

The relationship of antihypertensive medication adherence and hypertension knowledge to quality of life in hypertensive patients

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Abstract

Patient non-adherence to antihypertensive medication is a significant risk factor for increased morbidity and mortality in individuals with hypertension. Hypertension, a prevalent cardiovascular condition, is classified as a degenerative disease. Consistent antihypertensive treatment is crucial for improving patient quality of life. This study employed a cross-sectional survey design. The sample consisted of hypertensive patients who presented at the Belawan Health Center between July 22 and 26, 2024. Consecutive sampling was used to recruit 75 participants. Data were collected via interviews regarding participant characteristics and the administration of the Morisky Medication Adherence Scale-8 (MMAS-8), Hypertension Fact Questionnaire (HFQ), and World Health Organization Quality of Life-BREF (WHOQOL-BREF) questionnaires to assess medication adherence, hypertension knowledge, and quality of life, respectively. Analysis revealed strong positive correlations between medication adherence and quality of life ($\rho = 0.677$, $p < .001$), and between hypertension knowledge and quality of life ($\rho = 0.700$, $p < .001$). Furthermore, both medication adherence and hypertension knowledge significantly predicted quality of life ($F = 53.704$, $p < .001$). Multiple linear regression analysis ($Y = 30.488$) indicated that a one-unit increase in adherence was associated with a 2.680-unit increase in quality of life ($p < .001$), and a one-unit increase in knowledge was associated with a 2.704-unit increase in quality of life ($p < .001$). In conclusion, there are strong positive correlations between both medication adherence and hypertension knowledge with the quality of life of hypertensive patients at the Belawan Health Center.

Keywords: hypertension, medication adherence, knowledge level, quality of life

Introduction

According to the American Heart Association (AHA), hypertension is defined as a diastolic blood pressure of 90 mmHg or higher, or a systolic blood pressure of 140 mmHg or higher.¹ In individuals with poorly managed hypertension, the risk of heart disease increases sixfold, and the likelihood of stroke is seven times greater, potentially leading to decreased productivity.² Hypertension is also a significant contributor to the development of heart disease, a leading cause of global mortality.³

Effective management of hypertension is crucial for individuals with this condition. A key aspect of management involves the appropriate selection and utilization of antihypertensive medications. However, data from the 2018 Riskesdas indicates suboptimal adherence to medication regimens among hypertensive patients: only 54.4% reported consistent use of antihypertensive drugs, while 32.3% reported inconsistent use, and 13.3% reported no use at all.⁴ Medication adherence can be assessed using tools such as the

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Morisky Medication Adherence Scale (MMAS-8), an eight-item questionnaire exploring the reasons for patients' adherence or non-adherence.⁵ Additionally, the Hypertension Fact Questionnaire (HFQ), a 15-item instrument, can evaluate patients' knowledge regarding the causes, treatment, and management of hypertension.^{6,7} Given these observations, research is warranted to investigate the relationship between antihypertensive medication adherence, hypertension knowledge, and quality of life in hypertensive patients.

Method

This study employed a cross-sectional survey design. The sample comprised patients diagnosed with hypertension who visited the Belawan Health Center between July 22 and July 26, 2024. Inclusion criteria for participants were: (1) male or female gender; (2) age over 35 years; (3) ability to communicate verbally; (4) a diagnosis of hypertension, with or without comorbidities; and (5) having taken antihypertensive medication for at least one month. Exclusion criteria were: (1) incomplete, missing, or illegible patient medical records; and (2) incomplete questionnaires or interviews. Consecutive sampling was used to recruit 75 hypertensive patients as respondents. Data were collected via interviews to obtain demographic information, and through the administration of the Morisky Medication Adherence Scale-8 (MMAS-8), the Hypertension Knowledge Questionnaire (HKQ), and the World Health Organization Quality of Life-BREF (WHOQOL-BREF) questionnaire to assess medication adherence, hypertension knowledge, and quality of life, respectively. Descriptive statistics were used to summarize participant characteristics. Bivariate analyses, using Spearman's rho correlation coefficient, were conducted to assess the relationships between antihypertensive medication adherence and quality of life, and between hypertension knowledge and quality of life. Multiple linear regression analysis was performed to further explore the combined influence of adherence and knowledge on quality of life.

