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ORIGINAL RESEARCH

Factors Affecting the Quality of Life in Hypertensive Patients: A Cross-Sectional Study in Hue, Vietnam

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Abstract

Background: Hypertension is a common chronic condition that leads to serious complications and negatively affects patients' quality of life (QoL). Therefore, improving hypertension management and understanding factors that influence QoL has become an important goal in patient care. However, in Hue, Vietnam, no research has been conducted to evaluate how sociodemographic factors affect the QoL of hypertensive patients.
Purpose: This study aimed to evaluate the sociodemographic factors influencing the quality of life of hypertensive patients in Hue, Vietnam.
Methods: This cross-sectional study was conducted among 172 hypertensive patients receiving treatment at the Internal Medicine Department in Hue, Vietnam. Given the limited timeframe and research resources, convenience sampling was employed to facilitate rapid and effective participant recruitment. Descriptive statistics were used to examine the mean quality of life (QoL) scores, which were assessed using the WHOQOL-BREF scale. Independent t-tests and ANOVA were performed to analyze differences in QoL across sociodemographic factors within the four WHOQOL-BREF domains: physical health, psychological health, social relationships, and environmental health. Linear regression analysis was applied to identify associations between QoL domains and the independent variables.
Results: The results showed that 93.6% of patients had a moderate level of QoL. Multivariate linear regression analysis revealed that age, economic status, and physical activity were positively associated with three QoL domains: physical, psychological, and environmental health. However, place of residence was negatively associated with the environmental domain (95% CI = -5.64, -0.97), and the presence of comorbidity was negatively associated with three domains: physical health (95% CI = -7.76, -2.00), psychological health (95% CI = -6.47, -0.64), and environmental health (95% CI = -4.84, -0.07).
Conclusion: The findings of this study suggest that younger age, a moderate to high economic status, and engagement in regular physical activity are positively associated with higher QoL scores. Conversely, residing in rural areas and having comorbid conditions are negatively associated with QoL. These results underscore the need for targeted and context-specific interventions aimed at enhancing the quality of life in individuals living with hypertension.

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1. Introduction

Hypertension is a major public health concern. In 2000, approximately 972 million adults worldwide were affected by hypertension, and this number is projected to increase to 1.56 billion (equivalent to 60% of the adult population) by 2025 (Forouzanfar et al., 2017). In Vietnam, a 2016 survey conducted by the Ministry of Health reported that 18.9% of adults (aged 18-69) across all 63 provinces and cities had hypertension (Ministry of Health, 2016). According to a study by (Minh et al., 2022), over 50% of these patients remained inadequately controlled. Furthermore, data from the Thua Thien Hue Department of Health showed that the prevalence of hypertension among individuals aged 40 and above increased from 26.7% (2012–2017) to 27.8% in 2018 (Department of Health of Thua Thien Hue, 2019).

Historically, hypertension was primarily considered a condition affecting affluent nations with aging populations. However, it has now become widespread among adults in most regions of the world. Between 1990 and 2019, the global burden of hypertension has shifted markedly from high-income countries to low- and middle-income countries. In 2019, over 1.2 billion adults (aged 30-79) were living with hypertension, two-thirds of whom resided in low- and middle-income countries (Zhou et al., 2021). This distribution underscores the global spread of hypertension beyond traditionally high-income settings (Zhou et al., 2021).

Hypertension not only contributes to the overall burden of disease but also leads to severe complications, including cardiovascular disease, stroke, and premature death. Early detection, intensive treatment, effective blood pressure control, and prevention of complications are key strategies in reducing hypertension-related morbidity and mortality. Moreover, these strategies have also been shown to contribute to improved quality of life (QoL) among hypertensive patients (Lee et al., 2020; Niknam et al., 2024). As such, understanding and assessing QoL is crucial in evaluating the effectiveness of hypertension management.

The World Health Organization (1998) defines QoL as "an individual's perception of their position in life in the context of the culture and value systems in which they live, and in relation to their goals, expectations, standards, and concerns" (World Health Organization, 2012). The study by Geprägs et al. (2022) emphasizes that QoL encompasses not only physical health but also psychological, social, and environmental dimensions (Geprägs et al., 2022). Large-scale cross-sectional analyses have revealed that hypertensive patients tend to have lower QoL compared to normotensive individuals, particularly in the physical and psychological domains (Sang et al., 2021). Multiple factors-such as age, gender, economic burden, level of physical activity, social support, and comorbid conditions-have been identified as determinants influencing QoL among individuals with hypertension (Adamu et al., 2022; Xiao et al., 2019).

