

# Comparison of acute coronary syndrome patients with anxiety regarding comorbidity diseases, history of hospitalization, type of disease and treatment in coronary care unit

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## Abstract

**Introduction:** Acute coronary syndrome has the highest incidence of cardiovascular disease and is associated with high mortality and morbidity.

**Objectives:** This study was aimed to compare acute coronary syndrome patients with anxiety by comorbidity diseases, history of admission, type of disease and treatment in coronary care unit (CCU) in 2017.

**Patients and Methods:** The quasi-experimental study was conducted on 60 patients with acute coronary syndrome admitted to the CCU in Imam Reza hospital in Eslamshahr in 2017. The method of sampling was convenience. The variables of interest were comorbidity diseases, history of hospitalization, type of disease and treatment. The Spielberger questionnaire was used to data collection. The level of significance was less than 0.05.

**Results:** The mean and standard deviation scores of participants was  $52.88 \pm 10.73$ . At the start of the study, the mean of anxiety in the control group was more than the intervention group (47.80 versus 40.73,  $P=0.042$ ). The two groups did not have a significant difference in terms of the history of admission to the intensive care unit ( $P=0.793$ ). The patients had a significant difference regarding blood pressure in control group compared with the intervention group ( $P=0.039$ ).

**Conclusion:** The patients with acute coronary syndrome may have high blood pressure due to lack of control of stressors and may have more angina pectoris. In this context, anxiety reduction strategies can be helpful.

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## Introduction

Cardiovascular disease is considered as one of the chronic diseases and the main cause of death and disability in the world (1). More than 23 million people in the year 2030, will die due to coronary artery disease, which 80% of these deaths will occur in developing countries (2).

Cardiovascular disease is the cause of 7 million deaths out of 53 million deaths in 2010. Additionally, deaths from cardiovascular disease increased by 31% between 1990 and 2010. In 2010, coronary artery disease justifies 13.3% of deaths in the world, 11.1% including ischemic and hemorrhagic attacks, and other forms of non-ischemic attack, as well as 12.9 million people died because of coronary artery disease (1).

Acute coronary syndrome has the

## Core tip

The patients with acute coronary syndrome may have high blood pressure due to lack of control of stressors, therefore control of this subject may be one of the main goals in treatment of these patients.

highest incidence of cardiovascular disease and is associated with high mortality and morbidity (3). The number of patients with coronary artery disease in Iran, as in other industrialized countries, has been increased from 46.1% in 1996 to 58% in 2000 and reached 63.3% in 2006 (4). It is the first and most common cause of death in both genders (5).

Anxiety as one of the most common and important psychological problem causes physical problems such as heart attack with

emotional state associated with tension, stress, anger and increased activity of the auto nervous system (6).

It is essential to consider moderating anxiety as one of the most important nursing care in patients with myocardial infarction (6). Family is the most important social institution and the most fundamental community institution that has the greatest effect on its members and family-based care increases the satisfaction of provided care (7). The presence of family in hospital or wards can be helpful in reducing anxiety and fear, psychological, and emotional support for patients (8).

## Objectives

Given the pros of the family's presence in supporting the psychological aspect of the patient and decreasing her/his complications during admission, considering that there was no specific research on the effect of family presence in the intensive care unit time in Iran, the present study was conducted to determine the effect of this presence and related factors on the amount of anxiety.

## Patients and Methods

### Study population

The present study was a quasi-experimental clinical trial which was conducted in Imam Reza hospital of Eslamshahr city in 2017. The number of samples was 30 in each group (n=60) using the following formula:

$$n = \frac{(Z_{1-\alpha/2} + Z_{1-\beta})^2 \times (S_1^2 + S_2^2)}{d^2}$$

Inclusion criteria in this study were included patients with acute coronary syndrome (myocardial infarction with ST elevation, myocardial infarction without ST elevation and unstable angina) according to the physician's diagnosis, hospitalization for at least three days in the cardiac care unit, patient's awareness about time and place, lack of anxiety and psychological disorder before admission based on records, earning score higher than 20 according to the Spielberger questionnaire. Exclusion criteria were included; discharge of patients three days after admission, need for cardiopulmonary resuscitation (CPR) during the study, sleep deprivation other than alprazolam and oxazepam, causing acute cardiac complications during the study (such as acute pulmonary edema and acute cardiac failure) and pectoris angina. Spielberger anxiety questionnaire was completed on the first day of admission to the cardiac care unit and the second time in the third day of admission to the cardiac care unit.

