Original Article

Health-Related Quality of Life of Thai Cardiovascular Patients among Smokers and Non-Smokers Population

Ronnachai Kongsakol MD[1], Rosarin Sruamsiri PhD[2], Oraluck Pattanaprateep PhD[3]

[1] Department of Psychiatry, Faculty of Medicine, Ramathibodi Hospital, Mahidol University, Bangkok, Thailand
[2] Center of Pharmaceutical Outcomes Research, Department of Pharmacy Practice, Faculty of Pharmaceutical Sciences, Naresuan University, Phitsanulok, Thailand
[3] Section for Clinical Epidemiology and Biostatistics, Faculty of Medicine, Ramathibodi Hospital, Mahidol University, Bangkok, Thailand

Objective: To determine health related quality of life [QoL] of patients diagnosed with cardiovascular disease [CVD] among smokers and non-smokers in Thailand.

Materials and Methods: The questionnaire using ED-5D was conducted in patients with CVD at Ramathibodi Hospital between June 1, 2016 and May 31, 2017.

Results: Four hundred and twenty patients completed the questionnaires. The mean utility score of Thai CVD patients were 0.73 (SD ±0.16), 0.69 (SD ±0.22), and 0.72 (SD ±0.23) for never smoked, currently smoked, and used to smoked patients, respectively.

Conclusion: The cross-sectional study showed different QoL of the CVD patients among smoker and non-smokers in Thailand although there was no significant. Further study should address predictors and mechanisms acting on QoL in these group of patients.

Keywords: Quality of life, Cardiovascular, Smoker

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Cardiovascular disease [CVD] is a group of disorders of the heart and blood vessels[1]; included coronary heart disease, cerebrovascular disease (stroke), and peripheral arterial disease. The number of patients with coronary heart disease is rising every year[2]. According to the World Health Organization, the age-specific mortality rate for Thai people in coronary heart disease and stroke patients was at 87.1 and 123 in 100,000 population, respectively[3]. In addition, the Thai Epidemiologic Stroke [TES] study estimated the prevalence of stroke in 2005 to 2007 at 1.88%[4].

CVD is the number one cause of death worldwide. In 2008, there were 7.3 million coronary heart disease deaths and 6.2 million stroke cases[5]. For Thailand, the overall CVD hospitalization rate under the Ministry of Public Health increased from 614.3 in 1999 to 1,927 per 100,000 population in 2008. Moreover, in 2008, CVD was the second leading cause of non-cancer-related deaths, accounted for 56 deaths per 100,000 population[6].

Currently, many studies have found that smoking is one of the factors that increase the risk of CVD. In the practice guidelines, tobacco treatment is highly recommended for all tobacco smokers of all types. The patients are necessary to be treated effectively and continuously, either receiving counseling or receiving anti-smoking medication. This also helps prevent future health problems for themselves and those around them.

Smoking is the fourth leading risk factor for many diseases[7]. The smokers have a 2 to 4 risk of heart disease. Chronic obstructive pulmonary disease [COPD] is 12 to 13 times than that of non-smokers. The risk of lung cancer among males and females was 23 and 13 times than that of non-smokers, respectively[8]. Smoking caused smokers to prematurely die 8 years earlier[9]. In addition, smoking causes huge losses to the nation's economy. The impact on both the smokers, the people around them, and society. The World Health Organization estimates that smoking will increase the number of deaths from 5.4 in 2004 to 8.3 million in 2030[10]. Mathers and Loncar predicted that, by 2015, the top 3 deaths from smoking-related diseases would be coronary heart disease (29%), COPD (27%), and lung cancer (18%)[11].

The diseases caused by smoking are chronic, increase morbidity and mortality, and affect lifestyle.

Correspondence to:

Pattanaprateep O. Faculty of Medicine, Ramathibodi Hospital, Mahidol University, Bangkok 10400, Thailand.
Phone: +66-2-2011269
Email: oraluck.pat@mahidol.ac.th

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Most patients suffer from the symptoms of an incurable disease, need to modify their pattern of living, control disease risk factors, and take regular medication as prescribed[12]. These cause anxiety, fear, stress, frustration, lack of enthusiasm, depression and feeling worthless[13]. The disease also affected patient's job. A study of post-treated myocardial infarction patients revealed job return rate at 62% to 93%, depending on the severity of disease[14]. Additionally, most of them had lower work volume and quality, and higher working pressure[15]. Some of them had to change job or leave work, resulting in economy of the family, especially in patients who were heads of the family, and these would be impact to the quality of life [QoL] of patients[16]. Assessing health-related QoL is then important to know the impact of the disease[17]. However, there was no study survey QoL of CVD patients either in smokers or non-smokers population in Thailand.