Several studies conducted in Vietnam have assessed QoL in hypertensive patients; however, most have used the SF-36 scale (Dinh et al., 2016; Duy et al., 2015). Only a limited number have applied the WHOQOL-BREF instrument (Ha et al., 2014), which captures multiple life domains more comprehensively than the SF-36. In Hue, no prior research has evaluated the impact of hypertension on patients' QoL using this tool. This gap limits local insights needed for patient-centered care. Therefore, utilizing the WHOQOL-BREF, the present study aimed to examine factors associated with QoL in hypertensive patients across the physical, psychological, social, and environmental domains. This study is expected to enable families, healthcare providers, and community organizations to develop appropriate strategies that support patients with hypertension in attaining the highest possible quality of life.

2. Methods

2.1. Research design

This cross-sectional study was conducted in Hue, Vietnam to examine the association between sociodemographic characteristics and QoL among patients with hypertension.

2.2. Setting and samples

The study was conducted at a hospital located in Hue, Vietnam, from May 2020 to July 2021. This hospital is one of the leading healthcare institutions in the region and is affiliated with a university, playing a pivotal role in medical care, education, and research in Central Vietnam and the Central Highlands. The study focused on patients who had been diagnosed with hypertension and were undergoing treatment in the Department of Internal Medicine of the hospital. Permission was granted by hospital authorities to access medical records and directly approach patients receiving treatment. Given the limited timeframe and research resources, the study employed a convenience sampling method to facilitate rapid and effective participant recruitment. This approach was appropriate in the hospital context, where a substantial number of hypertensive patients regularly sought medical consultation and treatment, enabling efficient data collection. The study team reviewed patient medical records in the Internal Medicine Department to accurately identify individuals who met the inclusion criteria. Following a thorough assessment of the records, eligible participants were selected based on predefined criteria to ensure data validity and reliability. The inclusion criteria required participants to be at least 18 years old and to have been diagnosed with hypertension for a minimum duration of six months. Patients with psychiatric disorders or those who declined to participate were excluded

from the study. A total of 172 patients who met all inclusion criteria were enrolled in the final analysis. This sampling strategy allowed for a reasonably representative study population, considering the practical constraints related to time and available research resources.

2.3. Measurement and data collection

The questionnaires used for data collection consisted of two main parts: characteristics of the study participants and the QoL assessment scale. The researchers selected independent variables (demographic data) based on previous studies (Liang et al., 2019; Xiao et al., 2019), including age, gender, ethnic group, height, weight, place of residence, occupation, educational level, marital status, household economic status based on the Prime Minister of Vietnam's (2015) regulation, duration of illness, comorbidities, physical activity based on (World Health Organization, 2020) guidelines, smoking, and alcohol consumption. Meanwhile, QoL was assessed using the WHOQOL-BREF scale developed by the World Health Organization in 1996 (World Health Organization, 1996). This scale consists of 26 items, each rated on a 5-point Likert scale. Questions 1 and 2 were analyzed separately, aiming to evaluate the patient's general perception of quality of life and overall health. The four domains of the scale reflect specific aspects of participants' perceptions of quality of life, including: physical health, psychological health, social relationships, and environmental health. Total domain scores were converted to a 0–100 scale, and participants were classified into three QoL categories using the 33rd and 66th percentiles of the score distribution (Low QoL: <33; Moderate QoL: 33–66; High QoL: >66), with higher scores indicating better overall quality of life.

The Vietnamese version of the WHOQOL-BREF scale was translated by (Trung, 2015) using both forward and backward translation procedures and has been previously tested in the Vietnamese context. The pilot study demonstrated high internal consistency, with a Cronbach's alpha coefficient of 0.888 for the 26 items (Trung, 2015). Additionally, a study by Cheung et al. (2019) assessed the reliability and validity of the WHOQOL-BREF across three language versions—English, Chinese, and Malay—used within the community population in Singapore. The findings showed that all versions exhibited good internal reliability, with Cronbach's alpha coefficients exceeding 0.7 and intraclass correlation coefficients (ICC) exceeding 0.4 across all domains. These findings support the validity and reliability of the WHOQOL-BREF in measuring quality of life, particularly in multilingual population settings (Cheung et al., 2019).

In this study, data were collected through guided face-to-face interviews between the investigator and the participants using the standardized WHOQOL-BREF questionnaire. This approach ensured that participants fully understood each question, thereby minimizing response bias due to misinterpretation or omission, which can occur with self-administered surveys. Additionally, this method enhanced response rates, particularly among individuals with limited literacy or reading comprehension skills. It was selected to ensure the accuracy and completeness of data within a quantitative research framework. Prior to data collection, each patient was provided with a clear explanation of the study and instructions on how to respond to the questions. Questions A1–A6 were extracted from patients' medical records, while questions A7–B26 were obtained through direct interviews. For patients who were not well enough to move, interviews were conducted at their bedside. For those in better health, interviews were conducted in the health education counseling room of the department. On average, each interview lasted between 15 and 20 minutes.

