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The Relationship between Self-efficacy and Compliance with Self-care Behaviors in Patients with Acute Coronary Syndrome after Coronary Angioplasty in Shahid Madani Hospital, 2016: A Health Belief Model

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ABSTRACT

Cardiovascular diseases are today one of the main causes of mortality and morbidity in many countries, seen in more than 19% of the country's population. Therefore, this study was designed to determine the relationship between self-efficacy and compliance with self-care behaviors in cardiovascular patients using Health Belief Model (HBM). In this descriptive correlational study, 400 patients hospitalized in Ayatollah Shahid Madani Hospital of Tabriz were examined by simple sampling method. Data were collected using a questionnaire based on the HBM. Data were analyzed by descriptive and analytical tests using SPSS-19 software. The participant's mean age was 63 years, 65% were male, 84.5% were married and most of them (61.5%) were illiterate or had elementary education; 43% of them had unstable acute coronary syndrome (ACS). There was a correlation between self-care behaviors and compliance with self-care behaviors ($p<0.05$). Multiple linear regressions showed that self-efficacy was a suitable variable for preventive behaviors in cardiovascular disease. According to the results, there is a correlation between self-care behaviors and self-efficacy. In other words, by increasing self-efficacy, self-care behaviors can be increased in patients that can prevent their re-admission.

Key words: Health Belief Model, Cardiovascular Disease, Compliance with Self-care Behaviors

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INTRODUCTION

Today, the increased burden of non-transmissible diseases is a serious threat, especially in developing countries [1]. Cardiovascular diseases are one of the most important diseases [1, 2], responsible for about 16.7 million deaths in low and middle income countries [3], which will be the leading cause of mortality by 2020 [4]. According

to the results of studies, the mortality rate of this disease is high in Iran and it accounts for the first cause of mortality in Iran [5]. Among cardiovascular diseases, coronary artery disease (CAD) has a major role in mortality and morbidity due to cardiovascular diseases [6]. Acute Coronary Syndrome (ACS) is a presentation of CAD and one of the most common chronic, progressive, and life-threatening diseases in most countries of the world [7, 8]. Medication, interventional and surgical procedures are now used for treatment of coronary artery stenosis [9]. Coronary angioplasty is one of the most effective therapies in resistance to drug therapy [10]. In recent years, the rate of coronary angioplasty has been reported increased to over 95% [11]. The patient is usually admitted for one day in the hospital after coronary angioplasty, which has less costs than other invasive methods, including coronary artery bypass, but these patients need to visit the health centers for follow up within 5 years after discharge [12]. Since most patients do not have enough time to get information about their disease during hospitalization, discharge from the hospital is a stressful event for these patients. The results of studies show that cardiac patients had many problems in self-care after discharge and obviously poor self-care can lead to frequent hospitalization and decreased quality of life in patients [13].

Compliance with self-care behaviors such as exercise and physical activity, dietary changes, quitting smoking, coping with stress, and observing the dietary regimen are important in patients with chronic diseases and they can affect their comfort, function, and processes associated with their disease by gaining self-care skills [14, 15]. Therefore, self-care skills of a patient suffering from CAD can prevent or delay the disease complications. In this regard, Sol et al asserted that CAD is a chronic condition, in which the affected patients need to increase their empowerment skills to control the disease signs and symptoms and prevent or delay the disease complications by lifestyle change [16].

Some studies have examined self-efficacy as an effective factor in improving self-care and moderating the risk of CAD [17]. Rosenstock et al. (1988) considered it an important issue for the health belief model, especially when the model was used to predict lifestyle changes in chronic diseases [18]. Watson states that self-efficacy is effective on modifying the health behaviors of patients with cardiovascular disease and reduces the incidence of severe CAD, resulting in reduced hospitalization and even postponement of coronary artery bypass graft surgery [19].

The use of health education models to examine and describe the relationship between effective factors on patients' compliance with self-care behaviors seems an appropriate strategy. Among models, whose theoretical framework can examine and describe factors affecting patients' compliance with self-care behaviors include health belief model (HBM) and self-efficacy support of long-term lifestyle changes [20]. In this model, individual variables include self-efficacy [21], knowledge of the disease [22], daily living activities [23], anxiety and depression [24, 25]. In this study, social support and knowledge of the disease were considered as exogenous factors and depression, anxiety, perceived benefits and barriers, and self-efficacy as causative agents and endogenous factors. The hypothesized model was the relationship between the three non-essential variables and the six endogenous variables (Figure 1) [26].

