Jurnal Ilmu dan Teknologi Kesehatan
https://ejurnal.poltekkesjakarta3.ac.id/index.php/jitek/
Volume 13, Issue 1, Page 17 – 28 DOI: https://doi.org/10.32668/jitek.v13i1.2218
e-ISSN: 2338-9109

Relationship Between Knowledge and Adherence on Taking Hypertension Medication

1st Nurul Aliyah[1*]

[1]Universitas Sriwijaya, Ogan Ilir, South Sumatera, Indonesia

[*]email: *nurul_aliyah@fkm.unsri.ac.id*

Keywords:
Adherence on Taking Hypertension Medication
Hypertension
Knowledge

Abstract

Hypertension is a chronic condition often called the "silent killer" due to asymptomatic nature and high risk of complications such as stroke, heart failure, and kidney disease when not properly managed. In Indonesia, adherence to antihypertensive medication remains suboptimal, with patient knowledge identified as a key influencing factor. This study aimed to examine the relationship between knowledge level and adherence to antihypertensive medication among patients at Public Health Center X Palembang. A cross-sectional design was employed involving 102 hypertension patients selected through purposive sampling. Data were collected using a structured, validated, and reliable questionnaire assessing knowledge related to hypertension and adherence behaviors using Cronbach alpha. Statistical analysis using the Chi-Square test showed a significant association between knowledge and adherence (p = 0.001), with an Odds Ratio (OR) of 7.091 (95% CI: 2.635–19.084), indicating that patients with good knowledge were over seven times more likely to adhere to medication compared to those with poor knowledge. Effective education improves not only awareness but also self-management skills, such as timely medication intake and handling of side effects. The results suggest that patient education should be a central strategy in primary care, particularly using accessible media like short videos and WhatsApp-based support to reach older populations.

Received: 10 July 2025
Accepted: 6 August 2025
Published: 30 Sept 2025

INTRODUCTION

According to the Indonesian Ministry of Health through the 2018 Basic Health Research (Riskesdas), hypertension is defined as a condition in which an individual has a blood pressure of ≥140/90 mmHg, as determined by measurement from health professionals, a history of diagnosis by a physician, or the use of antihypertensive medication (1). Hypertension is one of the most common chronic diseases globally and is known as the "silent killer" because it often shows no symptoms until serious complications such as stroke, heart attack, or kidney failure occur. Based on Riskesdas 2018 data, the prevalence of hypertension in Indonesia reached 34.1%, making it one of the country's major public health challenges that requires urgent attention (1). The World Health Organization (WHO) also reported that as of 2023, approximately 1.28 billion people worldwide suffer from hypertension, but only 42% have managed to control their blood pressure effectively (2).

Hypertension requires long-term management through pharmacological therapy and lifestyle modification. In Indonesia, it is estimated that only 25% of hypertension cases have been diagnosed, and merely around 0.7% of patients receive standard treatment and regularly take antihypertensive drugs (3). This reflects low awareness and treatment adherence among patients. The situation is exacerbated by the population's limited understanding and knowledge of hypertension and the importance of consistent treatment. Since hypertension is often asymptomatic, patients with inadequate knowledge tend to underestimate the condition and are reluctant to adhere to their medication regimen. In reality, poor adherence to antihypertensive therapy increases the risk of severe complications such as stroke, heart failure, kidney failure, and premature death. When patients lack awareness of their health condition, they are more likely to skip treatment because they feel healthy. This lack of knowledge prevents them from understanding that hypertension requires long-term management and consistent medication use. Therefore, a strong understanding of the disease is essential in preventing complications and improving medication adherence.

According to Lawrence Green, knowledge is a predisposing factor that influences health behavior. Awareness of hypertension and its treatment is a key element that underlies patient adherence to long-term therapy. Understanding the chronic nature of hypertension, the benefits of medication, and the risks of untreated hypertension encourages patients to comply with regular antihypertensive therapy.