2.4. Data analysis

In this study, the research team utilized SPSS version 20.0 software for data processing and analysis. Categorical variables were described using frequency (f) and percentage (%), while numerical variables were presented as means and standard deviations. To examine differences between independent variables and the domains of the WHOQOL-BREF scale, independent t-tests and one-way analysis of variance (ANOVA) were applied. In addition, to determine the association between socio-demographic factors and QoL in each domain, the research team conducted multivariable linear regression analysis. A significance level of $p<0.05$ was set to ensure the reliability of the analytical results.

Furthermore, to assess the normality of data distribution, the study team calculated the skewness coefficients. The results showed that the skewness values for all four domains fell within the range of -1 to 1, including: physical health (0.236), psychological health (0.104), social

relationships (-0.217), and environmental health (0.355). These values indicate that the data were normally distributed, which was further supported by the symmetric shape of the distribution plots. Based on this result, the use of independent t-tests and ANOVA was deemed appropriate.

2.5. Ethical considerations

The Ethics Committee of Hue University of Medicine and Pharmacy approved the study under the Decision No. H2020/120, issued on June 4, 2020. Only patients who provided informed consent were included in the analysis. Prior to data collection, the study team fully explained the study procedures to all participants and obtained written consent. The head of the treatment facility approved the use of information from medical records and granted the study team access to the data. The study team committed to maintaining the confidentiality of all information obtained through interviews and medical records. This study was conducted solely to improve the quality of patient care and not for any other purpose.

3. Results

3.1. Profile of participants

Table 1 shows that the mean age of participants was 70.8(12.9) years. The majority of participants lived in urban areas (58.7%) and belonged to the Kinh ethnic group (99.4%). More than half were female (55.8%), and a large proportion were either farmers or homemakers (62.2%). Approximately half of the participants had only completed primary education (50.0%), and most belonged to households with regular economic status (95.3%). The majority were married (66.3%) and had a body mass index (BMI) within the normal range (52.3%). In terms of disease characteristics, the group with a hypertension duration of 1 to less than 5 years accounted for the highest proportion (38.4%). Most patients had comorbidities (65.1%) and were adherent to treatment regimens (68.0%). A majority of participants engaged in physical activity levels that met recommended guidelines (72.7%). Meanwhile, a minority reported smoking (23.3%) or alcohol consumption (14.0%).

Table 1. Sociodemographic characteristics (n=172)

Characteristics	Frequency (f)	Percentage (%)
Age (Mean(SD)) = (70.77(12.85))		
<45	5	2.9
45–54	10	5.8
55–64	39	22.7
≥65	118	68.6
Location		
Urban	101	58.7
Rural	71	41.3
Ethnicity		
Kinh	171	99.4
Others	1	0.6
Gender		
Male	77	44.2
Female	96	55.8
Occupation		
Civil servants	7	4.1
Worker	8	4.7
Farmer/Housewife	107	62.2
Retire	14	8.1
Purchase	27	15.7
Others	9	5.2
Education level		
Illiterate	17	9.9
Elementary	86	50.0
Junior high school	30	17.4
High school	22	12.8
Intermediate, college	11	6.4
University or higher	6	3.5

Table 1. Continued

Characteristics	Frequency (f)	Percentage (%)
Economic status		
Poor households/near-poor households	8	4.7
Normal households	164	95.3
Marital status		
Single	6	3.5
Married	114	66.3
Widowed/divorced/separated	52	30.2
Body mass index		
<18.5	17	9.9
18.5 – 22.9	90	52.3
23.0 – 24.9	34	19.8
≥25.0	31	18.0
Duration of disease		
< 1 year	11	6.4
1 - 5 years	66	38.4
5 - 10 years	42	24.4
≥ 10 years	53	30.8
Co-morbidities		
Yes	112	65.1
No	60	34.9
Adherence to treatment		
Yes	117	68.0
No	55	32.0
Physical activities		
Yes	125	72.7
No	47	27.3
Smoke		
Yes	40	23.3
No	132	76,7
Alcohol/beer		
Yes	24	14.0
No	148	86.0

Notes. SD=Standard deviation

3.2. Quality of life and its associated factors in hypertensive patients

Table 2 shows that the majority of patients (93.6%) reported an average quality of life (QoL). Only a small proportion of participants experienced high QoL (4.1%), while 2.3% were classified as having low QoL. These findings suggest that although most hypertensive patients maintain a moderate level of well-being, very few achieve high QoL.

Table 2. Quality of life classification

Quality of life classification	Frequency (f)	Percentage (%)
Low quality of life	4	2.3
Average quality of life	161	93.6
High quality of life	7	4.1

The mean scores across the four QoL domains, stratified by demographic and socioeconomic characteristics, are presented in Table 3. Higher average QoL scores in all four domains were observed among patients younger than 45 years, male, married, with a university-level education or higher, from households with regular economic status, without comorbidities, physical activity, and alcohol consumption. Statistically significant differences across all four domains were found in relation to education level, marital status, and physical activity.

