

Quality of Life of Patients with Hypertension in Primary Health Care in Bandar Lampung

Sudewi Mukaromah Khoirunnisa* and Atika Dalili Akhmad

Department of Pharmacy, Institut Teknologi Sumatera, Jl. Terusan Ryacudu, Way Huwi, Jati Agung, Lampung Selatan, Lampung 35365

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*Corresponding author
Sudewi Mukaromah K

Email:
sudewi.mukaromah@
fa.itera.ac.id

ABSTRACT

The high prevalence of hypertension in Indonesia encourages studies related to how the quality of life of patients with hypertension. The purpose of this study was to measure the quality of life, identify, and explain factors related to the quality of life of patients with hypertension. The study design was an associative descriptive design using a cross-sectional study approach. The study subjects were all outpatient hypertensive patients from several health centers in Bandar Lampung. The instrument used in this study was the Indonesian SF-36. The data collected included the patient demographic characteristics, including gender, age, education, occupation, and marital status, and the fields related to the medical history of the study subjects, including the duration of hypertension, complications, and the number of antihypertensive drugs consumed. Data were analyzed using the bivariate analysis to see the association between two use of them. Multivariate analysis was conducted to study the association of several independent variables with one or several dependent variables. The results of the univariate analysis showed that age, marital status, duration of illness, complications, and the number of drugs consumed affected the quality of life of hypertensive patients ($p < 0.05$). The results of multivariate analysis showed that the factors of age, marital status, and duration of hypertension were factors that influenced the physical domain. In contrast, whereas gender, marital status, duration of hypertension, complications, and the number of drugs were influential factors in the mental domain.

Keywords: Hypertension, Quality of Life, SF-36 physical and mental component summary

INTRODUCTION

Data from the World Health Statistics in 2012 revealed that as many as 57 million of the world's population died, of which 36 million (63%) died of Non-Communicable Diseases (NCDs). Of the total deaths, an increase in blood pressure or hypertension is one of the main risk factors associated with 13% of population deaths. Hypertension is reported to be the 4th cause of premature death in developed and seventh countries in developing countries (Shah and Afzal, 2013). It is estimated that by 2025, as many as 1.56 billion adults will suffer from hypertension (Bell *et al.*, 2015). According to Riskesdas 2018, the prevalence of hypertension in Indonesia increases from 25.8% in 2013 to 32.2% in 2018. The trend was similar in Lampung Province, with a 29.94%

incidence in 2018, whereas the prevalence was 25% in 2013 (Balitbangkes, 2018).

The main goal in the treatment of hypertension is to reduce long-term cardiovascular risk. Today, recent studies have focused on the quality of life for hypertensive patients to improve daily functioning, minimize physical and psychological suffering, and enable full participation in family and social life. Quality of life assessment is an essential study in hypertensive patients because this condition is a risk factor for cardiovascular disease, so it has a significant impact on the physical, social and mental domains that determine overall well-being and patient status. Both of these factors are highly correlated with other chronic diseases, such as diabetes and kidney disease (Theodorou *et al.*, 2011;

Zygmuntowicz, 2012). Most of these studies have shown that hypertension affects vitality, social function, mentality, health, emotions, and psychological functions (Theodorou *et al.*, 2011). Patients with hypertension with complications have a low score, especially in the domain of the physical function, pain, and energy when measured using Bulpitt and Fletcher's Questionnaire and SF-36 (Zygmuntowicz, 2012; Gusmão, 2009).

Based on this background, the measurement of quality of life is essential to assess the health status of patients with hypertension, especially factors related to therapy for patients with hypertension that can affect the quality of life. The increasing trend in the number of hypertensive sufferers in Lampung Province makes this study important so that it can improve treatment management and improve the quality of life for hypertensive patients.