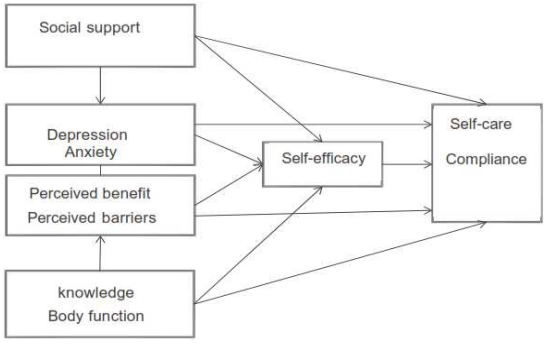

Figure 1: Conceptual framework of this study

The HBM health belief model is one of the most common theoretical frameworks, used for health education and promotion for many years [21] that predicts individuals' health behavior based on their beliefs and individual perspectives. According to this model, health-related motivations are predicted by the perceived risk and severity of disease or injury and the perceived benefits and specific barriers to specific preventive behaviors [22].

Considering the increasing number of patients with CAD and several problems such as the disease duration and frequent hospital admissions, social, economic and emotional problems of patients and their families, the

financial burden imposed on the economy due to the disease and its complications, and the importance and necessity of paying attention to the largest group of patients (cardiac patients) in the health system, this study aimed to determine the relationship between effective factors (knowledge, self-efficacy, depression, anxiety, perceived social support, perceived benefits and barriers) on self-care in patients with ACS after coronary angioplasty.

MATERIALS AND METHODS

This descriptive-correlational study on 400 patients with previous coronary angioplasty who were admitted to Tabriz Shahid Madani Hospital with ACS symptoms was included. This hospital is the largest cardiac care center and the most important center for cardiac disease in the northwestern region of Iran. The necessary permission was obtained from the Ethics Committee of the Vice-Chancellor for Research of Tabriz University of Medical Sciences, and then necessary coordination was made with Shahid Madani Hospital. The researcher referred to the center and introduced himself, then, he explained the criteria for selection of eligible samples and provided general information about the study. Sampling started from? And continued until? The inclusion criteria for the study were as follows: willingness to participate in the study, clinical diagnosis of ACS by the cardiologist, and positive history of angioplasty. The exclusion criteria included: acute and urgent problem of the patient, positive history of a known psychiatric and personality disorder (depression, bipolar and manic personality), any physical, mental and psychological disability, the use of opiate and sedatives, positive history of stressful events such as the death of first degree relatives, severe disease in family members, severe familial disputes in the last 6 months and during the study period. The available sampling method was used and all patients who were admitted to hospital during the study period and had the inclusion criteria were included into the study. The sample size was considered 15 for each variable based on the number of independent variables (affecting self-care compliance) and regression of 15 samples were considered for each variable, making a total of 400 sample size, considering the possibility of lost cases. Then the researcher visited the patients and explained the study methods and objectives and invited them to participate in the research, after ensuring them the confidentiality of their information. The questionnaires included personal-social characteristics and self-efficacy of cardiac patients. The questionnaires were completed by the questioner in the best and most calm mental and physical conditions, while keeping patients' privacy. After completing the questionnaires, educational pamphlets were provided to the participants on self-care principles, specific to patients with coronary angioplasty. Normality of data was tested by k-s test and appropriate tests were used if the data had non-normal distribution. Data were analyzed using descriptive and analytical statistics. After data collection was completed, the data were analyzed using SPSS 19 software at a significant level of $p<0.05$.

Data were collected through a questionnaire completed by patients participating in the study. In this study, a 2-part questionnaire was used. The first part contained personal and demographic information and the second part was the cardiac self-efficacy scale (CSEQ).

CSEQ is a 16-item Likert scale questionnaire with two subscales of disease signs and symptoms (8 items) and task maintenance (8 items). The least score on this scale is 0 and the highest is 64 [27]. To determine the questionnaire's validity, content and face validity were used. The questionnaires were distributed to 10 faculty members and nursing researchers, considering their scientific and research background and their opinions were applied. For questionnaire's reliability, the internal consistency (Cronbach's alpha coefficient) was evaluated by 20 nurses in a preliminary study.

