

Patient competence in relation with medical and psychosocial characteristics in cardiology context: A cross-sectional study

Hamidreza Roohafza⁽¹⁾ , Masoumeh Sadeghi⁽²⁾ , Azam Khani⁽³⁾,
Omid Behnamfar⁽⁴⁾, Hamid Afshar⁽⁵⁾, Carl Eduard Scheidt⁽⁶⁾

Original Article

Abstract

BACKGROUND: Growth of cardiovascular disease (CVD), variation in provision of medical services, rising costs, and increasing information availability through the media are making patients more actively involved in decision-making process of their treatment. The aim of this study was to better understand the components of patient competence in the context of coronary artery disease (CAD) and to further evaluate their relations with medical, demographic, and psychosocial characteristics.

METHODS: In this cross-sectional study, 148 patients with at least one year diagnosis of acute coronary syndrome (ACS) were enrolled in the study from April to June 2014. Data on demographic characteristics, depression, anxiety, quality of life (QOL), social support, and drug adherence were collected from participants. Pearson correlation, one way analysis of variance (ANOVA), and multiple linear regression tests were performed for analyzing data.

RESULTS: The mean age of patients was 53.63 ± 5.15 . Of the participants, 58 (39.5%) and 61 cases (41.5%) were found to be depressed and anxious, respectively. Higher levels of self-regulation correlated with higher education years and social support, and also with lower depression and anxiety ($P < 0.050$). Stress management and confronting the threat were linked to education years, depression, anxiety, QOL, and social support ($P < 0.050$).

CONCLUSION: The patients with CAD, in order to be involved in the proper treatment process and manage their emotions during this process, need to have the required competencies. Patient competence as a whole and its components have been related to medical, demographic, and psychosocial characteristics.

Keywords: Patient Competence, Decision-making, Characteristics, Cardiology

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Introduction

Chronic diseases, because of their nature, have a high burden and extreme impact on patients and their families in everyday life.¹ Beside the effective treatments for chronic diseases, patients' knowledge as well as their abilities in making decisions and encountering challenges can markedly influence the treatment process.^{2,3} Moreover, in the treatment of chronic diseases, patients appear to be true partners to the medical team in the treatment process.⁴

Chronic diseases, especially cardiac diseases, are a matter of great concern due to their high

prevalence, mortality, and morbidity in both the developed and developing countries.⁵ The demise of "single best treatment", growth of cardiovascular disease (CVD), variation in provision of medical services, rising costs, and increasing information availability through the media are making patients more actively involved in decision-making process of their treatment.⁶ Involving patients in treatment decisions creates new challenges for both the patients and physicians and requires special skills. In order to reach this goal, patients need sufficient abilities to control their emotions, understand the

1- Assistant Professor, Isfahan Cardiovascular Research Center, Cardiovascular Research Institute, Isfahan University of Medical Sciences, Isfahan, Iran

2- Professor, Cardiac Rehabilitation Research Center, Cardiovascular Research Institute, Isfahan University of Medical Sciences, Isfahan, Iran

3- Research Assistant, Isfahan Cardiovascular Research Center, Cardiovascular Research Institute, Isfahan University of Medical Sciences, Isfahan, Iran

4- Resident, Department of Cardiovascular Medicine, University of California San Diego, California, United States of America

5- Professor, Psychosomatic Research Center, Isfahan University of Medical Sciences, Isfahan, Iran

6- Professor, Department of Psychosomatic Medicine and Psychotherapy, University of Freiburg, Freiburg, Germany

Correspondence to: Masoumeh Sadeghi, Email: m_sadeghi@crc.mui.ac.ir

nature of treatment, search for information, confront the related threats, concentrate on and solve illness problems, find out the consequences of accepting or refusing a treatment, and understand the likely benefits and risks of each given option.⁷ In addition, they should be able to solve the arising tasks in the context of their illness and related treatments. These abilities are known as “patient competence” that consists of cognitive, behavioral, and emotional components.⁸ Based on some studies, the patient competence is influenced by many demographic and social factors and the severity of illness.^{9,10}

The combination of disease severity and the level of education can lead to increased intention to start therapy.¹¹ Patients with limited education level or minimal experience in the medical setting may not entirely understand all the alternatives to or all the major risks of a proposed treatment.¹² Therefore, patient education may offer further information as well as technical and problem-solving skills.¹³

Patients with depression can experience low energy levels, feelings of worthlessness or guilt, and difficulty in thinking and concentrating or making decisions.¹⁴ Due to these psychosocial characteristics, patients cannot be competent to make proper decisions and deal with stress properly in disease situations.