Various studies in Indonesia have shown a significant relationship between knowledge and adherence to antihypertensive medication. Fauziah & Mulyani found that patients with poor knowledge were 1.503 times more likely to be non-adherent (4). Similarly, Muliani and Pratiwi et al. reported that increased knowledge is associated with improved adherence (5,6). Nurhanani et al., in a study of 148 patients at Public Health Center Bandarharjo, Semarang, found a significant correlation ($p = 0.001$) between knowledge and adherence (7). This study focused on knowledge due to the low treatment coverage in the area (28%) and the lack of understanding of key individual factors. Without adequate scientific understanding, patients are at risk of non-adherence, which worsens blood pressure control and increases the likelihood of chronic complications. Suhat et al also stated that among 106 patients at Anwar Medika Hospital, reported a p-value < 0.001, emphasizing that lack of health literacy is a major cause of treatment failure (8). Without sufficient comprehension, patients often miss doses and fail to grasp the purpose of treatment, leading to unstable blood pressure. Haldi et al., in a study at Public Health Center Arjuno, Malang, found a significant relationship ($p = 0.031$, OR = 1.794) between knowledge of medications such as amlodipine and patient adherence (9). This research highlights that understanding specific drug characteristics including side effects and proper administration can prevent misuse. Lack of literacy in this area may lead to unexpected side effects, which negatively affect adherence. Ramahani & Cindy in Public

Health Center Pekauman, Banjarmasin, found that 55.2% of patients with good knowledge demonstrated high adherenceto antihypertensive medication (10). With a p-value of 0.000, the study confirmed a significant association between knowledge and adherence. Poor knowledge may cause patients to underestimate the importance of medication, leading them to take it only when they feel unwell, which can result in unmonitored blood pressure spikes (10).

Based on previous studies, the key issue is that many patients do not fully understand the dosage and schedule of medication, which leads to side effects, higher healthcare costs, and rehospitalization. Without sufficient knowledge, adherence rates decline, jeopardizing the sustainability of treatment. Knowledge plays a pivotal role in determining whether patients with hypertension adhere to pharmacological therapy. The persistently low level of adherence remains a serious challenge in hypertension control. This study is important because it addresses the existing gap in patients' understanding particularly in relation to the purpose of treatment, correct medication usage, and the risks of irregular therapy. Therefore, this research aims to strengthen empirical evidence that improving knowledge can be an effective strategy in promotive and preventive interventions to enhance adherence to antihypertensive medication, especially among specific populations in under-researched areas.

In reality, the level of patient adherence to antihypertensive treatment remains low, leading to a higher risk of complications such as stroke, kidney failure, and heart disease. Several studies have indicated that a lack of patient knowledge about hypertension and its treatment is one of the key factors contributing to poor adherence. In Palembang, based on the 2023 report from the Health Service's Minimum Service Standards (SPM) for hypertension treatment in individuals aged ≥15 years, Public Health Center facilities had not fully achieved the target of 66.64% during the January–August 2023 period (11). This low achievement reflects the ongoing issue of poor adherence at the primary healthcare level. One major contributing factor to low adherence is patients' lack of knowledge about hypertension and its treatment. Adequate knowledge builds awareness of the urgency of therapy and the risk of complications if treatment is not carried out consistently. In the working area of Public Health Center X Palembang, the target for hypertension service coverage has not been fully achieved, indicating a potential issue with medication adherence. It is crucial to further investigate the relationship between patients' level of knowledge and their adherence to antihypertensive medication, particularly in one of Palembang's Public Health Center facilities that has not met its target, to support the effectiveness of hypertension control programs at the primary healthcare level. Therefore, this study aims to address the following research question: Is there a relationship between patients' level of knowledge and their adherence to antihypertensive medication? The findings are expected to provide scientific evidence to support educational interventions designed to improve treatment adherence and optimize hypertension control at the primary healthcare level.

METHODS

This study is a quantitative research with a cross-sectional design aimed at determining the relationship between the independent and dependent variables. Data collection was conducted simultaneously for both variables. The dependent variable in this study is adherence to antihypertensive medication among hypertension patients at Public Health Center X in Palembang, while the independent variable is a predisposing factor in the form of knowledge. The study population consisted of all registered hypertension patients undergoing treatment at Public Health Center X Palembang. The sample was drawn from this population using the formula by Lemeshow, Jr, Klar, & Lwanga (1990). The inclusion criteria were hypertension patients who were present during the study period. Exclusion criteria included hypertension patients who were pregnant and those unwilling to participate. Based on the sample size calculation, the largest value obtained was 46. As the study employed a two-proportion test, this value was multiplied by two, resulting in 92. To account for potential data loss due to non-participating respondents, an additional 10% was added, resulting in a final sample size of 102

respondents. Sampling was conducted using non-probability sampling, specifically purposive sampling, based on the pre-established inclusion and exclusion criteria. This research has passed the process of ethical clearance with the number Ket- 17/UN2.F10.D11/PPM.00.02/2024. All procedures were conducted in accordance with the ethical principles for medical research. Prior to data collection, informed consent was obtained from all participants, and confidentiality as well as anonymity were strictly ensured throughout the study.

