Factors Affecting Quality of Life of Post-Acute Coronary Syndrome Patients in Indonesia

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Abstract

BACKGROUND: This study was to examine potential factors associated with quality of life of post-acute coronary syndrome (ACS) patients.

AIM: This study needs to be done because studies about post-ACS patient populations in Indonesia are limited.

METHODS: It was a quantitative research with a descriptive-analytic approach. Post-ACS patients (n = 100) were taken from a central referral hospital in West Java Province, Indonesia. The dependent data were quality of life and measured using MacNew QLMI. The independent data were depression measured using Zung SDS, severity level, and knowledge, and demography data were measured using instruments developed by researchers. Statistical analysis was carried out in stages from univariate, bivariate, and multivariate.

RESULTS: Data showed that 58% patients had a good quality of life, 36% patients had CAD without significant stenosis, and 33% got mild depression. About 59% patients got underwent revascularization, 52% had difficult time to hospital, 94% had BPJS insurance, and 86% were Sundanese. Bivariate analysis (CI 95%) showed that there was a significant correlation between depression and quality of life (p = 0.000), severity level (p = 0.033), type of intervention (p = 0.011), and also access to hospital (p = 0.002). Multivariate analysis showed that depression was the most significant factor associated with QOL (OR = 4.637, p < 0.05).

DISCUSSION: Seven factors studied, only four factors significantly related to the quality of life of post-ACS patients, they were severity, depression, last medical treatment, and travel time to the hospital.

CONCLUSION: Depression was the most significant factor related to the quality of life of post-ACS patients in this study. Changes in physical, emotional, and social conditions will affect depression. The findings of this study are expected to be evidence based for hospital institutions in identifying the quality of life of post-acute coronary syndrome patients.

Introduction

The incident of heart disease is increasing and leads to death if it's not treated immediately. According to the Sustainable Development Goals report, cardiovascular disease is the leading cause of premature death before 70 years old in the world [1]. Globally, about 17.9 million people died from cardiovascular disease and 85% caused by acute coronary syndrome (ACS) [2]. The prevalence of coronary heart disease (CHD) in Indonesia diagnosed by doctors was about 2,650,340 people with the highest incidence (3.6%), which was in 65−74 years old population, followed by the age group > 75 years old (3.2%) [3]. One of the provinces in Indonesia, West Java, is a province with a high CHD prevalence. It is ranked 12th out of 33 provinces in Indonesia accounted for 1.6% or about 514,597 people who were diagnosed with CHD [4].

One indicator of the successful treatment of post-acute coronary syndrome patients can be seen from the improvement of the quality of life. Quality of life (QoL) is a person's perception of his life related to the cultural context, the value system in the environment, where he lives to achieve goals, expectations, and standard of living in the form of physical health, psychological, self-confidence, and social relations [5].

The quality of life of patients with acute coronary syndrome (ACS) depends not only on easy access to medical services, risk factors, and severity but also influenced by demographic, psychosocial factors, gender, education level, income, and family and social support [6], [7], [8], [9], [10].

Studies about factors related to the quality of life of ACS patients in Indonesia are still limited [10]. It needs to do that kind of study due to several considerations, such as the differences in patients' characteristics, sociocultural, and also the differences in research time and measuring instruments used. In addition, some research that has been done in Indonesia did not explained all the factors that will be examine in this study yet. Therefore, this study aims to examine factors that effected with the quality of life of post-acute coronary syndrome patients. Thus, the most significant factor related to the quality of life of post-ACS patients can be determined.

Methods

Study design

Quantitative research with a descriptive analytic approach was conducted on post-acute coronary syndrome patients treated in a central referral hospital in the province of West Java, Indonesia to examine factors related to quality of life. Data were collected in 2019, from 20 June to 20 July, to patients who came to the hospital.

Sample and setting

Post-ACS patients were recruited by consecutive sampling technique. Subjects taken were adjusted according to inclusion criteria, including: patients aged < 70 years with good cognitive, patients who did not experience severe visual impairment and hearing impairment, patients who could read and write, and patients 2 weeks post-treatment. Thus, 100 outpatients were registered as research respondents and completed filling in the data from the questionnaire provided by the researcher.

Instruments

Data about patients' quality of life were measured using the MacNe-Quality of Life instrument after Myocardial Infarction Questionnaire (MacNew-QLMI) [11] and obtained approval from the instrument developer. MacNew-QLMI has three domains, those are emotional, physical, and social. The validity showed, r count > r table (0.197) and also declared reliable with a Cronbach's alpha (0.937).