Quality of life (QOL) is an important patient-centered outcome and predictor of mortality in cardiac disease.^{15,16} There is some evidence showing that patients who have a better control on their will report a better health-related QOL following treatment, compared with those with less control on their decisions.³ Accordingly, patients with high QOL are those who can take care of themselves having an effective decision-making skill and sufficient competency to their disease.

Appropriate knowledge about a disease leads to better self-care, adherence, and realization of disease. Adherence is the degree to which a particular treatment has been followed. Effective delivery of the treatment requires both adherence and competence, but it is not possible to have the competent delivery of a specific treatment without adherence to that treatment. Thus, although adherence does not guarantee competence, it is a necessary factor for competence.¹⁷

In this study, we attempted to get a better understanding of the components of cardiac patient competence (CPC) and their relations with medical, demographic, and psychosocial characteristics in the

context of coronary artery disease (CAD).

Materials and Methods

A cross-sectional design was used to investigate patient competence in patients with CAD who referred to Isfahan Cardiovascular Research Institute, Isfahan, Iran, from April to June 2014. 148 patients were enrolled in the study. They had been diagnosed with acute coronary syndrome (ACS) for at least one year. ACS was defined as acute myocardial infarction (AMI) and unstable angina (UA) based on the World Health Organization (WHO) expert committee, and was confirmed by a cardiologist through typical chest pain and dynamic electrocardiography (ECG) changes.¹⁸⁻²⁰ The inclusion criteria were: being in the range of 30-60 years of age, having no evidence of pregnancy or being in post-partum period in the past 3 months, no past history of diabetes mellitus, cardiac arrhythmias, cardiac pacemaker implantation, or heart failure. The study was approved by the Institutional Review Board (IRB) and Ethical Committee of Isfahan University of Medical Sciences (grant number: 191177), and an informed written consent was obtained from each participant. Data collection was administrated by a trained interviewer through the face-to-face interview method. For this purpose, the interviewer had been trained well, so that she was familiar with the process of filling out the questionnaires in a uniform way and also with the proper steps of interviewing to avoid some common biases.

Demographic characteristics such as age, sex, marital status, and education level were collected from participants. Lifestyle status such as smoking status (at least 1 cigarette per day), adequate physical activity (half an hour per day) as well as disease status such as disease duration, number of hospitalization, number of general practitioner and cardiologist visit, and ejection fraction of patients were recorded. CPC questionnaire is a 63-item scale with eight domains (search for information, self-regulation, being assertive, independent decision-making, looking for social services, stress management, confronting the threat, and avoidance) that is rated on a five-point Likert scale with scores ranging from 1 (not true at all) to 5 (completely true). For each domain, individual scores were calculated by summing across all items defining a domain and then dividing by the respective number of items. Validity and reliability of this questionnaire were examined in Roohafza et al. study.⁸

Hospital Anxiety and Depression Scale (HADS)

was used to assess patients' depression and anxiety level. It consists of fourteen items (7 items for anxiety and 7 items for depression) with scores ranging from 0 to 21 for either depression or anxiety. In both parts, scores > 7 indicate that participants are likely to be depressed or suffer from anxiety. Cronbach's alpha coefficient (to test reliability) has been found to be 0.78 for the HADS anxiety sub-scale and 0.86 for the HADS depression sub-scale. Validity showed satisfactory results as well.^{21,22}

