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ANALYSIS OF FACTORS ASSOCIATED WITH PATIENT SATISFACTION AMONG PATIENTS WITH HYPERTENSION

Sahyana*, Sutrisno, Surmiasih, Riska Hediya Putri, Feri Kameliawati
Master of Nursing Program, Faculty of Health Sciences, Universitas Aisyah Pringsewu, Jl. A. Yani No. 1A, Pringsewu, Lampung 35373, Indonesia
*Sahyanayana11@gmail.com

ABSTRACT

Hypertension is a major non-communicable disease requiring long-term management and continuous healthcare services. Patient satisfaction is an important indicator of healthcare service quality, yet evidence regarding multiple service-related factors among patients with hypertension remains limited. This study aimed to analyze the factors associated with patient satisfaction among patients with hypertension at Batin Mangunang Regional General Hospital, Tanggamus. This quantitative study employed an observational analytic design with a cross-sectional approach. The study was conducted from January to March 2026 and included 131 patients with hypertension selected using accidental sampling. Data were collected using a validated and reliable structured questionnaire and analyzed using univariate analysis, the Chi-square test, and multiple logistic regression. Overall, 54.2% of respondents reported being satisfied with the healthcare services received. Bivariate analysis showed that waiting time, medication availability, healthcare professionals' competence, and information provision were significantly associated with patient satisfaction ($p<0.05$). In the multivariable analysis, all four variables remained significantly associated with patient satisfaction: waiting time ($p=0.015$; OR=2.558; 95% CI: 1.199–5.435), medication availability ($p=0.026$; OR=2.353; 95% CI: 1.105–5.000), healthcare professionals' competence ($p=0.030$; OR=2.841; 95% CI: 1.107–7.299), and information provision ($p=0.021$; OR=2.141; 95% CI: 1.121–4.082). Healthcare professionals' competence had the largest odds ratio in the final model. Patient satisfaction among patients with hypertension was associated with multiple dimensions of healthcare service quality. Improving healthcare professionals' competence, reducing waiting time, ensuring medication availability, and strengthening information provision are important strategies for enhancing patient satisfaction and supporting patient-centered hypertension care.

Keywords: healthcare competence; hypertension; medication availability; patient satisfaction; waiting time

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INTRODUCTION

Hypertension is one of the leading non-communicable diseases and continues to represent a major global public health concern due to its increasing prevalence and substantial contribution to cardiovascular morbidity and mortality (Sajid et al., 2025). Clinically, hypertension is defined as persistent systolic blood pressure of ≥140 mmHg and/or diastolic blood pressure of ≥90 mmHg. It is widely recognized as a *silent killer* because it is often asymptomatic during its early stages but may lead to serious complications, including coronary artery disease, heart failure, stroke, and chronic kidney disease, if not appropriately managed (Unger et al., 2020). Therefore, effective hypertension management requires not only accurate diagnosis and appropriate treatment but also continuous monitoring and sustained patient engagement in long-term healthcare services (Kale et al., 2024).

According to the World Health Organization (WHO), approximately 1.4 billion adults worldwide were living with hypertension in 2024. Despite the availability of effective treatment, hypertension control remains inadequate. Approximately 44% of individuals with hypertension are unaware of

their condition, only 44% receive appropriate diagnosis and treatment, and merely 21% achieve adequate blood pressure control (World Health Organization, 2025). These findings indicate that hypertension is not only a clinical challenge but also a healthcare system issue that requires high-quality healthcare services to promote sustained patient engagement in long-term treatment (Samakosky & Norris, 2024). In Indonesia, hypertension remains one of the most prevalent non-communicable diseases. Based on the 2023 Indonesian Health Survey (*Survei Kesehatan Indonesia*, SKI), a total of 598,983 hypertension cases were reported, with Lampung Province ranking eighth nationally with 19,843 cases (Badan Kebijakan Pembangunan Kesehatan, 2024). This considerable disease burden highlights the need for lifelong pharmacological therapy, regular blood pressure monitoring, lifestyle modification, and healthcare services capable of supporting long-term hypertension management to prevent complications and improve patients' quality of life (H. Lee et al., 2021).