Furthermore, the results of the linear regression analysis (Table 4) revealed several factors significantly associated with QoL. Specifically, age, economic status, comorbidities, place of residence, and physical activity were found to have significant associations with QoL scores in different domains. Younger age, moderate or higher economic status, and physical activity were

positively associated with higher QoL scores, whereas living in rural areas (specifically in the environmental domain) and having comorbid conditions were negatively associated with QoL. Notably, none of the predictors showed significant associations with the social relationship domain.

Table 3. Bivariate associations between independent variables and QoL

Characteristics	Quality of Life Scores			
	Physical Mean(SD)	Psychological Mean(SD)	Social Relationship Mean(SD)	Environment Mean(SD)
Age				
< 45	73.8 (7.8)	76.4 (9,2)	56.4 (11.8)	76.4 (9.2)
45 – 54	65.2 (6.8)	69.5 (6,2)	41.2 (14.4)	65.3 (4.4)
55 – 64	52.9 (11.9)	60.1 (10.7)	50.0 (13.6)	61.7 (8.8)
≥ 65	40.4 (10.3)	45.4 (10.8)	48.2 (11.2)	51.5 (8.3)
p	<0.001	<0.001	0.092	<0.001
Gender				
Male	47.2 (14.1)	53.4 (14.7)	49.14(11.8)	56.1 (11.2)
Female	44.5 (13.1)	49.1 (12.7)	47.9 (12.3)	54.7 (9.5)
p	0.186	0.039	0.503	0.359
Marital status				
Single	37.3 (21.9)	41.7 (19.6)	32.3 (9.3)	48.2 (16.8)
Married	49.7 (13.1)	55.5 (12.7)	50.2 (13.4)	58.0 (9.8)
Widowed/divorced/ separated	37.9 (9.3)	42.3 (10.4)	46.4 (6.4)	50.4 (8.4)
p	<0.001	<0.001	0.002	0.001
Education level				
Illiterate	32.6 (5.4)	33.9 (6.8)	42.1 (7.6)	45.4 (5.4)
Elementary	41.2 (11.0)	47.4 (11.0)	48.3 (10.9)	52.2 (8.7)
Junior high school	50.6 (11.8)	56.6 (11.5)	54.6 (9.7)	59.1 (8.1)
High school	57.0 (12.4)	59.4 (12.1)	44.1 (16.3)	61.0 (8.7)
Intermediate. college	54.0 (11.0)	62.6 (9.4)	49.9 (13.7)	63.8 (7.9)
University or higher	65.7 (14.5)	71.8 (13.2)	52.2 (16.7)	73.0 (11.7)
p	<0.001	<0.001	0.003	<0.001
Economic status				
Poor households/ near-poor households	36.8 (11.3)	41.5 (12.2)	47.0 (12.1)	48.6 (11.3)
Normal households	46.1 (13.6)	51.5 (13.7)	48.5 (12.1)	55.7 (10.2)
p	0.057	0.045	0.730	0.059
Co-morbidities				
Yes	42.5 (11.9)	48.3 (12.9)	48.4 (11.7)	53.5 (9.5)
No	51.6 (15.0)	56.1 (14.0	48.6 (13.0)	58.7 (11.0)
p	<0.001	<0.001	0.904	0.002
Physical activities				
Yes	51.1 (11.7)	56.2 (11.9)	49.8 (13.2)	58.9 (9.4)
No	31.2 (4.8)	37.1 (7.1)	45.0 (7.4)	45.8 (5.2)
P	<0.001	<0.001	0.003	<0.001
Alcohol/beer				
Yes	53.8 (13.2)	60.6 (12.5)	50.8 (14.2)	62.7 (10.5)
No	44.4 (13.2)	49.5 (13.3)	48.1 (11.7)	54.1 (9.8)
p	0.001	<0.001	0.307	<0.001

Notes. SD = Standard deviation; $p<0.05$, $p<0.001$ = significant result

4. Discussion

The present study aimed to identify factors associated with the domains of QoL among patients with hypertension. Analysis using the WHOQOL-BREF scale indicated that age, place of residence, economic status, comorbidities, and physical activity were significantly associated with patients' QoL. To the best of our knowledge, this is the first study conducted in Central Vietnam, specifically in Hue, to assess QoL among hypertensive patients using the WHOQOL-BREF scale. Our findings showed that the majority of participants had moderate QoL scores, which are

consistent with previous studies conducted in Vietnam (Da Luz et al., 2018; Luan et al., 2018). Chronic diseases, including hypertension, are of significant concern due to their prolonged course and long-term impact on patients' lives. Numerous studies have indicated that chronic conditions negatively affect daily functioning and QoL. The rising prevalence of chronic diseases poses a considerable threat to health-related QoL, particularly among middle-aged and older adults (Hu et al., 2024). Another study suggested that chronic illnesses may impair individuals' ability to perform daily activities, thereby reducing their capacity for self-care and independence in later life (Ai et al., 2024). Adopting a healthy lifestyle can significantly improve the QoL of patients living with chronic conditions. One study demonstrated that lifestyle intervention programs can enhance QoL by reducing unhealthy behaviors and mitigating risk factors associated with non-communicable diseases (Weber et al., 2025). Therefore, care and treatment programs should focus on addressing the factors that influence QoL and the health conditions of patients.