MATERIAL AND METHODS

The research method used in this study was a descriptive correlation using a cross-sectional study approach. A Descriptive correlation aims to describe the association between variables. Cross-sectional research was a study conducted without treatment of respondents, and this study aims to study whether there was an association between independent and bound variables, where both types of variables were observed at the same time (Arikunto, 2006). Understanding at the same time here does not mean that observation or questioning on all objects for all variables is done at one time, but each subject was observed or questioned only once, both for the independent variable and the dependent variable.

Research subject

The procedure for taking subject research was done by non-probability sampling with the accidental sampling technique, which was done by taking respondents who happen to be available or meet the research inclusion criteria. The study subjects were all hypertensive patients who underwent outpatient care at eight health centers in Bandar Lampung. The inclusion criteria were patients with a diagnosis of hypertension with or without complications, 20-75 years old, patients undergo outpatient care, can read and understand the questionnaire, and willing to participate in research. The exclusion criteria were patients who did not complete the questionnaire. The sample size was determined by using a minimum sample

formula (n) (Hosmer *et al.*, 1997). The formula to calculate sample size in this research was:

$$n = \frac{Z_{1-\frac{\alpha}{2}}^2 \cdot p \cdot (1 - p)}{d^2}$$

n : minimum sample size; $Z_{1-\alpha/2}$ degree of confident ($Z_{1-\alpha/2} = 1.96$); P: population ($p=0.5$); d: deviation ($d=0.07$). In this research, the number of subjects was 134 patients.

Research ethics

This research was conducted after obtaining permission to research ethics committee approval by the Medical and Health Research Ethics Committee Faculty of Medicine Gadjah Mada University No. KE/FK/0963/EC/2018

Data analysis

The categorical data such as gender, age, education, occupation, marital status, duration of hypertension, complications, and the number of antihypertensive drugs consumed were explained by percentage or proportion measures. Bivariate analysis was conducted to evaluate the association between variables, namely the association of independent variables (gender, age, education, occupation, marital status, obesity, duration of hypertension, complications, and the number of antihypertensive drugs consumed) with the dependent variable (quality of life). In this study, the quality of life domain in the SF-36 questionnaire was summarized as Physical Component Summary (PCS) and Mental Component Summary (MCS). The significance level used is 5% ($\alpha = 0.05$), with the value of the confidence interval set is 95%. The association between independent variables with one dependent variable was analyzed using multivariate analysis.

RESULT AND DISCUSSION

Patient demographic data

This study was conducted on eight health centers in Bandar Lampung City from April to July 2018, obtained 134 hypertensive patients (Table I). Illustrates that most hypertensive patients in health centers in Bandar Lampung are aged 60-81 years, are female, have partners, graduate from high school, are retired, earn Rp. 3,000,000 - Rp. 4,000,000, had suffered from hypertension for more than ten years, had complications, and the number of hypertension drugs consumed was two types (Table I).

Table I. Patients' demographic data

	Variable	N	%
Age	42-50	35	26.12
	51-59	37	35.07
	60-81	52	38.81
Sex	Female	61	45.52
	Male	73	54.48
Marital Status	With Partner	84	62.69
	With Out Partner	50	37.31
Education	School	130	97.01
	Not School	4	2.98
Occupation	Working	81	60.45
	Not Working	19	14.18
	Retired	34	25.37
Income	<Rp 1,000,000	13	9.70
	Rp 1,000,000-Rp. 2,000,000	19	14.18
	Rp 2,000,000-Rp. 3,000,000	41	30.60
	Rp 3,000,000-Rp. 4,000,000	49	36.57
	>Rp 4,000,000	12	8.96
Duration of Hypertension	<10 Years	83	61.94
	>10 Years	51	38.06
Complication	Yes	21	15.67
	No	113	84.33
Number Drug Use	1	47	35.07
	2	79	58.96
	>2	8	5.79