Self-administered EQ-5D instrument²³ was used for detecting the contributors' QOL. Mobility, self-care, usual activity, pain/discomfort, and anxiety/depression were evaluated by this instrument. Three distinct levels of severity were presented for each domain as 1 (no problems), 2 (some problems), and 3 (extreme problems). Global QOL score of participants was defined by the sum of dimensions' scores. Higher EQ-5D scores indicated poor QOL. The second part of the scale is a Visual Analogue Scale (EQ-VAS) that allows respondents to score their current health status from 0 to 100. Saffari et al. showed cronbach's alpha of 0.83 and 0.78 for the EQ-5D and EQ-VAS, respectively.²⁴

Social support was assessed by the Multidimensional Scale of Perceived Social Support (MSPSS).²⁵ This scale is intended to measure the extent to which an individual perceives social support from three sources including significant others (SO) (items 1, 2, 5, and 10), family (items 3, 4, 8, and 11), and friends (items 6, 7, 9, and 12). The MSPSS is rated on a five-point Likert-type scale with scores ranging from 1 (very strongly disagree) to 5 (very strongly agree). A higher score indicates increased levels of perceived social support (PSS). Cronbach's alpha coefficient was 0.84 in the Farsi version of the MSPSS for the whole scale, and for friend, SO, and family subscales was 0.90, 0.93, and 0.85, respectively.²⁶

Drug Adherence Questionnaire (DAQ)²⁷ is a structured four-item self-reported adherence measurement that has dichotomous response categories with yes or no. The failure to adhere to a medication regimen could occur because of several factors such as problems with taking medications on time: "Do you sometimes have problems remembering to take your medication?", "Do you sometimes forget to take your medication?", and problems with the complexity of the medical regimen: "Do you ever feel hassled about sticking to your treatment plan?". The

questions are phrased to avoid the "yes-saying" bias by moving backward the wording of the questions about the way patients might practice failure in following their prescription regimen. Each item measures a specific medication-taking behavior and not a element of adherence behavior. Individuals who scored in the high adherence range had a significantly better treatment outcome.

Data were illustrated as mean \pm standard deviation (SD) for continuous variables and frequencies and percentages for categorical variables. Pearson correlation test was used for assessing the relations between CPC dimensions and psychological characteristics, social support, drug adherence, rehospitalization, and demographic data. Association between CPC dimensions and different subgroups including sociodemographics, depression, anxiety, and adherence were analyzed using independent t-test. To determine variables potentially predicting CPC dimensions, multiple linear regressions were performed. Each of CPC dimensions was considered as a dependent variable. Data were analyzed using the SPSS software (version 15, SPSS Inc., Chicago, IL, USA). All tests were two-sided. Statistical significance was defined as $P < 0.050$.

Results

148 cardiac patients were enrolled in the study. The mean age of patients was 53.63 ± 5.15 years. About 79 cases (53.4%) were men and 123 cases (83.1%) were married. The mean of education years was 7.18 ± 5.71 years. Among all participants, 58 (39.5%) and 61 cases (41.5%) were depressed and anxious, respectively. Other clinical and psychological characteristics and dimensions of CPC are shown in table 1. As illustrated in table 2, some dimensions of CPC significantly correlated with demographic, clinical, and psychological characteristics. Higher levels of self-regulation associated with higher education years and social support, and also with lower depression, anxiety, and QOL scores.

Findings of qualitative data in table 3 showed that depression was associated with search for information, self-regulation, stress management, and confronting the threat. Anxiety was related to self-regulation and stress management. Additionally, adherence to treatment was associated with looking for social services. Relations among scores of CPC dimensions and demographic, clinical, and psychological variables are detailed in table 3.

Table 1. Basic, clinical, and psychological characteristics and dimensions of cardiac patient competence (CPC)

