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EVIDENCE BASED CARE



## The Effect of Scheduled care companion program in Primary Nursing care on Patients' anxiety in Cardiac Intensive Care Unit

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### Abstract

**Background:** Hospitalization in cardiac intensive care units is always associated with negative consequences such as anxiety for patients. Since the family plays a vital role in the care of hospitalized patients, its positive effects are still questionable.

**Aim:** The present study aimed to investigate the effect of patient companion programmed participation in primary nursing care on anxiety among patients in the cardiac intensive care unit.

**Method:** This study was a quasi-experimental research with pre-and post-test design with a control group. The study population consisted of all eligible patients admitted to the cardiac intensive care unit of Razi Hospital in Birjand, Iran. A total of 48 patients was selected in a control (24) and intervention groups (24) through stratified block randomization with a block size of 4 patients. The patients' companions in the intervention group were allowed to attend the patients as planned for 3 days of 30 minutes and contribute to their clinical primary care. In the control group, the visit was still prohibited. Anxiety was measured in both groups at the beginning and on the third day of the patient's admission using the State-Trait Anxiety Inventory (STAI). Data were analyzed using SPSS software (version 16).

**Results:** The results indicated that anxiety reduced in both groups 3 days after hospitalization, however, this reduction was statistically more significant in the intervention group ( $p=0.001$ ). The anxiety score in the control group before and after the intervention was not significantly different ( $P=0.56$ ). but anxiety score in the intervention group before intervention was  $56.29 \pm 16.79$  which decreased to  $46.43 \pm 12.32$  after the intervention and paired t-test showed a significant difference ( $P=0.01$ ).

**Implications for Practice:** The supportive presence of a patient's companion in the cardiac intensive care unit significantly reduces patients' anxiety. Therefore, it is recommended to use the programmed presence and participation of the patient's companion as a non-pharmacological intervention to reduce patients' anxiety by reviewing the sessions.

**Keywords:** Anxiety, Coronary intensive care unit, Nursing Care, Patient companion, Patients

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## Introduction

Cardiovascular diseases are the leading cause of global mortality and disability (1, 2). The number of patients with coronary artery disease has increased in Iran like in other industrialized countries and is the first and most common cause of death in both men and women (3). The hospitalization process is a traumatic experience during which people move from familiar life situations to unfamiliar ones, lose their privacy and sense of security, and are confronted with sophisticated tools (4). Anxiety is a widespread, unpleasant, and vague feeling. Increased anxiety can lead to physical and psychological stress and adverse effects on organs, especially the heart (5, 6). Patients admitted to the cardiac intensive care unit suffer from sudden cardiac disorders such as life-threatening dysrhythmia, acute pulmonary edema, myocardial infarction, cardiogenic shock in addition to anxiety (7). Therefore, it is necessary to consider modified anxiety as one of the most important nursing care in patients with heart problems (8). Pain and anxiety relief is one of the most basic human rights and should be applied to all patients (9, 10). Pain and anxiety can be modified and controlled in a variety of ways among which independent and non-pharmacological approaches are considered desirable (11, 12). As a result, nurses are increasingly using these methods in recent years (13).

Non-pharmacological methods for reducing pain and anxiety include distraction, massage, music therapy, touch therapy, acupuncture, acupressure, relaxation and stress techniques, and family presence. Non-invasiveness, safety, no side effects, and ease of use are some of the advantages of these methods (11,14-17). The family is the most important and fundamental social institution that has the greatest impact on its members (18). Also, the family has an important role in caring for hospitalized patients (19). The negative psychological and physiological response of patients is minimized with the presence of family which reduces psychological stress, anxiety, and as a result cardiovascular complications and increase their level of health and satisfaction (20).

Fumagalli et al. examined the effect of limited and unlimited visitation policies in the intensive care unit on reducing cardiovascular complications in patients by determining its effects on the levels of patients' anxiety. The number and timing of visits, indefinite visits, were not associated with an increase in infectious complications, and the decrease in cardiovascular complications in these patients was probably due to a decrease in anxiety and thyroid-stimulating hormone (21). Studies conducted so far in Iran have shown that in the presence of companions, the rate of cardiac arrhythmia has decreased and cardiovascular indicators have not changed in patients admitted to the cardiac intensive care unit (22-24). However, family-centered care is rarely performed in acute care settings (25). This is partly influenced by nurses' attitudes toward the importance of the family in care (26). At present, these restrictions are applied in almost all teaching hospitals in Iran, which is one of the reasons for the special belief of nurses on the effect of family presence in increasing infection. In addition, they believe that the presence of the family in the intensive care unit interrupts the patient's rest and leads to physiological consequences such as increased heart rate, arrhythmia, hypertension, and anxiety in patients (27). Furthermore, studies present that the strategy of the limited meeting has no scientific basis (27). Due to the emphasis on flexible meeting policies and contradictory studies on the effect of meeting on patients' anxiety, the researcher sought to provide a more appropriate approach to patients' companions policies by determining the effect of family involvement on patients' anxiety in patient care in a cardiac intensive care unit (28-30). The present study was conducted to determine the effect of family presence in the cardiac intensive care unit on patients' anxiety considering its benefit in providing psychological support to the patient and reducing complications during hospitalization. Although other studies have focused on open appointment hours, in this study a planned and structured appointment hour is more compatible with intensive care settings. In addition, family members are allowed to participate in the patient's primary care, which is another distinctive aspect of the intervention in this study.