The results showed that the distribution of hypertensive patients in Bandar Lampung City health centers in 2018, out of a total of 134 patients, were 54.48% female. This result is following the study of Sari *et al.* (2017) that hypertensive patients are dominated by women (73%). Based on age, the age distribution of hypertensive patients in this study showed 38.81% aged 60-81 years. Blood pressure increases with age, and hypertension is a disease that mostly affects the elderly. The incidence of hypertension in the elderly has a high prevalence of 60-80% at the age of 65 years (Kustanti, 2012). Based on job characteristics, there were 25.37% of hypertensive patients who were retirees. This result is following Annisa's study (2013), which states that the majority of subjects do not work. The income of hypertensive patients in this study showed that 36.57% had sufficient income. Individuals with sufficient socioeconomic status will be able to provide all the facilities needed to fulfill their daily needs.

Conversely, individuals with low socioeconomic status will experience difficulties in

fulfilling their life needs. Low income will be related to the use of health services and prevention. Someone does not take advantage of existing health services, perhaps because they do not have enough money to buy medicine or pay transportation to the hospital (Notoatmodjo, 2012).

Quality of life of hypertension patients

The average score for PCS was 39.32, and MCS was 29.53 (Figure 1). Mental domains affect the quality of life of hypertensive patients more than the physical domain caused by a diagnosis of the disease, the use of long-term therapy, and symptoms of hypertension. This result is in line with the research conducted by Bhandari *et al.* (2016) with an average score of PCS of 48.22 and MCS of 38.74. The physical domain was more dominant than the mental domain. Analysis of the association of age to the quality of life of hypertensive patients was found that patients aged 60-81 had a lower quality of life than other age groups (Table II). The results of statistical tests using ANOVA obtained p values below 0.05, so it can be concluded that there is an association

Psycal and Mental Quality of Life of Hypertension Patients

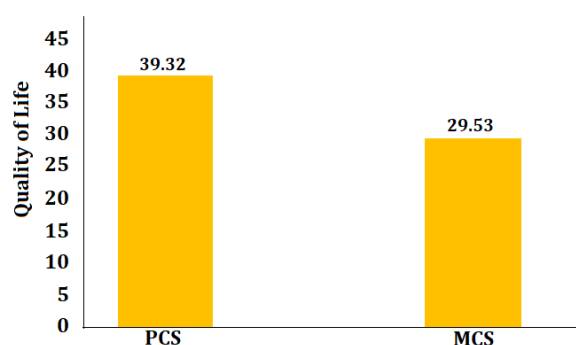


Figure 1. PCS and MCS score of hypertension patients

Table II. The relationship between PCS, patients' demographic data and clinical variable

Variable	Number (n=134)	Average	SE	Test Statistic Value	P	95% CI
Age	42-50	35	47.89	34.116 ^a	0.000 ^c	54.32-58.43
	51-59	47	40.45			45.67-47.11
	60-81	52	32.18			39.29-46.88
Sex	Male	61	48.98	4.32 ^b	0.17 ^c	2.56-6.71
	Female	73	46.21			
Marital Status	With partner	84	52.87	6.89 ^b	0.000 ^c	6.71-9.43
	Without partner	50	43.11			
Education	School	130	43.56	9.54 ^b	0.08 ^c	5.23-6.40
	Not School	4	39.80			
Occupation	Working	81	41.48	7.46 ^b	1.32 ^c	3.76-6.11
	Not working	19	37.11			
	Retired	34	46.76			
Income	<Rp.1,000,000	13	43.51	3.43 ^b	0.12 ^c	1.32-3.19
	Rp.1,000,000-Rp.2,000,000	19	44.80			
	Rp.2,000,000-Rp.3,000,000	41	45.76			
	Rp.3,000,000-Rp.4,000,000	49	47.11			
	>Rp.4,000,000	12	45.54			
Duration of hypertension	< 10 years	83	57.30	5.92	0.000 ^c	38.71-45.21
	>10 years	51	39.08			34.04-44.70
Complications	No	21	36.78	3.90 ^b	0.001 ^c	13.67-19.05
	Yes	113	44.63			
The number of drugs used	1	47	34.67	3.19 ^b	0.000 ^c	2.76-5.93
	2	79	45.90			