Variables	Range	n = 148
Age (year) (mean ± SD)	30-60	53.63 ± 5.15
Educational years	0-18	7.18 ± 5.71
Duration of disease (year) (mean ± SD)	1-37	10.42 ± 7.96
Hospitalization (mean ± SD)	0-5	0.43 ± 0.88
Visit to general practitioner (mean ± SD)	2-50	8.12 ± 5.99
Visit to cardiologist (mean ± SD)	1-15	3.54 ± 2.14
Ejection fraction (mean ± SD)	15-65	51.73 ± 10.79
Depression score (mean ± SD)	0-21	7.01 ± 4.67
Anxiety score (mean ± SD)	0-21	6.95 ± 4.93
Quality of life score (mean ± SD)	5-15	7.74 ± 2.30
Walking score (mean ± SD)	1-3	1.55 ± 0.53
Self-care score (mean ± SD)	1-3	1.27 ± 0.57
Daily activity score (mean ± SD)	1-3	1.43 ± 0.61
Pain score (mean ± SD)	1-3	1.77 ± 0.70
Anxiety/depression score (mean ± SD)	1-3	1.72 ± 0.71
Total social support score (mean ± SD)	12-60	43.49 ± 11.13
Family social support score (mean ± SD)	4-20	17.01 ± 3.94
Friend social support score (mean ± SD)	4-20	10.61 ± 5.75
Other social support score (mean ± SD)	4-20	15.96 ± 4.34
Search for information (mean ± SD)	11-55	29.01 ± 9.95
Self-regulation (mean ± SD)	14-70	54.14 ± 8.25
Being assertive (mean ± SD)	7-35	20.49 ± 4.93
Independent decision-making (mean ± SD)	7-35	18.84 ± 5.47
Looking for social services (mean ± SD)	2-10	6.09 ± 2.35
Stress management (mean ± SD)	10-50	37.52 ± 8.80
Confronting the threat (mean ± SD)	6-30	22.54 ± 4.74
Avoidance (mean ± SD)	6-30	18.07 ± 4.22
Smoking (current smoker) [n (%)]	-	10 (7.0)
Sex (male) [n (%)]	-	79 (53.4)
Marriage (married) [n (%)]	-	123 (83.1)
Adherence to treatment (low and moderate) [n (%)]	-	67 (45.3)
Depression [n (%)]	-	58 (39.5)
Adequate physical activity [n (%)]	-	57 (40.4)
Anxiety [n (%)]	-	61 (41.5)

SD: Standard deviation

No links between the CPC dimensions and adequate physical activity, duration of disease, and visit of cardiologist were identified.

Self-regulation, stress management, and confronting the threat were related to depression and anxiety.

Table 2. Correlations between dimensions of cardiac patient competence (CPC) and demographic, clinical, and psychological characteristics

Variables	Problem-focused task				Emotion-focused task			
	Search for information	Self-regulation	Being assertive	Independent decision-making	Looking for social services	Stress management	Confronting the threat	Avoidance
Age	-0.291**	-0.017	-0.123	-0.120	0.051	0.082	0.022	-0.110
Education years	0.513**	0.220**	0.279**	0.392**	0.153	0.029	0.204*	0.048
Duration of disease	-0.002	-0.003	-0.007	-0.020	-0.105	0.017	0.018	0.019
Hospitalization	0.041	-0.044	-0.224**	-0.042	0.003	-0.200*	-0.089	0.096
Visit to general practitioner	-0.084	0.008	0.064	-0.077	-0.044	0.251**	-0.025	-0.026
Visit to cardiologist	-0.017	0.095	0.058	-0.028	-0.072	-0.081	-0.059	0.082
Ejection fraction	0.180*	-0.043	0.027	0.215**	-0.153	0.184*	-0.102	-0.160
Depression score	-0.174*	-0.296**	-0.049	-0.111	-0.203*	-0.515**	-0.225**	0.019
Anxiety score	0.072	-0.227**	0.053	-0.105	-0.074	-0.630**	-0.215**	0.181*
Quality of life score	-0.169*	-0.176*	-0.054	-0.097	-0.091	-0.397**	-0.211*	-0.015
Total social support score	0.241**	0.543**	0.036	0.279**	0.053	0.335**	0.234**	-0.119

* P < 0.050; ** P < 0.010

Table 3. Association between scores of cardiac patient competence (CPC) dimensions and demographic, clinical, and psychological characteristics

