



Quality of Live among Indonesian Hypertensive Patients with and Without Comorbidity (2024)

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Abstract

Background: Hypertension is a medical condition associated with chronic high blood pressure. Common comorbidities in hypertensive patients include diabetes mellitus, coronary artery disease, stroke, dyslipidemia, and kidney failure. The presence of comorbidities often worsens the patient's overall health and can impact both the management of hypertension and quality of life. This study aimed to assess the quality of life of hypertensive patients, distinguishing between those with and without comorbidities.

Materials and Methods: The research employed an observational, cross-sectional design, with data collected through consecutive sampling from hypertensive patients undergoing outpatient treatment at Yogyakarta Regional General Hospital in August to October 2024. The European Quality of Life 5 Dimension (EQ5D5L) questionnaire and the Visual Analog Scale (VAS) were utilized for data collection. Data analysis was performed using the Normality Test and Mann-Whitney Test.

Results: The study included 400 patients, with results highlighting several problematic dimensions: pain/discomfort (78.25%), anxiety/depression (76.25%), walking/moving (34.75%), usual activities (25.25%), and self-care (18%). VAS measurements indicated that 65.8% of hypertensive patients without comorbidities fell within the "very good" quality of life range (81-100), while 50.4% of those with comorbidities were in the "good" range (51-80). The Mann-Whitney test revealed no significant difference in the EQ5D5L index between the two groups ($p = 0.102$), but the VAS scores showed a significant difference ($p < 0.001$).

Conclusions: Hypertensive patients without comorbidities and those with comorbidities showed no significant difference in quality of life based on the EQ-5D-5L test; however, a significant difference was found based on the VAS score.

Keywords: Hypertension, Quality of Life, Visual Analog Scale.

Introduction

Hypertension is a condition in which the systolic blood pressure exceeds 140 mmHg and/or the diastolic blood pressure exceeds 90 mmHg, which is measured twice within a span of 5 minutes while a person is resting [1]. Hypertension is a chronic disease with a prevalence that continues to rise globally. This condition not only directly impacts blood pressure but also increases the

risk of various serious complications, such as heart disease, stroke, kidney failure, and other organ damage. These complications make hypertension one of the leading causes of morbidity and mortality worldwide [2].

According to the World Health Organization (WHO), an estimated 1.28 billion adults worldwide aged 30 to 79 years will suffer from hypertension by 2023 [3]. The

WHO also noted that 2 out of 3 hypertension individuals with hypertension come from developing or low-income countries [4]. The Republic of Indonesia's Basic Health Research in 2018 showed that the prevalence of hypertension in the Special Region of Yogyakarta (DIY) was 11.0%, higher than the national level of 8.8%. This high prevalence makes DIY the fourth province with the highest incidence of hypertension in the country, with relatively low levels of awareness and management [5]. In addition, comorbidities in hypertensive patients are also a significant concern. Common comorbidities accompanying hypertension include diabetes mellitus, obesity, dyslipidemia, and coronary heart disease. The presence of these comorbidities not only worsens the patient's prognosis but also increases the complexity of clinical management and the risk of further complications [6].

The comparison between the quality of life of hypertensive patients without comorbidities and those with comorbidities is essential for understanding

The additional impact that other medical conditions have on the patients' well-being. This study aims to explore the differences in quality of life between these two groups, with the hope of providing deeper insights into the management needs and more appropriate interventions for hypertensive patients, whether with or without comorbidities.

The assessment of quality of life was conducted using the EQ-5D-5L questionnaire. This approach is a common and practical method for measuring Health-related Quality of Life (HRQOL), which involves five health aspects: mobility, self-care, usual activities, pain/discomfort, and anxiety/depression. Additionally, self-assessment of quality of life can be conducted using the Visual Analog Scale (VAS) instrument. The VAS records the subjects' health responses on a scale ranging from 0 to 100 [7-9].

Materials and Methods

The research design is cross-sectional and observational. Data were collected through consecutive sampling of hypertensive patients, both with and without comorbidities, undergoing outpatient treatment at Yogyakarta Regional General Hospital. Patients were selected based on inclusion and exclusion criteria. The inclusion criteria were a minimum age of 18 years,

patients who have routinely undergone check-ups for the past 3 months, and patients with a primary diagnosis of hypertension with or without comorbidities. The exclusion criteria were: incomplete data and age less than 18 years. The study population consisted of all hypertensive outpatients, both with and without comorbidities, at Yogyakarta Regional General Hospital, Indonesia during August to October 2024.