Materials and Methods

Study design and population

This cross-sectional descriptive study was conducted between June 1, 2016 and May 31, 2017 at Ramathibodi Hospital. The inclusion criteria were as follows: Thai patients aged more than or equal to 18 years diagnosed with CVD. Those who suffered from confusion or reduced levels of consciousness, or unable to communicate, were excluded. The authors applied Cochran's sample size formula which is the standard method to calculate cross-sectional study in large population. Assuming the maximum variability, which is equal to 50% ($p = 0.5$) and taking 95% confidence level with ±5% precision. Finally, four hundred and twenty patients were purposive sampling[18].

Ethical considerations

The present research protocol was approved by the Ethics Committee of the Faculty of Medicine, Ramathibodi Hospital, Mahidol University, Bangkok, Thailand. The objectives of the research and the data collection process were clarified to all participants, in accordance with the Patient Information Sheet and signed the consent form (Appendix A). Patients could refuse to participate in the study without any negative impact and would receive standard treatment. All patient data were kept confidential and used only for the present study.

Outcome measurement

The study data were collected from the interviews and included the patients' demographic, e.g., age, gender, material status, education, career, income, health insurance, smoking, diagnosis, etc. QoL was assessed using the Thai version of the EuroQol-5D [EQ-5D] questionnaire (Appendix B). The questionnaire comprised of 5 items under 5 dimensions of mobility, self-care, usual activity, pain/discomfort, anxiety/depression, and 100 visual analogue scale between 0 (worst health) and 100 (perfect health).

Data analysis

To analyze basic data of patients used descriptive statistics as percentage, mean. The QoL data obtained from the EQ-5D questionnaire will be converted into utility using a specific algorithm for Thai people[5], calculated for mean and compared among smoking and non-smoking CVD patients by one way ANOVA. The analysis was undertaken using Stata Corp (College Station) with the *p*-value of 0.05 (two-sided) considered as statistically significant.

Results

Four hundred and twenty patients were included in the present study. Table 1 summarized the demographic data. The mean age was 66.69 years (SD ± 12.49). Most of the patients were under civil servant medical benefit scheme [CSMBS] (63%). Sixty-nine percent

Table 1. Patient characteristics of the studied patients

Characteristics	n (%)
Total	420
Age (year), mean ± SD	66.69±12.49
Less than or equal to 60 years	128 (30)
More than 60 years	292 (70)
Gender	
Male	185 (44)
Female	235 (56)
Insurance	
Universal coverage [UC]	71 (17)
Social security scheme [SSS]	18 (7)
Civil servant medical benefit scheme [CSMBS]	266 (63)
Self-pay	45 (11)
Others	9 (2)
Diagnosis	
Coronary heart disease [CHD]*	165 (39)
Peripheral arterial disease [PVD]	35 (8)
Others+	220 (53)
Time since diagnosed	
Less than or equal to 1 year	84 (20)
More than 1 year	336 (80)

* CHD included myocardial infraction, angina and congestive heart failure

+ Others included hypertension, dyslipidemia, chronic myeloid leukemia, and pain

or 291 of 420 had never smoked, most of them was female (77%) (Table 2).

EQ-5D score by each dimension was shown in Table 3, VAS, and utility, compared among smoking and non-smoking CVD patients, there was no significantly difference in utility between smokers and non-smokers, except usual activities (p-value <0.001).

In overall, QoL of CVD patients was at 81.2 (SD ±13.1) with VAS score and at 0.70 (SD ±0.22) when calculate utility from EQ-5D questionnaire. However, there was no difference among non-smokers, ex-smokers, and current smoker (Table 4).

Table 2. Patient characteristics and smoking status

Characteristics	Smoking status, n (%)		
	Never smoke	Currently smoke	Used to smoke
Total	291 (69)	27 (6)	102 (25)
Age (year), mean ± SD	67.18±12.22	60.78±9.81	66.82±13.53
Less than or equal to 60 years	85 (29)	12 (44)	31 (30)
More than 60 years	206 (71)	15 (56)	71 (71)
Gender			
Male	68 (23)	23 (85)	94 (92)
Female	223 (77)	4 (15)	8 (8)
Insurance			
Universal coverage [UC]	53 (18)	3 (11)	15 (15)
Social security scheme [SSS]	15 (5)	4 (15)	10 (10)
Civil servant medical benefit scheme [CSMBS]	183 (63)	16 (59)	67 (65)
Self-pay	32 (11)	4 (15)	9 (9)
Others	8 (3)	0 (0)	1 (1)
Diagnosis			
Coronary heart disease [CHD]*	102 (35)	10 (37)	53 (52)
Peripheral arterial disease [PVD]	24 (8)	2 (7)	9 (9)
Others+	165 (57)	15 (56)	40 (39)
Time since diagnosed			
Less than or equal to 1 year	58 (20)	8 (30)	18 (18)
More than 1 year	233 (80)	19 (70)	84 (82)