In addition to pharmacological treatment, the success of hypertension management is strongly influenced by the quality of healthcare services. One of the key indicators of healthcare quality is patient satisfaction, defined as patients' perceptions of the healthcare services they receive compared with their prior expectations (Perals et al., 2025). This concept is supported by the Expectation Confirmation Theory (ECT), which posits that satisfaction is achieved when perceived service performance meets or exceeds patients' expectations (Anupama, 2026). This framework is further supported by the SERVQUAL model, which proposes that service quality is determined by five dimensions: tangibles, reliability, responsiveness, assurance, and empathy. These dimensions shape patients' perceptions of healthcare quality and ultimately influence their overall satisfaction (Christia et al., 2021).

Previous studies have demonstrated that several healthcare service factors are associated with patient satisfaction. Prolonged waiting times may negatively influence patients' perceptions of service quality (J. Lee & Yoon, 2023). Medication availability is another crucial determinant because hypertension requires lifelong treatment, making continuity of care highly dependent on the consistent availability of antihypertensive medications (Lee et al., 2022). Healthcare professionals' competence is essential for delivering safe, effective, professional, and patient-centered care (Zaitoun et al., 2023). Moreover, providing clear and understandable health information enhances patients' knowledge and encourages active participation in disease management (Mustara et al., 2025). Nevertheless, most previous studies have investigated these factors separately or have involved general patient populations rather than patients with hypertension who require continuous healthcare services.

To the best of the authors' knowledge, no previous study has simultaneously examined the relationships among waiting time, medication availability, healthcare professionals' competence, information provision, and patient satisfaction among hypertensive patients at Batin Mangunang Regional General Hospital, Tanggamus. Addressing this research gap is important because differences in hospital characteristics and healthcare delivery systems may influence patient satisfaction, thereby necessitating evidence derived from the local healthcare context.

Batin Mangunang Regional General Hospital, Tanggamus, is a referral hospital providing healthcare services for patients with hypertension. Hospital records indicate that 569 hypertensive patients received healthcare services during the last three months of 2026. Preliminary observations identified several concerns, including prolonged waiting times, inconsistent availability of certain antihypertensive medications, inadequate information regarding treatment and prevention of hypertension-related complications, and variations in patients' perceptions of healthcare professionals' competence. These findings indicate the need for a comprehensive evaluation of factors associated with patient satisfaction as a basis for improving healthcare service quality.

Therefore, this study aimed to examine the relationships between waiting time, medication availability, healthcare professionals' competence, information provision, and patient satisfaction among hypertensive patients at Batin Mangunang Regional General Hospital, Tanggamus. The findings are expected to expand the existing evidence on the determinants of patient satisfaction in hypertension care and provide practical recommendations for hospital management to improve healthcare service quality and strengthen patient-centered care in a sustainable manner.

METHOD

This study employed a quantitative approach with an observational analytic design using a cross-sectional framework. The study was conducted at Batin Mangunang Regional General Hospital, Tanggamus, from January to March 2026. The study population consisted of patients with hypertension who received healthcare services at the hospital. A total sample of 131 respondents was selected using accidental sampling. The inclusion criteria were patients diagnosed with hypertension, aged ≥18 years, able to read and understand the questionnaire, willing to participate in the study, and provided informed consent. Patients with cognitive impairment, communication difficulties, or incomplete questionnaire responses were excluded.

Data were collected using a structured questionnaire with five-point Likert-scale response options. Prior to data collection, the questionnaire underwent validity testing using item–total correlation analysis, in which items with r-count greater than r-table ($p < 0.05$) were considered valid. Reliability testing was conducted using Cronbach's Alpha, and all study variables demonstrated coefficients of ≥0.70, indicating acceptable internal consistency. Data analysis included univariate, bivariate, and multivariate procedures. Bivariate analysis was conducted using the Chi-square test, while multivariate analysis employed multiple logistic regression to determine the factors most significantly associated with patient satisfaction among patients with hypertension. Statistical significance was established at $p < 0.05$, and the results were presented as Odds Ratios (ORs) with 95% confidence intervals (95% CIs).