The instruments used in this study include the EQ-5D-5L questionnaire and Specify "the Visual Analog Scale (VAS)" for clarity, to assess the quality of life of patients. Patient demographic data (age, gender, duration of illness, education, and comorbidities) were collected by reviewing the patient's medical records.

The EQ-5D-5L questionnaire is assessed by observing a single index value for each dimension. Each dimension has a rating scale, where the highest value is 1, namely the subject has no problems, a value of 2 indicates the subject has a few problems, a value of 3 indicates the subject has quite big problems, a value of 4 indicates the subject has major problems, and the lowest score is 5 which indicates the subject has a very significant problem [10, 11].

Analysis of VAS data, which ranges from 0 to 100 with a poor/very poor category in the range of 0-30, a normal category in the range of 31-50, a good category in the range of 51-80 and a very good category in the range of 81-100 [9].

Data analysis was conducted using the Normality Test and the Mann-Whitney Test to explain the quality of life scores of hypertensive patients with and without comorbidities at Panembahan Senopati Regional General Hospital.

Results

Table 1 shows that most individuals with hypertension are female (64.7%) and aged 46-65 years (54.5%). In this study, patients with hypertension had been ill for less than 5 years (68.7%), the patient's education level was high school (35.3%) and 248 patients had comorbidities (62%). The statistical test results indicate a statistically significant association between the duration of illness and comorbidity status. Patients with comorbidities tend to have a longer duration of illness compared to those without comorbidities ($p = 0.0054$).

Table 1. Characteristics of Hypertensive Patients Undergoing Treatment at Yogyakarta Regional General Hospital

Characteristics	Non comorbid n(152)	Comorbid n(248)	Total n(400)	P-value
Gender	Man	58 (38.2 %)	83 (33.4 %)	0.342
	Woman	94 (61.8 %)	165(66.5%)	
Age (year)	<40 – 45	18 (11.8%)	19 (7.7%)	0.227
	46 – 65	85 (55.9%)	133 (53.6%)	
	> 65	49 (32.3%)	96 (38.7%)	

Duration (long sick)	1-5 years	119 (78.3%)	156 (62.9%)	275 (68.7%)	
	6-10 years	24 (15.8%)	69 (27.8%)	93 (23.3%)	0.0054*
	> 10 years	9 (5.9%)	23 (9.3%)	32 (8%)	
	No school	-	2 (0.8%)	2 (0.5%)	
	Elementary school	43 (28.3%)	65 (26.2%)	108 (27%)	
Level education	Junior High School	21 (13.8%)	42 (16.9%)	63 (15.7%)	
	Senior High School	55 (36.2%)	86 (34.7%)	141 (35.3%)	0.865
	Diploma	3 (1.9%)	2 (0.8%)	5 (1.3%)	
	Bachelor	29 (19.1%)	48 (19.4%)	77 (19.2%)	
	Masters	1 (0.7%)	3 (1.2%)	4 (1%)	
Comorbidities		152 (100%)	248 (100%)	400 (100%)	

*= P <0.05

From table 2, the results of the research show that the dimensional data on walking ability included 261 (65.25%) patients with no problems, 139 (34.75%) patients with problems. Self-care was not a problem for 328 (82%) patients, 72 (18%) patients had problems. The number of patients who usually carried out activities without problems was 299 (74.75%), 101

(25.25%) patients had problems. The number of patients who had no problems with pain/discomfort was 87 (21.75%), 313 (78.25%) patients had problems. Regarding anxiety/depression (depression) the number of patients who had no problems was 96 (24%), 305 (76.25%) patients had problems.

Table 2. Dimensions of Quality of Life in Hypertension Patients with and Without Comorbidities

