

**Teguh Santoso¹, Untung
Sujianto¹, Dwi
Susilawati¹**

¹Diponegoro University
Email: tg.santoso21@gmail.com

Factors Affecting Quality of Life in Patients with Coronary Artery Disease

Info Artikel :
Masuk : 30 September 2017
Revisi : 23 November 2017
Diterima : 30 November 2017
DOI Number : 10.18196/ijnp.1371

Abstract

Background: Coronary artery disease impact physical, psychological, and social aspects on quality of life. The aims in this study was to examine effecting factors of quality of life (QoL).

Methods: In this study the analytic correlation with cross-sectional design was used. One hundred and three subjects participated with purposive sampling (88 male and 23 female). QoL questioner (SF-36) was used to collect the data. The data were analyzed by multivariate regression.

Results: One hundred and three patients (80 males and 23 female) were enrolled on this study. This study indicates that independent variables were not associated with quality of life (p value > 0.05). The greater quality of life found in patients graduated from university (62,2%) and had more income (51.9%). Other variables like male (57.5%), patients between 48-57 years of ages (68.2%), married patients with coronary artery disease (62.0%), the retired or unemployee (78.9%), patients with hypertension (57.8%), never taking alcohol (60.8%), never smoking (50%) and never doing exercise (66%) had lower quality of life score.

Conclusion: There were no statistically significant factors affecting quality of life in patients with CAD. The more respondents needed to know the factors affecting quality of life

Keywords Coronary artery disease, Quality of life, SF-36

Introduction

Coronary artery disease (CAD) is a one of diseases that cause high death in the world. According to World health organization in 2012, 7,4 millions people die due to CAD (WHO, 2016). Based on basic research of health by Ministry of Health in 2013, mortality rate by CAD is 883.447 peoples in Indonesia.

Coronary artery disease affects to physical, psychological, and social aspects (Molazem et al., 2013). The first is physical aspect, atherosclerosis and or narrowing of coronary arteries can cause decrease blood flow to miocard. In a long time, miocard becomes ischemia till infarc. The manifestation are chest pain, dyspnea, decrease physical function, sexual intercourse, and limitation on daily activities (Panthee & Kritpracha, 2011., Rosidawati, Ibrahim, & Nuraeni, 2015).

Secondly, psychological impact of CAD. Patients of CAD often suffering stress, poor of mood, anxiety, and depression. It will affected directly to the function of heart. Simpatic nerves will activate, increase heart beat, atrial and ventricular contraction, vasoconstriction of blood vessels. That conditions make worse and bad perception of patients to the illness (Lewis, Heitkemper, & Dirksen, 2010., Monahan et al., 2007).

The last impact of CAD is social. Impairment of social interaction, hobby aktivitiy, and resign from the workplace. It cause of physical limitations (Improve Heart Health, 2009).

Coronary artery disease is high recurrent after hospitalization (Briffa et al., 2011). It is indicated that low of QoL (Desai, Akhshay, & Stevenson, 2012). Study found that QoL score in CAD patiens was low (Dale et al., 2014., Yulianti, Kosasih, & Emaliyat. This study aimed to evaluate the factors associated with the quality of life in patients with coronary artery disease.

Methods

This was an analytic correlation with cross-sectional design. One hundred and three respondents with purposive sampling attending at the dr. Kariadi Central Hospital of Semarang between July and August 2017 were recruited. The inclusion criteria were male or female with medical diagnose of CAD. The characteristics of respondent that may affect their quality of life, such as age, gender, level of education, merital status, income, history of health, occupational, exercise, smoke, and alcohol consumption. The respondents who refused were excluded. The study was approved by the Ethics Committee of RSUP dr. Kariadi and Universitas Diponegoro. The quality of life data were measured using Short-Form (36).

Multivariate regression analysis was used to identify the independent variables on QoL with p value < 0.05 was considered statistically significant.

Results

One hundred and three patients with coronary artery disease admitted to the cardiology ward were involved in the study. The majority of the patients were male (77.7%), 48-57 years of ages (42.7%), married (97.1%), university graduate and senior high school (39%), non-government employee (42.7), having above minimal of regional wage (52.4%), had hypertension (62.1%), never taking alcohol (94.2%), never smoking (77.7%), and never exercise (45.6%) (Table 1).