Brief Spielberger tool is used to determine position anxiety. The questionnaire is a measure of concern, anger, and under pressure, and it shows that a person is already feeling the current position. This tool has 20 questions that are scored in a 4-point Likert.

A number of questions in this questionnaire are scored in reverse (1, 2, 5, 8, 10, 11, 15, 16, 19, 20). The score of the questionnaire lies within the range of 20-80. Low, moderate

and high anxiety is considered as the score between 21-40, 41-60, and 61-80, respectively (6). To determine the validity of the demographic tool, the content validity method was used and its reliability was confirmed by 10 faculty members.

For the validity and reliability of Spielberger anxiety tool, study conducted by Mahram et al in 1999 was used which was performed on 600 patients. For the validity of the Spielberger questionnaire, in this study, the mean of anxiety in the normal society and the standard society in all age groups was compared at a level of 0.05 and 0.01, which indicates the validity of the anxiety questionnaire.

The reliability of the Spielberger tool in Mahram study was calculated by Cronbach's alpha, and its rate in the norm and standard society was 0.94 (10).

For the control group, performing routine care of the coronary care unit (CCU) without the family presence was considered, and for the intervention group, in addition to routine care of the CCU, one family member was requested to stay with the patient from the first day until the last day.

### Ethical considerations

The research followed the tenets of the Declaration of Helsinki. All participants signed a written informed consent form to participate in the study. In order to carry out the research, the ethical committee approved the study with the code IR. SBMU.PHNM.1395.571 and the RCT code IRCT2017030732939N1 was obtained from the Iranian Registry of Clinical Trials (<https://en.irct.ir/trial/25547>). This paper was extracted from the MSc thesis for intensive care nursing of Leila Hatef Partovi (# IR. SBMU.PHNM.1395) in Shahid Beheshti University of Medical Sciences.

### Statistical analysis

For statistical analysis, results were presented as mean  $\pm$  standard deviation (SD) for quantitative variables and were summarized by absolute frequencies and percentages for categorical variables. Quantitative variables were also compared with paired *t* test. P values of 0.05 or less were considered statistically significant. Data analysis was done using SPSS version 22.

## Results

In this study, 120 questionnaires were analyzed for 60 patients, on the first and third day of admission. The mean age of participants in this study was 52.88 years with a standard deviation of 10.73 years. The lowest and highest age of subjects was 33 and 81 years, respectively. The mean age of patients in the intervention group was  $57.30 \pm 11.18$  years and  $48.47 \pm 8.31$  years in the control group.

In this study, 65% had no history of admission to the intensive care unit, 20% had only one history, 5% had a three history, and 3.3% had more than three history of admission to the intensive care unit. The two groups did not have a significant difference in terms of the history of

admission to the intensive care unit ( $P=0.793$ ; Table 1).

There was a significant difference in the level of angina. In the control group its frequency was higher compared with the intervention group ( $P=0.013$ ; Table 2). There was no significant difference regarding the treatment methods between the control and intervention groups ( $P>0.05$ ; Table 3). There was a significant difference of blood pressure in the control group compared with the intervention group ( $P=0.039$ ; Table 4).

The mean of anxiety at the beginning of the study in the control group was significantly higher than the intervention group (47.80 versus 40.73,  $P=0.042$ ). Additionally, the mean of anxiety score in the intervention group was significantly lower compared with the control

group (33.13 versus 44.63,  $P=0.001$ ; Table 5).

## Discussion

This study was aimed to investigate the effect of family presence on the anxiety of patients with acute coronary syndrome in the cardiac care unit. Cardiovascular disease is considered as one of the chronic diseases and the main cause of death and disability in the world (1). More than 23 million people in the year 2030, will die due to coronary artery disease, which 80% of these deaths will occur in developing countries (2). Indeed, anxiety is one of the most common psychological problem which is accompanied by emotional state associated with stress, anxiety, anger and increased activity of the autonomic nervous system. Anxiety along with one or more physical symptoms such as stenosis, sweating, palpitations, tachycardia, headache, restlessness, chest pain and shortness of breath, it is one of the triggers of angina pectoris (6).