Dimensions EQ-5D	Levels	Non comorbid n(152)	Comorbid n(248)	Total n(400)	Percentage (%)
Walking/Moving	Level 1	116	145	261	(65.25%)
	Level 2	31	85	116	(29%)
	Level 3	3	12	15	(3.75%)
	Level 4	2	3	5	(1.25%)
	Level 5	-	3	3	(0.75%)
Self-care	Level 1	128	200	328	(82%)
	Level 2	22	38	60	(15%)
	Level 3	2	7	9	(2.25%)
	Level 4	-	3	3	(0.75%)
	Level 5	-	-	-	-
Commonly performed activities	Level 1	118	181	299	(74.75%)
	Level 2	30	54	84	(21%)
	Level 3	4	11	15	(3.75%)
	Level 4	-	2	2	(0.5%)
	Level 5	-	-	-	-
Pain/Discomfort	Level 1	35	52	87	(21.75%)
	Level 2	90	138	228	(57%)
	Level 3	25	51	76	(19%)
	Level 4	2	7	9	(1.25%)
	Level 5	-	-	-	-
Anxiety/Sadness (depression)	Level 1	37	59	96	(24%)
	Level 2	54	98	152	(38%)
	Level 3	51	73	125	(31.35%)
	Level 4	10	14	24	(6%)
	Level 5	-	4	4	(1%)

From the research data, it was found that the highest quality of life was observed in hypertensive patients without comorbidities, with 100 patients (65.8%) falling within the 'very good' category (81-100). In contrast, the highest quality of life among hypertensive patients with comorbidities was in the 'good' category (51-80) with 125 patients (50.4%). The quality of life, as measured by the EQ5D5L, indicated that patients without

comorbidities were in a better category compared to those with comorbidities. Specifically, the results showed that, according to the EQ5D5L index (significance = 0.102), there was no significant difference in quality of life between these groups; however, the VAS scores showed a significant difference ($p < 0.001$).

Table 3. Quality of Life of Hypertension Patients with and Without Comorbidities Using Visual Analog Scale (VAS) and EQ5D5L

VAS value range	Quality of life	Non comorbid n(152)	Comorbid n(248)	P-value
0-30 Bad/Very bad	-	-	-	
31-50 Normal	-	-	10 (4%)	0.000*
51-80 Good	52 (34.2%)	125 (50.4%)		
81-100 Very good	100 (65.8%)	113 (45.6%)		
EQ5D5L	0,76	0,73		0.102

*= p <0.05

Table 4 shows that there are five comorbidities in hypertensive patients. The research results indicate that the quality of life for hypertensive patients with

comorbid kidney failure has the lowest VAS and EQ-5D-5L quality of life scores compared to those with other comorbidities.

Table 4. Quality of Life of Hypertension Patients with Comorbidities

Comorbid	VAS (n=248)	EQ5D5L (n=248)
Hypertension + Diabetes Mellitus	0,73 (177)	78,7 (177)
Hypertension + HIV	0,76 (17)	79 (17)
Hypertension + Gastro Intestinal Disease	0,72 (28)	77,3 (28)
Hypertension + Heart Failure	0,72 (14)	75 (14)
Hypertension + Chronic Kidney Disease	0,69 (12)	73,3 (12)

Discussion

This research indicates that hypertension is most prevalent among women aged 46-65 [12]. This heightened risk can be attributed to hormonal changes associated with menopause, which negatively affect cardiovascular health. The decline in estrogen, a hormone crucial for vascular health, leads to increased blood pressure and a higher risk of hypertension. Combine sentences for smoother flow, such as "Additionally, the cumulative effect of lifestyle risk factors..." [13].

The study reveals that 78.3% of respondents have had hypertension for 1-5 years, a finding consistent with other research indicating a similar duration of hypertension among many patients [12]. This period is critical for managing the condition, as early intervention can prevent its progression and the development of severe complications. This underscores the importance of regular monitoring and proactive management to mitigate long-term health risks. The chronic nature of hypertension necessitates ongoing treatment and management strategies, reflecting the findings of Hamida, (2019), which highlight that many patients fall into this category, emphasizing the need for sustained and effective interventions [14].

Educational background plays a significant role in managing hypertension. The study found that the majority of hypertensive respondents had a high school education, reflecting broader educational trends in Indonesia, where high school education is common among adults. Education influences health literacy and access to healthcare resources, both of which are critical for effective management of chronic conditions like hypertension. Individuals with higher educational attainment may have better access to information and

healthcare services, potentially leading to more effective management of their hypertension [15, 16].

The research highlights the impact of comorbidities on hypertensive patients. Those with additional health conditions experience more discomfort and pain compared to those with hypertension alone [17]. Comorbidities exacerbate hypertension symptoms and complicate overall health management, aligning with research indicating that comorbidities are significant risk factors for hypertension and can deteriorate quality of life [18]. The study's finding that 248 patients with comorbidities face compounded health challenges emphasizes the need for comprehensive treatment strategies that address both hypertension and concurrent conditions.

