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Factors Related to Compliance in Taking Antihypertensive Medication at Putri Ayu Health Center

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Abstract
Introduction: *Hypertension requires long-term therapy to prevent complications, but patient compliance in taking antihypertensive drugs remains low.* ***Objective:*** *This study analyzes factors related to antihypertensive medication compliance at Putri Ayu Health Center.* ***Method****: A cross-sectional design was used with 98 patients selected via consecutive sampling. Data were analyzed using chi-square and logistic regression.* ***Result and Discussion:*** *Results showed age, education, drug interval, knowledge, motivation, and family support relate to medication compliance, whereas gender, occupation, and health workers' roles do not. Knowledge level is the most significant factor determining compliance.* ***Conclusions:*** *Knowledge level primarily determines medication compliance among hypertensive patients. Educational interventions by health workers to improve patient knowledge are highly recommended.*

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Introduction

Hypertension is a non-communicable disease characterized by a persistent increase in blood pressure, typically diagnosed when systolic blood pressure is ≥140 mmHg and/or diastolic blood pressure is ≥90 mmHg on repeated examinations (Soenarta et al., 2015). It remains a leading preventable cause of cardiovascular disease. Alarmingly, a large portion of adults with hypertension are unaware of their condition, highlighting a massive gap in early screening and continuous care in Indonesia (Adrian & Tommy, 2019). In Indonesia, hypertension remains a primary public health burden. Based on the 2018 Indonesian Basic Health Research (Riskesdas), the ntional prevalence of hypertension increased significantly from 25.8% (2013) to 34.1% (2018) (Tim Riskesdas, 2018). In Jambi Province, hypertension ranks second among the ten most common diseases, reflecting a pressing regional health challenge (Dinkes Sumatera Selatan, 2023)

As a chronic condition, hypertension requires life-long management, encompassing pharmacotherapy, dietary changes, and lifestyle modifications. While it cannot be completely cured, it can be effectively controlled. However, a major clinical challenge in hypertension management is poor medication adherence. Non-compliance with antihypertensive regimens is strongly associated with treatment failure, leading to a higher risk of fatal complications such as stroke, uncontrolled blood pressure, and cardiovascular mortality (Azam, 2016; Yonata & Pratama, 2016). According to Riskesdas 2018 data, only 54.4% of Indonesian patients take their antihypertensive drugs regularly, while 32.3% take them irregularly, and 13.3% do not take them at all. Notably, in Jambi Province, the compliance rate is exceptionally low, reaching only 44.35% (Tim Riskesdas, 2018).

Medication compliance is a multidimensional phenomenon influenced by various interacting factors, including patient knowledge, socioeconomic status, therapy duration, and healthcare system support. A meta-analysis study by Win et al. (2021) identified lack of knowledge, poor health worker support, and low treatment motivation as critical barriers to adherence. However, existing literature in Indonesia presents conflicting evidence regarding the specific determinants of compliance. For instance, Sudarman et al. (2022) found a significant relationship between patient knowledge and the role of health workers with medication adherence. Conversely, Pratiwi & Hadiwiardjo (2020) reported that the role of health workers and family support had no significant impact, whereas education level and motivation were the main drivers.

These empirical inconsistencies indicate that determinants of antihypertensive compliance are highly context-dependent and heavily influenced by local socio-cultural dynamics and primary healthcare approaches. Despite the critically low adherence rate in Jambi Province (44.35%), comprehensive multivariate studies identifying the most dominant predictor of compliance in this specific urban setting are lacking. Therefore, this study fills the gap by analyzing factors related to antihypertensive medication compliance at Putri Ayu Health Center, Jambi City, and evaluating its most significant predictor. The novelty of this study lies in its localized multivariate approach to identify the primary determinant of non-compliance, thereby providing targeted, evidence-based recommendations for educational and clinical interventions in local primary healthcare facilities.

Method

This study is an unpaired two-categorical observational analytical study with a cross-sectional approach conducted at Putri Ayu Health Center, Jambi City. The target population included all patients diagnosed with hypertension at the center. The sample size was 98 respondents, which was calculated using the Slovin formula based on a total population of 707 patients and a margin of error of 10%. A consecutive sampling technique was applied because data collection involved patients who were actively undergoing treatment and taking their monthly medication during the study period. The inclusion criteria for the study were patients diagnosed with hypertension aged ≥ 18 years and willing to be research samples, while the exclusion criteria were patients who had only received monthly antihypertensive medication once and have chronic diseases that require other long-term treatment such as Diabetes Mellitus and heart disease.