Table 2 showed that there were no statistically significant (p value > 0.05) factors affecting between independent variables with quality of life

Table 1. Characteristics of subject

Characteristics	n	f (%)
Ages		
28-37	2	1.9
38-47	7	16.5
48-57	44	42.7
58-67	29	28.2
> 67	11	11
Gender		
Male	80	77.7
Female	23	22.3
Marital status		
Married	100	97.1
Single/divorce	3	2.9
Education		
Primary	10	9.7
Secondary school	16	15.5
Senior high school	37	35.9
University	37	35.9
Illiterate	3	2.9
Occupational status		
Government employee	21	20.4
Non government	44	42.7
Retired/unemployee	38	36.9
Financial		
< minimal of regional wage	28	27.2
Minimal of regional wage	21	20.4
> minimal of regional wage	54	52.4
Health history		
Diabetic	12	11.7
Hypertention	64	62.1
Diabetic & hypertention	27	26.2
Alcohol consumption		
Overtimes	1	0.9
Rare	5	4.9
Never	97	94.2
Exercise		
Overtimes	17	16.5
Rare	39	37.9
Never	47	45.6
Smoke		
Overtimes	11	10.6
Rare	12	11.7
Never	80	77.7

Table 2. Factors affecting quality of life

Variables	β	t	p-value
Ages	-.091	-.952	.344
Gender	-.130	-1.300	.197
Marital status	.062	.640	.524
Education	.204	1.772	.080
Occupational status	-.210	-1.980	.051
Financial	.065	.559	.577
Health history	-.103	-1.089	.279
Alcohol consumption	.073	.759	.450
Exercise	-.121	-1.240	.218
Smoke	-.009	-.088	.930

β : Standardized Coefficients; p-value: <0.05.

Quality of life score from 103 patients showed that the most of them were male (57.5%) had lower quality of life than female. As to age group, lower of QoL on subjects between 48-57 years of ages (68.2%). The lower QoL score in married patients with coronary artery disease (62.0%). The patients graduated from university had greater QoL score (62,2%) than other. The retired or unemployee (78.9%) had lower QoL than other patients who had occupation. The greater quality of life score found in the patients who had much income (51.9%). The hypertension patients with coronary artery disease (57.8%) had lower QoL score. Patients never taking alcohol (60.8%), never smoking (50%) and never doing exercise (66%) had lower quality of life (Table 3).

Table 3. Characteristics of respondent and quality of life

Characteristics	Quality of life		Total (%)
	High (%)	Low (%)	
Gender			
Male	34 (42.5)	46 (57.5)	80 (77.7)
Female	6 (26.1)	17 (73.9)	23 (22.3)
Ages			
28-37	1 (50)	1 (50)	2 (1.9)
38-47	12 (70.6)	5 (29.4)	17 (16.5)
48-57	14 (31.8)	30 (68.2)	44 (42.7)
58-67	10 (34.5)	19 (65.5)	29 (28.2)
> 67	3 (27.3)	8 (72.7)	11 (10.7)
Marital status			
Married	38 (38)	62 (62)	100 (97.1)
Single/divorce	2 (66.7)	1 (33.3)	3 (2.9)
Education			
Primary	1 (10)	9 (90)	10 (9.7)
Secondary school	2 (12.5)	14 (87.5)	16 (15.5)
Senior high school	14 (37.8)	23 (62.2)	37 (35.9)
University	23 (62.2)	14 (37.8)	37 (35.9)
Illiterate	0 (0)	3 (100)	3 (2.9)
Occupational status			
Government employee	14 (66.7)	7 (33.3)	21 (20.4)
Non government	18 (40.9)	26 (59.1)	44 (42.7)
Retired/unemployee	8 (21.1)	30 (78.9)	38 (36.9)
Financial			
< minimum of regional wage	3 (10.7)	25 (89.3)	28 (27.2)
minimum of regional wage	9 (42.9)	12 (57.1)	21 (20.4)
> minimum of regional wage	28 (51.9)	26 (48.1)	54 (52.4)
Health history			
Diabetic	6 (50)	6 (50)	12 (11.7)
Hypertention	27 (42.2)	37 (57.8)	64 (62.1)
Diabetic & hypertension	7 (25.9)	20 (74.1)	27 (26.2)
Alcohol consumption			
Overtimes	1 (100)	0 (0)	1 (1)
Rare	1 (20)	4 (80)	5 (4.9)
Never	38 (39.2)	59 (60.8)	97 (94.2)
Exercise			
Overtimes	8 (50)	8 (50)	16 (15.5)
Rare	15 (38.5)	24 (61.5)	39 (37.9)
Never	16 (34)	31 (66)	47 (45.6)
Smoke			
Overtimes	6 (60)	4 (40)	10 (9.7)
Rare	3 (25)	9 (75)	12 (11.7)
Never	30 (37.5)	50 (62.5)	80 (77.7)

Discussion

One of methods to estimate the effectiveness of therapy, predicts motality, improvement of physical and social fuctioning, pain relief, and improvement mental health by measuring quality of life measures (Rumsfeld J.S., et al., 2013). Patients

without CAD had greater QoL score than patients with CAD (Xie, Wu, Zheng, Sullivan, Zhan, & Labarthe, 2008). To improve and maintain the quality of life in patients with CAD, measurement and assessment of the factors affecting in QoL are useful.