Table 4. Backward multiple linear regression analyses of significant factors associated with QoL among people living with hypertension

Characteristics	Quality of Life Domains							
	Physical		Psychological		Social Relationship		Environment	
	B	95%CI	B	95%CI	B	95%CI	B	95%CI
Age								
<65 vs. ≥ 65	10.4**	(7.2, 13.8)	10.8**	(7.4, 14.1)	-1.2	(-5.7, 3.4)	8.0 **	(5.3, 10.7)
Location								
Rural vs. urban	1.5	(-1.4, 4.3)	-1.0	(3.9, 1.8)	0.6	(-3.3, 4.5)	-3.3*	(-5.6, -1.0)
Economic status								
Normal households vs. poor households/near-poor households	13.2**	(6.8, 19.6)	12.8**	(6.3, 19.3)	0.0	(-8.9, 8.9)	8.3*	(3.0, 13.6)
Co-morbidities								
Yes vs. No	-4.9*	(-7.8, -2.0)	-3.6*	(-6.5, -0.6)	-1.1	(-5.1, 2.9)	-2.5*	(-4.8, -0.1)
Physical activities								
Yes vs. No	16.2**	(12.2, 20.1)	12.9**	(8.8, 16.8)	1.1	(-4.3, 6.6)	10.5**	(7.2, 13.7)

Notes: CI = Confidence Interval; vs. = Versus; (*): $p<0.05$; (**): $p<0.001$ (significant results). Reference categories for comparison are: Age ≥65 years; Location: Urban; Economic status: Poor/near-poor households; Comorbidities: No; Physical activity: No.

This study found that patients under the age of 65 had higher QoL scores in three domains. Specifically, in the physical health domain, patients under the age of 65 scored 10.4 points higher than those aged 65 and above. In the psychological domain, the difference was 10.8 points, while in the environmental domain, it was 8.0 points. These findings suggest that younger age is associated with better QoL. Our results are consistent with several domestic and international studies (Adamu et al., 2022; Sang et al., 2021). A previous study conducted in Henan Province, China, showed that utility scores decreased with age (Sang et al., 2021). However, that study was limited to patients living in rural areas. Residing in rural areas is often associated with limited access to quality healthcare services and recreational activities, which may negatively impact QoL (Cyr et al., 2019). Another study by (Adamu et al., 2022) also found that each additional year of age was associated with an average decrease of 0.26 units in the physical health-related QoL score, even after controlling for other variables. This finding is clinically significant, as it highlights that older hypertensive patients are at increased risk of experiencing physical, psychological, and environmental impairments. Therefore, these patients should receive regular health monitoring, physical therapy support, psychological care, and improvements to their living conditions in order to maintain their QoL.

In this study, geographic location was only associated with the environmental domain. Patients living in rural areas had QoL scores that were 3.30 points lower than those living in urban areas. This disparity may be attributed to the more modern and favorable living conditions available in urban settings. A study by Snarska in 2020 also showed that patients living in urban areas had higher average QoL scores compared to those in rural areas (15.2 vs. 14.3 points) (Snarska et al., 2020). Similarly, multivariate regression analysis in a previous study by Son (2017) indicated that place of residence negatively affected QoL in the physical and psychological domains. A study by Chantakeeree et al. in Thailand further supported this, demonstrating that

QoL among elderly hypertensive patients was higher in urban than in rural areas (Chantakeeree et al., 2022).

This study also showed that economic status was significantly associated with higher QoL scores in the physical, psychological, and environmental domains. Patients with moderate or higher economic status consistently demonstrated better QoL compared to those in poor or near-poor households. Multivariate linear regression analysis confirmed these significant associations across three QoL domains. These findings are in line with research by Huyen (2017) and a study conducted in Chongqing, China (Xu et al., 2016). They suggest that financial stability helps patients feel more secure and better able to meet basic needs, thereby contributing to improved QoL.

Furthermore, this study found that patients without comorbidities had higher average QoL scores across all domains compared to those with comorbid conditions. Regression analysis revealed that the presence of comorbidities significantly reduced QoL in three out of the four domains, excluding the social relationships domain. These findings are consistent with the study by (Mannan et al., 2022), which reported that health indicators such as mobility, self-care, daily activities, pain/ discomfort, and psychological well-being were more severely affected in patients with comorbid conditions. Despite using different measurement tools, studies consistently demonstrate that chronic comorbidities have a markedly negative impact on patients' QoL.