Adherence to antihypertensive medication was measured based on the regularity of respondents in following the treatment regimen prescribed by physicians. This included attending scheduled visits, not forgetting to take medication, not reducing the prescribed dose, taking medicine on time, and finishing the medication provided. Assessment was carried out using five indicators (C1–C5) through interviews with a structured questionnaire that have been tested for the validty and realibility using cronbach alpha. Each item was scored 0–1, with a total score range of 0–5. Respondents were classified as non-adherent if the score was <5 and adherent if the score was 5.

Knowledge in this study is defined as the respondent's understanding or information regarding hypertension and antihypertensive medication, including the definition, causes, symptoms, management, and treatment of hypertension. Knowledge indicators consist of three components: three items related to general knowledge about hypertension, three items regarding the method of taking antihypertensive medication, and one item concerning complications of hypertension. The instrument used was a questionnaire with a Guttman scale, administered through direct interviews. The maximum total score is 7, with scores ≥75% (≥5) categorized as "good" and scores <75% (<5) categorized as "poor." The knowledge variable is measured on an ordinal scale.

The data collected were primary data, obtained through questionnaires and direct interviews with respondents. To ensure the validity of the instrument, a validity test was conducted using a sample of 30 hypertension patients from another Public Health Center. With a 5% significance level and degrees of freedom (df) = 28, the r-table value was 0.3610. Additionally, a reliability test was conducted using the Cronbach's Alpha method to assess the consistency of the instrument, where an instrument is considered reliable if the Cronbach's Alpha value is greater than 0.6. As the results that all variable has fulfilled the standard from the value 0.3610. All collected data were analyzed using statistical software. The statistical test used in this study was the Chi-Square test to determine the relationship between knowledge and adherence to antihypertensive medication.

RESULTS AND DISCUSSION

The results can be seen in the following table:

Table 1. Frequency Distribution Antihypertensive Medication Adherence

Antihypertensive Medication Adherence	Frequency (f)	Percentage (%)
Non adherence	74	57.8
Adherence	28	42.2

The table 1 showed the distribution of respondents based on their adherence level, more than half of the respondents (74 people or 57.8%) were non-adherent to their antihypertensive medication regimen. Meanwhile, only 28 respondents (42.2%) demonstrated adherence. This indicates that the majority of patients did not consistently follow the prescribed treatment, suggesting potential risks of uncontrolled blood pressure and related complications.

Table 2. Frequency Distribution Characteristic of Respondents

Karakteristik	f	Percentage (%)
Sex		
Male	39	38.2
Female	63	61.8
Age		
Elderly (≥60 years old)	76	74.5
Productive Age (< 60 years old)	26	25.5
Education		
Basic Education (≤Junior High School or equivalent)	72	70.6
Secondary education (Senior High School or equivalent)	22	21.6
Higher education (> Senior High School or equivalent)	8	7.8
Occupation		
Unemployed	58	56.9
Employed	44	43.1
Duration of Hypertension		
(< 10 years)	50	49
(≥ 10 years)	52	51

The table 2 showed that majority of respondents were female (61.8%) and predominantly in the elderly age group (≥60 years, 74.5%). Most had basic education (70.6%), with only a small proportion achieving higher education (7.8%). In terms of occupation, more than half were unemployed (56.9%). Regarding the duration of illness, nearly half of the respondents had been living with hypertension for 10 years or more (51%), while the rest had experienced it for less than 10 years (49%).

Table 3. Frequency Distribution of Knowledge on Antihypertensive Medication Adherence

Knowledge	Frequency (f)	Percentage (%)
Poor	43	42.2
Good	59	57.8

The table 3 showed that out of the total respondents, 43 individuals (42.2%) had poor knowledge about hypertension and its treatment, while 59 individuals (57.8%) showed good knowledge. This indicates that the majority of respondents had a good level of knowledge, although a considerable proportion still lacked adequate understanding. These findings highlight the need for continuous educational interventions to improve knowledge among patients with lower levels of understanding.