RESULT

The study was conducted at Batin Mangunang Regional General Hospital, Tanggamus, from January to March 2026. Data were collected directly using questionnaires administered to patients with hypertension who received healthcare services and met the study inclusion criteria. A total of 131 respondents participated in this study. The respondents' characteristics and the distribution of the study variables are presented in table 1.

Table 1.
Distribution of Respondents' Characteristics and Study Variables

Respondents' Characteristics and Study Variables	Category	f	%
Age	≥47 years	67	51.1
	<47 years	64	48.9
Sex	Male	55	42.0
	Female	76	58.0
Educational Level	Low education	37	28.2
	Higher education	94	71.8
Waiting Time	Short	70	53.4
	Long	61	46.6
Medication Availability	Good	67	51.1
	Poor	64	48.9
Information Provision	Good	69	52.7
	Poor	62	47.3
Healthcare Professionals' Competence	Good	103	78.6
	Poor	28	21.4
Patient Satisfaction	Satisfied	71	54.2
	Dissatisfied	60	45.8

As shown in Table 1, most respondents were aged ≥47 years (51.1%), female (58.0%), and had a

higher educational level (71.8%). Regarding the study variables, the majority perceived the waiting time as short (53.4%), medication availability as good (51.1%), information provision as good (52.7%), and healthcare professionals' competence as good (78.6%). More than half of the respondents (54.2%) reported being satisfied with the healthcare services received.

Table 2.
Relationships Between Healthcare Service Factors and Patient Satisfaction Among Patients with Hypertension

Variables	Satisfied f (%)	Dissatisfied n (%)	p-value	OR (95% CI)
Waiting Time				
Short	47 (67.1)	23 (32.9)	0.001	3.150 (1.540-6.446)
Long	24 (39.3)	37 (60.7)		
Medication Availability				
Good	45 (67.2)	22 (32.8)	0.002	2.990 (1.465-6.101)
Poor	26 (40.6)	38 (59.4)		
Healthcare Professionals' Competence				
Good	62 (60.2)	41 (39.8)	0.008	3.192 (1.316-7.742)
Poor	9 (32.1)	19 (67.9)		
Information Provision				
Good	44 (63.8)	25 (36.2)	0.020	2.281 (1.131-4.604)
Poor	27 (43.5)	35 (56.5)		

As presented in Table 2, all independent variables were significantly associated with patient satisfaction ($p < 0.05$). Patients who experienced shorter waiting times reported higher satisfaction (67.1%) than those who experienced longer waiting times (39.3%), with 3.15 times higher odds of being satisfied (OR = 3.150; 95% CI: 1.540–6.446; p = 0.001). Similarly, respondents who perceived medication availability as good reported higher satisfaction (67.2%) than those who perceived medication availability as poor (40.6%), with nearly three times higher odds of satisfaction (OR = 2.990; 95% CI: 1.465–6.101; p = 0.002). Perceived competence of healthcare professionals was also significantly associated with patient satisfaction (p = 0.008). Respondents who perceived healthcare professionals' competence as good had 3.19 times higher odds of being satisfied compared with those who perceived competence as poor (60.2% vs. 32.1%; OR = 3.192; 95% CI: 1.316–7.742; p = 0.008). Likewise, good information provision was significantly associated with higher patient satisfaction, with 63.8% of respondents reporting satisfaction compared with 43.5% among those who perceived information provision as poor. Good information provision was associated with 2.28 times higher odds of satisfaction (OR = 2.281; 95% CI: 1.131–4.604; p = 0.020).