This study used the MMAS-8 (Morisky Medication Adherence Scale) questionnaire to assess the level of compliance in taking antihypertensive medication. This questionnaire comes from the Riani (2017) which has been validated. Consists of 8 questions with a score of "Yes = 0" and "No = 1", except for question number 5 which is the opposite. The level of compliance will be grouped into two categories, namely medium-high compliance (a combination of medium and high categories) and low compliance. In addition, the questionnaire to assess factors related to compliance uses a questionnaire derived from the (Listiana et al., 2020) which has been validated. This questionnaire consists of questions related to knowledge about hypertension, motivation to seek treatment, family support, and the role of health workers.

The statistical test used for bivariate analysis is chi-square, it is said to have a relationship if p <0.05, while for multivariate testing using logistic regression using the backward LR method. In this test, the variables that can be included are variables that have a p-value <0.25 in bivariate analysis (chi-square), if the Exp value (B) the further away from zero and has a p-value <0.05, the variable is a variable that is significantly related. This study has received approval from the Ethics Review of the Faculty of Medicine, University of Jambi number: 2498 / UN21.8 / PT.01.04 / 2024.

Result and Discussion

1. Result

Characteristics of Research Subjects

The distribution of research subjects based on age shows that the largest percentage is elderly people aged ≥ 60 years at 53.1%. Based on gender, the largest percentage is women, namely 70.4% as many as 69 people based on Education. Lastly, the majority have low education middle class of 80.6% as many as 79 people. Based on work, the largest percentage is unemployed at 65.3%. Based on the level of compliance, the majority have low compliance with a percentage of 61.2%. Based on the drug interval of the majority of hypertensive patients at Putri Ayu Health Center in Jambi City consumes drugs with a 24-hour interval (1x/day) which is 57.1% as many as 56 people. Based on the level of knowledge, the largest percentage is low knowledge about hypertension at 68.4%. Based on the motivation to seek treatment, the majority have high motivation to seek treatment, which is 61.2% as many as 60 people. Based on family support, the largest percentage is low support at 57.1%. Based on the role of health workers, the largest percentage is having a high role at 80.6%.

Table 1
Characteristics of Research Subjects

Variables	Frequency (n=98)	Presentation (%)
Age		
Young adults (18-59) Year)	46	46.9
Elderly (≥ 60 years)	52	53.1
Gender		
Man	29	29.6
Woman	69	70.4
Last education		
Low education-intermediate	79	80.6
Higher education	19	19.4
Work		
Work	34	34.7
Doesn't work	64	65.3
Medication Compliance		
Medium-High Compliance	38	38.8
Low Compliance	60	61.2
Medication Interval		
24 hours (1x/day)	56	57.1
< 24 hours (>1x/day)	42	42.9
Level of Knowledge		
Tall	31	31.6
Low	67	68.4
Motivation for Medical Treatment		
High Motivation for Treatment	60	61.2
Low Motivation for Treatment	38	38.8
Family Support		
High Support	42	42.9
Low Support	56	57.1
The Role of Health Workers		
High Role	79	80.6
Low Role	19	19.4
Total	98	100.0

Factors Associated with Compliance in Taking Antihypertensive Medication

To see the factors related to compliance with taking antihypertensive medication, a bivariate analysis was conducted using the chi-square test (Cahyadi et al., 2024). The factors assessed were age, gender, education level, occupation, drug interval, knowledge level, motivation for treatment, family support, and the role of health workers. The results of the analysis showed:

1) Age was associated with adherence to antihypertensive medication (p=0.027). Young adult patients had a 1.4 times higher risk of non-adherence than elderly patients.
2) Gender has no relationship with compliance in taking antihypertensive medication

(p=0.306).

