

Factors That Influence Compliance With Hypertension Patiens

Nona Ringgi Novela¹⁾ Heru Supriyatno²⁾ Bambang Sarwono³⁾ Dwi Ari Murti Widigdo⁴⁾
Email: nonaringginovela113@gmail.com

ABSTRACT

Background: Hypertension is often referred to as the silent killer due to its potential to harm vital organs like the heart and kidneys without showing noticeable symptoms. Adherence to medication is crucial in preventing hypertension. Various factors, including medication-related issues, contribute to patient non-compliance. Many individuals fail to adhere to hypertension medication due to perceived side effects following consumption.

Methods: This study uses a quantitative research method with a correlational research design. It employs a Cross-Sectional approach. The sampling technique used in this study is proportional simple random sampling. The sample consists of 88 respondents who suffer from hypertension. The research instrument used in this study is a questionnaire on factors influencing medication adherence among hypertension patients. To determine the relationships between these factors and medication adherence among hypertension patients, this study utilizes the Chi-Square test and Logistic Regression analysis.

Results: The most dominant factor influencing medication adherence in hypertension sufferers is the knowledge factor, followed by the second factor, namely the assumption of drug side effects. Knowledge is an important foundation in shaping a person's behavior for several main reasons. First, knowledge provides individuals with an understanding of the consequences of their actions. By understanding the short-term and long-term effects of certain behaviors, individuals can make better and more responsible decisions.

Conclusion: The most dominant factor influencing medication adherence in hypertensive patients is knowledge, followed by the second factor, which is assumptions about medication side effects.

Keyword : compliance; hypertension; medication compliance

^{1,2,3,4} Department of Nursing, Poltekkes Kemenkes Semarang, Indonesia
Jl. Tirta Agung Pedalangan Banyumanik, Semarang, Jawa Tengah, Indonesia

Background. Blood pressure that continues to rise over an extended period is known as hypertension (Wulandari et al., 2023). According to the American Heart Association, vascular contraction pressure exceeding 140 mmHg and relaxed circulation pressure surpassing 90 mmHg are considered hypertension (Setiani et al., 2021). As most hypertension patients do not show symptoms, the disease is known as the silent killer. However, if left untreated, hypertension can damage vital organs such as the kidneys and heart (Aditya, 2023).

Hypertension is a common trigger for cardiovascular diseases both in developed and developing countries. Cardiovascular diseases are also a leading cause of global deaths each year. Based on data collected by the WHO (2015), approximately 1.13 billion people

worldwide suffer from hypertension. Currently, there are 37.57% hypertension cases in Central Java, with a prevalence of 40.17% among females, higher than males at 34.83%. Urban areas experience slightly higher hypertension rates at 38.11% compared to rural areas at 37.1%. In 2021, the number of hypertension cases in Magelang Regency reached 63,915 people. A preliminary study in the Kaliangkrik Community Health Center area found 1,695 hypertension patients in 2020. Data from 2023 indicates 2,071 hypertension patients from January to December.

The community health center itself has implemented various methods to manage hypertension, such as providing services through the posbindu program, where verbal education and antihypertensive medication are provided. Success in managing hypertension

depends significantly on adherence to therapy. If patients are compliant with antihypertensive treatment, it contributes positively to their well-being. However, there are factors that can influence non-adherence among patients. According to Lawrence Green's theory (1991) as cited in Notoatmodjo (2014), there are three factors that can affect how well someone adheres to medication: Predisposing Factors (age, gender, education, occupation, knowledge, assumptions about drug side effects), Precipitating Factors (availability of health facilities, health insurance coverage, duration of illness, number of medications taken), and Reinforcing Factors (motivation, family support, healthcare provider's role). Among these thirteen factors, one of the most prominent for research is the assumption about drug side effects, where many people are not compliant with taking medication due to perceived side effects experienced after consuming antihypertensive drugs. Most of the rural population mentioned being lazy to take medication because they experience side effects such as frequent headaches and sometimes weakness after taking antihypertensive drugs.