Table 3.
Multiple Logistic Regression Analysis of Factors Associated with Patient Satisfaction Among Patients with Hypertension

Independent Variable	P-value	OR (Exp(B))	95% CI
Waiting time	0,015	2,558	1,199-5,435
Medication availability	0,026	2,353	1,105-5,000
Healthcare professionals' competence	0,030	2,841	1,107-7,299
Information provision	0,021	2,141	1,121-4,082

Based on table 3, the multiple logistic regression analysis showed that all four independent variables were significantly associated with satisfaction among hypertensive patients, with *p*-values < 0.05. Waiting time was significantly associated with patient satisfaction (*p*=0.015; OR=2.558; 95% CI: 1.199–5.435). Medication availability was also significantly associated with patient satisfaction (*p*=0.026; OR=2.353; 95% CI: 1.105–5.000). Furthermore, healthcare professionals' competence showed a significant association with patient satisfaction (*p*=0.030; OR=2.841; 95% CI: 1.107–7.299). Information provision was also significantly associated with patient satisfaction (*p*=0.021; OR=2.141; 95% CI: 1.121–4.082). Among the variables included in the multivariate model, healthcare professionals' competence had the largest OR (2.841), followed by waiting time (2.558), medication availability (2.353), and information provision (2.141). Thus, after simultaneously controlling for the other variables in the model, the odds ratio for healthcare professionals' competence was the largest among the variables analyzed.

DISCUSSION

Univariate Analysis

The results presented in Table 1 indicate that among the 131 respondents, the majority were aged ≥47 years (51.1%), female (58.0%), and had a higher educational level (71.8%). Regarding the study variables, most respondents perceived the waiting time as short (53.4%), medication availability as adequate (51.1%), information provision as good (52.7%), and healthcare providers' competence as good (78.6%). Overall, more than half of the respondents (54.2%) reported being satisfied with the healthcare services they received. The proportion of satisfied respondents was only slightly higher than that of dissatisfied respondents (54.2% vs. 45.8%), suggesting that the quality of healthcare services at Batin Mangunang Regional General Hospital has not yet reached an optimal level. A national survey-based study conducted by (Cha, 2025), in South Korea reported comparable findings, demonstrating that patient satisfaction among individuals with chronic diseases in outpatient settings was influenced more by patients' service experiences particularly procedural aspects and provider communication than by clinical outcomes alone. Consistent with these findings, the present study revealed that healthcare providers' competence received the highest proportion of positive evaluations (78.6%), whereas perceptions of waiting time, medication availability, and information provision were rated positively by only approximately 51-53% of respondents. A similar pattern was reported by (Alharbi et al., 2023) among hospitalized patients in Saudi Arabia, where perceptions of healthcare providers' clinical competence were more consistently rated favorably than operational aspects of healthcare delivery, including waiting time and resource availability. These findings are further supported by (Yadav et al., 2024), who identified physicians' attitudes and communication as the primary contributors to patient satisfaction, while waiting time during the registration process represented the aspect with the lowest level of patient satisfaction.

Bivariate Analysis

Waiting time demonstrated the strongest association with patient satisfaction ($p = 0.001$; OR = 3.150; 95% CI: 1.540–6.446), indicating that patients who experienced shorter waiting times had 3.15 times higher odds of reporting satisfaction than those who experienced longer waiting times. This finding is consistent with the study by (Zhang et al., 2023), which involved 292 outpatients in China and demonstrated that perceived waiting time and expected waiting time were significantly associated with patient satisfaction ($p < 0.05$), whereas actual waiting time was not significantly related to satisfaction. These findings suggest that patient satisfaction is influenced more by the congruence between patients' expectations and their actual service experiences than by the objective duration of waiting. Similarly, (Yadav et al., 2024) reported that waiting time during the registration process represented the healthcare service attribute with the lowest level of patient satisfaction among 334 outpatients in India. Likewise, (Maulana et al., 2019) identified significant associations between waiting time during patient registration and medication dispensing services and patient satisfaction at Maccini Sombala Primary Health Center ($p = 0.000$ and $p = 0.021$, respectively). The consistency of these findings across different healthcare settings suggests that waiting time is one of the primary determinants of patient satisfaction. This phenomenon can be explained by the expectation-disconfirmation theory, whereby satisfaction occurs when healthcare experiences meet or exceed patients' expectations, whereas waiting times that exceed expectations are more likely to result in dissatisfaction (Wang et al., 2023). Among patients with hypertension who require regular follow-up visits, repeated experiences of prolonged waiting times may accumulate over time and increasingly influence their overall perception of healthcare service quality.