RESULTS

Analysis of the demographic characteristics revealed that the participants' mean age was 63 years; 65% were male, 84.5% were married, most of them (61.5%) were illiterate or had elementary education, and 41% lived in the capital; 43% had U/A ACS. The income status of 27% was more than costs. 36% of them had an ejection fraction (EF) of 45-45%. 56% had a history of hypertension (Table 1). Also, the results of this study showed a significant relationship between compliance with self-care behaviors and self-efficacy (p-value<0.05), as well as between self-efficacy and the underlying diseases, household income, number of hospital admissions, and EF (percentage) ($p<0.05$) (Table 2).

Table 1: Frequency of demographic characteristics of patients with acute coronary syndrome (qualitative variables)

Variable		Frequency	Percent
Sex	Male	260	0.65
	Female	140	0.35
Living place	Urban	136	0.34
	Rural	97	24.3
	Capital	167	41.7
Marital status	Single	13	3.3
	Married	338	84.5
	Divorced	22	5.5
	Widow(er)	27	6.7
Educational level	Illiterate and primary school	246	61.5
	Guidance and High School	51	12.7
	Diploma	57	14.3
	Associate	21	6.3
	Bachelor	15	3.7
	Master	6	1.5
Occupation	Public sector employee	82	20.4
	Private sector employee	71	17.7
	Manual worker	29	7.3
	Free job	96	0.24
	Housekeeper	119	29.8
	Unemployed	3	0.8
Income status	Income>costs	150	37.5
	Income=costs	131	32.8
	Income<costs	119	29.7
Disease duration	Less than a year	119	29.8
	One to five years	88	0.22
	Five to ten years	97	24.2
	More than ten years	96	0.24
Number of hospital admissions	2 times	158	19.5
	3 times	76	0.19
	4 times	44	0.11
	5 times and more	122	30.5
Family history of heart disease	Yes	260	0.65
	No	140	0.35
Birth sequence in father's family	First	136	0.34
	Second	97	24.3
	Third	167	41.7
	Fourth	13	3.3
	Fifth	338	84.5
	Sixth and above	22	5.5
Alcoholic	Yes	27	6.7
	No	246	61.5
Smoker	Yes	57	12.7
	No	57	14.3
EF (percentage)	55-65	25	6.3
	45-54	15	3.7
	44-35	6	1.5
	<35	82	20.4
Type of Acute coronary syndrome	U/A	71	17.7
	STEMI	29	7.3
	Number of STEMI	96	0.24
	MI	119	29.8

Table 2: Estimating the relationship between the variables examined in this study based on SEM model

	First variable	Second variable	Estimated relationship
1	Social support	Stress and depression	-0.018
2	Knowledge	Benefits and barriers	0.004
3	Social support	Self-efficacy	0.101
4	Knowledge	Self-efficacy	0.048
5	Benefits and barriers	Self-efficacy	-0.063
6	Stress and depression	Self-efficacy	-0.281
7	Social support	Compliance with self-care behaviors	0.511
8	Knowledge	Compliance with self-care behaviors	0.058
9	Stress and depression	Compliance with self-care behaviors	-0.165
10	Benefits and barriers	Compliance with self-care behaviors	-0.035
11	Self-efficacy	Compliance with self-care behaviors	0.116

DISCUSSION

The present study aimed to investigate the relationship between self-care behaviors and self-efficacy of cardiac patients. The results of this study showed a significant relationship between compliance with self-care behaviors and self-efficacy. The results of the study by Roozbehani [30] showed a significant relationship between self-efficacy and self-care behaviors of elderlies with hypertension and reported that the elderly with hypertension had poor self-efficacy in relation to self-care behaviors. Sharifi-Rad [31] also explored the role of self-efficacy in self-care of diabetic patients. The results of this study indicated inappropriate self-care conditions and low self-efficacy status in diabetic patients. Also, the results of the studies reviewed showed a positive correlation between self-efficacy and self-care in these patients and the fact that self-efficacy can predict self-care behavior. Davari [32] also showed a significant correlation between self-efficacy and self-care in patients with type 2 diabetes based on Spearman's correlation test, as well as between self-efficacy with all aspects of self-care. The results of this study are in line with the results of the present study. However, there was no statistically significant relationship between self-care and self-efficacy in diabetic patients in studies by Chelboby [33] and Gellibrand [34]. It seems that the difference in the results of these studies is due to the use of different measurement tools and different research communities with their own cultures. However, the results of several studies indicate

that patients with higher self-efficacy feel fewer barriers against self-care and have therefore more self-care activities. Therefore, according to the evidence obtained in this study and previous studies, it can be concluded that self-efficacy is an important determinant of self-care behaviors in patients with cardiac disease, so it requires strengthening.

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Conflict of interest
There is no conflict of interest in this study.

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