Table 4. The Relationship Between Knowledge and Adherence on Taking Antihypertensive Medication

Knowledge	Adherence on Taking Antihypertensive Medication				Total		OR (95% CI)	*p-value*
	Non adherence		Adherence					
	f	(%)	f	(%)	n	(%)		
Poor	21	48.8	22	51.2	43	100	7.091 (2.635-19.084)	0.001
Good	7	11.9	52	88.1	59	100		

Table 4 showed that a total of 22 respondents (51.2%) with poor knowledge were still adherent to antihypertensive medication. Meanwhile, among those with good knowledge, 52 respondents (88.1%) were adherent. The chi-square test yielded a p-value of 0.001, indicating a significant association between knowledge and adherence to antihypertensive medication. Additionally, the analysis showed an Odds Ratio (OR) of 7.091 (95% CI: 2.635–19.084), meaning that respondents with good knowledge were 7.091 times more likely to adhere to their medication compared to those with poor knowledge.

Adherence on Taking Antihypertensive Medication

The findings show that the majority of respondents were classified as non-adherent to their antihypertensive medication regimen, the univariate analysis of antihypertensive medication adherence in this study revealed that only 42.2% of respondents were adherent to their prescribed medication regimens, while 57.8% were non-adherent. This meant a concerning pattern of low adherence among hypertension patients, which may significantly hinder blood pressure control and increase the risk of complications. Nonadherence is often influenced by several factors, including lack of knowledge, limited awareness of disease consequences, forgetfulness, and misconceptions about medication side effects (12). These results underscore the urgent need for targeted interventions to promote consistent medication-taking behavior. This low adherence rate presents a serious challenge in hypertension management and may lead to uncontrolled blood pressure and a higher risk of complications such as stroke, heart failure, and kidney disease (13). Factors contributing to non-adherence include limited knowledge, poor awareness of the disease, forgetfulness, and fears related to medication side effects. Improving patient adherence must become a key focus in hypertension management strategies, especially at the primary healthcare level, where early education and regular follow-up can play a vital role in supporting patient behavior change. This reflects a concerning trend that aligns with several studies conducted in various populations, suggesting that poor adherence remains a major barrier to effective hypertension control. Study by Hanum met a similarly low rate of adherence, with only 28.5% of hypertension patients demonstrating high adherence, the researchers attributed this to several factors including forgetfulness, lack of understanding about the importance of medication, and limited support from healthcare providers (14).

The low proportion of adherence in this study highlights an urgent need for health systems to prioritize strategies that support consistent medication use. These results are consistent with global trends and previous studies, showing that adherence remains a significant barrier in achieving optimal blood pressure control. The evidence highlights the urgent need for targeted and effective interventions to improve adherence, particularly at the primary healthcare level where patient education and regular follow-up can be most impactful. Low adherence to antihypertensive medication is not only a local but also a global issue. According to the WHO, only 42% of people with hypertension worldwide achieve adequate blood pressure control, largely due to poor medication adherence (15). This trend is echoed in a Pakistani study by Khan et al. (2023), which reported a 36.6% adherence rate and linked non-adherence to limited health literacy and economic hardship (16).

The fact that fewer than half of the respondents adhered to their medication regimen suggests that many individuals are likely underestimating the chronic nature of hypertension and the importance of consistent therapy. This reinforces the notion that interventions need to focus on strengthening adherence even before considering multivariate influences. Moreover, studies such as that by Rodrigues et al. (2020) demonstrated that even simple digital reminders, like WhatsApp messages, could modestly improve adherence among hypertension patients. Although their result ($p = 0.077$) was not statistically significant, the 15% increase in adherence is clinically meaningful, especially in populations where access to healthcare services is limited (17). The significant proportion of non-adherent respondents in our study underlines the importance of continued public health efforts focused solely on improving adherence. Ultimately, focusing on adherence as a standalone issue is both scientifically valid and operationally necessary. Before implementing more complex behavior change models or multicomponent interventions, ensuring that a basic level of treatment adherence is achieved should be a priority for any primary care or public health strategy.

Relationship Between Knowledge and Adherence on Taking Antihypertensive Medication

The analysis revealed a significant association between knowledge and adherence to antihypertensive medication. Among respondents with poor knowledge, nearly half were non-adherent (48.8%) while 51.2% adhered. In contrast, respondents with good knowledge showed a much higher proportion of adherence (88.1%) compared to only 11.9% non-adherence. The statistical test demonstrated that knowledge was significantly related to medication adherence with a p-value of 0.001. Furthermore, respondents with good knowledge were about 7 times more likely to adhere to their antihypertensive medication regimen compared to those with poor knowledge (OR = 7.091, 95% CI: 2.635–19.084).
The results of this study reveal that while general awareness of hypertension is relatively high, there are still considerable gaps in specific knowledge, particularly regarding the clinical management and treatment of the condition. Most respondents correctly identified that hypertension refers to high blood pressure and were able to recognize common symptoms such as headaches, neck stiffness, and palpitations. Furthermore, a majority acknowledged that uncontrolled hypertension could lead to severe complications such as heart disease and stroke, reflecting a good level of understanding about the consequences of poor blood pressure management.