Medication availability was also significantly associated with patient satisfaction ($p = 0.002$; OR = 2.990; 95% CI: 1.465–6.101), with patients reporting good medication availability having 2.99 times higher odds of being satisfied. This finding is consistent with the study by (Molla et al., 2022), which identified medication availability as one of the principal determinants of patient

satisfaction with outpatient pharmaceutical services in a specialized hospital in Ethiopia. Similar findings were reported by (Rampamba et al., 2020) among patients with hypertension receiving care in rural primary healthcare facilities in South Africa, where limited availability of antihypertensive medications directly disrupted treatment continuity and negatively affected patients' healthcare experiences. Furthermore, (Ofili et al., 2022) demonstrated that the quality of pharmaceutical services, including medication availability, was closely associated with satisfaction among adult patients with hypertension in resource-limited settings in southern Nigeria. The consistency of these findings across developing countries indicates that medication availability is a critical component in maintaining continuity of hypertension treatment and enhancing patient satisfaction. Therefore, the present study reinforces the importance of ensuring the continuous availability of antihypertensive medications as a strategic approach to improving healthcare quality and patient satisfaction at Batin Mangunang Regional General Hospital, Tanggamus.

Healthcare providers' competence demonstrated the highest odds ratio for patient satisfaction (OR = 3.192; 95% CI: 1.316–7.742; p = 0.008), indicating that patients who perceived healthcare providers as competent had 3.19 times higher odds of being satisfied than those who perceived them as less competent. This finding is consistent with the study by (Ali et al., 2024), who developed a healthcare service quality model by incorporating healthcare providers' professionalism as an additional dimension within the classical SERVQUAL framework, thereby emphasizing that healthcare providers' competence is one of the key determinants of patient satisfaction. Similarly, (Chanda & Banerjee, 2026) reported that individual healthcare providers' competence plays a critical role in improving service effectiveness, which subsequently shapes patients' perceptions of healthcare service quality. Furthermore, (Alharbi et al., 2023), in a study involving 238 hospitalized patients in Saudi Arabia, found that the quality of nursing care, including nurses' clinical competence, was significantly associated with patient satisfaction. Collectively, these studies support the findings of the present study, indicating that although healthcare providers' competence was rated positively by the majority of respondents, variations in patients' perceptions of providers' competence continued to make a significant contribution to overall patient satisfaction. These findings are consistent with the assurance dimension of the SERVQUAL model, which emphasizes that healthcare providers' knowledge, clinical skills, professionalism, and ability to inspire patient trust are fundamental components in achieving high levels of patient satisfaction with healthcare services.

Information provision was significantly associated with patient satisfaction (p = 0.020; OR = 2.281; 95% CI: 1.131–4.604), indicating that patients who received good information provision had 2.28 times higher odds of being satisfied than those who received poor information provision. This finding is consistent with the study by (Cha, 2025), which reported that the quality of information provided by physicians and nurses was among the most influential determinants of satisfaction among patients with chronic diseases receiving outpatient care in South Korea, contributing more substantially to patient satisfaction than patients' sociodemographic characteristics. Similarly, (Satriana et al., 2021) found that the quality of health information received by older adults with hypertension was significantly associated with medication adherence and patients' experiences throughout their treatment. Furthermore, (Nam & Yoon, 2021) reported that health literacy developed through the provision of high-quality information by healthcare providers was significantly associated with self-care ability among patients with hypertension and physical disabilities. Collectively, these findings indicate that providing clear, accurate, and easily understandable information not only enhances patients' knowledge but also reduces uncertainty, strengthens trust in healthcare providers, and improves overall patient satisfaction with the healthcare services received. Therefore, optimizing communication and health education should be considered an integral component of strategies aimed at improving the quality of care for patients with hypertension.

