

Relationship between resiliency and self-efficacy in patients with acute Coronary Syndrome admitted to intensive care units

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ABSTRACT

Background and objectives: Patients with Acute Coronary Syndrome (ACS) need to increase their empowerment skills to effectively control their symptoms and symptoms, and have to change their lifestyle to prevent the development of complications from the disease and delay the occurrence. Hence, self-efficacy has been introduced as an effective factor in improving self-care and moderating risk factors for coronary artery disease (CAD). **Materials and methods:** In this descriptive correlational study, 136 patients admitted to cardiac care unit (CCU) of selected hospitals affiliated to Shahid Beheshti University of Medical Sciences, Iran, were selected by convenience sampling method. Data were collected using demographic information, Connor-Davidson Resilience Scale (CD-RISC) and Sullivan's Cardiac Self-Efficacy (CSE) questionnaires. Data were analyzed by SPSS version 22 software using descriptive statistics, univariate linear regression and multivariate linear regression analysis. **Results:** The majority of patients in the study (61.8%) were male, married (69.1%) and had a mean age of 58.85 years. The resilience rate was 18.18, with the highest level at the personal strength of 25.15. According to the results, among five constituents of "resilience," only two components of "personal strength" and "tolerance for negative emotions" were able to significantly predict the "self-efficacy" of the subjects ($p=0.01$). **Conclusion:** The findings showed that the self-efficacy of ACS patients promotes with increasing resilience, and solutions to improve resilience can improve self-efficacy in the ACS patients. It is recommended to strengthen the belief of such patients to pay attention to their self-efficacy and sense of meaning in workplace, as the most important determinants of resilience in the patients.

Keywords: Acute Coronary Syndrome, Self-Efficacy, Resilience.

Introduction

Cardiovascular disease (CVD) as one of the chronic concerns is considered to be the main cause of mortality and morbidity resulting from non-communicable diseases around the world. Over 23 million people will die annually throughout the world due to coronary artery disease (CAD) by 2030, with 80% of these deaths occurring in developing countries. According to the World Health Organization (WHO), about 1.7 million deaths from CAD occur annually, and is projected to increase by 11.1 million in 2020 ^[1]. According to a report in Iran, the

CVD is the first cause of mortality in individuals over 35 years of age, with the increased incidence rate of 3.4% ^[2]. In other words, the ACS has the highest incidence of heart disease and is associated with high mortality and morbidity ^[3].

Hypertension, high fat diet, smoking, resistance to insulin and type II diabetes, obesity, unhealthy lifestyle, and psychosocial issues are some of the modifiable factors that have been introduced as the CAD risk factors among over 90% of cases ^[4]. Ideal treatment and care of CAD risk factors are usually caused by lifestyle changes by stopping smoking, choosing healthy food, weight loss, high physical activity and taking medication according to the doctor's instructions over the lifetime. The educational programs of patients with ACS involvement emphasize the need to participate in their own treatment, which requires a change in behavior and belief in their ability to do so. ACS patients are in the chronic group and are associated with a severe decline in quality of life due to its consequences, such as decreased self-esteem in daily work, anxiety and depression. Thus, the knowledge of nursing in the field of ACS patients has changed considerably during the last decade and its main

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emphasis is on self-care and empowerment of patients, and self-efficacy is a key action in promoting health ^[5].

The patients with ACS need to increase their empowerment skills to effectively control their symptoms and symptoms, and have to change their lifestyle to prevent the development of complications from the disease and delay the occurrence. Hence, the self-efficacy has been introduced as an effective factor in improving self-care and moderating risk factors for the CAD ^[6]. According to theory of Bandura, the self-efficacy is defined as the individual's confidence and belief in own ability to succeed in a desirable self-care task, thereby achieving a desirable outcome ^[7]. Improving self-efficacy leads to better self-management results, increasing life expectancy and moderating health behaviors. Further, the self-efficacy can affect all aspects of life, and people who are self-reliant can participate actively in health programs ^[8].

