



Psychosocial Determinants of Quality of Life in Hypertensive Patients in Semi-Urban Areas of Indonesia

Grace Irene Viodyta Watung^{1✉}, Ake Royke Calvin Langingi², Sudirman³

¹Program Studi Administrasi Kesehatan Sekolah Tinggi Ilmu Kesehatan Bethesda Tomohon

²Program Studi Administrasi Rumah Sakit Sekolah Tinggi Ilmu Kesehatan Gunung Maria Tomohon

³Program Studi Kesehatan Masyarakat Sekolah Tinggi Ilmu Kesehatan Indonesia Jaya

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Abstract

Hypertension is one of the global public health challenges that reduces patients' quality of life (QoL). Psychosocial determinants such as anxiety, family support, coping mechanisms, perceptions of illness, and motivation to recover play an important role but are often overlooked. Analyzing psychosocial determinants of quality of life among hypertensive patients in semi-urban areas. A cross-sectional study was conducted on 938 hypertensive patients in Kotamobagu City, Indonesia (May–July 2025) using stratified random sampling, data were collected using standard instruments: WHOQOL-BREF (QoL), State-Trait Anxiety Inventory (anxiety), Family APGAR (family support), Coping Inventory (coping mechanisms), Brief Illness Perception Questionnaire (illness perception), and Treatment Self-Regulation Questionnaire (motivation). Chi-square analysis and logistic regression were performed using SPSS 27. Adaptive coping mechanisms were the dominant predictor with the largest contribution in the model (OR = 3.10; Wald = 203.68). Motivation to recover was a strong predictor, but not dominant (OR = 3.67; Wald = 49.00). Positive perception of illness can be used as an additional strong predictor (OR = 3.67; Wald = 30.25). Adaptive coping strategies, including task-oriented, cognitive, emotional, social, and spiritual strategies, as well as social support and resilience, play a dominant role in improving quality of life and managing hypertension.

Introduction

Hypertension, defined as an increase in systolic blood pressure ≥ 140 mmHg or diastolic blood pressure ≥ 90 mmHg, has long been recognized as a major risk factor for morbidity and mortality from cardiovascular disease worldwide (Di Tella *et al.*, 2023; Williams *et al.*, 2018). However, recent epidemiological evidence shows that the global burden of hypertension continues to increase, while awareness, treatment, and control rates remain low (Zhou *et al.*, 2021). In response to this situation, the World Health Organization (WHO) has set a target of reducing the prevalence of hypertension by 33% by

2030. However, achieving this target faces significant challenges given that hypertension is asymptomatic and often goes undetected until it causes serious complications. This makes hypertension a dangerous silent killer, with impacts not only in the form of damage to target organs such as stroke, kidney failure, and heart failure, but also a significant decline in the quality of life (QoL) of sufferers (Trevisol *et al.*, 2011; Williams *et al.*, 2018).

The decline in QoL in hypertensive patients covers various dimensions, including physical health, psychological well-being, and social functioning. This condition is often exacerbated by the burden of diagnosis,

✉ Correspondence Address:
Health Administration Study Program, Sekolah Tinggi Ilmu Kesehatan Bethesda Tomohon
Email: sister.gracewatung@gmail.com

adherence to long-term treatment regimens, and anxiety related to possible complications (Attai *et al.*, 2017; Trevisol *et al.*, 2011). Several preventive and health promotion interventions have been identified, but evidence regarding their optimal effectiveness is still variable and requires further research (Agimas *et al.*, 2024; Dewi & Ayuningtyas, 2023). In addition, there is an urgent need to develop early detection strategies and multidisciplinary approaches that not only focus on clinical aspects but also consider psychosocial determinants in hypertension management (Daga *et al.*, 2025; Murarkar *et al.*, 2023).

In Indonesia, particularly in semi-urban areas such as Kotamobagu City, research on the influence of psychosocial factors on the quality of life of hypertensive patients is still limited. The local socio-cultural context can influence patients' perceptions of hypertension, the level of family support, and the coping strategies used. Initial observations in Kotamobagu City show that hypertensive patients often experience a decline in QoL due to psychological problems such as anxiety and depression, which in turn affect emotional, psychological, and social aspects. However, there is still a knowledge gap regarding how local psychosocial dynamics influence the management of hypertension in this semi-urban area. This emphasizes the importance of more focused and contextual research (Kristinawati *et al.*, 2024).