The study of Bashti et al, on the impact of family visit on the anxiety of individuals with angina pectoris, was consistent with our results. They showed a significant decrease in the anxiety score (10). The study of Rafiee et al, to assess the effect of accompaniment on the satisfaction, anxiety and labor pain in primiparous women, also showed, in group with anxiety, the mean score of the anxiety was significantly lower than the control group (11). Another study conducted by Hamidi et al, on the effect of family presence on the clinic on physiological characteristics, revealed that family presence on the bed

**Table 1.** Comparison of history of hospitalization in the CCU in the control and intervention groups

Variable	Intervention	Control	Total	P value
<b>History of admission</b>				0.793
<b>No</b>	No.	21	18	39
	%	70.0%	60.0%	65.0%
<b>1</b>	No.	3	9	12
	%	10.0%	30.0%	20.0%
<b>2</b>	No.	1	2	3
	%	3.3%	6.7%	5.0%
<b>3</b>	No.	1	1	2
	%	3.3%	3.3%	3.3%
<b>&gt;3</b>	No.	4	0	4
	%	13.3%	0%	6.7%

**Table 2.** Comparison of diagnosis and history status in the control and intervention groups

Variable	Group		Total	P value	
	Intervention	Control			
Diagnosis	Unstable angina	No.	6	17	0.013
		%	20.0%	56.7%	
	Non-STEMI	No.	19	10	
		%	63.3%	33.3%	
	STEMI	No.	5	3	
		%	16.7%	10.0%	
Current conditions history	Yes	No.	12	13	0.793
		%	40.0%	43.3%	
	No	No.	18	17	
		%	60.0%	56.7%	

**Table 3.** Comparison of treatment history in the control and intervention groups

Variable	Group		Total	P value
	Intervention	Control		
Taking medication	No.	13	11	0.598
	%	43.3%	36.7%	
Angiography	No.	11	8	0.405
	%	36.7%	26.7%	
PCI	No.	6	4	0.488
	%	20.0%	13.3%	
CABG	No.	4	1	0.353
	%	13.3%	3.3%	

**Table 4.** Comparison of diseases history in the control and intervention groups

Variable	Group		Total	P		
	Intervention	Control				
HTN	No.	19	11	30	0.039	
	%	63.3%	36.7%	50.0%		
Diabetes	No.	14	8	22	0.108	
	%	46.7%	26.7%	36.7%		
Kidney	No.	3	1	4	0.612	
	%	10.0%	3.3%	6.7%		
Diseases history	Gastric	No.	2	3	5	0.999
		%	6.7%	10.0%	8.3%	
Thyroid	No.	0	1	1	0.999	
	%	.0%	3.3%	1.7%		
Pulmonary	No.	1	0	1	0.999	
	%	3.3%	.0%	1.7%		
Others	No.	0	1	1	0.999	
	%	0%	3.3%	1.7%		

**Table 5.** Comparison of the mean of anxiety number at the start and end of the study

Group	At the start of the study	At the end of the study	P value
	Mean ± SD	Mean ± SD	
Control	47.80±14.59	44.63±14.53	0.223
Intervention	40.73±11.5	33.13±8.98	0.001
P value	0.042	0.001	

does not result in hemodynamic changes and interference with the treatment process (12).

The study by Goudarzi et al reviewed the process of consciousness changes in the patients who were under coma accompanied with familiar stimulation by 14 days and showed that even the familiar voice was effective in improving the score of consciousness (13). Najafzadeh et al measured the effect of scheduled appointment on cardiac dysrhythmia and showed that the effect of this presence reduced cardiac dysrhythmia (14). Another study conducted by Fumagalli et al to reduce cardiovascular problems with free-dating policy, showed that the effect of this presence was helpful in reducing anxiety and maintaining the desired level of hormone (15).

The mentioned studies have shown the positive effect of family presence on the patient's bedside and were consistent with the present study.

The results of this study were obtained with the participation of 60 patients aged 33-81 years. Around 49 patients (81.7%) were male and 11 patients (18.3%) were female. In the control group, 80% of patients were men and 83.3% of the intervention group were men. The mean age of participants in this study was 52.88 years with a standard deviation of 10.73 years. In the present study, there was no significant difference in the level of education between the two control and intervention groups ( $P=0.465$ ).

## Conclusion

Patients with acute coronary syndrome may have high

blood pressure due to lack of control of stressors and may have more angina pectoris. In this context anxiety reduction strategies can be helpful. It is suggested that clinicians consider effective interventions for reducing the anxiety of patients with acute coronary syndrome.

## Limitations of the study

Small sample size and convenience sampling were the limitations of the present study.

## Authors' contribution

LHP participated in research design, the writing of the paper, and the performance of the research. SZA contributed to the study design, preparation of the manuscript and final revision. ZBF and SM acted as consultants of the study. All authors read and approved the final paper.

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## Conflicts of interest

The authors declare no conflict of interest.

## Ethical considerations

Ethical issues (including plagiarism, data fabrication, double publication) have been completely observed by the authors.

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