Variables		Problem-focused task					Emotion-focused task		
		Search for information	Self-regulation	Being assertive	Independent decision-making	Looking for social services	Stress management	Confronting the threat	Avoidance
Sex	Male	31.24 ± 10.38	55.01 ± 8.13	20.81 ± 4.80	20.13 ± 5.20	6.59 ± 2.21	39.82 ± 7.54	23.10 ± 4.20	17.77 ± 4.36
	Female	26.53 ± 8.87	53.15 ± 8.32	20.12 ± 5.09	17.35 ± 5.42	5.52 ± 2.39	34.89 ± 9.44	21.89 ± 5.26	18.43 ± 4.05
	P	0.004	0.170	0.390	0.002	0.005	0.001	0.130	0.350
Marital status	Married	29.57 ± 10.11	54.73 ± 7.95	22.32 ± 4.67	18.88 ± 5.29	6.09 ± 2.41	38.22 ± 8.16	22.74 ± 4.59	18.29 ± 4.13
	Single	26.36 ± 8.82	51.17 ± 9.19	20.11 ± 4.92	18.64 ± 6.34	6.08 ± 2.10	34.17 ± 10.99	21.54 ± 5.46	17.04 ± 4.55
	P	0.140	0.053	0.040	0.840	0.970	0.040	0.260	0.180
Adequate physical activity	Yes	31.14 ± 10.37	54.87 ± 7.99	20.55 ± 4.85	19.42 ± 5.76	6.32 ± 2.33	38.38 ± 8.82	23.05 ± 4.36	18.85 ± 4.12
	No	26.40 ± 9.07	53.12 ± 8.30	20.61 ± 4.94	18.04 ± 5.06	5.67 ± 2.36	36.00 ± 8.65	21.30 ± 5.12	17.50 ± 4.33
	P	0.006	0.220	0.940	0.150	0.110	0.130	0.030	0.140
Current smoker	Yes	30.22 ± 11.34	51.60 ± 7.04	22.00 ± 4.39	20.30 ± 4.71	6.40 ± 2.59	36.44 ± 9.86	22.51 ± 4.79	16.20 ± 5.09
	No	29.05 ± 10.02	54.38 ± 8.18	20.41 ± 4.92	18.74 ± 5.55	6.03 ± 2.34	37.51 ± 8.72	20.67 ± 4.36	18.27 ± 4.13
	P	0.740	0.290	0.320	0.390	0.630	0.730	0.260	0.140
Adherence to treatment	High	28.27 ± 9.71	53.60 ± 8.82	20.83 ± 4.83	18.75 ± 5.40	6.40 ± 2.16	37.89 ± 8.88	22.90 ± 4.28	18.41 ± 3.94
	Moderate	29.90 ± 10.48	54.90 ± 7.19	20.09 ± 5.22	19.25 ± 5.62	6.07 ± 2.44	34.12 ± 8.86	22.16 ± 5.24	17.51 ± 4.65
	Low	30.23 ± 9.61	54.50 ± 8.62	19.92 ± 4.59	17.69 ± 5.42	4.35 ± 2.46	36.76 ± 8.64	21.78 ± 5.45	18.14 ± 4.16
	P	0.590	0.680	0.640	0.650	0.010	0.850	0.590	0.480
Depression	Yes	26.91 ± 9.83	51.26 ± 8.94	40.31 ± 5.40	18.14 ± 5.40	5.91 ± 2.58	31.96 ± 9.30	21.24 ± 5.17	18.64 ± 4.27
	No	30.44 ± 9.85	55.94 ± 7.23	30.65 ± 4.63	49.30 ± 5.51	6.17 ± 2.18	40.96 ± 6.33	23.35 ± 4.27	17.76 ± 4.15
	P	0.038	0.001	0.690	0.210	0.500	< 0.001	0.009	0.220
Anxiety	Yes	28.81 ± 10.34	52.23 ± 8.91	20.90 ± 5.33	18.47 ± 5.30	5.73 ± 2.52	32.83 ± 8.97	21.84 ± 5.19	18.73 ± 4.34
	No	29.27 ± 9.51	55.58 ± 7.48	20.17 ± 4.66	19.34 ± 5.68	6.39 ± 2.16	40.17 ± 6.90	23.16 ± 4.19	17.68 ± 4.07
	P	0.790	0.010	0.380	0.340	0.090	< 0.001	0.090	0.140