The self-efficacy is effective in managing the health behaviors of a patient with CVD and reducing the incidence of severe CAD complications, followed by a reduction in frequency of hospitalization and even postponement of coronary artery bypass graft surgery ^[9]. The self-efficacy is directly related to healthy behaviors and indirectly affects healthy behaviors towards achieving goals. The self-efficacy influences the level of endurance, commitment, and endeavor to achieve the objectives, and how well we meet the criteria of our behavior determines our feeling of self-efficacy. On the other hand, low self-efficacy can mitigate motivation, lower ambitions, interact with cognitive abilities, and adversely affect physical health ^[10]. The subjects with high self-efficacy can solve the problem by solving their past difficulties and having a successful experience. They also focus on their ability to address the issue and follow the solution at the time of the emergence of the problem and in difficult circumstances, rather than the negative and unfavorable interpretation of the situation. The set of these features represents a resilient person ^[11]. The pattern governing patients with CAD is a biopsychosocial model, in which human beings are considered as multi-dimensional creatures that influence each other in each biopsychosocial dimension. The patients with CAD cause many symptoms such as shortness of breath, dizziness, palpitations, and severe fatigue. These symptoms result in intolerance and affect the resilience of these patients. The resilience is the ability of a person to achieve biological, psychological, and spiritual balance in contrasting risky situations through active and constructive partnerships with their peripheral environment, and is considered as a self-healing process with positive emotional and cognitive consequences ^[12]. The resilience can help patients with CVD in difficult and stressful conditions and protect them against mental disorders and life problems, as previous research has shown that the resilience of healthy people is higher than that of the patient and usually the resilience can be seen in people with high self-efficacy ^[13].

The importance of self-efficacy and resilience in the patients with CVD can have an important effect on their health and well-being, as well as due to resilience of patients can lead to

self-efficacious behaviors and thus improve compliance with general health care, adherence to medication and control of the disease symptoms ^[14]. The results of the research indicated that the self-efficacy level and compliance with self-care behaviors among the patients with heart disease are not at the desired level and need to be improved in self-care programs, and considering that the self-efficacy is important as the most important determinant of self-care behaviors in people with CVD, the need is felt to strengthen this feature, especially in those patients who are weaker in this category. The self-efficacy is a valuable tool for nurses in health care centers. Evaluation and promotion of self-efficacy of the patient by nurses can increase the motivation of patients in their self-care. Therefore, it is important to recognize the factors affecting the self-efficacy of the CAD patients, including the resilience variables. Considering the importance of self-efficacy in the CAD patients, this research seeks to answer the question whether the resilience is associated with the self-efficacy in the ACS patients.

Materials and Methods

The present descriptive study was conducted in 2017 in selected educational hospitals affiliated to Shahid Beheshti University of Medical Sciences. Data were collected by non-randomized convenience method among patients with the characteristics of the units under study. Inclusion criteria were consciousness and awakens of the patient (awareness of time and space), patient's stable status, lack of pain, and 72 hours of admission.

Data were collected using demographic information, Connor-Davidson Resilience Scale (CD-RISC) and Sullivan's Cardiac Self-Efficacy (CSE) questionnaires. The CD-RISC questionnaire was developed by Connor and Davidson by reviewing the researches on resilience from 1979 to 1991, ^[15] which can be used to measure the resilience of people in clinical research situations. The questionnaire consists of 25 items (not true at all, rarely true, sometimes true, often true, true nearly all the time) to measure the power of coping with the pressure and threat, and in the areas of personal strength, tolerance for negative emotions, welcoming positive emotions, safe relationships, control, resilience. The resilience questionnaire is rated in a Likert scale between zero as not true at all and five as true nearly all the time ranging from 0 to 125. To evaluate the validity and confirm the suitability of this tool for our research, this tool was introduced to five faculty members of the School of Nursing and Midwifery. To assess the reliability of this study, the questionnaire was given to 15 patients and Cronbach's alpha, which was 0.85, was used to determine the internal consistency.

The Sullivan's CSE questionnaire includes the patient's confidence in compliance with general health care, adherence to medication and control of the disease symptoms. This questionnaire contains 13 questions that measure the patient's self-efficacy in a 5-point Likert scale from 0-4 scoring between 0 and 52, meaning that the higher score shows more self-

efficacy. The Sullivan's CSE questionnaire was employed in a study by Bagheri et al. in 2012, which was used by researcher to determine its validity and reliability after extracting the questionnaire from electronic resources and translation. Five faculty members at the School of Nursing and Midwifery confirmed the suitability of this tool for our research. To assess the reliability of this study, the questionnaire was given to 15 patients and Cronbach's alpha, which was 0.85.

The results of the study in relation to the demographic characteristics of the patients showed that the majority of patients were male (61.8%) and married (69.1%).