Methods. This research utilizes a quantitative scientific method oriented towards a correlational research design. It adopts a cross-sectional approach and employs a questionnaire as the instrument to assess factors affecting medication adherence. The study includes a sample of 88 hypertension patients, selected using proportional sampling through simple random sampling.

Result and Discussion. Based on the research conducted, a correlation test was performed on the 13 factors, and it was found that only 4 factors are significantly related to medication adherence. These four factors were then tested together to determine the most dominant factor influencing medication adherence in hypertensive patients. The results are as follows:

Table 1. The Relationship Between Health Insurance Factors and Medication Adherence in Hypertension

Health Insurance	Compliance with taking medication			OR	CI	P value	Correlation
	Compliant	Non-compliant	%				
Not Having Insurance	27	5	36,4 %	2,265 699	95 %	0,030	0,231
Having insurance	35	21	63,6 %				
Total	56	32	100 %				

In the following, it can be observed that respondents with insurance are more compliant in taking medication, totaling 35 individuals. Statistical testing shows that the insurance factor has a p-value of 0.030, indicating a relationship between respondents' insurance status and medication adherence, as the p-value is < 0.05. The relationship has a weak strength with a correlation coefficient of 0.231. The calculated odds ratio (OR) for not having insurance is 2.265 (95% CI).

Table 2. The Relationship Between Availability of Healthcare Facilities and Adherence to Hypertension Medication

Availability of Healthcare Facilities	Compliance with taking medication			OR	CI	P value	Correlation
	Compliant	Non-compliant	%				
Distance < 5 km	7	13	31,8 %	2,516 724	95 %	0,032	0,228
Distance > 5 km	25	43	68,2 %				
Total	32	56	100 %				

In the table above, it can be seen that respondents who are more than 5 km away are less compliant with medication, totaling 43 individuals. Statistical analysis shows that the availability of healthcare facilities has a p-value of 0.032, indicating a relationship between respondents' access to healthcare facilities and medication adherence, given that the p-value is < 0.05. The relationship has a weak strength with a correlation coefficient of 0.228. The calculated odds ratio (OR) for respondents within a distance of less than 5 km is 2.516 (95% CI).

Table 3. The Relationship Between Knowledge Factor and Adherence to Hypertension Medication

Knowledge	Compliance with taking medication			OR	CI	P value	Correlation
	Compliant	Non-compliant	%				
Poor knowledge	15	1	18,2 %	6,290 788	95 %	0,024	0,241
Good knowledge	47	25	81,8 %				
Total	62	26	100 %				

In the table, it is evident that there are 52 respondents who are compliant with medication among those with good knowledge. Statistical testing indicates that the knowledge factor has a p-value of 0.024, meaning there is a relationship between respondents' knowledge and medication adherence. The relationship is characterized by a weak

strength with a correlation coefficient of 0.241. The odds ratio for respondents with less-than-good knowledge is 6.290 (95% CI).

Table 4. The Relationship Between Assumption of Medication Side Effects and Adherence to Hypertension Medication

Assumptions about Drug Side Effects	Compliance with taking medication			OR	CI	p value	Correlation
	Compliant	Non-compliant	%				
Experiencing Side Effects	52	14	75 %	1,558	95 %	0,003	0,316
Not Experiencing Side Effects	10	12	25%				
Total	62	26	100%				

In the table above, it can be observed that respondents who experienced side effects were more compliant with medication, totaling 52 individuals. Statistical testing shows that the knowledge factor has a p-value of 0.003, indicating a relationship between respondents' knowledge and medication adherence. The relationship is characterized by a weak strength with a correlation coefficient of 0.316. The odds ratio for respondents who experienced side effects is 1.558 (95% CI).

That out of the four factors tested, three factors will be retested. These factors are health insurance with a p-value of 0.029 and an Exp (B) value of 4.441, knowledge with a p-value of 0.040 and an Exp (B) value of 10.878, and assumption of medication side effects with a p-value of 0.011 and an Exp (B) value of 5.912. These three factors will be retested to determine the most influential factor affecting adherence to hypertension medication. The factor of healthcare facility availability was not included because it had a p value > 0.05 and the smallest Exp (B) value.