Depression level data were collected using Zung Self-Rating Depression Scale (SDS) instrument [12]. The SDS consisted of 20 statements describing the patient's depression status consisting of positive and negative statements. The validity test showed, r count > r table (0.197) and also declared reliable with a Cronbach's alpha value of 0.821.

The level of knowledge data was measured using an instrument consist of 17 questions with 5 items (knowledge when a heart attack occurs, lifestyle, drugs, activities, and psychology when an attack occurs) with the right or wrong choice. The validity test showed r count > r table (0.197) and also declared reliable with a Cronbach alpha value of 0.739. Respondents' knowledge level is categorized into three, those are: good (76%−100%), sufficient (56%−75%), and less (<56%).

Data analysis

Statistical analysis was carried out gradually starting from univariate, bivariate, and multivariate. Univariate analysis aims to explain or describe the characteristics of each variable in the study. Bivariate analysis aims to determine the correlation between independent and dependent variables and proves the hypothesis that the researchers have formulated. In this study, there are two types of tests used in bivariate analysis. Independent variables with ordinal data scale were analyzed using somers'D gamma, and independent variables with nominal scale used contingency coefficient and lambda [13], [14], [15].

Multivariate analysis aims to determine the independent variables that are most related to quality of life. Multivariate analysis in this study used logistic regression test with enter method. After the analysis results came out, the researcher checked the confounding factor by looking at the difference in the value of the Exp B/odd ratio that should not exceed 10% [14].

Ethical consideration

This study passed and was approved by two ethical institutions, including the ethical institution of the research hospital (No.LB.02.01/X.6.5/94/2019) and the leading public health education research ethics institution in West Java (No.532/UN6.KEP/EC/2019).

Results

Respondent demographic data are presented in Table 1. Table 2 explained that the average of patients' quality of life score is 112.57 (Good), emotional domain of the patients quality of life score is 60.27 (Good), physical domain of the patients quality of life score is 56.78 (Good), social domain score of the patients quality of life is 55.24 (Good), patients' depression score is 55.92 (Mild), and the average the patients knowledge score is 65.93 (Enough). Table 3 presents a multivariate analysis of the variables in this study.

Discussion

This study showed a general overview of the quality of life of post-acute coronary syndrome patients in one of the referral hospital in west java. More than half from the total respondents (58 respondents, 58%) had good quality of life. The data showed that other factors, including severity, depression, last medical treatment, level of knowledge, travel time to hospital, availability of health insurance, and cultural background, had a correlation with the quality of life of post-ACS patients. This

Table 1: Characteristics of respondents

Characteristics (n = 100)	Quality of life		n (%)
	Good	Poor	
Age (years)			
17–25	0	1	1
26–45	5	6	11
46–55	18	8	26
56–65	20	20	40
>65	15	7	22
Gender			
Male	48	24	72
Female	10	18	28
Marital status			
Married	56	41	97
Single	2	1	3
Last education			
Primary	20	23	43
Secondary	24	13	37
Tertiary	14	6	20
Employment			
Unemployed	17	24	41
Private-employees	21	11	32
Others	20	7	27
Income			
1,000,000–2,900,000	21	24	45
3,000,000–3,500,000	14	7	21
>3,500,000	23	11	34
Other diseases (related to cardiac)			
Diabetes/hypertension/kidney-disease	13	13	26
>1 disease	7	10	17
No disease	38	19	57
QoL			
Good			58
Poor			42
Emotional			
Good	55	9	64
Poor	3	33	36
Physical			
Good	50	2	52
Poor	8	40	48
Social			
Good	52	8	60
Poor	6	34	40
Severity level			
Angina without significant stenosis	15	21	36
CAD 1-stenosis	21	8	29
CAD 2-stenosis	2	4	6
CAD 3-stenosis	7	5	12
CAD 4-stenosis	8	1	9
CAD 5-stenosis	4	3	7
CAD 6-stenosis	1	0	1
Depression			
No-depression	29	3	32
Mild-depression	21	12	33
Moderate-depression	8	15	23
Severe-depression	0	12	12
Type of intervention			
Medication	17	24	41
Revascularization	41	18	59
Time to hospital			
Easy	35	13	48
Difficult	23	29	52
Health-insurance			
BPJS (nonprivate insurance)	55	39	94
Non BPJS (private insurance)	3	3	6
No health insurance	0	0	0
Cultural-background			
Sundanese	49	37	86
Nonsundanese	9	5	14

CAD: Coronary artery disease, BPJS: Badan Penyelenggara Jaminan Sosial, QoL: Quality of life.

is in accordance with the research conducted by Anchah *et al.* [16], which stated that without cardiac rehabilitation intervention, the quality of life of patients with ACS does not reach satisfactory levels during the study period.