Results

This study was conducted from July 22 to 26, 2024, at the Belawan Health Center. Data were collected using questionnaires completed by the respondents. The study participants comprised 75 patients with hypertension, as detailed in Table 1. The majority of respondents were female ($n = 40$, 53.3%), while 35 (46.7%) were male. The age distribution of the respondents was varied. The largest age group was 56–65 years ($n = 23$, 30.7%), followed by the 46–55 year age group ($n = 18$, 24.0%). Respondents aged 66–75 years comprised 22.7% ($n = 17$), those older than 76 years represented 12.0% ($n = 9$), and the youngest age group (36–45 years) constituted 10.7% ($n = 8$).

The majority of respondents ($n = 35$, 46.7%) had completed senior high school. Respondents with elementary school education accounted for 29.3% ($n = 22$), followed by those with junior high school education ($n = 14$, 18.7%). The smallest group of respondents ($n = 4$, 5.3%) had a diploma or bachelor's degree. Nearly half of the respondents ($n = 37$, 49.3%) were housewives. A substantial proportion were entrepreneurs ($n = 26$, 34.7%). Retired respondents comprised 12.0% ($n = 9$), while laborers represented the smallest group at 4.0% ($n = 3$).

Amlodipine was the most commonly used antihypertensive medication ($n = 59$, 78.7%), with the remaining respondents ($n = 16$, 21.3%) using Captopril. The majority of respondents ($n = 45$, 60.0%) reported no comorbidities. Among those with comorbidities, type 2 diabetes mellitus (T2DM) was the most prevalent ($n = 22$, 29.3%). A small number of respondents presented with a combination of T2DM and hyperuricemia ($n = 2$, 2.7%), while 8.0% ($n = 6$) had hyperuricemia only.

Table 1. Characteristic of respondents ($n=75$)

Characteristic	n	%
Sex		
Male	35	46.7
Female	40	53.3
Age (years)		
36 - 45	8	10.7
46 - 55	18	24.0
56 - 65	23	30.7
66 - 75	17	22.7
> 76	9	12.0
Education		
Primary school	22	29.3
Junior high school	14	18.7
Senior high school	35	46.7
Associate/Bachelor degree	4	5.3
Occupation		
Labor	3	4.0
Housewife	37	49.3
Retired	9	12.0
Enterpiser	26	34.7
Antihypertensive treatment		
Amlodipin	59	78.7
Captopril	16	21.3
Comorbid		
T2DM	22	29.3
T2DM and Hyperuricemia	2	2.7
Hyperuricemia	6	8.0
Without	45	60.0

Table 2. Correlation between adherence, knowledge, and quality of life in hypertensive patients

Indicator	p value	r value
Level of adherence for hypertension treatment	0.000*	0.677
Knowledge level of hypertension	0.000*	0.700

*Spearman correlation test

Table 3. Multivariate analysis of hypertensive patients on quality of life

Indicator	B	SE	t	p value
(Constant)	30.488	3.445	8.850	< 0.0001
Level of adherence for hypertension treatment	2.680	0.683	3.922	< 0.0001
Knowledge level of hypertension	2.704	0.539	5.016	< 0.0001

tion ($r = 0.700$). The multivariate analysis used in this study is multiple regression analysis, where multiple regression analysis is used to assess how changes in the independent variables affect the dependent variable, based on unstandardized coefficients. The independent variables in this study are adherence level (X1) and knowledge level (X2), with quality of life (Y) as the dependent variable. The regression equation obtained from the analysis is: $Y = 30.488 + 2.680X1 + 2.704X2$. The constant value of 30.488 indicates that when adherence level (X1) and knowledge level (X2) are both zero, the quality of life (Y) is 30.488. For treatment adherence, the coefficient for X1 is 2.680, which indicates that for every 1-point increase in adherence level, the quality of life (Y) will increase by 2.680. For knowledge level, the coefficient for X2 is 2.704, which means that for every 1-point increase in knowledge level, the quality of life (Y) will increase by 2.704.