Akib's (2019) study shows that 35 patients with comorbid hypertension reported significant health problems, with 68.62% experiencing discomfort and pain. This finding is consistent with previous research demonstrating that patients with comorbid conditions endure greater discomfort than those without additional health issues [9]. The added burden of managing multiple health conditions significantly impacts a patient's quality of life, underscoring the necessity for integrated care approaches that address all aspects of a patient's health [19].

Discomfort and pain emerged as the most significant issues, affecting 78.25% of patients, while anxiety and sadness (often indicative of depression) affecting 76.25% of patients. These findings highlight the substantial burden of hypertension and its comorbidities on overall well-being.

Research by Teguh, (2019) supports these findings, indicating that among 69 respondents, 17.39% reported no health problems across any dimension, reflecting a utility index value of 1,000 [12]. This contrasts with the

current study, where discomfort and pain were prevalent, suggesting that while some studies report lower incidences of these issues, the current research highlights their significant impact on patients' quality of life.

The absence of significant problems in the "walking/moving" and "self-care" dimensions in this study aligns with other research suggesting these aspects are less affected compared to pain/discomfort and anxiety/depression. However, the high prevalence of pain and discomfort observed suggests these dimensions are particularly challenging for hypertensive patients, especially those with comorbidities [20, 21].

The test results showed that, based on the EQ5D5L, there was no significant difference in quality of life between hypertensive patients with and without comorbidities; however, the VAS scores showed a significant difference. Hypertensive patients with comorbidities may experience more discomfort and pain compared to those without complications. They not only experience the symptoms of hypertension but also suffer from additional diseases. Due to the effects of hypertension complications, there is theoretically a relationship between hypertension and quality of life [9].

The findings align with previous research, which found differences in quality of life between hypertensive patients with and without complications using both EQ-5D and VAS [11]. This suggests that comorbidities exacerbate the symptoms of hypertension and contribute to a greater decline in quality of life. The presence of additional diseases compounds the impact of hypertension, leading to increased discomfort and pain [22, 23].

This study also shows that hypertensive patients with comorbid chronic kidney disease have the lowest quality of life compared to those with other comorbidities. This low quality of life can be attributed to a variety of interrelated factors, including the physical and psychological burden of the disease, as well as the impact of ongoing treatments like dialysis. Dialysis requires a significant amount of time and commitment, often affecting the patient's work, social relationships, and daily activities [24, 25]. Additionally, side effects of this treatment, such as hypotension during dialysis or infections at the dialysis access site, can further increase the patient's physical and mental burden.

In summary, this research highlights the complex relationship between hypertension, comorbidities, and quality of life. While overall quality of life may not differ significantly between patients with and without comorbidities, specific aspects such as pain and discomfort are more severe in those with additional health conditions. These findings emphasize the need for targeted interventions that address both hypertension and comorbid conditions to improve patient well-being.

Future research should explore these relationships further and evaluate comprehensive management strategies to enhance the quality of life for hypertensive patients.

Limitation of this study is that it primarily focuses on hypertensive patients with common comorbidities, without exploring the specific impacts of various types of comorbidities such as diabetes, heart disease, or chronic kidney disease. Further research that considers specific comorbidities would provide deeper insights into the impact of each condition on the management of hypertension and the quality of life of patients.

Conclusion

Hypertensive patients without comorbidities and those with comorbidities showed no significant difference in the quality of life-based on the EQ-5D-5L test, however, a significant difference was found based on the VAS score. Patients with comorbid kidney failure had the lowest VAS and EQ-5D-5L quality of life scores compared to hypertension with other comorbidities.

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Conflict of interest

None declared.

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Ethical Considerations

All participants were informed about the purpose and procedures of the study, and written informed consent was obtained prior to data collection. Participants' confidentiality and anonymity were strictly maintained throughout the study. The data were used solely for research purposes.

Code of Ethics

This study received ethical approval from the Research Ethics Committee of Universitas Ahmad Dahlan, with approval number KE/FK/1255/EC/2024.

Authors' Contributions

Anis Febri Nilansari: Conception and design, obtaining funding, supervision; Adhila Fayasari: Drafting of the

manuscript, critical revision of the manuscript; Margala Juang Bertorio: Administrative, technical, or material support; Ayu Ramadhani Tampubolon: Acquisition of data, analysis and interpretation of data, and statistical analysis.

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