

CORRELATION BETWEEN PSYCHOSOCIAL STRESS LEVELS AND BLOOD PRESSURE READINGS IN HYPERTENSIVE PATIENTS AT THE NGORO COMMUNITY HEALTH CENTER IN MOJOKERTO

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ABSTRACT

The relationship between psychosocial stress levels and blood pressure in patients with hypertension plays a crucial role in understanding the factors that influence patients' health, as stress can trigger an increase in blood pressure and affect the management of hypertension. The purpose of this study was to identify the relationship between psychosocial stress and blood pressure in patients with hypertension. This study employed a quantitative, analytical, correlational design with a cross-sectional approach. The study population consisted of 30 hypertensive patients selected using purposive sampling. Data were collected using the Perceived Stress Scale (PSS-10) questionnaire to measure psychosocial stress levels, while blood pressure was measured using a sphygmomanometer. Cross-tabulation results showed that respondents with severe stress levels mostly had high blood pressure ($\geq 140/90$ mmHg), while respondents with moderate stress levels were also mostly in the high blood pressure category. In addition, respondents with mild stress levels tended to have better-controlled blood pressure. These results indicate an association between psychosocial stress and blood pressure in patients with hypertension.

Keywords: *Psychosocial Stress, Blood Pressure, Hypertension.*

INTRODUCTION

Hypertension is a noncommunicable disease that remains a major public health problem due to its high prevalence and the serious consequences of its complications. Although medication is available and hypertension management programs have been implemented in primary care settings, many patients still do not have their blood pressure optimally controlled. This situation indicates that hypertension management is not yet fully effective. In addition to biological factors and medication adherence, there are other factors that can potentially affect blood pressure stability, one of which is psychosocial factors such as stress. However, psychosocial factors are often not a primary focus in the management of hypertension in primary care settings, so their potential contribution to elevated blood pressure has not been fully explored (Titin Hamzah, Nasrun Pakaya, 2025).

Patients with hypertension aged 45 years or older are a group at risk of elevated blood pressure due to various factors, one of which is psychosocial stress. However, there are still many patients whose blood pressure is not optimally controlled despite undergoing treatment, indicating that the management of hypertension is not yet fully effective. Various studies have shown that psychosocial stress is significantly associated with elevated blood pressure through the activation of the sympathetic nervous system and stress hormones (WHO, 2023).

National data show that the prevalence of hypertension increases with age, particularly among those aged 45 and older (SKI, 2023). In addition, the majority of patients with hypertension experience stress to varying degrees, with a relatively high prevalence of severe, moderate, and mild stress. This condition is influenced by health

factors, concerns about complications, economic problems, and a lack of social support (Kemenkes, 2023).

The results of a preliminary study at the Ngoro Community Health Center in Mojokerto also showed that some patients with hypertension experience psychosocial stress related to their health and socioeconomic conditions. Prolonged stress can trigger an increase in blood pressure and worsen hypertension. Therefore, further research is needed to analyze the relationship between psychosocial stress and blood pressure in patients with hypertension aged ≥ 45 years.

METHOD

Research design is a crucial framework in conducting research to ensure that the process proceeds systematically and that the objectives are achieved. This study employs a quantitative approach with a correlational-analytic design aimed at analyzing the relationship between psychosocial stress as the independent variable and blood pressure as the dependent variable in patients with hypertension. A cross-sectional approach was used because measurements of both variables were taken at the same time without any intervention from the researchers. Specifically, this study aims to identify the relationship between psychosocial stress and blood pressure in hypertensive patients aged ≥ 45 years at the Ngoro Mojokerto Community Health Center (Abduh et al., 2023).

A population is the totality of individuals or objects that possess characteristics meeting the research criteria and are the focus of the study. Accurately defining the population is crucial because it serves as the basis for assessing the extent to which research findings can be generalized (Jailani & Jeka, 2023).

The study population consisted of all 197 patients with hypertension who were actively registered at the Ngoro Mojokerto Community Health Center in 2026. The sampling technique used was purposive sampling, which involves selecting respondents based on specific criteria, such as patients with hypertension aged ≥ 45 years, enrolled in the Prolanis program, actively attending appointments, able to communicate, and willing to participate as respondents. The sample in this study consisted of 30 respondents who met the inclusion and exclusion criteria. This sample was selected to obtain data relevant to the research objectives and to represent the characteristics of the study population (Jailani & Jeka, 2023). This study has undergone an ethical review process, as evidenced by KEPK No. 68/KEP/UBS-PPNI/IV/2026.

FINDINGS AND DISCUSSION

RESEARCH RESULTS

GENERAL DATA

Tabel 4. 1 Distribusi Frekuensi Karakteristik Responden di Puskesmas Ngoro Mojokerto.