Recent research confirms that effective management of hypertension not only contributes to improved QoL but also significantly reduces healthcare costs (Nilansari *et al.*, 2024). Conversely, patients' inability to control hypertension has the potential to trigger a cycle of ongoing stress, worsening physical health conditions, and reduced overall QoL (Suyasa *et al.*, 2024). Psychological factors such as depression can even accelerate disease progression and add to the complexity of the burden on patients (Ma *et al.*, 2024; Willame *et al.*, 2022). Based on this description, this study aims to analyze the psychosocial determinants that influence the QoL of hypertensive patients in Kotamobagu City, North Sulawesi. This study is important in the context of primary health care, where the integration of psychosocial aspects into hypertension management is

expected to improve comprehensive health outcomes.

Method

This study employed an analytical cross-sectional design to analyze the psychosocial determinants associated with the quality of life of patients with hypertension. This design was chosen because it is suitable for identifying the relationship between psychosocial factors and quality of life in a large population at a single point in time, particularly in the context of a semi-urban community characterized by a transitional nature between urban and rural areas. The study was conducted in Kotamobagu City, North Sulawesi Province, Indonesia, which is classified as a semi-urban area with varying access to health services and heterogeneous socioeconomic conditions. Data collection took place from April to July 2025.

The dependent variable in this study is the quality of life of patients with hypertension, categorized as high or low quality of life based on the measurement instrument score. Independent variables include: anxiety level, family support, coping mechanisms, perception of the disease, and motivation to recover. Sociodemographic covariates include age, gender, education level, employment status, and duration of hypertension. Data was collected using a structured questionnaire administered through face-to-face interviews. Quality of Life using the WHOQOL-BREF instrument (26 items, 4 domains). Anxiety using the State-Trait Anxiety Inventory instrument (40 items). Family support using the Family APGAR instrument (5 items). Coping using the Coping Inventory instrument (14 items). Perception of illness using the BIPQ instrument (9 items). Motivation to recover: TSRQ (10 items). All instruments have been validated with high reliability ($\alpha > 0.80$). The reliability test yielded a Cronbach's alpha value of >0.70 across all scales, indicating adequate internal consistency.

The study population consisted of all adult patients with hypertension who were registered and undergoing routine checkups at primary health care facilities (*Puskesmas*) in Kotamobagu City. A total of 938 hypertensive patients were selected as respondents through total sampling based on inclusion and exclusion

criteria. Subsequently, hypertensive patients meeting the inclusion criteria were recruited consecutively during the data collection period until the targeted sample size was reached. Inclusion criteria included: (1) age ≥ 40 years, (2) having been diagnosed with hypertension by a healthcare professional for at least six months, (3) ability to communicate verbally, and (4) willingness to participate by signing an informed consent form. Exclusion criteria were patients with severe cognitive impairment, acute medical complications, or psychiatric disorders that could affect their ability to provide accurate responses. Data collection was conducted through face-to-face interviews to ensure the confidentiality and comfort of the respondents. Before the interview began, each respondent was informed of the research objectives, their rights, and the procedures for completing the questionnaire.

The data were analyzed using the Statistical Package for the Social Sciences (SPSS)

version 27. Descriptive analysis was used to describe the characteristics of the respondents and the distribution of the study variables. Bivariate analysis was performed using the chi-square test to assess the relationship between the independent variables and quality of life. The strength of the association was measured using Cramér's V. Variables with a p-value < 0.05 in the bivariate analysis were included in a multivariate logistic regression model to identify factors independently associated with the quality of life of patients with hypertension. The results of the analysis are presented as odds ratios (OR) with 95% confidence intervals, with a statistical significance level set at $p < 0.05$.

Results and Discussion

The demographic details of the respondents obtained in this study, including their educational attainment, age, gender, occupation, and the extent of their suffering, are presented in Table 1 below;

Table 1. Socio Demographic Characteristics (n = 938)

Respondent Characteristics	Total	Percentage (%)
Education		
Primary	14	1.5
Secondary	23	2.5
High school	765	81.5
Higher	136	14.5
Age		
40-50 years	312	33.3
51-60 years	584	62.2
61-70 years	42	4.5
Gender		
Male	452	48.2
Female	486	51.8
Works		
Homemakers	454	48.4
Government employees	269	28.7
Private employees	152	16.2
Retired	42	4.5
Odd jobs	21	2.2
Long suffering		
<5 tahun	657	70.0
≥ 5 tahun	281	30.0