According to Lawrence Green's theory, knowledge is classified as a predisposing factor, an internal component within an Individual that significantly influences health behavior, including adherence to antihypertensive therapy. Adequate knowledge provides hypertension patients with a comprehensive understanding of how antihypertensive drugs work, the importance of consistent medication intake, and the potential health risks associated with uncontrolled high blood pressure. Patients with a good level of knowledge are more likely to understand the long-term consequences such as an increased risk of heart disease, stroke, and kidney damage, thus becoming more motivated to adhere to prescribed treatments. These findings are consistent with Lawrence Green’s theory, which emphasizes that knowledge plays a crucial role in influencing adherence. Comprehensive knowledge about antihypertensive treatment enables patients with hypertension to be more adherent to their medication. This includes understanding how the medication works, the importance of consistent treatment, and the health risks associated with uncontrolled high blood pressure. With sufficient understanding, patients are more likely to recognize the long-term consequences of unmanaged blood pressure, such as the risk of heart disease, stroke, and kidney damage.

Knowledge of how to manage treatment, such as taking medication on time, dealing with missed doses, and managing side effects can enhance adherence. This information helps patients feel more in control and confident in managing their condition. The better an individual’s level of knowledge, the greater their cognitive ability to understand the importance of treatment and improve their adherence to antihypertensive medication. When patients lack self-

regulation, they tend to neglect the treatment they receive. Therefore, a higher level of knowledge can foster various personal capabilities that help individuals maintain their health optimally.

The findings of this study are supported by statistical analysis using the Chi-square test, which yielded a p-value of 0.001 ($p < 0.05$), indicating a significant relationship between knowledge level and adherence to antihypertensive medication. Furthermore, the Odds Ratio (OR) value of 7.091 shows that respondents with good knowledge are 7.091 times more likely to adhere to treatment than those with low knowledge. These results are consistent with previous studies by Haldi et al. (2021) who reported $p = 0.031$ and OR = 1.794, Syamsudin et al. (2022) with $p = 0.009$ and OR = 3.781, and Fauziah & Mulyani (2022) who found $p = 0.008$ and OR = 3.781, all of which demonstrated a meaningful association between knowledge and treatment adherence (9) (18) (5).

Kusuma Negara et al. further confirmed this through a Spearman correlation study, showing a significant relationship between knowledge and blood pressure control ($p < 0.001$; $r = 0.271$), the study highlighted that due to hypertension being frequently neglected, poor knowledge resulted in patients failing to monitor their blood pressure regularly (19). Similarly, Nurhanani found that only 28% of patients in the study had treatment coverage, indicating low health literacy, inadequate knowledge led to missed doses and misunderstanding of treatment goals (7). Faudah in a study at RSIJ Pondok Kopi, revealed that knowledge, motivation, and family support significantly influenced adherence to antihypertensive medication, the research found that only 36.7% of patients had good knowledge, while 39.8% demonstrated adherence, suggesting that poor understanding of dosage and side effects contributed to non-compliance,the research also emphasized that low knowledge not only weakened motivation but also limited family support (20).

Item analysis of the questionnaire revealed that while nearly all respondents understood the definition of hypertension, many were unaware of the blood pressure threshold that classifies hypertension (≥140/90 mmHg). This suggests a gap in technical understanding regarding blood pressure classification. A study by Juniarti found a significant relationship between the level of knowledge and medication adherence among patients with hypertension in Kelurahan Talang Jawa, Baturaja (21). The majority of respondents with a good level of knowledge tended to demonstrate higher adherence to antihypertensive medication. Adequate knowledge enables patients to better understand the importance of long-term treatment in controlling blood pressure and preventing serious complications. These findings align with the results of this study, which also highlights the crucial role of cognitive factors, particularly patients' knowledges and understanding of hypertension as key determinants of medication adherence.

Therefore, targeted educational interventions may serve as an effective strategy to improve adherence, both within primary healthcare settings and among hypertension patients in the wider community. Strong knowledge of hypertension and its management plays a key role in improving adherence. As explained by Nurhanani et al., increased knowledge contributes positively to medication adherence (7). Respondents with good knowledge adhered to their medication. Conversely, inadequate knowledge tends to lead to non-adherence, as patients may not understand the urgency of treatment and may only take medication when symptoms appear despite hypertension often being asymptomatic yet still high-risk. Patient knowledge can serve as a guiding tool for healthy behavior, as stated by Puspita, who described knowledge as the best teacher in supporting sustained antihypertensive therapy (22). The findings align with previous research that consistently shows a significant relationship between patient knowledge and adherence to antihypertensive medication.