3) Occupation had no relationship with compliance (p=0.060).
4) Education level was associated with medication adherence (p=0.007). Patients with low education were 2.1 times more likely to be non-adherent than patients with high education.
5) Medication interval is associated with compliance in taking antihypertensive medication (p<0.001) and is a protective factor that reduces non-compliance.
6) Level of knowledge is associated with compliance with taking antihypertensive medication (p<0.001). Patients with low knowledge are at 8.7 times higher risk of non-compliance than patients with high knowledge.
7) Motivation to seek treatment is associated with compliance in taking antihypertensive medication (p<0.001). Patients with low motivation are at 2.3 times higher risk of non-compliance than patients with high motivation.
8) Family support is associated with medication adherence (p<0.001). Patients with low family support are at 3.7 times higher risk of non-adherence than patients with high support.
9) The role of health workers was not related to compliance in taking antihypertensive medication (p=0.133).

Table 2
Factors Related to Compliance in Taking Antihypertensive Medication

Variables	Medication Compliance				*p-value*	PR (95%CI)
	Low Compliance		Medium-High Compliance			
	N=60	%	N=38	%		
Age						
Young adults (18-59 years)	34	73.9	12	26.1	0.027	1.478 (1.072-2.039)
Elderly (≥ 60 years)	26	50.0	26	50.0		
Gender						
Man	15	51.7	14	48.3	0.306	0.793 (0.536-1.173)
Woman	45	65.2	24	34.8		
Work						
Work	16	47.1	18	52.9	0.060	0.684 (0.462-1.014)
Doesn't work	44	68.8	20	31.2		
Level of education						
Lower-Secondary Education	54	68.4	25	31.6	0.007	2.165 (1.098-4.267)
higher education	6	31.6	13	68.4		
Medication Interval						
24 hours (1x1/day)	23	41.1	33	58.9	<0.001	0.466 (0.344-0.650)
< 24 hours (2-3x/day)	37	88.1	5	11.9		
Level of Knowledge						
Low Knowledge	57	85.1	10	14.9	<0.001	8.791 (2.985-25.890)
High Knowledge	3	9.7	28	90.3		
Motivation for Treatment						
Low motivation	36	94.7	2	5.3	<0.001	2.368 (1.722-3.258)
High Motivation	24	40.0	36	60.0		

Factors Most Significantly Associated with Compliance with Antihypertensive Medication

To see the factors that are most significantly related to compliance with taking antihypertensive medication, a multivariate analysis was conducted using a logistic regression test. The results of the analysis showed that the factors that had a significant relationship were the drug interval, level of knowledge, motivation to seek treatment, and family support. Of the four variables, the one that had the most significant relationship was the level of knowledge with a p-value <0.001 and Exp (B) 18.495.

Table 3
Logistic Regression Test Results

Variables	*P-value*	Exp (B)	CI 95%
Medication Interval	0.041	1.69	0.031-0.933
Level Knowledge	<0.001	18.495	3.263-104.844
Motivatio Get treatment	0.090	4.866	0.781-30.309
Support Family	0.003	9.959	2.130-46.560
Constants	<0.001	0.000	

Exp (B), Exponentiation of the Regression Coefficient (B); CI, Confidence Interval

2. Discussion

The results of this study revealed that 61.2% of hypertensive patients at Putri Ayu Health Center in Jambi City had low compliance with their antihypertensive medication regimen. This concerning figure is consistent with global and national trends. The World Health Organization (WHO) estimates that adherence to long-term therapy for chronic diseases in developing countries averages below 50%. This finding aligns with similar evaluations in East Kalimantan (Handayani et al., 2022) and Surabaya (Dewayani et al., 2023), confirming that managing chronic diseases like hypertension remains a significant behavioral challenge in Indonesia due to the complexity of maintaining long-term routines.

Based on the bivariate analysis, age and education level were significantly associated with medication adherence ($p < 0.05$). Younger adult patients exhibited a higher risk of non-compliance compared to the elderly. This phenomenon occurs because younger patients often underestimate the severity of asymptomatic hypertension and its long-term complications, whereas older adults typically experience a higher disease burden that increases their health awareness (Farah et al., 2024; Otriyani et al., 2024). Furthermore, higher education provides patients with better cognitive skills to grasp health literacy, empowering them to adopt healthier lifestyles and strictly follow medical regimens (Tambuwun et al., 2021).