In this paper, there were no statistically significant factors affecting between independent variables with QoL. However, this study explained that male had lower quality of life score than female. The number of male respondents is more than that of female. In the previous study, female had lower QoL than male (Gijsberts, Agostoni, Hoefler, Asselbergs, Pasterkamp, Nathoe, Appelman, De, & Den, 2015). Risk factors of CAD can influence QoL score in male. Female had lower of risk factor in CAD than male (Bajaj, Mahajan, Grover, Mahajan, & Mahajan, 2016).

In the study of Durmaz, Keles, Akar, Ozdemir, Akyunak, & Bozkurt in 2009 explained that patients 37-47 years only have greater QoL. Similarly, we found that patients between 48-57 years of ages had low QoL score. The increasing of ages indicated decrease of physical functioning and have high risk of coronary artery disease. Impaired of physical in patients with CAD can causes decrease QoL score (Sanchis-Gomar, Perez-Quilis, Leischik, & Lucia, 2016).

In contras, many studies reporting that living alone have worse QoL score than married patients score (Han, Kyu-Tae, Park, Eun-Cheol, Kim, Jae-Hyun, Kim, Sun, & Sohee, 2014). In this, we found that married patients had lower QoL. Gerard, Mark, Gemma, & Yoichi in 2008 explored, lower QoL score in married patients causes by less of social support from partner, family member or community.

The patients graduated from university and much income had higher QoL score than other. Similarly, in previous study by Durmaz, Keles, Akar, Ozdemir, Akyunak, & Bozkurt, 2009 & Colet,

Mayorga, & Amador, 2010. Higher income improve buys ability and life satisfaction.

Durmaz, Keles, Akar, Ozdemir, Akyunak, & Bozkurt in the 2009 reported, goverment employee and other employee had higher score of QoL. Similarly, found that the retired or unemployes had lower QoL score in this study. The employees used physical functioning and mental optimally (Campos, Flor, & Laguardia, 2013) & (Nowakowska-Glab, & Maniecka-Bryla, 2011).

In the risk factor variables, CAD patients with hypertension had lower QoL score. According to the previous studies (Soni, Porter, Lash, & Unruh, 2010) that hypertension patients with CAD have lower QoL. Negative impact of hypertension is decrease physical function of patients (Xu, Rao, Shi, Liu, Chen, & Zhao, 2016).

Contrally, never taking alcohol and smoking cessation had lower quality of life score. In the previous studies showed that patients cessation of smoke are associated with greater QoL score (Durmaz, Keles, Akar, Ozdemir, Akyunak, & Bozkurt, 2009). Smoking can damage vascular endothelial function and stablility, promote myocardial hypoxia and cause coronary artery spasm. It is also can induce a variety of factors, such as thromboxane A2, CD40 and prostacyclin, that cause angiosclerosis-accelerated plaque formation, which subsequently induces plaque rupture and thrombosis. Activate oxidative stress and alter the activities of several inflammatory cytokines, including ET-1, tumor necrosis factor- α , interleukin-6 and nitric oxide, subsequently leading to

plaque formation and blood clots in the blood vessels promote by increase alcohol consumption (Wan, Ma, Yuan, Fei, Yang, & Zhang, 2015).

In this study we found that patients who never doing exercise had lower quality of life. Previous research by Firouzabadi, Sherafat, & Vafaeenasab in the 2014 displayed, one of methods to increase score of the quality of life are exercise. Adequate exercise improves blood circulation, prevents thrombosis and embolism, improves the internal functioning of the body, improves sleep, relieves anxiety and restores normal nerve and humoral regulation (Wan, Ma, Yuan, Fei, Yang, & Zhang, 2015).

Conclusion

The quality of life is based on individual perceptions. Factors affecting QoL need to be identified. This will help healthcare providers (nurses) identify quality of life, promote health especially for CAD patients.

Acknowledgement

This study was part of a research project. The study was independently funded by the researchers. The authors would like to thank all advisors and participants of the research.