It was found that there are 2 factors with the highest Exp (B) values. The first factor is Knowledge with a p-value of 0.044 and an Exp (B) value of 10.528, and the second factor is Assumption of Medication Side Effects with a p-value of 0.001 and an Exp (B) value of 8.601. These two factors will be retested to determine which one has the most significant impact on adherence to hypertension medication. The insurance factor is not included because it has the smallest Exp (B) value, and the regression requirement is to have a large Exp (B) value and a p value < 0.05.

The final results indicate that the knowledge factor with a p-value of 0.026 and an Exp (B) value of 12.055 is the most dominant factor influencing medication adherence. Following this, the assumption of

medication side effects factor with a p value of 0.002 and an Exp (B) value of 5.965 also plays a significant role. The knowledge factor shows a significant relationship with medication adherence, thus rejecting the null hypothesis (H0).

Discussion

The The main characteristic of this study that distinguishes it from previous research is the inclusion of a previously unexplored factor: the assumption of medication side effects, to determine whether this factor affects medication adherence. The study identified and tested 13 variables that potentially influence adherence to hypertension medication using correlation tests. Through bivariate analysis using the chi-square test, it was found that only 4 factors were significantly associated with medication adherence: health insurance, availability of healthcare facilities, knowledge, and assumption of medication side effects.

Following bivariate analysis, multivariate analysis (joint analysis) was conducted using logistic regression. These four factors were re-evaluated, and the final results indicated that the most dominant factor influencing adherence was knowledge, with a p-value of 0.026 and an Exp (B) value of 12.055. The assumption of medication side effects was the next influential factor, with a p-value of 0.002 and an Exp (B) value of 5.965.

Knowledge is an important foundation in shaping a person's behavior for several main reasons. First, knowledge provides individuals with an understanding of the consequences of their actions. By understanding the short-term and long-term effects of certain behaviors, individuals can make better and more responsible decisions.

Second, knowledge facilitates the development of values and norms. When someone learns about culture, ethics, and social norms, they tend to adjust their behavior to align with societal expectations

Third, experience and education shape an individual's mindset. For example, a person with good knowledge about health is more likely to adopt a healthy lifestyle. This shows that knowledge not only influences attitudes but also guides daily actions.

Overall, knowledge is a foundation that shapes behavior, providing individuals with the tools they need to interact positively with the

world around them. Knowledge emerged as the primary (most dominant) factor influencing medication adherence after logistic regression analysis. Knowledge refers to an individual's understanding of the implementation of treatment and actions recommended by doctors or other parties. For hypertension patients, this includes understanding the meaning of hypertension, influencing factors, common symptoms, and the importance of adhering to long-term and regular treatment.

With good knowledge, individuals are likely to exhibit good adherence behavior towards medication. Additionally, they will form positive assumptions about their medication, leading to better compliance with treatment. Some patients, particularly those with hypertension, may experience various side effects during regular treatment, both positive and negative, such as fatigue, decreased libido, drowsiness, increased urination, among others (Widyastuti et al., 2022). Patients who experience unpleasant side effects may discontinue their treatment, which should ideally be continued to maintain stable blood pressure. This aligns with the study's findings that the perceived risk associated with side effects is 5.965.

Conclusion and Suggestions. From this study, it can be concluded that out of the 13 variables tested for adherence, correlations were found with only 4 factors: health insurance, knowledge, availability of healthcare facilities, and assumption of medication side effects. These 4 factors were then jointly tested, and the final result indicated that the primary and most significant factor influencing medication adherence is knowledge. Following knowledge, the assumption of medication side effects also significantly influences and consistently maintains adherence to hypertension treatment regimens.

Knowledge forms the basis for an individual's assumptions about medication side effects and adherence to medication. Deeper knowledge can improve adherence to medication. This study demonstrates that the assumption of medication side effects is indeed associated and serves as the second factor influencing medication adherence.