Additionally, this study identified a significant association between physical activity levels and multiple QoL domains. Engaging in physical activities, even simple daily tasks such as housework, can improve health outcomes and enhance QoL among patients. These results align with findings from a study conducted in Dessie City, Ethiopia, which showed that moderate levels of physical activity contributed to better blood pressure control and improved QoL (Adamu et al., 2022). These also findings underscore the importance of counseling and encouraging patients to maintain an active lifestyle as part of a comprehensive disease management strategy.

Meanwhile, the social relationships domain in this study did not show any significant association with demographic variables. This outcome may be attributed to two main reasons. Firstly, the number of observed items in this domain was limited to only three, whereas other domains included at least six items. Secondly, social relationships are often influenced by subjective factors and are highly dependent on individual, cultural, and specific social environmental contexts. In addition, our sample size may have been insufficient to detect statistically significant associations within this domain.

5. Implications and limitations

The study findings indicate that the health-related quality of life (HRQoL) of patients with hypertension was at a moderate level across all four domains of the WHOQOL-BREF. The significant associations between HRQoL and socio-demographic factors such as age, place of residence, economic status, comorbidities, and physical activity level suggest that these variables could serve as initial screening indicators to identify patients at risk of low QoL. These factors reflect, to some extent, patients' living conditions, level of independence, and self-care ability, thereby highlighting the need for more comprehensive and individualized care strategies in clinical settings.

In clinical nursing practice, it is essential to strengthen the role of initial QoL assessment and the identification of related factors upon patient admission. Utilizing brief assessment tools such as the WHOQOL-BREF or simple screening questionnaires may help nurses promptly identify patients' needs in physical, psychological, or social domains. Accordingly, nurses can develop tailored care plans for different patient groups. In addition, during hospitalization and especially prior to discharge, nurses should organize individual or group health education sessions focusing on raising awareness about the benefits of healthy lifestyles, regular physical activity, and effective hypertension management. For patients with low QoL, nurses are encouraged to collaborate with physicians and other healthcare professionals to develop post-discharge follow-up plans, ensuring continuity of care and sustained support.

However, this study has several limitations that should be acknowledged. Firstly, the cross-sectional study design does not allow for establishing causal relationships between variables. Secondly, the study was conducted during the COVID-19 pandemic in Vietnam, which affected accessibility to research participants and led to a relatively small sample size that may not fully represent the broader population of hypertensive patients. Therefore, future studies should aim

to expand the sample size and incorporate longitudinal study designs to more accurately assess the long-term impact of socio-demographic factors on QoL over time.

6. Conclusion

The study identified several socio-demographic factors significantly associated with the QoL of hypertensive patients receiving treatment in Hue, Vietnam. The results indicated that the average QoL scores were at a moderate level across all four domains defined by the WHOQOL-BREF: physical health, psychological health, social relationships, and environmental health. The analysis of the relationship between socio-demographic characteristics and each QoL domain revealed that patients under 65 years of age, with moderate or higher economic status, and those who regularly engaged in physical activity had significantly higher QoL scores in three domains: physical health, psychological health, and environmental health. However, patients residing in rural areas had lower QoL scores in the environmental domain. The presence of comorbidities was also associated with decreased QoL in most domains, except for social relationships. These findings suggest that the QoL of hypertensive patients is influenced by multiple socio-demographic factors, highlighting the importance of integrating QoL assessment into the care process, especially for elderly patients, those with comorbidities, or those facing socioeconomic disadvantages. The results provide a foundation for developing comprehensive intervention programs aimed at improving QoL for hypertensive patients both in hospital settings and in the community.

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Author contribution

All authors contributed significantly to the conduct of the research and the writing of the manuscript. All authors have agreed to and are responsible for submitting manuscripts to the journal. DTHN: data collection, problem formulation, literature review, research methodology, conclusion, discussion, writing-original draft, and editing; LVA: data collection, result, writing-original draft; LTH: writing-developed draft, and editing; PVQ: writing-developed draft, and editing.

Conflict of interest

There are no potential conflicts of interest to declare.

References

Adamu, K., Feleke, A., Muche, A., Yasin, T., Mekonen, A. M., Chane, M. G., Eshete, S., Mohammed, A., Endawkie, A., & Fentaw, Z. (2022). Health related quality of life among adult hypertensive patients on treatment in Dessie City, Northeast Ethiopia. *PLoS ONE*, *17*(9), e0268150. https://doi.org/10.1371/journal.pone.0268150

Ai, Z., Tang, C., Wen, X., Kartheepan, K., & Tang, S. (2024). Examining the impact of chronic diseases on activities of daily living of middle-aged and older adults aged 45 years and above in China: A nationally representative cohort study. *Frontiers in Public Health*, *11*, 1303137. https://doi.org/10.3389/fpubh.2023.1303137

Chantakeeree, C., Sormunen, M., Estola, M., Jullamate, P., & Turunen, H. (2022). Factors affecting quality of life among older adults with hypertension in urban and rural areas in Thailand: A cross-sectional study. *International Journal of Aging & Human Development*, *95*(2), 222–244. https://doi.org/10.1177/00914150211050880