^a=f-value (ANOVA); ^b= t-value (t-test); ^c= significant (p<0.05), CI = Confidence Interval

between age and quality of life of hypertensive patients for physical domains. The similar result was found in marital status (CI: 6.71-9.43, p<0.05). Meanwhile, the test of association was not significant between PCS and sex (CI: 2.56-6.71, p:0.17), education (CI:3.76-6.11, p:0.08, occupation (CI:3.76-6.11, p:1.32), and income (CI:1.32-3.19, p:0.12). PCS has indicated that association between duration of hypertension (CI:38.71-45.21, p<0.05), complications (CI:13.67-19.05, p<0.05), and the

number of drugs used (CI:2.76-5.93, p<0.05) (Table II).

Age, sex, and marital status have an association with the mental domain. However, education, occupation, and income do not affect the quality of life in terms of the mental domain of hypertension patients (Table III).

Multivariate analysis result of factors in association of PCS score (Table IV). Age (CI:-1.93 to

Table III. The relationship between MCS, patients' demographic data and clinical variable

	Variable	Number (n=134)	Average	SE	Test Statistic Value	P	95% CI
Age	42-50	35	47.03	0.65	29.543 ^a	0.000 ^c	42.19-48.72
	51-59	47	40.51	0.45			43.70-47.19
	60-81	52	33.79	0.21			39.02-41.59
Sex	Male	61	46.16	0.37	3.09 ^b	0.000 ^c	4.59-7.32
	Female	73	40.08	0.29			
Marital status	With partner	84	53.32	0.34	8.80 ^b	0.001 ^c	5.40-7.98
	Without partner	50	43.40	0.48			
Education	School	130	44.03	0.32	7.94 ^b	0.14 ^c	7.29-9.49
	Not School	4	41.32	0.72			
Occupation	Working	81	41.27	0.56	3.41 ^b	2.91 ^c	4.41-5.07
	Not working	19	36.70	0.32			
	Retired	34	45.98	0.48			
Income	< Rp. 1,000,000	13	44.19	0.39	2.73 ^b	0.32 ^c	1.56-3.50
	Rp.1,000,000-Rp.2,000,000	19	44.87	0.48			
	Rp.2,000,000-Rp.3,000,000	41	45.32	0.56			
	Rp.3,000,000-Rp.4,000,000	49	46.97	0.91			
	>Rp.4,000,000	12	45.49	0.76			
Duration of hypertension	<10 years	83	58.43	0.23	3.12 ^a	0.000 ^c	33.93-40.51
	>10 years	51	37.01	0.91			35.23-47.98
Complications	No	21	43.23	0.34	2.92 ^b	0.001 ^c	25.64-32.53
	Yes	113	38.23	0.60			
The number of drugs used	1	47	43.90	0.30	3.04 ^b	0.000 ^c	1.79-3.9
	2	79	39.32	0.21			
	> 2	8	34.96	0.83			

^a=f-value (ANOVA); ^b= t-value (t-test); ^c= significant (p<0.05), CI = Confidence Interval

Table IV. Multivariate analysis of factors contributing to the quality of life of hypertension patients in the physical domain and mental domain

	Variable	Co-efficient	Beta	P	95% CI
PCS	Age	-3.176	-0.129	0.000 ^a	-1.93-2.74
	Marital Status	-4.981	-0.291	0.000 ^a	-5.32-0.17
	Duration of hypertension	0.736	-0.437	0.000 ^a	-1.98-2.39
	Complications	-1.762	-0.120	0.245	-2.65-1.98
	The number of drugs used	-0.913	0.047	0.152	-2.37-1.74
MCS	Age	-2.146	-0.312	0.078	-1.72-2.43
	Sex	-2.672	-0.483	0.000 ^a	-2.49-3.21
	Marital Status	-3.901	-0.324	0.000 ^a	-5.45-0.71
	Duration of hypertension	0.931	-0.472	0.001 ^a	-1.43-2.18
	Complications	-1.821	-0.207	0.001 ^a	-2.39-1.40
	The number of drugs used	-0.703	0.032	0.000 ^a	-2.30-1.21