These studies also emphasize that patients with a strong understanding of hypertension, its treatment benefits, correct medication usage, and the risks of untreated hypertension are more likely to follow medical advice. Conversely, poor knowledge contributes to misperceptions about therapy, fear of side effects, and inconsistent drug intake, all of which lead to low adherence. A research conducted by Vonsa et al. at a primary care center in Palembang highlighted

significant barriers to patient education, patients often had low educational backgrounds, limiting their health literacy and understanding of hypertension risks and treatment regimens such low baseline knowledge impairs their ability to follow instructions on dosage, timing, and managing side effects, core elements essential for effective medication adherence (23).

However, misconceptions remain prominent in critical areas. Only a small proportion of respondents correctly recognized the diagnostic threshold for hypertension (≥140/90 mmHg), suggesting limited familiarity with clinical definitions. Many respondents also believed that lifestyle changes alone could replace medication, or that antihypertensive drugs are no longer needed if blood pressure has improved. These misunderstandings indicate a persistent perception that hypertension is a temporary or reversible illness, rather than a chronic condition requiring long-term therapy. Additionally, over one-third of the respondents believed that hypertension could resolve on its own without routine medication intake.

Another challenge identified is the persistence of myths and misinformation about antihypertensive drugs. Anecdotal reports from local clinics indicate that many patients believe these medications "damage the kidneys" or can be discontinued once they feel better. These misconceptions discourage continuous medication, undermine health messaging, and reduce trust in healthcare advice. Therefore, improving patient knowledge is not only clinically relevant but also a strategic approach to reducing hypertension-related morbidity and mortality. Hence, educational interventions are essential. Health education should be delivered clearly and supported by educational media such as brochures, leaflets, and especially short educational videos, considering that the majority of respondents were elderly and may struggle with long texts. Rahmawaty demonstrated that counseling effectively improves knowledge and has a positive impact on treatment adherence (24).

Additionally, misinformation circulating in the community such as the belief that antihypertensive drugs harm the kidneys must be corrected. In fact, these medications protect kidney function by helping control blood pressure optimally. Comprehensive understanding also includes practical skills in managing medication, such as timely intake, strategies to cope with missed doses, and the ability to recognize and manage potential side effects. This not only improves adherence but also enhances the patient's sense of control and confidence in managing their health condition. The better an individual's knowledge, the greater their cognitive capacity to understand the importance of treatment, remain committed to long-term therapy, and maintain optimal health.

Improving adherence to antihypertensive medication largely depends on how well patients understand their condition and the importance of taking medication regularly. Health education provided consistently at primary care facilities such as Public Health Center can help patients learn about the benefits of treatment, proper ways to take medication, and the risks of complications if therapy is not followed. With better knowledge, patients are expected to become more aware and motivated to follow their treatment consistently. In addition to direct education, other approaches such as group counseling, the use of simple educational media, and family involvement can further enhance patient understanding.

These knowledge-based interventions are especially important in areas where hypertension service targets have not been met. Healthcare providers play a crucial role in enhancing patient knowledge, attitudes, and motivation through effective education, beginning with the delivery of accurate and easily understood information. Education should focus on key aspects of hypertension, including general disease understanding, clarification of health myths, proper antihypertensive medication use, and the risks of non-adherence. To strengthen continuous education and monitoring, social media platforms like WhatsApp can be utilized by creating support groups for hypertension patients. In Semarang, a WhatsApp-based medication reminder chatbot achieved 98% accuracy in prompting patients to take their medication,

highlighting the potential for scalable, user-friendly reminders in primary care settings (25). These whatsapp groups, managed by healthcare professionals, provide ongoing guidance and information online. Given that most patients are elderly, educational media should be adapted accordingly. Therefore, short videos are recommended as effective tools because they are easier to comprehend and can be readily played by patients during online education sessions. Correcting these knowledge gaps is essential not only for improving medication adherence but also for reducing long-term complications and improving quality of life among patients with hypertension.