In terms of clinical therapy, the drug administration interval played a crucial role ($p < 0.001$). Patients prescribed a simple, once-daily regimen demonstrated significantly higher adherence than those requiring multiple daily doses. Complex regimens create barriers to adherence, supporting current clinical guidelines that simplifying treatment to a single daily dose is a critical protective factor against missed doses (Burnier & Egan, 2019). Conversely, gender, occupation, and the role of health workers showed no significant association with compliance ($p > 0.05$). The lack of correlation with gender and occupation suggests that non-compliance is a universal challenge across these groups, heavily mediated by workplace flexibility and individual behavioral traits rather than absolute demographic categories (Biffi et al., 2020; Cahyati et al., 2024). Interestingly, although most respondents acknowledged the positive role of health workers, it did not translate directly into medication adherence. This implies that external clinical

instructions are insufficient to alter behavior unless internalized by the patient (Aini et al., 2024).

The multivariate logistic regression highlighted that knowledge level, motivation for treatment, and family support are the most robust predictors of compliance. However, the most significant determinant among all variables is the level of knowledge ($p < 0.001$; Exp(B) = 18.495). Patients with adequate knowledge are 18.5 times more likely to adhere to their medication compared to those with poor knowledge. This profound finding synthesizes the core problem at Putri Ayu Health Center: compliance is fundamentally driven by health literacy and psychological perception. Knowledge dictates a patient's understanding of disease susceptibility, the rationale behind asymptomatic medication, and the fatal risks of uncontrolled blood pressure (Giakoumidakis et al., 2024). When patients lack this knowledge, their intrinsic motivation to seek treatment diminishes, leading to high dropout rates from therapy (Ainiyah et al., 2023).

Furthermore, high knowledge must be coupled with strong family support ($p = 0.003$). Hypertension requires lifelong monitoring; thus, families act as the primary psychosocial safety net. They provide not only emotional encouragement but also practical assistance, such as medication reminders and transportation to healthcare facilities, which significantly buffer the psychological burden of chronic illness (Chrismilasari et al., 2022; Tsadik et al., 2020). In conclusion, external interventions by health workers will remain ineffective if they only focus on prescribing drugs without actively improving the patient's comprehensive knowledge of the disease. Therefore, localized educational interventions tailored to improve health literacy and family involvement are urgently required to combat the high rate of non-compliance in Jambi City.

Study Limitations

This study has several limitations that should be considered when interpreting the findings. First, the cross-sectional study design evaluates exposure and outcome variables simultaneously, which precludes establishing causal relationships or temporal sequences between patient factors and antihypertensive medication compliance. Second, the study was conducted at a single primary healthcare center using consecutive sampling with a relatively small sample size ($n = 98$), which may limit the generalizability of the findings to broader hypertensive populations in other healthcare settings. Third, medication compliance and its associated factors were assessed using self-reported questionnaires (MMAS-8 and structured instruments), which are susceptible to recall bias and social desirability bias. Finally, objective clinical indicators of treatment adherence, such as longitudinal blood pressure control, pill counts, or pharmacy refill records, were not included to validate self-reported compliance.

Conclusion

This study concludes that age, education level, drug administration interval, level of knowledge regarding hypertension, treatment motivation, and family support are significantly associated with antihypertensive medication compliance at Putri Ayu Health Center, Jambi City. Conversely, gender, occupation, and the role of health workers show no significant relationship. Among all evaluated variables, the patient's level of knowledge stands out as the most significant determinant of compliance. Based on these findings, it is highly recommended that primary healthcare providers shift their strategy from merely prescribing medication to actively enhancing patient health literacy. Specific

interventions should include comprehensive, easy-to-understand educational programs regarding the silent risks of unmanaged hypertension and the critical importance of daily adherence. Furthermore, healthcare workers should actively involve family members as medication supervisors at home to bolster psychological support. Finally, simplifying the medication regimen to a once-daily dose, whenever clinically feasible, is strongly advised to reduce the patient's daily burden and improve overall adherence rates.