References

- Badan Penelitian dan Pengembangan Kementerian Kesehatan RI. (2013). *Riset Kesehatan Dasar*. Jakarta.
- Bajaj S, Mahajan V, Grover S, Mahajan A, & Mahajan N. (2016). Gender Based Differences in Risk Factor Profile and Coronary Angiography of Patients Presenting with Acute Myocardial Infarction in North Indian Population. *Journal of Clinical and Diagnostic Research : JCDR*. 10, 05-7.
- Campos, M. R., Flor, L. S., & Laguardia, J. (2013). Quality of life, social position and occupational groups in Brazil: evidence from a population-based survey. *Revista Brasileira De Epidemiologia*. 16, 748-762.
- Colet C.F., Mayorga P., & Amador T.A. (2010). Educational Level, Socio-Economic Status And Relationship With Quality Of Life In Elderly Residents Of The City Of Porto Alegre/RS, Brazil. *Braz. J. Pharm. Sci.* vol.46 no.4 São Paulo Oct./Dec. 2010
- Durmaz T., Keles T., Akar Bayram N., Ozdemir O., Akyunak Ozdemir B., & Bozkurt E. (2009). Factors Affecting Quality Of Life In Patients With Coronary Heart Disease. *Turkish Journal of Medical Sciences*. 39, 343-351.
- Firouzabadi Mg, Sherafat A, & Vafaeenasab M. (2014). Effect of physical activity on the life quality of coronary artery bypass graft patients. *Journal of Medicine and Life*. 7, 260-3.
- Gerard J. Molloy, Mark Hamer, Gemma Randall, & Yoichi Chida. (2008). Marital status and cardiac rehabilitation attendance: a meta-analysis. *European Journal of Preventive Cardiology*. 15, 557-561.
- Gijsberts, C. M., Agostoni, P., Hoefler, I. E., Asselbergs, F. W., Pasterkamp, G., Nathoe, H., Appelman, Y. E., De Kleijn, D. P. V., & Den Ruijter, H. M. (2015). Gender Differences In Health-Related Quality Of Life In Patients Undergoing Coronary Angiography. *Open Heart*. 2, e000231.
- Han, Kyu-Tae, Park, Eun-Cheol, Kim, Jae-Hyun, Kim, Sun, & Park, Sohee. (2014). *Is marital status associated with quality of life?* BioMed Central Ltd. BioMed Central Ltd.

- Improve Heart Health (2009). *Effects that heart disease can have on life*. Retrieved from <http://www.improveheart.com/effects-that-heart-disease-can-have-on-life/>
- Kahneman, D., & Deaton, A. (2010). High income improves evaluation of life but not emotional well-being. *Proceedings of the National Academy of Sciences of the United States of America*, 107(38), 16489–16493.
- Lewis, S. M., Heitkemper, M. M., & Dirksen, S. R. (2010). *Medical Surgical Nursing Assessment and Management of Clinical Problems* (7th ed.). St. Louis: Mosby.
- Molazem Z., Mohebbi Z., Rezaei S., Ostovan M.-A., & Keshavarzi S. (2013). Effect of continuous care model on lifestyle of patients with myocardial infarction. *ARYA Atherosclerosis*. 9, 186-191.
- Monahan, F. D., Sands, J. K., Neighbors, M., Marek, J. ., & Green, C. J. Phipps. (2007). *Medical Surgical Nursing: Health And Illness Perspective* (8th ed.). Philadelphia: Mosby Elsevier.
- Nowakowska-Glab, A., & Maniecka-Bryla, I. (2011). Relation between occupation and health related quality of life of pregnant women. *Medycyna Pracy*. 62, 601-608.
- Panthee, B. & Kritpracha, C. (2011). Review : Anxiety and Quality of life Patients with Myocardial Infarction. *Nurse Media Journal of Nursing*. 2011;1(1),105- 115.
- Rosidawati, I., Ibrahim, K., & Nuraeni, A. (2015). Quality of Life in Patents After Coronary Artery Bypass Graft in Hasan Sadikin Central Hospital of Bandung. Padjadjaran University.
- Rumsfeld J.S., et al. (2013). Cardiovascular Health: The Importance Of Measuring Patient-Reported Health Status A Scientific Statement From The American Heart Association. *Circulation*. 127, 2233-2249.
- Sanchis-Gomar F, Perez-Quilis C, Leischik R, & Lucia A. (2016). Epidemiology of coronary heart disease and acute coronary syndrome. *Annals of Translational Medicine*. 4.
- Soni, R. K., Porter, A. C., Lash, J. P., & Unruh, M. L. (2010). Health-Related Quality of Life in Hypertension, Chronic Kidney Disease, and Coexistent Chronic Health Conditions. *Advances in Chronic Kidney Disease*. 17, e17-e26.
- Wan, Y., Ma, X., Yuan, C., Fei, L., Yang, J., & Zhang, J. (2015). Impact of daily lifestyle on coronary heart disease. *Experimental and Therapeutic Medicine*. 10, 1115-1120.
- World Health Organization. (2016). *Cardiovascular Diseases* (CVDs). Retrieved from <http://www.who.int/mediacentre/factsheets/fs317/en/>.
- Xie J, Wu Eq, Zheng Zj, Sullivan Pw, Zhan L, & Labarthe Dr. (2008). Patient-Reported Health Status In Coronary Heart Disease In The United States: Age, Sex, Racial, And Ethnic Differences. *Circulation*. 118, 491-7.
- 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.