## Methods

The present study was quasi-experimental with two control and intervention groups. The study population included all patients and their companions at Razi Hospital in Birjand, Iran in 2019-2020. The sample size was calculated using a formula for comparisons of means after a pilot study and considering the confidence interval of 0.99 and test power of 90%; however, 22 patients were assigned to each group to cover potential sample loss, and a total of 48 patients entered the study.

Inclusion criteria included the diagnosis of cardiac disease by a physician, the probability of staying more than 24 hours in the cardiac intensive care unit, orientation of time, place, and individuals, no

drug addiction, and no use of psychoactive drugs. Exclusion criteria were any conditions that occurred during the intervention and rendered the intervention impossible, such as death, discharge, and unwillingness to continue participating in the study.

Inclusion criteria for the patient's companion were the willingness to continue participation in the study, being conscious, acceptable listening and speaking ability for learning, accompanying the patient for up to 72 h without interruption, and anxiety score below 60. On the other hand, the exclusion criteria were non-compliance with precautionary measures to control infection, lack of cooperation, crowded unit, excessive anxiety, or fatigue during the implementation of the program.

After the participants were selected based on the inclusion criteria, and written consent was obtained, they were randomly assigned to the control (N=24) and intervention groups (N=24) through stratified block randomization with a block size of 4 patients. A two-part questionnaire was used to collect data. The first part included demographic information. Patient demographics included six items (age, gender, marital status, education level, occupation, and medical history). Then, State-Trait Anxiety Inventory (STAI) was used to determine the level of anxiety. STAI consists of 20 questions based on a 4-point Likert scale. The total score of this inventory ranges from 20 to 80 (20-39 = mild anxiety, 40-59 = moderate anxiety, and 60-80 = severe anxiety). The validity and reliability of STAI (Cronbach's  $\alpha=0.94$ ) have been confirmed in the Iranian population (31).

In this study, the content validity and reliability of the questionnaire were confirmed using expert opinions (n=12) and internal consistency through the pilot study (n=15) with  $\alpha=0.89$ , respectively. STAI was applied once in the first 24 hours of hospitalization in the cardiac intensive care unit and then at the end of the third day in both groups. Before conducting the study, official permission was obtained from the hospital manager and also head nurse of the cardiac intensive care unit. The intervention included the scheduled presence of a preferred family member who met the inclusion criteria which was performed from the first day of admission to the cardiac intensive care unit for 3 days. The selected family members attended the cardiac intensive care unit twice a day (at 7 a.m. and 5 p.m. shifts) each for 30 minutes. They were allowed to enter the cardiac intensive care unit, after coordinating with the nurse in charge, to visit their loved ones, touch them, participate in some primary care activities, such as dressing, washing their face, combing their hair, brushing their teeth, feeding and taking them to the bathroom. In addition, they had a chance to interact with the nurses and ask their questions about the clinical condition of their patients to be more informed and confident.

The researchers informed the family members that they should observe the rules of the unit and be careful not to disturb the privacy and peace of other patients or interfere with nursing care during the time they visited their patients. The family members entered the unit with the permission of the nurse in charge to prevent crowding of the cardiac intensive care unit. Moreover, other visitors followed the usual visitation policy for ethical considerations. In addition, families of ineligible patients had the opportunity to visit their patients similar to the main participants, however at different times to control the setting. No specific intervention was conducted in the control group and all visitors, including family members, relatives, friends, colleagues were allowed to visit their patients every day between 3-4 p.m. according to the visitation policies. The visitors were allowed to enter the unit one by one. Each visitor was only allowed to visit the patient for 10 minutes and then left the unit for the next visitor. There was no priority between first-degree relatives and other relatives or friends in terms of the duration of visiting. None of the visitors was allowed to engage in the care of the patient to prevent errors, the entire program is performed under the supervision of the shift supervisor.