As illustrated in Table 1, the sociodemographic characteristics of the 938 respondents indicate that the majority had received a high school education (81.5%), followed by those who had obtained a college education (14.5%). The majority of respondents were in the 51–60 age group (62.2%), while the 40–50 age group accounted for 33.3% and the 61–70 age group only 4.5%. The gender distribution was relatively balanced, with a slightly higher percentage of women (51.8%) compared to men (48.2%). The employment status of the respondents was as follows: 48.4% were homemakers, 28.7% were civil servants, 16.2% were private-sector employees, 4.5% were retirees, and 2.2% were casual workers. Concerning the duration of illness, 70.0% of respondents had experienced the condition for less than five years, while the remaining 30.0% had suffered from it for five years or more. The variables obtained in this study consisted of: Degree of Hypertension, Dyslipidemia, Physical Activity, Obesity, Diet, Diabetes, High Salt Consumption, Alcohol Consumption, and Smoking. in full can be seen in Table 2 below.

Table 2 presents the frequency distribution of the study variables among 938 respondents with hypertension. In general, the majority of respondents exhibited a predominantly positive psychosocial profile. A total of 68.1% of respondents had a high quality of life, 75.3% experienced mild anxiety, and 68.4% received good family support. Additionally, 68.8% of respondents possessed adaptive coping mechanisms, a positive perception of the illness was reported by 70.4% of respondents, and high motivation to recover was reported by 70.0% of respondents. The proportion of respondents with less favorable conditions, such as low quality of life (31.9%), moderate anxiety (24.7%), poor family support (31.6%), maladaptive coping mechanisms (31.2%), negative perceptions (29.6%), and low motivation to recover (30.0%), fell within a relatively similar range, namely between 24.7% and 31.9%.

Table 3 presents the results of bivariate analysis and simple logistic regression regarding factors associated with quality of life in patients with hypertension. All independent variables

Table 2. Variable Distribution (n=938)

Variables	n (938)	(%)
Quality of Life (QoL) of Hypertension Sufferers		
High	639	68.1
Low	299	31.9
Anxiety in Hypertension Patients		
Mild	706	75.3
Moderate	232	24.7
Family Support for Hypertension Patients		
Good	641	68.4
Not Good	297	31.6
Coping Mechanisms of Hypertension Patients		
Adaptive	646	68.8
Maladaptive	292	31.2
Perceptions of Hypertension Patients Towards Their Illness		
Positive	660	70.4
Negative	278	29.6
Motivation to Recover in Hypertension Patients		
High	657	70.0
Low	281	30.0

Table 3. Risk Factor Distribution with Hypertension (n=938)

Variables	Quality of Life of Hypertension Sufferers						p	Cramér's V	(CI 95%)
	High		Low		Total				
	n	%	n	%	n	%			
Anxiety									
Lightweight	619	66.0	87	9.3	706	75.3	0.021*	0.241	(1.067-6.063)
Medium	20	2.1	212	22.6	232	24.7			
Family support									
Good	599	63.9	42	4.5	641	68.4	0.028*	0.432	(1.825-5.752)
Less	40	4.2	257	27.4	297	31.6			
Coping mechanism									
Adaptive	597	63.6	49	5.2	646	68.8	0.048*	0.228	(2.598-6.834)
Maladaptive	42	4.5	250	26.7	292	31.2			
Perception of disease									
Positive	562	60.0	98	10.4	660	70.4	0.028*	0.441	(1.000-5.928)
Negatives	77	8.2	201	21.4	278	29.6			
Motivation to heal									
Height	594	63.3	63	6.7	657	70.0	0.022*	0.232	(2.888-5.137)
Low	236	25.2	45	4.8	281	30.0			

*Significant (P = <0.05)

showed a statistically significant association with quality of life ($p < 0.05$). Respondents with mild anxiety had a higher proportion of high quality of life (66.0%) compared to low quality of life (9.3%), with a weak association (Cramér's $V = 0.241$; $p = 0.021$) and a 95% confidence interval for the odds ratio ranging from 1.067 to 6.063. Good family support was significantly associated with high quality of life (63.9% vs. 4.5%), showing a moderate strength of association (Cramér's $V = 0.432$; $p = 0.028$; 95% CI = 1.825–5.752). Adaptive coping mechanisms were also significantly associated with high quality of life (63.6% vs. 5.2%), with a weak association (Cramér's $V = 0.228$; $p = 0.048$; 95% CI = 2.598–6.834). A positive perception of the illness was significantly associated with high quality of life (60.0% vs. 10.4%), showing a moderate strength of association (Cramér's $V = 0.441$; $p = 0.028$) with the lower limit of the confidence interval exactly at 1.000 (95% CI = 1.000–5.928). High motivation to recover was also significantly associated with quality of life ($p = 0.022$). Overall, the multivariate analysis revealed a significant model ($p = 0.022$). In the subsequent stage of the research program, the