Discussion

This study found a strong positive correlation between the level of adherence to antihypertensive medication and the quality of life of hypertensive patients. The findings of this study are consistent with previous research by Chantzaras et al., which found that higher adherence to treatment is significantly associated with an improved quality of life for patients.⁹ Better adherence is related to fewer complications. The researchers also revealed that patients with poor adherence often experience a lower quality of life, possibly due to a higher incidence of comorbidities and more severe hypertension. Another study that reported a correlation between treatment adherence levels^{10,11}, indicating that patients with higher adherence levels experienced fewer hypertension-related complications and reported better quality of life outcomes. Treatment adherence not only reduces the risk of stroke and heart attack but also alleviates symptoms that can interfere with patient's daily lives, thereby improving their overall well-being.^{12,14}

This study also reported a strong positive correlation between the level of hypertension knowledge and the quality of life of hypertensive patients. This finding is consistent with previous research by Lee et al., in which researchers showed that patients who adhered to treatment and had good knowledge of their condition reported the highest quality of life scores.¹⁵ These patients demonstrated better blood pressure control, fewer hospitalizations, and lower levels of anxiety and depression compared to those with lower adherence and knowledge levels. Martinez et al., also reported that the level of hypertension knowledge directly influences treatment adherence, which in turn positively impacts quality of life.¹⁶ This study emphasizes the importance of continuous educational programs that can help patients understand the importance of routine medication and how proper hypertension management can improve their quality of life.

Adherence is one of the important factors in determining the therapeutic outcomes for patients. Patient education is a key factor in improving treatment adherence. Several studies have shown that patients who are more knowledgeable about hypertension and its risks are more likely to adhere to prescribed treatment regimens. For example, a systematic review by Smith and Taylor revealed that educational interventions aimed at increasing hypertension awareness significantly improved treatment adherence. This increased adherence, in turn, led to better clinical outcomes and improved patient quality of life.¹⁷ Lee et al. also reported that high levels of knowledge about hypertension treatment were associated with better quality of life among hypertensive patients.¹⁸ The researchers found that patients

with controlled blood pressure during the study period also reported significant improvements in quality of life. Interestingly, this study highlighted that although treatment adherence was similar across groups, patients with controlled blood pressure had a better quality of life. This suggests that factors other than treatment adherence, such as effective comorbidity management and psychological support, may play an important role in improving quality of life. In another study shows 100% of patients moderately adhered to their medication, so their hypertension controlled and minimum symptoms and complication.¹⁹

Overall, this study reported a relationship between the level of treatment adherence and the level of hypertension knowledge with the quality of life of hypertensive patients. On a national scale, the findings from this study are consistent with those reported by Kurniawati, where the author noted a positive relationship of moderate strength between knowledge level and quality of life in hypertensive patients at the Baladhika Husada Level III Hospital Clinic, Jember.²⁰ This is also consistent with the study by Justin et al., which reported a relationship between preventive measures and attitudes towards hypertension prevention among the community in Sidikalang District.²¹ However, further research is still needed to definitively establish the relationship between treatment adherence levels and hypertension knowledge levels in hypertensive patients.

Conclusion

The conclusion of this research is significant relationship between presence of taking antihypertensive medication on the quality of life of hypertensive patients. The level of education is the only characteristic of the patient significant relationship to quality life in hypertensive patients. This study reported a strong positive relationship between the level of adherence to antihypertensive medication and the level of hypertension knowledge with the quality of life of hypertensive patients at Belawan Health Center. Improving the quality of life can be achieved by providing comprehensive education on hypertension to patients at Belawan Health Center, aiming to increase medication adherence and patient knowledge about hypertension, to enhance the quality of life of hypertensive patients at Belawan Health Center.

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