Declaration of AI Assistance

AI tools, specifically ChatGPT, were used during the preparation of this manuscript to assist with paraphrasing and language refinement. The authors reviewed and verified the final manuscript and take full responsibility for its accuracy and scientific integrity

Reference

Adrian, S. J., & Tommy. (2019). Hipertensi Esensial: Diagnosis dan Tatalaksana Terbaru pada Dewasa. *Cermin Dunia Kedokteran*, *46*(3), 172–178. https://doi.org/10.55175/CDK.V46I3.491

Aini, T. F., Aisyiah, A., & Rifiana, A. J. (2024). Analisis Faktor yang Berhubungan dengan Kepatuhan Minum Obat Pada Lansia dengan Hipertensi di Wilayah Kerja Puskesmas Tridayasakti Tambun Selatan. *Malahayati Nursing Journal*, *6*(8), 3448–3463. https://doi.org/10.33024/mnj.v6i8.14188

Ainiyah, N., Zuhriyah, N., Damawiyah, S., Kusumawati, D. R., Afiyah, R. K., Budury, S., & Fitriasari, A. (2023). Influence of Self-Motivation and Health Locus of Control on Adherence to Medication Among Hypertension Patients. *Jurnal Keperawatan Indonesia*, *26*(1), 2. https://doi.org/10.7454/jki.v26i1.2526

Azam, M. (2016). Faktor-faktor yang berhubungan dengan kejadian hipertensi tidak terkendali pada penderita yang melakukan pemeriksaan rutin. *Public Health Perspective Journal*.

Biffi, A., Rea, F., Iannaccone, T., Filippelli, A., Mancia, G., & Corrao, G. (2020). Sex differences in the adherence of antihypertensive drugs: a systematic review with meta-analyses. *BMJ Open*, *10*(7). https://doi.org/10.1136/BMJOPEN-2019-036418

Burnier, M., & Egan, B. M. (2019). Adherence in hypertension: a review of prevalence, risk factors, impact, and management. *Circulation Research*, *124*(7), 1124–1140.

Cahyadi, N., Deni, A., Suacana, I. W. G., Suprapto, A., Yap, R. A., Sahrullah, Aurora, W. I. D., Sutrisno, H., Adiwibowo, P. H., & Fibriany, F. W. (2024). *Analisis Data Penelitian*. Yayasan Cendikia Mulia Mandiri.

Cahyati, E. C. W., Widani, N. L., & Rasmada, S. (2024). Factors Associated with the Level of Compliance with Taking Antihypertensive Medication in Patients at the Subdistrict Health Center in the North Jakarta Region. *Journal of Pubnursing Sciences*, *2*(02), 73–80. https://doi.org/10.69606/JPS.V2I02.126

Chrismilasari, L. A., Er Unja, E., Chrisnawati, C., & Rachman, A. (2022). The Influence Of Family Support In The Management Of Hypertension Patients. *Jurnal EduHealth*, *13*(02), 652–661. https://ejournal.seaninstitute.or.id/index.php/healt/article/view/724

Dewayani, J. K., Faizah, A. K., & Kresnamurti, A. (2023). EVALUASI TINGKAT KEPATUHAN MINUM OBAT PASIEN HIPERTENSI DI PUSKESMAS KENJERAN MENGGUNAKAN METODE MMAS-8. *JOURNAL OF PHARMACY SCIENCE AND TECHNOLOGY*, *4*(1), 24–29. https://doi.org/10.30649/PST.V4I1.62

Farah, R. I., Alawwa, I. A., Khateeb, D. Q., Hwidi, B. E., Albdour, K. M., Monia, O. G. B., Assaf, R. N., Aldabaibah, A. A., Alsaket, G. I. J., & Alshrouf, M. A. (2024). Factors Affecting the Level of Adherence to Hypertension Medications: A Cross-Sectional Study Using the Hill-Bone Questionnaire. *Patient Preference and Adherence*, *18*, 893–904. https://doi.org/10.2147/PPA.S457026

Giakoumidakis, K., Patelarou, E., Brokalaki, H., Bastaki, M., Fotos, N. V., Ifantopoulou, P., Christodoulakis, A., Chatziefstratiou, A. A., & Patelarou, A. (2024). Patient Knowledge, Medication Adherence, and Influencing Factors: A Cross-Sectional Study among Hypertensive Patients in Greece. *Healthcare (Basel, Switzerland)*, *12*(9). https://doi.org/10.3390/HEALTHCARE12090916

Handayani, S. E., Warnida, H., & Sentat, T. (2022). PENGARUH DUKUNGAN KELUARGA TERHADAP KEPATUHAN MINUM OBAT PASIEN HIPERTENSI DI PUSKESMAS MUARA WIS. *Jurnal Ilmiah Manuntung: Sains Farmasi Dan Kesehatan*, *8*(2), 226–233. https://doi.org/10.51352/JIM.V8I2.527