In order to carry out the study, the researcher obtained the required approval from the Ethics Committee and received a letter from the School of Nursing and Midwifery of Shahid Beheshti University of Medical Sciences, and referred to affiliated hospitals, including Shohaday-e-Tajrish, Labbafinejad, Emam Hosein, Masih-e-Daneshvari, Modarres, Taleghani, and Loghman-e-Hakim. The samples were collected after coordination with the authorities and the nurses of the department. The researcher introduced himself to the research units, and presented needed explanations regarding the research objectives and methodology. The researcher at various work shifts (morning shift: between 9:30 am and 12:00 noon after the visit of physicians, evening shifts: between 16:30 pm and 19:00 pm after visiting hours of the hospitals) referred to the relevant hospitals. Prior to the research, oral consent would obtain from the patients with ethical considerations if they were willing to participate in the study, had a stable and painless condition with 72 hours of admission. Data were collected using demographic information, CD-RISC and Sullivan's CSE questionnaires. The ACS diagnosis criterion was a written report from the cardiologist. The criteria for the information obtained from the individuals were their statements, and, if necessary, information was gained from the caregivers and medical records of the patients. The convenience sampling method was performed from among the patients admitted to cardiac care units (CCUs), who met the study inclusion criteria. It should be noted that the sampling lasted for two months (5 days a week), with an approximate completion time of the questionnaire of 25 minutes.

Results

The mean age of participants was 58.85 years with a range of 32 to 86 years. The majority of patients (69.1%) were married. Most of the patients (68.4%) had a history of current heart disease with a mean duration of 5.8 years, and only 31.6% of them had no history of a disease and their heart disease had been diagnosed for the first time.

According to the findings, the resilience rate was 81.18 ± 15.5 . The results showed that the mean "personal strength" scale was 25.21 and the "tolerance for negative emotions" scale was 21.65. The figure for "welcoming positive emotions" and "control" components was 17.19 and 9.77, respectively, and the total mean "resilience" was also 81.18. According to the

total score of the questionnaire (125), this finding shows that the resilience of subjects is at a desirable level (Table 1).

The resilience scores with a score of 3.5 were tested using one-sample t-test. Based on the results, the mean resilience score and its five dimensions were lower than the score of 3.5 (Table 2). The results of the study demonstrated that the mean self-efficacy of the patients was 29.24. In order to investigate the relationship between "resilience" and "self-efficacy," the multivariate linear regression analysis was used in a model using the algebraic method, whose results are reflected in Tables 3 and 4. According to the results, among five constituents of "resilience," only two components of "personal strength" and "tolerance for negative emotions" were able to significantly predict the "self-efficacy" of the subjects ($p=0.01$).

Discussion

In order to investigate the relationship between "resilience" and "self-efficacy," the multivariate linear regression analysis was used in a model using the algebraic method, whose results showed that the correlation observed between the components of "resilience" with "self-efficacy" was equal to 0.55. This result means that approximately 31% of the "self-efficacy" changes in ACS patients admitted to CCUs in hospitals affiliated to Shahid Beheshti University of Medical Sciences are explained by the variables of "personal strength", "tolerance for negative emotions", "welcoming positive emotions", "control" and "spirituality" ($R^2=0.310$).

In the complete regression model, the significance levels of "personal strength" and "tolerance for negative emotions" were less than 0.05; in other words, among the five constituents of "resilience," only two components of "personal strength" and "tolerance for negative emotions" were able to significantly predict self-efficacy of subjects. Meanwhile, the components of "welcoming positive emotions", "control" and "tolerance for negative emotions" have lost their role in predicting "self-efficacy". Increasing one unit in "personal strength" and "tolerance for negative emotions" in patients with ACS admitted to CCUs in Shahid Beheshti University of Medical Sciences affiliated hospitals added 0.32 and 0.31 units respectively to their "self-efficacy". Based on the data in the table, the regression equation can be designed as follows:

Predicted self-efficacy (Y) = +0.332 (personal strength) + 0.231 (tolerance for negative emotions)

Based on the above regression model, increasing one unit in "personal strength" and "tolerance for negative emotions" in patients with ACS admitted to CCUs in Shahid Beheshti University of Medical Sciences affiliated hospitals added 0.32 and 0.31 units to their "self-efficacy", respectively (Table 4). Previously, the results of Fathi et al. in 2011 revealed a positive and significant correlation between the resilience and the self-efficacy of cardiovascular patients, as self-efficacy of patients was increased with raising their resilience in line with the results of the present study. They came to the conclusion that paying attention to the resilience of individuals can lead to their

self-efficacy. Therefore, it can be said that the resilience enables the individual to adapt to the hardships, difficulties and challenges and to ensure that they can overcome issues and thereby increase their self-efficacy.