Table 4. Predictive factors for cardiac patient competence (CPC) dimensions: multivariate analysis (age and sex-adjusted)

Variables		Problem-focused task				Emotion-focused task			
		Search for information	Self-regulation	Being assertive	Independent decision-making	Looking for social services	Stress management	Confronting the threat	Avoidance
Marriage	β	-0.017	0.243	0.265	-0.115	0.081	-0.110	-0.056	-0.144
	P	0.850	0.016	0.003	0.197	0.365	0.222	0.476	0.115
Education years	β	0.500	0.251	0.332	0.367	0.083	0.275	0.231	0.091
	P	< 0.001	0.017	0.001	< 0.001	0.414	0.001	0.027	0.385
Adequate physical activity	β	-0.117	-0.073	0.059	-0.027	-0.095	-0.085	-0.180	-0.145
	P	0.175	0.433	0.513	0.764	0.286	0.345	0.051	0.111
Smoking	β	0.014	-0.204	-0.090	-0.063	-0.022	-0.227	-0.223	0.156
	P	0.875	0.031	0.332	0.483	0.807	0.013	0.019	0.094
Duration of disease	β	0.092	0.021	0.020	0.044	0.072	0.084	0.044	0.019
	P	0.267	0.805	0.813	0.596	0.390	0.329	0.612	0.826
Hospitalization	β	0.095	-0.024	-0.215	0.006	0.043	-0.158	-0.068	0.089
	P	0.240	0.779	0.010	0.937	0.604	0.058	0.423	0.290
Visit to general practitioner	β	-0.048	0.028	0.076	-0.040	-0.008	0.217	0.007	0.039
	P	0.551	0.740	0.364	0.624	0.919	0.008	0.940	0.639
Visit to cardiologist	β	-0.025	0.094	0.057	-0.037	-0.080	-0.087	-0.064	0.085
	P	0.753	0.261	0.490	0.646	0.320	0.286	0.447	0.305
Ejection fraction	β	0.165	-0.024	0.030	0.183	-0.110	0.215	-0.080	-0.191
	P	0.031	0.780	0.724	0.009	0.181	0.030	0.347	0.052
Adherence to treatment	β	0.110	0.078	-0.071	-0.013	0.188	0.010	-0.069	-0.080
	P	0.169	0.358	0.393	0.861	0.020	0.903	0.419	0.339
Depression	β	-0.105	-0.314	0.029	0.001	-0.121	-0.486	0.212	-0.029
	P	0.242	0.001	0.756	0.996	0.189	< 0.001	0.025	0.762
Anxiety	β	0.131	-0.225	0.074	-0.223	0.026	-0.605	-0.204	0.150
	P	0.132	0.013	0.419	0.011	0.773	< 0.001	0.026	0.096
Quality of life score	β	-0.012	-0.166	0.000	0.071	0.028	-0.378	-0.212	-0.055
	P	0.899	0.095	> 0.999	0.464	0.774	< 0.001	0.032	0.576
Total social support score	β	0.175	0.563	0.012	0.220	0.012	0.280	0.223	-0.107
	P	0.035	< 0.001	0.888	0.009	0.887	0.001	0.011	0.217

Dimensions such as searching for information, self-regulation, independent decision-making, stress management, and confronting the threat were linked to social support. Results of predictive factors for CPC dimensions are summarized in table 4.

Discussion

As it has been observed, the competency helps patients arise their tasks on confronting the disease, making desirable decisions about the treatment process, and managing the effects of disease on everyday life. One notable point about patient competence is that the idea of active patient-physician interaction corresponds closely with the aims of patient empowerment²⁸ and self-management.²⁹ Thus, the patients are capable of managing symptoms, treatment, and the consequences of a disease condition. Furthermore, physicians can positively encourage this behavior.³⁰

Involving patients in treatment deciding and the perceptions of control over treatment decisions lead to health-related QOL. It was showed that patients who more actively used consultations to decide about the treatment would perceive more decision-control, which in turn leads to a better health-related QOL following treatment. Additionally, emotions as an intact part of a person's internal state, have profound influence on the choices one makes and the abilities one has.³¹