Cheung, Y. B., Yeo, K. K., Chong, K. J., Khoo, E. Y. H., & Wee, H. L. (2019). Measurement equivalence of the English, Chinese and Malay versions of the World Health Organization Quality of Life (WHOQOL-BREF) questionnaires. *Health and Quality of Life Outcomes*, *17*, 67. https://doi.org/10.1186/s12955-019-1130-0

Cyr, M. E., Etchin, A. G., Guthrie, B. J., & Benneyan, J. C. (2019). Access to specialty healthcare in urban versus rural US populations: A systematic literature review. *BMC Health Services Research*, *19*, 974. https://doi.org/10.1186/s12913-019-4815-5

Da Luz, R. A., de Deus, J. M., & Conde, D. M. (2018). Quality of life and associated factors in Brazilian women with chronic pelvic pain. *Journal of Pain Research*, *11*, 1367–1374. https://doi.org/10.2147/JPR.S168402

Department of Health of Thua Thien Hue, 2019). (2019). *Launching ceremony of the 'May Measurement Month' program 2019* [Vi]. https://syt.thuathienhue.gov.vn/?gd=62&cn=72&tc=8556

Dinh, N. H., & Nhieu, H. B. (2016). Quality of life in patients with hypertension. *Journal of Medical Research, 20*(2), 210–215. https://doi.org/10.47972/vjcts.v12i.299

Duy, T. C., & Hoa, C. N. (2015). Quality of life in patients with hypertension. *Journal of Medical Research, 19*(1), 6–11. https://tapchiyhoctphcm.vn/articles/13360

Forouzanfar, M. H., Liu, P., Roth, G. A., Ng, M., Biryukov, S., Marczak, L., Alexander, L., Estep, K., Hassen Abate, K., Akinyemiju, T. F., Ali, R., Alvis-Guzman, N., Azzopardi, P., Banerjee, A., Bärnighausen, T., Basu, A., Bekele, T., Bennett, D. A., Biadgilign, S., … Murray, C. J. L. (2017). Global burden of hypertension and systolic blood pressure of at least 110 to 115 mm Hg, 1990-2015. *JAMA, 317*(2), 165–182. https://doi.org/10.1001/jama.2016.19043

Geprägs, A., Bürgin, D., Fegert, J. M., Brähler, E., & Clemens, V. (2022). The impact of mental health and sociodemographic characteristics on quality of life and life satisfaction during the second year of the COVID-19 pandemic—Results of a population-based survey in Germany. *International Journal of Environmental Research and Public Health*, *19*(14), 8734. https://doi.org/10.3390/ijerph19148734

Ha, N. T., Duy, H. T., Le, N. H., Khanal, V., & Moorin, R. (2014). Quality of life among people living with hypertension in a rural Vietnam community. *BMC Public Health*, *14*, 833. https://doi.org/10.1186/1471-2458-14-833

Hu, Y., Yang, Y., Gao, Y., Zhao, L., Chen, L., Sui, W., & Hu, J. (2024). The impact of chronic diseases on the health-related quality of life of middle-aged and older adults: The role of physical activity and degree of digitization. *BMC Public Health*, *24*, 2335. https://doi.org/10.1186/s12889-024-19833-8

Huyen, M. T. T. (2017). *Status of quality of life among HIV/AIDS patients receiving outpatient treatment at Thai Nguyen City Health Center in 2017* [Master's thesis, Thai Nguyen University of Medicine and Pharmacy]. http://tailieudientu.lrc.tnu.edu.vn

Lee, C. J., Park, W. J., Suh, J., Choi, E., Jeon, D. W., Lim, S., Kim, D., Cha, K. S., Lee, B., Kim, N., Kang, T., & Ha, J. (2020). Relationship between health-related quality of life and blood pressure control in patients with uncontrolled hypertension. *The Journal of Clinical Hypertension*, *22*(8), 1415–1424. https://doi.org/10.1111/jch.13941

Liang, Z., Zhang, T., Lin, T., Liu, L., Wang, B., Fu, A. Z., Wang, X., Xu, X., Luo, N., & Jiang, J. (2019). Health-related quality of life among rural men and women with hypertension: Assessment by the EQ-5D-5L in Jiangsu, China. *Quality of Life Research, 28*(8), 2069–2080. https://doi.org/10.1007/s11136-019-02139-3

Luan, L. V., Long, N. H., & Lan, L. T. H. (2018). Quality of life in patients with chronic obstructive pulmonary disease receiving outpatient treatment at Thai Nguyen central general hospital. *Journal of Nursing Science, 1*(4), 45–50. https://jns.vn/index.php/journal/article/view/120/116