No	Umur	Frekuensi (n)	Persentase (%)
1	45	5	16.7
2	≥ 45	25	83.3

	Jenis Kelamin		
1	Laki-laki	9	30.0
2	Perempuan	21	70.0
	Pendidikan Terakhir		
1	SD	25	83.3
2	SMP	5	16.7
3	SMA	0	0
	Lama Menderita Hipertensi		
1	≥ 1	14	46.7
2	≥ 5	16	53.3
	Riwayat Penyakit lain		
1	Tidak	23	76.7
2	Ya	7	23.3
	Status Pekerjaan		
1	Bekerja	10	33.3
2	Tidak Bekerja	20	66.7
	Status Perkawinan		
1	Belum Menikah	0	0
2	Menikah	25	83.3
3	Duda/Janda	5	16.7
	Dukungan Keluarga		
1	Cukup	17	56.7
2	Kurang	6	20.0
3	Tidak ada	7	23.3
	Total	30	100%

Sumber data : Primer

Table 4.1 shows that the majority of respondents were aged ≥ 45 years (25 respondents, or 83.3%), were female (21 respondents, or 70.0%), and had completed elementary school as their highest level of education (25 respondents, or 83.3%). Based on the duration of hypertension, the majority of respondents had suffered from hypertension for ≥ 5 years, totaling 16 respondents (53.3%). The majority of respondents had no history of other diseases, totaling 23 respondents (76.7%). Based on employment status, the majority of respondents were unemployed, totaling 20 respondents (66.7%). Based on marital status, the majority of respondents were married, totaling 25 respondents (83.3%). Meanwhile, based on family support, the majority of respondents had adequate family support, totaling 17 respondents (56.7%).

SPECIAL DATA

Table 4. 2 Frequency Distribution of Psychosocial Stress

No	Stress Level	Frequency (n)	Persentase (%)
1	Lightweight	2	6.7
2	Currently	13	43.3
3	Weight	15	50.0
	Total	30	100%

Data source: Primary

Table 4.2 shows that of the 30 respondents, the majority—15 respondents (50.0%)—experienced severe psychosocial stress. Thirteen respondents (43.3%) experienced moderate levels of stress, while two respondents (6.7%) experienced mild levels of stress. This indicates that the majority of hypertensive patients at the community health center experience high levels of psychosocial stress.

Table 4. 3 Frequency Distribution of Blood Pressure at the Ngoro Community Health Center in Mojokerto

No	Blood Pressure	Frequency (n)	Percentage (%)
1	Pre-hypertension	8	26.7
2	Stage 1 hypertension	10	33.3
3	Stage 2 hypertension	12	40.0
	Total	30	100 %

Data source: Primary

Table 4.3 shows that of the 30 respondents, the majority—12 respondents (40.0%)—had stage 2 hypertension, followed by 10 respondents (33.3%) with stage 1 hypertension, while 8 respondents (26.7%) had prehypertension. These results indicate that the majority of respondents fall into the stage 2 hypertension category, reflecting the continued high proportion of respondents with blood pressure levels that require ongoing control and monitoring.

Tabel 4. 4 Hubungan Stres Psikososial dengan Tekanan Darah

Blood Pressure						Total	
NO	Pre-hypertension, Stage 1 Hypertension			Stage 2 hypertension			
	F(n)	P (%)		F(n)	P (%)		
Stress Level							
Lightweight	2	100.0		0	0.0		2
Currently	6	46.2		7	53.8		13
Weight	0	0.0		15	100.0		15
Total	8	26.7	22	73.3	30		
Sperman-Rho Test Significance value 0.000 < 0.05							

Data source: Primary

Table 4.4 shows that the distribution of respondents based on psychosocial stress levels varies across each blood pressure category—namely, prehypertension, stage 1 hypertension, and stage 2 hypertension. Respondents with mild, moderate, and severe stress

levels were distributed across these three blood pressure categories, consistent with the study findings. The results of the statistical test using Spearman's rho yielded a p-value of 0.000 ($p < 0.05$), so H_0 was rejected and H_1 was accepted. Thus, it can be concluded that there is a significant association between psychosocial stress and blood pressure in hypertensive patients at the Ngoro Mojokerto Community Health Center. This indicates that the higher the level of psychosocial stress experienced by respondents, the greater the tendency for blood pressure to increase, as evidenced by a shift from the prehypertension category to stage 1 hypertension and then to stage 2 hypertension.