CONCLUSION

Knowledge is a key factor influencing how well patients adhere to their hypertension treatment. These findings emphasize the need for more comprehensive and structured health education programs that address both basic knowledge and deeper misconceptions about hypertension treatment. Educational strategies should be tailored to the population's literacy level and could include the use of visual aids, interactive counseling, and short educational videos. Health workers must also be equipped with time-efficient tools to deliver key messages during clinical encounters. Healthcare providers play a vital role in enhancing patient knowledge and adherence through education that focuses on basic understanding of hypertension, proper medication intake, and the risks of complications due to non-adherence. To support continuous education, a WhatsApp group managed by healthcare professionals is used as a platform for online communication and monitoring. Educational materials are adapted using short videos, which are easier to understand and can be accessed directly during online education sessions. Therefore, it is essential to investigate how patient knowledge affects adherence to antihypertensive medication, as this can serve as a foundation for planning more effective educational programs at the primary healthcare level.

ACKNOWLEDGEMENT

I would like to sincerely thank the patients at Public Health Center X Palembang for their participation and cooperation in this study. My gratitude also goes to the healthcare staff for their support and facilitation during data collection. This research would not have been possible without their valuable contribution.

REFERENCES

1. Kemenkes RI. RISKESDAS 2018. https://layanandata.kemkes.go.id/katalog-data/riskesdas/ketersediaan-data/riskesdas-2018
2. WHO. Global Report On Hypertension. 2023. 1–291 P. https://www.who.int/publications/i/item/9789240081062
3. Kemenkes. Keputusan Menteri Kesehatan Republik Indonesia Nomor Hk.01.07/Menkes/4634/2021 Tentang Pedoman Nasional Pelayanan Kedokteran Tata Laksana Hipertensi Dewasa. Kementerian Kesehatan RI. 2021;1–85. https://kemkes.go.id/eng/pnpk-2021---tata-laksana-hipertensi-dewasa
4. Fauziah T, Nurmayni, Putri R, Pidia S, Sari S. Hipertensi Si Pembunuh Senyap "Yuk Kenali Pencegahan Dan Penangananya." Buku Saku. 2021. 7–16 P.
5. Fauziah DW, Mulyani E. Hubungan Pengetahuan Terhadap Tingkat Kepatuhan Minum Obat Anti Hipertensi. Indonesian Journal Of Pharmaceutical Education. 2022;2(2):94–100. https://ejurnal.ung.ac.id/index.php/ijpe/article/view/15484
6. Pratiwi W, Harfiani E, Hadiwiardjo YH. Faktor-Faktor Yang Berhubungan Dengan Kepatuhan Dalam Menjalani Pengobatan Pada Penderita Hipertensi Di Klinik Pratama GKI Jabar Jakarta Pusat. Seminar Nasional Riset Kedokteran. 2020;27–40.