most significant psychosocial factors affecting the quality of life of patients with hypertension in Kotamobagu City, North Sulawesi, were identified through the implementation of a logistic regression analysis. The independent variables incorporated within the model were those that demonstrated a p-value less than 0.05 in the bivariate analysis (see Table 3). The results of the analysis are presented in Table 4 as follows;

The results of logistic regression analysis in Table 4 show that five factors remain significantly associated with the quality of life of hypertensive patients, with adaptive coping mechanisms being the dominant predictor with the largest contribution in the model (OR = 3.10; Wald = 203.68). Motivation to recover is a strong predictor, but not dominant (OR = 3.67; Wald = 49.00). Positive perception of the disease can be used as an additional strong predictor (OR = 3.67; Wald = 30.25). Adaptive coping mechanisms increase the odds by 3.10 times ($p=0.032$; 95% CI: 2.68–7.67). High motivation to recover increases the odds by 3.67 times ($p=0.049$; 95% CI: 2.16–7.39). Positive perceptions of illness increase the odds by 3.67

Table 4. Logistic Regression Analysis (n=938)

Variables	B	SE	Wald	df	OR	p	95% CI for Exp (B)	Variables
(Constant)	-	-	0.000	1	3.641	<0.05	Lower	Upper
Anxiety	1.024	0.324	9.990	1	2.783	0.036	1.479	7.883
Family support	3.268	1.634	4.002	1	3.478	0.027*	2.131	8.014
Coping mechanisms	2.326	0.163	203.68	1	3.102	0.032	2.684	7.667
Perception of illness	1.298	0.649	30.25	1	3.669	0.030	2.464	8.886
Motivation to recover	4.326	0.615	49.00	1	3.668	0.049	2.162	7.390

times ($p=0.030$; 95% CI: 2.46–8.89). Good family support increases the odds by 3.48 times ($p=0.027$; 95% CI: 2.13–8.01). Finally, mild anxiety increases the odds of high quality of life by 2.78 times ($p=0.036$; 95% CI: 1.48–7.88). The results of this study confirm that psychosocial determinants have a profound influence on the quality of life (QoL) of people with hypertension. Adaptive coping mechanisms emerge as a dominant factor, while recovery motivation, perception of illness, family support, and anxiety also play a significant role in determining the well-being of patients. This is in line with previous studies that confirm that psychosocial aspects have a strong influence on the well-being of patients with chronic diseases (Manihuruk *et al.*, 2024; Wahyuni *et al.*, 2025).

This study shows that quality of life in hypertensive patients is multifactorial, going beyond mere clinical control of blood pressure. Adaptive coping mechanisms are the main predictors of a better quality of life. Coping strategies in hypertensive patients in semi-urban communities involve a combination of cognitive, emotional, social, and spiritual approaches. The semi-urban environment, which has characteristics between urban and rural areas, influences the choice and effectiveness of patients' coping strategies, including Cognitive and Emotional Coping, where hypertensive patients in semi-urban areas tend to use cognitive strategies (such as planning and problem solving) and emotional debriefing to adjust to chronic illness. These strategies have been shown to increase personal and relational resilience (Boima *et al.*, 2023). Next is Collective Coping and Social Support, namely support from family and friends, which is very important. Patients with strong social

networks are more likely to use collective and cognitive coping, which is associated with increased resilience and better hypertension management outcomes (Boima *et al.*, 2023; Fikriana, 2022). Spiritual coping refers to the tendency for patients to increase their use of spiritual coping strategies, such as praying or seeking religious meaning, when diastolic blood pressure increases. This has also been found to play a role in reducing stress (Boima *et al.*, 2023).