The data collection process took 6 months. Descriptive and inferential statistics were used for data analysis using SPSS software (version 16). Paired and independent t-test was used to compare the dependent variable in each group and between groups, respectively. A P-value less than 0.05 was considered statistically significant. The normality of the data distribution was assessed by the Kolmogorov-Smirnov test.

This study was conducted after taking approval of the research ethics committee and hospital management and coordinating with the officials of the cardiac intensive care unit. All participants were informed of the study objective and signed a written informed consent and were ensured the confidentiality of their personal information.

## Results

The results of statistical tests on demographic variables indicated that the mean age of participants

was  $59.87 \pm 15.79$  years in the intervention group and  $55.20 \pm 17.89$  years in the control group. Independent t-test showed that the mean age was not significantly different between the intervention and control groups ( $P=0.343$ ).

Moreover, the control and intervention groups were homogenous in terms of gender, education level, marital status, occupation, hospitalization history, and underlying diseases ( $P>0.05$ ) (Table 1).

No statistically significant relationship was observed between the mean scores of anxiety in each group before and after the intervention. The Independent t-test failed to show a significant difference between the two groups before ( $P=0.286$ ) and after the intervention ( $P=0.362$ ) (Table 2).

**Table 1. Comparison of demographic characteristics in the control and intervention groups**

Variable	Groups		P-value	P-value	
	Intervention	Control			
	Frequency (percent)	Frequency (percent)			
Gender	Male	12(50)	13(54.2)	0.08	0.773
	Female	12(50)	11(45.8)		
Level of Education	Illiterate and Elementary school	8(33.3)	8(34.8)	4.95	0.292
	Middle and High school	0	2(8.7)		
	Diploma and Associate degree	8(33.3)	5(21.7)		
	Undergraduate and Postgraduate	6(25)	8(34.8)		
	PhD	2(8.3)	0		
Marital Status	Single	17(29.2)	8(33.3)	0.09	0.75
	Married	17(70.8)	16(66.7)		
Employment Status	Employee	4(16.7)	3(13)	2.35	0.798
	Retired	5(20)	3(13)		
	Housewife	7(29.2)	8(34.8)		
	Self-employed	3(12.5)	6(26.1)		
	Student	1(4.2)	1(4.3)		
	Unemployed	4(16.7)	2(8.7)		
Hospital History	Yes	17(70.8)	17(73.9)	0.05	0.813
	No	7(29.2)	6(26.1)		
Medical History	Yes	14(58.3)	14(58.3)	0.00	1
	No	10(41.7)	10(41.7)		

**Table 2. Determination and comparison of patient's anxiety before and after the presence of patient's companion in intensive care unit in two groups of control and intervention**

Variable	Control group	Intervention group	Between groups
	Mean $\pm$ SD	Mean $\pm$ SD	
Anxiety Score	Before Intervention	51 $\pm$ 16.78	P* =0.28 , t=-1.080
	After Intervention	50.15 $\pm$ 16.21	
Comparison of anxiety before and after the intervention	P** =0.56, t=0.584	P** <0.001, t=5.820	-
Comparison of mean difference of anxiety before and after intervention	-0.39 $\pm$ 3.21	-9.00 $\pm$ 7.41	P** <0.001, t=5.108

\* Independent t-test

\*\* Paired t-test

As Table 2 indicates, the results of paired t-test between the control ( $P=0.56$ ) and intervention groups ( $P=0.001$ ) also confirmed the significance of this difference in both groups. Also, the mean difference between the control and intervention groups was significantly different after the intervention ( $P=0.001$ ).

## Discussion

The present study aimed to investigate the effect of family participation training programs in nursing care on the anxiety of hospitalized patients in the cardiac intensive care unit. The results showed that the mean score of anxiety was significantly decreased in the intervention group.

In other words, the findings revealed that the scheduled presence of the family at the patient's bedside in the cardiac intensive care unit and their participation in some primary care of the patient has positive effects on reducing patients' anxiety. In this regard, Bashti et al. (2016) proved that scheduled family visits have a positive result on the level of anxiety in patients with angina (32). Similarly, another study conducted in the maternity ward reported that the presence of a trained caregiver significantly reduces the level of maternal anxiety during delivery. The previously mentioned studies showed the positive effect of family presence at the patient's bedside and were consistent with the present study (33-35). In addition, Salehi et al. (2016) showed that the closer the caregiver's relationship with the patient, the more the patient's anxiety decreases. The patient-approved caregiver was used in the present study (35).