Multivariable Analysis

The multivariate analysis showed that *healthcare professionals' competence* was significantly associated with patient satisfaction (p=0.030; OR=2.841; 95% CI: 1.107–7.299) after simultaneously controlling for *waiting time*, *medication availability*, and *information provision*. In addition, *waiting time* (p=0.015; OR=2.558), *medication availability* (p=0.026; OR=2.353), and *information provision* (p=0.021; OR=2.141) also remained significantly associated with patient satisfaction. Among the variables included in the model, *healthcare professionals' competence* had the largest OR (2.841). Healthcare professionals' competence encompasses knowledge, clinical skills, *clinical judgment*, decision-making, communication, and the ability to respond appropriately to patients' needs. This is consistent with (Almarwani & Alzahrani, 2023), who reported that education, training, experience, professional development, *clinical judgment*, decision-making, and communication are aspects associated with nurses' clinical competence.

These findings are further supported by (López Hernández et al., 2025), who demonstrated that nurses' competence was significantly associated with patient satisfaction. The study showed that aspects of nursing competence, including empathy, attentiveness, assertive listening, respect, and patients' perceived safety, were important in shaping patient satisfaction. These findings indicate that healthcare professionals' competence encompasses not only technical and clinical abilities but also interpersonal and communication skills that can contribute to patients' trust, sense of safety, and positive perceptions of healthcare services. In addition, (Ylimäki et al., 2024) emphasized that evidence-based competence enables nurses to integrate scientific evidence into clinical decision-making and patient care. Similarly, (Zaitoun et al., 2023) demonstrated that higher nursing competence was positively associated with patient safety culture, indicating that clinical competence supports the delivery of safe and quality care. For patients with hypertension who require continuous care, these competencies are particularly important in assessment, treatment monitoring, patient education, clinical decision-making, and follow-up, which may contribute to a more positive healthcare experience.

Based on these findings, improving healthcare professionals' competence can be achieved through continuing education and training, regular updating of clinical competencies, therapeutic communication, *clinical decision-making*, and evidence-based practice. (Hill et al., 2024) demonstrated that evidence-based healthcare educational interventions can improve healthcare professionals' knowledge, skills, and professional practice. The novelty of this study lies in the finding that *healthcare professionals' competence* remained significantly associated with patient satisfaction among patients with hypertension after adjustment for other healthcare service factors at Batin Mangunang Regional Hospital. The researchers assume that competent healthcare professionals are able to provide appropriate, safe, communicative, and responsive care, thereby fostering patients' trust and positive healthcare experiences. However, because this study used a cross-sectional design, the observed relationship should be interpreted as an association rather than a causal relationship.

CONCLUSION

This study concludes that waiting time, medication availability, healthcare professionals' competence, and information provision were significantly associated with patient satisfaction among patients with hypertension at Batin Mangunang Regional General Hospital, Tanggamus. In the multivariable logistic regression analysis, all four factors remained significantly associated with patient satisfaction after adjustment for the other variables. Healthcare professionals' competence had the largest odds ratio in the final model (p = 0.030; OR = 2.841; 95% CI: 1.107–7.299), followed by waiting time (p = 0.015; OR = 2.558), medication availability (p = 0.026; OR = 2.353), and information provision (p = 0.021; OR = 2.141). These findings highlight the importance of improving healthcare professionals' competence while also ensuring timely services, adequate

medication availability, and clear information provision to support patient satisfaction. Given the cross-sectional design, these findings indicate associations rather than causal relationships.

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