-2.74, p<0.000), marital status (CI:-5.32 to -0.17, p <0.000), and duration of hypertension (CI:-1.98 to -2.39, p<0,000) has a significant association with physical domains. The result of multivariate regression in mental domain shows that gender (CI:-2.49 to -3.21, p<0.000), marital status CI:-5.45

to -0.71, p<0,000), duration of hypertension CI:-1.43 to -2.18, p<0.001), complications CI:-2.39 to -1.40, p<0.001), and the number of drugs used CI:-2.30 to -1.21, p<0.000) contributed significantly to quality of life. In this study, age was identified as the main factor of QoL in the physical domain. With

increasing age, there is an increasing illness due to affect not only physiological and functional changes but also physical aspects. The economic problem is related to the ability to access the appropriate treatment for the illness. Some studies reveal that older age is mostly related to lower quality of life because they have lower scores in physical and mental domains. This result is consistent with other studies where lower scores were identified in PCS (Bardage *et al.*, 2001; Youssef *et al.*, 2005; Zygmuntowicz, 2012). In this study, age is a significant factor contributing to the physical domain, while it is not significant in the mental domain. Gender is a factor that influences the quality of life of hypertensive patients in the mental domain with a higher quality of life in men than women. Theoretically, women are weaker physically and easily fatigued. This study is consistent with other studies that women have a low quality of life in the mental domain (Castro *et al.*, 2012; Erickson *et al.*, 2004).

Marital status has a significant score as a factor that influences the quality of life of hypertensive patients in the physical and mental domains. Patients who live with partners have a better quality of life than those who live alone. This finding may be influenced by the support they might receive from their partners, and they do not have someone they want to talk to and ask for help. Psychosocial health problems and feelings of loneliness are more common among those who live alone than those who live with their families because of a lack of emotional support in the family and society. This finding is consistent with several studies that reveal that married patients who live together with their partners have a higher score than those who do not live with their partners (Bardage *et al.*, 2001; Youssef *et al.*, 2005; Ha *et al.*, 2014; Carvalho *et al.* 2013; Al-Mandhari *et al.*, 2011). In this study, the duration of hypertension is factors that influence the quality of life in hypertensive patients in both the physical and mental domains in multivariate analysis. Several studies [22,30,31,33,34] show significant findings with the duration of disease (Carvalho *et al.*, 2013; Al-Mandhari *et al.*, 2011; Holt *et al.*, 2010; Erickson *et al.*, 2004; Zygmuntowicz, 2013). This study shows a significant association between MCS with complications and the number of drugs. The results of this study are consistent with several studies that show significant differences in the reporting of symptomatic patients higher in MCS (Holt *et al.*, 2010; Erickson *et al.*, 2004; Ogunlana *et al.*, 2009).

Study limitation

This study used SF-36 as a universal tool to measure the quality of life of hypertension patients. SF-36 is a widely used instrument to measure the quality of life of patients in various aspects such as social, function, emotional, and physical, which has good validity and reliability. Nevertheless, the hypertension-specific tool is needed to assess the quality of life in order to provide more detail information and responsive result.

CONCLUSION

According to the result of this research, the quality of life of hypertension patients in the mental domain was lower than the physical domain. Age and marital status were the most influential factor for both in Mental Component Summary and Physical Component Summary. The quality of life in the physical domain was influenced by age, marital status, and duration of hypertension. However, gender, marital status, duration of the disease, complication, and the number of drugs used were factors that significantly influenced the mental domain.

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