The results of a study by Abdi Gheshlaghi et al. (2021) indicated that regular family presence reduces the level of anxiety and pain of emergency patients in a public hospital in Western Iran (36). Koochi et al. (2017) also reported that family involvement in providing primary level care reduces the anxiety of pain in burned patients (37).

AzimiLolaty et al. (2014) conducted a study to evaluate the effect of visiting family or friends on the physiological and happiness indices of patients with myocardial infarction admitted to the cardiac intensive care unit which showed that after the visit, happiness significantly increased and anxiety reduced in patients, and it is consistent with the findings of the present study (28). In another study, it was reported that the presence of family and their participation in the process of patient care has caused sensory stimulation and reduced anxiety in patients, so allowing family members to be present at the patient's bedside has positive consequences and can be a consider non-pharmacological intervention (38). However, conflicting studies are available in this field. Rasti et al. (2014), showed that the presence of parents has no positive effect on the level of anxiety in children undergoing surgery. In this study, although the mean score of postoperative anxiety in the intervention group was significantly lower than that of the control group, no significant difference was observed between the intervention and control groups before and after surgery. Infact, Surgery is one of the scariest treatments for children, and perhaps the severity of anxiety can reduce the impact of family presence (9). Islekdemir and Kaya (2016) stated that the presence of family during invasive procedures does not affect patients' anxiety (39).

The results of the studies of Gerber et al. (1993) and Kleman et al. (1996) showed that increasing the meeting time does not change physiological parameters (40, 41). Different results of studies can be due to different duration and frequency of visits, as well as different times of measurement and recording physiological indicators, and anxiety. However, it seems that in studies with at least one hour visit was per day, physiological indicators appear to be better and this may be due to the reduction of the patient's anxiety (1,2). The patient's anxiety level increased again after the visit with the distance from the family. Therefore, the frequency should be considered in addition to the duration of the appointment. Three scheduled appointments were considered in the present study (42, 43).

The study of Salavati et al. was conducted aimed to investigate the effect of scheduled visit on physiological indicators of hospitalization in the cardiac intensive care unit and the results showed that scheduled visit does not cause significant changes in cardiovascular indicators. Also, Gerber performed a study on three groups of patients admitted to the cardiac intensive care unit with different appointment times which showed no statistically significant difference between the three groups in terms of anxiety scores. Mehrnejad et al. reported similar results in their study which is inconsistent with the results of the present study and other related studies which may be due to differences in the family plan. Therefore, informing the participants about the principles of visit and how the family treats the hospitalized patient, talking to the patient, and providing the necessary training or using the

patient's favorite companions for the visit has reduced the level of anxiety (29, 30, 40).

Finally, it should be noted that in the present study, family members met with the patient in a controlled manner and also participated in the patient care program. In this study, the researcher aimed to involve family members in performing simple supervised health care. Participants and treatment staff ensured that the involvement of family members in patient care did not lead to harm to the patient and could effectively reduce the patient's anxiety and thus improve the patient care process.

The results of this study showed that the family-centered care approach has reduced post-visit anxiety in patients. Since the environment of intensive units increases patients' anxiety due to factors such as sensory deprivation, noise, lack of sleep, fear of diagnostic procedures, and separation of family members and friends. Considering the emotional dependence that exists in our culture between family members, it can be concluded that the patient's distance from the family while hospitalized in the intensive care unit has devastating effects on that person. Therefore it was suggested that current visitation policies be replaced by a more flexible schedule. Families need to interact more with their patients and engage in caring activities.

It is important to pay attention to the following limitations in interpreting the results of the study. Many factors, such as the unfamiliar environment of the ward, fear of performing painful procedures, and ambient noise can affect the level of patients' anxiety; therefore, it was tried to put the maximum possible interval between these factors and the measurement of the patient's level of anxiety. Another limitation of this study was changing the routine meetings of the intensive care unit which was obtained with the consultations made before the intervention. The next limitation of this study was that measuring patients' anxiety levels was based on patients' reports, which has several drawbacks. It is suggested that other methods be used to measure the levels of patients' anxiety in future studies.

### **Implications for Practice**

The results of this study indicated that family participation in the nursing care of patients hospitalized in the cardiac intensive care unit reduced a patient's anxiety. Consequently, the beneficial effects of the presence of a patient's companion can be used for the patients hospitalized in the cardiac intensive care unit to accelerate recovery of patients and reduce anxiety, the length of hospital stay, complications, and charges for patients and the health system.

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### **Conflicts of Interest**

The authors declare that there is no conflict of interest regarding the publication of the present study.

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