Nikmanesh et al. ^[16] also reported a positive and significant correlation between self-efficacy and resilience in a study in 2015, but the differences in their research with the present study were in the study statistical population, as it was the cardiovascular patients in our study but nurses in their research. Farhadiamjad and Mirkamali in 2016 ^[17] also studied social workers at Kahrizak nursing home and found that the resilience had a significant positive relationship with the self-efficacy of the staff. This means that those who have a higher resilience can adapt themselves to the new conditions soon, and have a clear perception of what is happening. These people can withstand the frustration, manage anxiety, and ask for help when they need it compared to vulnerable individuals. They also have no self-defeating behaviors, are emotionally calm and able to cope with unpleasant situations, and consequently such individuals have a higher mental health and thus show better performance in their work and believe in the ability to manage affairs well. Finally, it can be said that these individuals also have a higher self-efficacy. Therefore, the findings of Farhadiamjad and Mirkamali are consistent with the results of the present study.

Several studies have shown that individuals with higher self-efficacy expectations than those with fewer self-efficacy are likely to be more in search of appropriate solutions to problems and issues. On the other hand, the individual's belief in empowerment forms the person's knowledge, attitude and function in order to use all the capacities to resilience in difficult circumstances ^[16].

Conclusion

The findings showed that the self-efficacy of ACS patients promotes with increasing resilience, and solutions to improve resilience can improve self-efficacy in the ACS patients. Given these findings, the patients with high resilience will be able to withstand many mental stress and suffer from lower psychological stress in their workstations and have high self-confidence and self-esteem, it is recommended to strengthen the belief in such patients to pay attention to their self-efficacy and sense of meaning in the workplace, as the most important determinants of resilience in patients. Based on the results, special attention to this issue by policymakers of the health and treatment system in the country, by holding educational workshops on enhancing the resilience skills including spirituality, hope, optimism, moral reasoning, self-esteem, problem-solving skills, and skills and emotional management is recommended through the establishment of workshops on resilience recognizing and training for the ACS patients. It is also recommended that authorities and health providers consider the aforementioned issues in educational programs for the ACS patients.

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Table 1: Statistical characteristics of resilience and its subscales in patients with acute coronary syndrome admitted in cardiac care units of hospitals affiliated to Shahid Beheshti University of Medical Sciences in 2017 (n=136)

Resilience	Mean	Standard deviation	Minimum	Maximum
Personal strength	25.21	5.7	10	38
Tolerance for negative emotions	21.65	5	8	32
Welcoming positive emotions	17.19	3.7	7	25
Control	9.77	2.5	3	15
Spirituality	6.97	2	2	10
Total	81.18	15.5	41	112

Table 2: Statistical characteristics of self-efficacy in patients with acute coronary syndrome admitted in cardiac care units of hospitals affiliated to Shahid Beheshti University of Medical Sciences in 2017 (n=136)

Self-efficacy	Mean	Standard deviation	Minimum	Maximum
Compliance with general health care	15.72	4.76	2	27
Control of the disease symptoms	6.43	2.26	0	11
Adherence to medication	7.08	2.47	0	14
Total	29.24	8.2	9	50

Table 3: Summary of regression test to investigate the relationship between resiliency and self-efficacy components

Model	Predictor variables in the model	Correlation Coefficient	Squared correlation coefficient	Modified correlation	Significance level
Personal strength					
Tolerance for Negative emotions	0.557	0.310	0.284	0.284	0.01
Welcoming Positive emotions					
Control					
Spirituality					

Table 4: Coefficients of resilience components in predicting self-efficacy of patients

Variables	Model	B	SE	(Beta)	t	Significance level
	Y-intercept	6.7	3.3		2	0.04
Personal strength	Variable coefficient	0.474	0.18	0.332	2.7	0.01
Tolerance for negative emotions	Variable coefficient	0.380	0.19	0.231	1.98	0.04
Welcoming positive emotions	Variable coefficient	0.152	0.24	0.07	0.64	0.5
Control	Variable coefficient	0.311	0.33	0.1	0.95	0.35
Spirituality	Variable coefficient	0.399	0.33	0.1	1.2	0.23

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