This research is expected to provide a foundation for further studies to investigate the factors causing medication non-adherence. Understanding these factors can help in

developing strategies to promote medication adherence among hypertension patients.

References

- Wulandari, A., Sari, S. A., & Ludiana, L. (2023). Penerapan Relaksasi Benson Terhadap Tekanan Darah Pada Pasien Hipertensi di RSUD jendral Ahmad Yani Kota Metro tahun 2022. *Jurnal Cendikia Muda*, 3(2), 163-171.
- Setiani, L. A., Nurdin, N. M., & Rakasiwi, I. A. (2021). Pengaruh Pemberian Pill Card Terhadap Kepatuhan Minum Obat Dan Tekanan Darah Pasien Hipertensi Di Rs Pmi Kota Bogor. *Fitofarmaka: Jurnal Ilmiah Farmasi*, 11(1), 51-66.
- Aditya, D. P. (2023). Faktor Risiko Yang Berhubungan Dengan Kejadian Hipertensi Pada Wanita Dewasa Di Wilayah Kerja Puskesmas Sitinjak Kecamatan Angkola Barat Kabupaten Tapanuli Selatan Tahun 2022 (Doctoral Dissertation, Institut Kesehatan Helvetia Medan).
- Sianturi, S., Fauzi, Y., & Darmawansyah, D. (2022). Faktor-Faktor Yang Berhubungan Dengan Kejadian Hipertensi Di Puskesmas Bintuhan Kabupaten Kaur Tahun 2022. *Journal Hygeia Public Health*, 1(1), 7-12.
- Azynela, L., Irfaily, I., & Desvalina, .M. (2021). Pengaruh Pemberian Leaflet Dan Pesan Singkat Terhadap Tekanan Darah Dan Kepatuhan Pasien Hipertensi Di Pukesmas Lapai Padang. In *Prosiding Semina Kehatan Perintis* (Vol. 4, No. 2, Pp. 56-60).
- World Health Organization. 2015. A Global Brief On Hypertension: Silent Killer, Global Public Health Crisis. WHO. Geneva.
- World Health Organization. (2018). The Top 10 Causes of Death. Geneva
- Rikmasari, Y., Rendowati, A., & Putri, A. (2020). Faktor-faktor yang mempengaruhi kepatuhan menggunakan obat antihipertensi: Cross Sectional Study di Puskesmas Sosial Palembang. *Jurnal Penelitian Sains*, 22(2), 87-94.
- Pramana, G. A., Dianingati, R. S., & Saputri, N. E. (2019). Faktor-faktor yang mempengaruhi kepatuhan minum obat pasien hipertensi peserta prolanis di puskesmas pringapus kabupaten semarang. *Indonesian Journal of Pharmacy and Natural Product*, 2(1).
- Aliyah, N., & Damayanti, R. (2022). Faktor-Faktor yang Berhubungan dengan

- Kepatuhan Minum Obat Pasien Hipertensi di Primary Health Care Negara Berkembang; Systematic Review. Syntax Literate; Jurnal Ilmiah Indonesia, 7(5), 5375-5396.
- Annisa, M. (2019). Pengaruh Pemberian Edukasi Dengan Media Leaflet Dan Pesan Singkat Terhadap Tekanan Darah Dan Kepatuhan Pasien Hipertensi Di
- JNC-8. 2014. The Eight Report of the Joint National Commite. Hypertension Guidelines: An In-Depth Guide. Am J Manag Care.
- AHA. (2017). Hypertension : The Silent Killer : Updated JNC-8 Guideline Recommendations. Alabama Pharmacy.

Puskesmas Lapai Padang (Doctoral dissertation, Universitas Perintis Indonesia).

Mardianto, R., Sekti, B. H., & Higantara, G. R. (2022). Pengaruh Kepatuhan Minum Obat Antihipertensi terhadap Kualitas Hidup Pasien di Puskesmas Beji Batu. PHARMADEMICA: Jurnal Kefarmasian dan Gizi, 2(1), 21-30.