DISCUSSION

The results of the study show that of the 30 hypertensive patients surveyed at the Ngoro Community Health Center in Mojokerto, the majority (50.0%) experienced severe psychosocial stress, while nearly half (43.3%) experienced moderate stress. This indicates that the majority of hypertensive patients experience fairly high levels of stress. This condition is influenced by various factors, such as concerns about the disease, long-term treatment, economic conditions, and a lack of social support (Allen, 2025).

In addition, the study results also showed that the majority of respondents fell into the category of stage 2 hypertension (40.0%), followed by stage 1 hypertension (33.3%) and prehypertension (26.7%). This indicates that the patients' blood pressure is still not optimally controlled. This condition may be influenced by age, lifestyle, adherence to treatment, and psychological factors such as stress (Purnama et al., 2023).

The results of the cross-tabulation indicate a trend showing that respondents with higher stress levels have higher blood pressure. Respondents with severe stress were mostly in the stage 2 hypertension category, while those with mild stress tended to be in the prehypertension category. Statistical test results indicate a significant association between psychosocial stress and blood pressure ($p < 0.05$). This suggests that psychosocial stress plays a role in elevated blood pressure among patients with hypertension.

CONCLUSION

Based on the research findings, it was determined that the most common level of psychosocial stress experienced by respondents was severe stress, reported by 15 respondents (50.0%), while the most common blood pressure reading was $\geq 140/90$ mmHg, reported by 22 respondents (73.3%). Analysis using the Spearman's Rho test revealed a p-value of 0.000 (< 0.05), leading to the rejection of H_0 and acceptance of H_1 , indicating a significant association between psychosocial stress and blood pressure among hypertensive patients at the Ngoro Mojokerto Community Health Center. The study results showed that all respondents with severe stress levels had blood pressure of $\geq 140/90$ mmHg, totaling 15 respondents (100.0%), while all respondents with mild stress levels had blood pressure of $\leq 140/90$ mmHg, totaling 2 respondents (100.0%). These findings indicate that the higher the level of psychosocial stress experienced by patients, the greater the likelihood of an increase in blood pressure. This is because when a person experiences psychosocial stress, the body activates the sympathetic nervous system and increases the release of the hormones adrenaline, norepinephrine, and cortisol. These changes cause the heart rate to increase and blood vessels to constrict (vasoconstriction), thereby raising blood pressure. When stress is chronic, blood pressure becomes more difficult to control. Thus, it can be

concluded that the higher the level of psychosocial stress experienced by patients with hypertension, the higher their blood pressure will be. Therefore, the management of hypertension should not focus solely on pharmacological therapy but must also include efforts to manage psychosocial stress so that blood pressure can be better controlled and the risk of complications from hypertension can be minimized.

REFERENCES

- Abduh, M., Alawiyah, T., Apriansyah, G., Abdullah, R., & Afgani, M. W. (2023). *Jurnal Pendidikan Sains dan Komputer Survey Design : Cross Sectional dalam Penelitian Kualitatif Jurnal Pendidikan Sains dan Komputer*. 3(1), 31–39.
- Allen, J. (2025). *Lung cancer associated autoantibody responses are detectable years before clinical presentation*. 3–11. <https://doi.org/10.1371/journal.pone.0315220>
- Anita Hidayati, Nasrul Hadi Purwanto, E. S. (2022). *Hubungan Stres Dengan Peningkatan Tekanan Darah Pada Pasien Hipertensi*. 37–44.
- Ardy, D. A., Septiawan, T., Herlina, N., Muhammadiyah, U., & Timur, K. (2023). *Correlation Between Stres Levels And Hypertension in the Society At Puskesmas In Samarinda*. 1(2), 42–47.
- Aristina Halawah, B. A. (2023). *Hubungan tingkat stres dengan kejadian hipertensi pada usia dewasa awal (18-40 tahun)*. 20.
- Burlacu, A., Kuwabara, M., & Brinza, C. (2025). *Key Updates to the 2024 ESC Hypertension Guidelines and Future Perspectives*. 1–13.
- Canada, P., & Canada, P. (2024). *Commentary on Webber et al. 1*. 76(2), 230–231. <https://doi.org/10.3138/ptc-2022-0038-cc>
- Ericksen, C. J., Christensen, C. A., Berger, B., Gune, S., & Nielsen, J. S. (2022). *Implantation Site of a Port Delivery System With Ranibizumab : Anterior Segment Optical Coherence Tomography Evaluation*. <https://doi.org/10.1177/24741264221105809>
- Foti, K., Moran, A. E., Matsushita, K., Appel, L. J., Juraschek, S. P., Pathni, A. K., Banigbe, B. F., Dessie, G. A., Belbase, B., Bhuiyan, M. R., Jubayer, S., Choudhury, S. R., & Brady, T. M. (2026). *Evidence-Based , Streamlined Approach to Measure Blood Pressure in Primary Care Settings*. February. <https://doi.org/10.1161/HYPERTENSIONAHA.125.24527>
- Garovic, V. D., Dechend, R., Easterling, T., Karumanchi, S. A., Baird, S. M., Magee, L. A., Rana, S., & Vermunt, J. V. (2022). *Hypertension in Pregnancy : Diagnosis , Blood Pressure Goals , and Pharmacotherapy : February*. <https://doi.org/10.1161/HYP.0000000000000208>