* CHD included myocardial infraction, angina and congestive heart failure

+ Others included hypertension, dyslipidemia, chronic myeloid leukemia, and pain

Table 3. EQ-5D score comparison among smoking and non-smoking CVD patients

Dimension	Total (n = 420)	Never smoke (n = 291)	Currently smoke (n = 27)	Used to smoke (n = 102)	p-value*
Mobility, n (%)					0.158
No problems	261 (62)	172 (59)	22 (81)	67 (66)	
Some problems	151 (36)	113 (39)	5 (18)	33 (32)	
Confined to bed	8 (2)	6 (2)	0 (0)	2 (2)	
Self-care, n (%)					0.065
No problems	392 (93)	273 (94)	27 (100)	92 (90)	
Some problems	21 (5)	13 (5)	0 (0)	8 (8)	
Unable to wash/dress	7 (2)	5 (2)	0 (0)	2 (2)	
Usual activities, n (%)					<0.001
No problems	336 (80)	228 (79)	25 (93)	83 (81)	
Some problems	54 (13)	42 (15)	2 (7)	10 (10)	
Unable to perform	28 (7)	19 (6)	0 (0)	9 (9)	
Pain/discomfort, n (%)					0.266
No problems	145 (35)	86 (30)	12 (44)	47 (46)	
Some problems	270 (64)	202 (69)	14 (52)	57 (53)	
Extreme discomfort	5 (1)	3 (1)	1 (4)	1 (1)	
Anxiety/depression, n (%)					0.983
No problems	289 (69)	197 (67)	19 (70)	73 (72)	
Some problems	128 (31)	92 (32)	8 (30)	28 (27)	
Extremely depressed	2 (0)	1 (1)	0 (0)	1 (1)	

* Chi-square

Table 4. EQ-5D: VAS score and utility comparison among smoking and non-smoking CVD patients

Score	Total	Never smoke	Currently smoke	Used to smoke	*p*-value*
EQ-5D: VAS, mean ± SD	81.2±13.1	82.4±14.2	79.1±13.4	80.9±12.4	0.415
Utility, mean ± SD	0.70±0.22	0.73±0.16	0.69±0.22	0.72±0.23	0.536

* One way ANOVA

Discussion

The present study's findings indicate that QoLs of CVD patients in Thailand were different comparing among smokers and non-smokers. Current smokers tended to have lower QoLs compared to non-smokers or former smokers, although it was not statistical significant. This findings can be used in further study i.e., cost-utility analysis and as a reference for Thai patients. Future studies into the association of QoL with CVD should address predictors and mechanisms acting on QoLs.

CVD is one of the leading causes of death worldwide[19] and also in Thailand[20] and one of the risk factors of CVD was smoking which can effect to total QoLs. As a consequence, it reduced body performance, make patients suffered from the symptoms of an incurable disease. Patients may need to modify the pattern of their live, controlled risk factors to reduce the severity of the disease. Previous study had confirmed that a high CVD risk was significantly associated with impaired QoLs[21]. Those findings suggest that QoLs assessment might be useful in cardiovascular risk management. Concerning the 5 dimensions of the EQ-5D, smoker and former smokers was significantly associated with usual activity problems, as well as with self-care problems. These findings are consistent with the results of previous study in Taiwan which showed that the usual activity dimension of smokers was significant lower than former smokers[22]. Smoking cessation is the most effective measure to prevent smoking-caused CVD and can also increase QoLs.

Several limitations should be discussed. First, the present study was cross-sectional design. QoLs often change over time based on the actual condition. The interpretation of the QoLs is surrounded by a high degree of uncertainty and many confounders can be effected the results. Second, the generalizability of these findings should be interpreted with caution as data were obtained from one university-hospital. However, to our knowledge, this was the first study comparing QoL of smokers and non-smokers in CVD patients. Last, although types of CVD can be inferred from the data, no questions related specifically to disease severity were included.

What is already known on this topic?

CVD is a chronic disease, which is the number one cause of death worldwide, including in Thailand.

Smoking is one of the factors that increase the risk of CVD, and finally morbidity and mortality, and affect lifestyle. However, no study measures health-related QoL in Thais.

What this study adds?

By using EQ-5D, QoL of CVD patients among Thai smoker and non-smoker CVD patients were measured and showed different, although it was not statically significant. But this is a good beginning for further economic evaluation for Thai people.

Potential conflicts of interest

The authors declare no conflict of interest.

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