Bivariate analysis showed that there was a significant correlation between the severity and quality of life of post-ACS patients. This is consistent with the analysis

Table 2: Mean and median

Characteristics	Mean	Median
Quality of life	112.57	112.00
Emotional-domain	60.27	59.50
Physical-domain	56.78	57.00
Social-domain	55.24	55.00
Depression	55.92	55.00
Knowledge	65.93	70.58

Table 3: Multivariate analysis

Variable	p (significance)	OR	95% CI	
			Lower	Upper
Step 1				
Severity-level	0.977	1.006	0.659	1.536
Depression	0.000	4.460	2.317	8.586
Type of intervention	0.588	0.754	0.271	2.097
Travel-time	0.315	1.702	0.604	4.802
Step 2				
Depression	0.000	4.458	2.319	8.571
Type of intervention	0.457	0.762	0.372	1.560
Travel-time	0.313	1.704	0.606	4.796
Step 3				
Depression	0.000	4.637	2.438	8.819
Travel-time	0.328	1.675	0.595	4.715

OR: Odds ratio, CI: Confidence interval.

between severity and quality of life per domain in this study which stated that the most significant correlation is physical domain. This is confirmed by Moriel *et al.* [17], who revealed that the severity affected the quality of life of post-ACS patients obtained by the presence of obesity, comorbidities such as diabetes mellitus and uncontrolled hypertension. This is consistent with the results of this study that as much as 43% of post-ACS patients had comorbidities such as diabetes mellitus, hypertension, and both.

Bivariate analysis between depression and quality of life of post-ACS patients showed that there was a significant correlation. This is also reinforced from the results of analysis on the three domains of quality of life which states that there is a significant correlation between depression with emotional, physical, and social domains, so it can be interpreted that depression can disrupt the overall domain on quality of life. This is reinforced by Vaccarino *et al.* [18], who revealed that depression is the strongest predictor of quality of life for patients with chronic heart disease that has a greater impact than symptoms related to the severity of heart disease.

Other bivariate analysis between the types of intervention with the quality of life of post-ACS patients showed that there was a significant correlation. This is strengthened by the results of analysis between the types of interventions and each domain of quality of life which stated that there is a correlation between the types of interventions received by patients, and the emotional and physical domain. This is supported by Kweon *et al.* [19], who stated that patients undergoing PCI and CABG actions experienced an improvement in their quality of life.

Revascularization in the form of CABG is also effective. According to Bjessmo and Sartipy [20], patients with ACS after CABG had a very good quality of life after 10 years. It was strengthened by Najafi *et al.* [21], who stated that the quality of life of patients after CABG was higher for males especially for physical domain. The results of this study also found that the type of intervention given to patients was significantly related to the physical domain. This also reinforced the idea that revascularization therapy was best given to patients with ACS. However, it took a relatively long time for CABG to improve the quality of life of patients.

The analysis between travel time and quality of life of patients showed that there was a significant correlation

Table 4: Bivariate analysis

Variable	p-value			
	QOL	Emotional	Physical	Social
Level of severity	0.033*	0.070*	0.008*	0.149
Depression	0.000*	0.000*	0.000*	0.000*
Type of intervention	0.011*	0.036*	0.006*	0.543
Level of knowledge	0.753	0.901	0.814	0.325
Travel time to hospital	0.002*	0.001*	0.039*	0.029*
Health-insurance	0.682	0.461	0.345	0.606
Cultural-background	0.607	0.532	0.872	0.724

*$p<0.05$. QoL: Quality of life.

between those two variables. It is also reinforced by the results of this study that travel time to the hospital was related to the quality of life of the emotional, physical, and social domain. This is supported by a research conducted by Armstrong and Willerson [22], they stated that patients who had a heart attack should be treated immediately for the earliest 60 min after the attack.

The results of multivariate analysis on all factors in this study (Table 3) found that depression was the factor that had the most significant correlation to the quality of life of post-ACS patients ($p = 0.000$) and an OR of 4.637 which means that respondents who were depressed would be at risk of 4.637 times experiencing a decrease in quality of life. It was strengthened by the findings in this study on Table 4, that depression was also related to the overall domain of quality of life, including the emotional, physical, and social domains.

Conclusion

Based on the results, it can be concluded that the quality of life of more than half the total of post-ACS patients was good. Depression was the most significant factor related to the quality of life of post-ACS patients in this study. Researchers have not been able to research a wider population. Besides that, it cannot be described about the cultural factors, because the research location had cultural homogeneity. Researchers also have not been able to obtain data regarding the length of time diagnosed with ACS inpatients.

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