7. Realita Nurhanani, Susanto HS, Udiyono A. Hubungan Faktor Pengetahuan Dengan Tingkat Kepatuhan Minum Obat Antihipertensi (Studi Pada Pasien Hipertensi Essential Di Wilayah Kerja Puskesmas Bandarharjo Kota Semarang). Jurnal Kesehatan Masyarakat (E-Journal). 2020;8(1):114–21. https://ejournal3.undip.ac.id/index.php/jkm/article/view/25932
8. Suhat S, Suwandono A, Adi MS, Nugroho KH, Widjanarko B, Wahyuni CU. Relationship Of Health Belief Model With Medication Adherence And Risk Factor Prevention In Hypertension Patients In Cimahi City, Indonesia. Evidence Based Care Journal. 2022;12(2):51–6.
9. Haldi T, Pristianty L, Hidayati IR. Hubungan Pengetahuan Dan Sikap Pasien Hipertensi Terhadap Kepatuhan Penggunaan Obat Amlodipin Di Puskesmas Arjuno Kota Malang. Jurnal Farmasi Komunitas. 2021;8(1):27. https://doi.org/10.20473/jfk.v8i1.22277
10. Ramahani Hasniah Juwita, Prassurya Cindy. Hubungan Tingkat Pengetahuan Pasien Hipertensi Terhadap Kepatuhan Minum Obat Antihipertensi Di Puskesmas Pekauman Banjarmasin. Jurnal Ilmiah Farmasi Terapan Dan Kesehatan. 2024;2(3):1. https://epik.ikifa.ac.id/journals/article/view/201
11. Dinas Kesehatan Kota Palembang. Capaian SPM Pelayanan Penderita Hipertensi (Usia 15 Tahun Ke Atas) Dinas Kesehatan Kota Palembang Bulan Januari - Agustus Tahun 2023. 2023.
12. Fenta ET, Ayal BG, Kidie AA, Anagaw TF, Mekonnen TS, Bogale EK, Et Al. Barriers To Medication Adherence Among Patients With Non-Communicable Disease In North Wollo Zone Public Hospitals: Socio-Ecologic Perspective, 2023. Patient Preference And Adherence. 2024;18(March):733–44. https://doi.org/10.2147/ppa.s452196
13. Fatma Ekasari M, Siti ESS, Badriah S, Narendra SR, Amini FI. Hipertensi: Kenali Penyebab, Tanda Gejala Dan Penangannya. Hipertensi : Kenali Penyebab, Tanda Gejala Dan Penangananya. 2021;28.
14. Andala S, Sofyan H, Hasballah K, Marthoenis. Knowledge And Acceptance Associated With Medication Adherence Among Hypertension Individuals In Aceh Province, Indonesia. Heliyon. 2024;10(7):E29303. https://doi.org/10.1016/j.heliyon.2024.e29303
15. WHO. Hypertension [Internet]. 2023. Available From: Https://Www.Who.Int/News-Room/Fact-Sheets/Detail/Hypertension#:~:Text=Hypertension (High Blood Pressure) Is,Get Your Blood Pressure Checked
16. Khan A, Maqbool A, Khan AA, Jamil MF, Aziz B, Aziz A, Et Al. Factors Contributing To Lack Of Adherence To Antihypertensive Medications Among Patients At Nishtar Hospital In Multan, Pakistan. Cureus. 2024;16(9). https://doi.org/10.7759/cureus.69396
17. Sartori AC, Lucena TFR, Lopes CT, Bernuci MP, Yamaguchi MU. Educational Intervention Using Whatsapp On Medication Adherence In Hypertension And Diabetes Patients: A Randomized Clinical Trial. Telemedicine And E-Health. 2020;26(12):1526–32. https://doi.org/10.1089/tmj.2019.0305
18. Syamsudin AI, Salman, Sholih MG. Analisis Faktor Kepatuhan Minum Obat Pada Pasien Hipertensi Di Puskesmas Cimalaya Kabupaten Karawang. Pharmacon. 2022;11(3):1651–8. https://ejournal.unsrat.ac.id/v3/index.php/pharmacon/article/view/41559
19. Kusuma Negara IGNM, Jiryantini NWS, Parwati NW. Hubungan Tingkat Pengetahuan Tentang Hipertensi Terhadap Kepatuhan Pasien Untuk Kontrol Tekanan Darah. Jurnal Riset Kesehatan Nasional. 2019;3(2):73–7. https://doi.org/10.37294/jrkn.v3i2.176
20. Faudah NN, Puspita S, Saputri ISPA. Gambaran Tingkat Pengetahuan Pasien Hipertensi Dan Kepatuhan Penggunaan Obat Anti Hipertensi Di Puskesmas Gorang Gareng Taji Magetan. Aleph. 2023;87(1,2):149–200. https://doi.org/10.56586/pipk.v2i5.316

21. Juniarti B, Setyani FAR, Amigo TAE. Tingkat Pengetahuan Dengan Kepatuhan Minum Obat Pada Penderita Hipertensi. Cendekia Medika: Jurnal Stikes Al-Ma`Arif Baturaja. 2023;8(1):43–53. https://doi.org/10.52235/cendekiamedika.v8i1.205
22. Puspita E. Faktor-Faktor Yang Berhubungan Dengan Kepatuhan Penderita Hipertensi Dalam Menjalani Pengobatan. Universitas Negeri Semarang. 2016;1–170.
23. Vonsa LD, Anshari Z. Hubungan Pengetahuan, Sikap Dan Tindakan Dengan Kejadian Penyakit Hipertensi Di Wilayah Kerja Rumah Sakit Umum Sundari Medan Tahun 2020. Ibnu Sina: Jurnal Kedokteran Dan Kesehatan - Fakultas Kedokteran Universitas Islam Sumatera Utara. 2022;21(1):129–33. https://doi.org/10.30743/ibnusina.v21i1.175
24. Rahmawaty A, Pratiwi Y, Lina RN, Wijaya HM, Palupi DA, Hidayati R. Community Medicine & Education Counseling Relationship For Adherence To Taking Antihypertensive Drugs Against. 2023;4(1):270–3.
25. Kurniasih H, Winarso SP, Sartika QL. Development Of Medication Reminder Whatsapp Bot Application To Improve Medication Adherence In Pregnant Women With Hypertension. Medisains. 2025;22(3):162.