidence that occupational stress has a direct impact on blood pressure and long-term health among police officers.

Based on these findings, strategic measures are required to effectively manage stress and reduce the risk of hypertension. Stress management can be implemented through health education programs, relaxation techniques, regular physical activity, and psychosocial support from colleagues and family. Additionally, routine health check-ups and blood pressure monitoring are crucial to preventing serious complications related to hypertension.

This research contributes to the development of hypertension prevention and management strategies within law enforcement agencies and encourages the implementation of improved health policies to enhance the well-being and work performance of police officers.

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