Mannan, A., Akter, K. M., Akter, F., Chy, N. U. H. A., Alam, N., Pinky, S. D., Chowdhury, A. F. Md. N., Biswas, P., Chowdhury, A. S., Hossain, M. A., & Rana, Md. M. (2022). Association between comorbidity and health-related quality of life in a hypertensive population: A hospital-based study in Bangladesh. *BMC Public Health*, *22*, 181. https://doi.org/10.1186/s12889-022-12562-w

Minh, H. V., Huy, T. V., Long, D. P. P., & Tien, H. A. (2022). Highlights of the 2022 Vietnamese Society of Hypertension guidelines for the diagnosis and treatment of arterial hypertension. *The Journal of Clinical Hypertension*, *24*(9), 1121–1138. https://doi.org/10.1111/jch.14580

Ministry of Health. (2016). *National survey on the risk factors of non-communicable diseases (STEPS) Viet Nam, 2015*. Ministry of Health Hanoi, Viet Nam, 5–45.

Niknam, M., Zolfagharypoor, A., Cheraghi, L., Izadi, N., Azizi, F., & Amiri, P. (2024). Blood pressure status, quality of life, and emotional states in adults with different disease awareness

and treatment adherence. *Scientific Reports*, *14*, 26699. https://doi.org/10.1038/s41598-024-77857-x

Prime Minister of Viet Nam. (2015). *Decision no. 59/2015/QD-TTg on the promulgation of the multidimensional poverty standards applicable for the period 2016–2020*. http://vanban.chinhphu.vn/?pageid=27160&docid=203670&classid=1&orggroupid=3

Sang, S., Kang, N., Liao, W., Wu, X., Hu, Z., Liu, X., Wang, C., & Zhang, H. (2021). The influencing factors of health-related quality of life among rural hypertensive individuals: A cross-sectional study. *Health and Quality of Life Outcomes*, *19*, 244. https://doi.org/10.1186/s12955-021-01879-6

Snarska, K., Chorąży, M., Szczepański, M., Wojewódzka-Żelezniakowicz, M., & Ładny, J. R. (2020). Quality of life of patients with arterial hypertension. *Medicina (Kaunas, Lithuania)*, *56*(9), 459. https://doi.org/10.3390/medicina56090459

Son, N. T. (2017). *Quality of life and effectiveness of home-based management and care solutions for patients with type 2 diabetes in Thai Binh Province* [Master's thesis, Thai Binh University of Medicine and Pharmacy].

Trung, T. Q. (2015). *The quality of life and caregiving burden among caregivers of people with dementia in Hanoi, Bac Ninh and Hai Phong, Vietnam* [Thesis of Doctor of Medicine, Queensland University of Technology]. https://eprints.qut.edu.au/82287/1/Quang%20Trung_Truong_Thesis.pdf

Weber, R.-M., Anand, C., Koeder, C., Husain, S., Schoch, N., Kettler, C., Buyken, A., & Englert, H. (2025). Healthy lifestyle changes can improve quality of life: The healthy lifestyle community program (cohort 2; HLCP-2). *Journal of Public Health, 2025*. https://doi.org/10.1007/s10389-025-02409-0

World Health Organization. (1996). *WHOQOL-BREF: Introduction, administration, scoring and generic version of the assessment*. https://www.who.int/publications/i/item/WHOQOL-BREF

World Health Organization. (1998). *The World Health Organization Quality of Life (WHOQOL)*. https://iris.who.int/bitstream/handle/10665/77932/WHO_HIS_HSI_Rev.2012.03_eng.pdf?sequence=1

World Health Organization. (2020). *Physical activity* [Computer software]. https://www.who.int/news-room/fact-sheets/detail/physical-activity

Xiao, M., Zhang, F., Xiao, N., Bu, X., Tang, X., & Long, Q. (2019). Health-related quality of life of hypertension patients: A population-based cross-sectional study in Chongqing, China. *International Journal of Environmental Research and Public Health*, *16*(13), 2348. https://doi.org/10.3390/ijerph16132348

Xu, X., Rao, Y., Shi, Z., Liu, L., Chen, C., & Zhao, Y. (2016). Hypertension impact on health-related quality of life: A cross-sectional survey among middle-aged adults in Chongqing, China. *International Journal of Hypertension*, *2016*, 7404957. https://doi.org/10.1155/2016/7404957

Zhou, B., Carrillo-Larco, R. M., Danaei, G., Riley, L. M., Paciorek, C. J., Stevens, G. A., Gregg, E. W., Bennett, J. E., Solomon, B., Singleton, R. K., Sophiea, M. K., Iurilli, M. L., Lhoste, V. P., Cowan, M. J., Savin, S., Woodward, M., Balanova, Y., Cifkova, R., Damasceno, A., … Ezzati, M. (2021). Worldwide trends in hypertension prevalence and progress in treatment and control from 1990 to 2019: A pooled analysis of 1201 population-representative studies with 104 million participants. *The Lancet*, *398*(10304), 957–980. https://doi.org/10.1016/S0140-6736(21)01330-1