- Goorani, S., Zangene, S., & Imig, J. D. (2025). *Hypertension : A Continuing Public Healthcare Issue*. 1–18.
- Goupil, R., Pharmd, R. T. T., Rd, N. S., Terenzi, K. A., Habert, J., Cheng, G., Gysel, S. C., Pharmd, B., Np, J. B., Mph, A. A. L., Campbell, N. R. C., Schiffrin, E. L., & Mph, G. L. H. (2025). *Hypertension Canada guideline for the diagnosis and treatment of hypertension in adults in primary care*. 1–16.
<https://doi.org/10.1503/cmaj.241770>
- Hafizah, N., P, T. C. P., & Sari, M. (2025). *Identifikasi Variabel Penelitian , Jenis Sumber Data Dalam Penelitian Pendidikan*. 586–596.
- Indarti, E. T., & Harwatik. (2023). *Hubungan Stres Dengan Tekanan Darah dan Kualitas Hidup Penderita Hipertensi*. 70–76.
- Istiana, M. (2019). *The Effect of Psychosocial Stress on the Incidence of Hypertension in Rural and Urban Communities Pengaruh Stres Psikososial terhadap Kejadian Hipertensi pada Masyarakat Pedesaan dan Perkotaan*. 408–417.
- Jailani, M. S., & Jeka, F. (2023). *Populasi dan Sampling (Kuantitatif), Serta Pemilihan Informan Kunci (Kualitatif) dalam Pendekatan Praktis*. 7, 26320–26332.
- Kemenkes. (2023). *Survei Kesehatan Indonesia (SKI)*.
- Milevsky, M. A., Boulevard, M., Johnson, S., Digiorio, M., Lewin, C., Mediarmid, A., Raymont, D., Omary, H., Richards, S., Salisbury, T., Sibbett, T., & Tanaka, K. (2023). *Adam Smith ' s reversionary annuity : money ' s worth , default options and auto-enrollment*.
- Salsabila, Q. N., Melastuti, E., & Amal, A. I. (2025). *Hubungan Mekanisme Koping Terhadap Tekanan Darah Pasien Hipertensi*. 3, 7–17.
- Salvatori, F., Aversa, E. D., Serino, M. L., Singh, A. V., Secchiero, P., Zauli, G., Tisato, V., & Gemmati, D. (2023). *miRNAs Epigenetic Tuning of Wall Remodeling in the Early Phase after Myocardial Infarction : A Novel Epidrug Approach*.
- Santini, S., Alharbi, W., Teoh, K. H., & Herrera-perez, M. (2023). *Hybrid-Total Ankle Arthroplasty (H-TAA) for Failed Talar Component in Mobile-Bearing Total Ankle Arthroplasty*. 1–12.
- Stiso, J., Lynn, C. W., Kahn, A. E., Rangarajan, V., Szymula, K. P., Archer, R., Revell, A., Stein, J. M., Litt, B., Davis, K. A., & Lucas, T. H. (2022). *Neurophysiological Evidence for Cognitive Map Formation during Sequence Learning*. 9(April).
- Sugiyono. (2023). *Metode Penelitian Kuantitatif*. Alfabeta.

- Titin Hamzah, Nasrun Pakaya, G. P. L. (2025). *Hubungan Stres Dengan Tekanan Darah Pada Pasien Hipertensi*. 1(1), 52–58.
- Tsai, S., Hsu, J., Lin, C., Kuo, Y., Chen, C., Chen, H., Liu, S., & Chien, K. (2024). International Journal of Cardiology Cardiovascular Risk and Prevention Association of stress hormones and the risk of cardiovascular diseases systematic review and meta-analysis. *International Journal of Cardiology Cardiovascular Risk and Prevention*, 23(May), 200305. <https://doi.org/10.1016/j.ijcrp.2024.200305>
- WHO, W. H. O. (2023). *Global Report on Hypertension The Race Against a Silent Killer*.
- Zaiful, R., Rahman, Z., & Susanto, T. (2025). *Factors Influencing Hypertension Prevention Behaviors in Rural Areas : A Cross-Sectional Study in Indonesia*. 151–164.