In addition, coping strategies also have a direct relationship with the clinical outcomes of hypertensive patients in semi-urban areas, for example, Task-Oriented Coping, which involves actively seeking information and following treatment. Emotion-Oriented Coping and Maladaptive Coping are also significantly related to better blood pressure control and reduced anxiety (Adoma *et al.*, 2023; Fikriana, 2022). This indicates that the way patients cognitively and behaviorally manage stress and disease challenges is very important. Several studies have suggested that adaptive coping strategies, such as cognitive coping and affirmation, can reduce the impact of depression and anxiety on the quality of life of patients with hypertension and pulmonary hypertension (Rawlings *et al.*, 2022). Psychological interventions targeting the improvement of adaptive coping are important for improving patients' QoL.

Specifically, in the results of this study, adaptive coping mechanisms emerged as the dominant predictor of quality of life for people with hypertension in semi-urban areas. Studies of elderly people in semi-urban areas show that 75% of respondents with a good quality of life use adaptive coping. Logistic regression analysis shows that adaptive coping increases

the chances of a good quality of life more than fivefold (Sartika *et al.*, 2025). Specifically, in the results of this study, adaptive coping mechanisms emerged as the dominant predictor of quality of life for people with hypertension in semi-urban areas. Studies of elderly people in semi-urban areas show that 75% of respondents with a good quality of life use adaptive coping. Logistic regression analysis shows that adaptive coping increases the chances of a good quality of life more than fivefold (Iqbal *et al.*, 2021; Pérez-Chacón *et al.*, 2023; Sartika *et al.*, 2025). This supports the concept that patients' ability to manage stress and challenges related to hypertension greatly determines how they adapt psychologically and socially (Manihuruk *et al.*, 2024). Effective coping mechanisms can reduce the negative impact of anxiety and increase positive perceptions of health conditions, which ultimately improves quality of life. Furthermore, a longitudinal study of hypertensive patients found that emotion-focused coping strategies act as a significant mediator between perceived stress and quality of life (QoL), suggesting that improving coping skills can directly mitigate the negative effects of stress (Demichelis *et al.*, 2023).

In addition, several studies have also demonstrated that interventions designed to improve adaptive coping strategies (mindfulness and cognitive restructuring) produce statistically significant improvements not only in psychological disorders but also in systolic and diastolic blood pressure readings (AlKhabbaz *et al.*, 2022; Lee *et al.*, 2020; Mohammed *et al.*, 2024). This suggests a potential psychophysiological pathway whereby effective coping influences both mental well-being and biomedical outcomes, ultimately improving overall QoL in hypertensive patients. Furthermore, this study also found that recovery motivation and positive perceptions of illness were additional strong predictors in hypertensive patients in semi-urban areas. High recovery motivation encourages patients to be more active in disease management, including adherence to treatment and lifestyle changes, which contribute to better health outcomes (Huang *et al.*, 2023). Positive perceptions of the disease, which include realistic understanding and acceptance of the condition, help reduce

emotional stress and improve psychological well-being (Crepaldi *et al.*, 2024).

These findings confirm that the quality of life of hypertensive patients is not solely determined by clinical factors, such as blood pressure or medical complications, but is also greatly influenced by the psychological, social, and motivational conditions of the patient. A holistic approach to hypertension management that involves psychosocial interventions is believed to have a more significant impact on improving patients' quality of life than approaches that focus solely on medical aspects (Li *et al.*, 2025). The results of this study prove that the management of hypertension requires the integration of psychosocial assessment and intervention in clinical practice. This multidimensional approach is important for identifying factors that hinder and support quality of life, as well as designing targeted interventions. In practical terms, interventions should not only focus on medical therapy but also include psychosocial aspects. Community health centers need to develop educational programs to train coping strategies, motivational counselling, and campaigns to build positive perceptions of hypertension. Family support must also be facilitated so that families can play an active role as companions in treatment. This study has limitations, namely a cross-sectional design that does not allow for the determination of causal relationships and a limited geographical coverage to one semi-urban city.

Conclusions

This study concludes that adaptive coping strategies, including task-oriented cognitive, emotional, social, and spiritual coping as well as social support and resilience, play a dominant role in improving quality of life and managing hypertension. Therefore, community-based interventions that strengthen adaptive coping and minimize maladaptive coping are crucial for achieving optimal physical and psychosocial outcomes. Community health centers need to develop educational and mentoring programs to teach coping strategies and provide motivational counseling, as well as conduct campaigns to foster a positive perception of hypertension. This study has limitations, namely

a cross-sectional design that does not allow for the determination of causal relationships and a geographical scope limited to a single semi-urban city.

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