Listiana, D., Effendi, S., & Saputra, Y. E. (2020). Faktor-Faktor yang Berhubungan dengan Kepatuhan Penderita Hipertensi dalam Menjalani Pengobatan di Puskesmas Karang Dapo Kabupaten Muratara. *Journal of Nursing and Public Health*, *8*(1), 11–22. https://doi.org/10.37676/JNPH.V8I1.1005

Otriyani, A. S., Sabarudin, Supriadi, Hisran, & Rahmah. (2024). Hubungan Usia dengan Kepatuhan Minum Obatantihipertensi di Puskesmas Tanjung Pinang Kota Jambi Tahun 2024. *SEHATMAS: Jurnal Ilmiah Kesehatan Masyarakat*, *3*(3), 505–514. https://doi.org/10.55123/SEHATMAS.V3I3.3873

Pratiwi, W., Harfiani, E., & Hadiwiardjo, Y. H. (2020). Faktor-faktor yang berhubungan dengan kepatuhan dalam menjalani pengobatan pada penderita hipertensi di Klinik Pratama GKI Jabar Jakarta Pusat. *Seminar Nasional Riset Kedokteran*, *1*(1), 27–40.

Riani, D. A. (2017). *Validasi 8-item Morisky Medication Adherence Scale versi Indonesia pada pasien hipertensi dewasa di Puskesmas Kabupaten Sleman dan Kota Yogyakarta*. https://etd.repository.ugm.ac.id/penelitian/detail/109818

Selatan, D. S. (2023). Profil Kesehatan Provinsi Sumatera Selatan Tahun 2022. *Dinas Kesehatan Provinsi Sumatera Selatan*.

Soenarta, A. A., Erwinanto, Mumpuni, A. S. S., Barack, R., Lukito, A. A., Hersunarti, N., & Soerarso Pratikto, R. (2015). *Pedoman tatalaksana hipertensi pada penyakit kardiovaskular*. Perhimpunan Dokter Spesialis Kardiovaskular Indonesia. https://www.inaheart.org/pedoman-tatalaksana-hipertensi-pada-penyakit-kardiovaskular/

Sudarman, Y., Mangundap, S. A., Tampake, R., Kunoli, F. J., & D, T. S. Y. (2022). Faktor-Faktor yang Berhubungan dengan Kepatuhan Minum Obat Anti Hipertensi pada Pasien di Wilayah Kerja Puskesmas Salakan Kabupeten Banggai: Factors Related to Compliance with Taking Anti-Hypertension Drugs in Patients in the Work Area of the Salakan Hea…. *Media Publikasi Promosi Kesehatan Indonesia*, *5*(10), 1263–1268. https://doi.org/10.56338/MPPKI.V5I10.2861

Tambuwun, A. A., Kandou, G. D., & Nelwan, J. E. (2021). HUBUNGAN KARAKTERISTIK INDIVIDU DENGAN KEPATUHAN BEROBAT PADA PENDERITA HIPERTENSI DI PUSKESMAS WORI KABUPATEN MINAHASA UTARA. *Jurnal Kesehatan Masyarakat Universitas Sam Ratulangi*, *10*(4). https://ejournal.unsrat.ac.id/v3/index.php/kesmas/article/view/33703

Tim Riskesdas. (2018). *Laporan Riskesdas 2018 Nasional*. Lembaga Penerbit Badan Penelitian dan Pengembangan Kesehatan. https://repository.badankebijakan.kemkes.go.id/id/eprint/3514/

Tsadik, D. G., Berhane, Y., & Worku, A. (2020). Adherence to Antihypertensive Treatment and Associated Factors in Central Ethiopia. *International Journal of Hypertension*, *2020*. https://doi.org/10.1155/2020/9540810

Win, T., Banharak, S., & Ruaisungnoen, W. (2021). Factors influencing medication adherence among patients with hypertension: a systematic review. *Sys Rev Pharm*, *12*(1), 526–538.

Yonata, A., & Pratama, A. S. P. (2016). Hipertensi sebagai faktor pencetus terjadinya stroke. *Jurnal Majority*, *5*(3), 17–21.