Based on what have been observed, some sociodemographic factors such as education and marriage were effective on CPC. We found it most plausible that education may protect against disease development by influencing lifestyle behaviors, problem-solving abilities, knowledge, and coping capabilities;³² thus, it may enable the patients to live with the best possible QOL given their chronic conditions.¹³ Accordingly, higher educational attainment brings about more tendencies to search

information about the treatment process, self-regulation, assertiveness, independent decision-making, confronting the threat, and higher self-management. In contrast, patients with limited education or with minimal prior experience in the medical setting may not completely understand all the alternatives to or all the major risks of a proposed treatment.¹² Moreover, we have some evidence in hand suggesting that less-educated individuals may experience more severe stress and report greater distress and physical symptoms compared to higher-educated ones.³³

As seen in some studies, social support can moderate negative effect of stressful conditions that cardiac patients might encounter during their disease and treatment process.³⁴ Moreover, individuals who perceive social support can modify the situations based on problem and emotion-focused coping strategies related to CAD.³⁵ Family members especially the patients' spouse could have positive effect on CAD self-care maintenance and management.³⁶ In addition, the provision of support by physicians has been linked to greater knowledge, life satisfaction, and perceived health as well as reduced anxiety and depression.³⁴ Therefore, visit to general practitioner would help patients manage and cope with the stress raised from the disease.

Depressed and anxious patients are incapable to manage their stress and cannot concentrate on and solve illness problems properly. There is some evidence suggesting that depression is associated with a decrease in exercise capacity and poor health perception in patients with CAD.^{37,38} It has been observed that patients with CAD and concurrent depression were 2.5 times more likely to develop a functional disability than nondepressed ones.^{38,39} Anxiety and depression can largely influence specific decision components. The everyday decisions made by individuals suffering from anxiety or depression disorders to avoid perceived threats are substantially affected, which in turn can have a great impact on their ability to function adaptively in the context of CAD.⁴⁰ Thus, anxious and depressed individuals cannot have an appropriate self-care and properly respond to the challenges they encounter during their cardiac disease. Depressed patients may underestimate the benefits of a treatment or overestimate its risks. Moreover, some patients with depression may even prefer a high-risk medical treatment and consider the potential risk as a desirable outcome and a tool to end their misery.⁹ Additionally, anxiety increases the

sensitivity to negative choice options, the likelihood that ambiguous options be construed negatively, and the tendency to avoid potentially negative options, even if the outcomes have great gains.⁴⁰ According to our results, cardiac patients who were anxious were more under stress and had problems in dealing with and making decisions about their illness.

We found that components of stress management and confronting the threat had negative relation with smoking. The devastating impact of smoking on heart disease is known to everybody.⁴¹ Smokers report that smoking will relieve their negative moods when they are stressed out, angry, anxious, or sad.⁴² Therefore, smokers use maladaptive coping strategy in dealing with stressful life situations and lack appropriate stress control skills. It has been extracted that stress control skills can be upgraded and promoted by proper cognitive behavioral approaches.^{42,43}

Being under stress can alter the way the body behaves and can have negative effects on heart health. Accordingly, with a high-intensity cardiac disease, patients will need more information about their illness and the ways of coping with it. Recent evidence indicates that patients who adhere to treatment have better health outcomes than poorly adherent patients.⁴⁴ In this study, we found that being adherent to the treatment was associated with using social services. In fact, economic incentives and using of health insurance were effective in securing good medical adherence.⁴⁵

One of the limitations of this study, that is important to be borne in mind, is that we investigated the relation of only some of the medical, demographic, and psychosocial characteristics with CPC, and it is imperative that the influence of other social and personality factors also be taken into account. Another limitation to consider is the cross-sectional design of the study.

Conclusion

The patients with CAD, in order to be involved in the proper treatment process and manage their emotions during this process, need to have the required competencies. Patient competence as a whole and its components such as seeking information, self-regulation, assertiveness, independent decision-making, stress management, and confronting the treat have been related to medical, demographic, and psychosocial characteristics.

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Conflict of Interests

Authors have no conflict of interests.

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