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Effect of family presence during teaching rounds on patient's anxiety and satisfaction in cardiac intensive care unit: A double-blind randomized controlled trial

Ali Ansari Jaberi[1], Fahimeh Zamani[2], Ali Esmaeili Nadimi[3], Tayebeh Negahban Bonabi[4]

Departments of [1]Psychiatric and Mental Health Nursing and [4]Community Health Nursing, School of Nursing and Midwifery, Social Determinants of Health Research Center, Rafsanjan University of Medical Sciences, [2]Department of Medical Surgical Nursing, School of Nursing and Midwifery, Student Research Committee, Rafsanjan University of Medical Sciences, [3]Department of Cardiology, Medical School, Non-Communicable Diseases Research Center, Rafsanjan University of Medical Sciences, Rafsanjan, Iran

Address for correspondence:
Dr. Tayebeh Negahban Bonabi, Parastar Street, Nursing and Midwifery School, Department of Community Health Nursing, Rafsanjan, Kerman Province, Iran.
E-mail: negahbant@yahoo.com

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Abstract:

INTRODUCTION: The family members' presence during teaching rounds is introduced as a challenging issue. The outcomes of family presence during teaching rounds in adult care settings is an under investigate issue**.** The propose of this study was to determining the effect of family presence at teaching rounds on patient's anxiety and satisfaction in cardiac intensive care unit (CICU).

MATERIALS AND METHODS: In this double-blind randomized controlled trial, 60 patients who were hospitalized in CICU were selected based on inclusion criteria and then assigned into 2 groups (with and without family members presence during teaching round), equally by the random minimization method. The patient's anxiety score was measured before and after rounds on the Spielberger State-Trait Anxiety Inventory (STAI). Furthermore, the patient's satisfaction about various clinical aspects of round was measured by a self-reported questionnaire. The data were analyzed by SPSS software using Kolmogorov–Smirnov test, Chi-square test, independent sample and paired sample *t*-test, at the significance level of 0.05.

RESULTS: The study groups were similar in terms of demographic variables. In the family members presence group, the STAI score significantly decreased after intervention ($P = 0.001$). Furthermore, in this group, the after-intervention STAI score was significantly lower than family absence group ($P = 0.011$). The mean changes of patient's satisfaction about quality of round score in family member presence group were significantly higher than family absence group ($P = 0.001$).

CONCLUSIONS: Family presence during teaching rounds led to patient's lower anxiety and higher satisfaction score.

Keywords:

Family centered rounds, patient's anxiety, patient's satisfaction, teaching rounds

Introduction

Teaching rounds as a cornerstone of medical education are a planned process in which a healthcare team performs clinical examinations, to get important information for a clinical impression. Then, based on available information, medical diagnoses and treatment plans will be formed.[1] The first family-centered round (FCR) model was designed to promote family-based care programs, improve medical Student's clinical education, and finally improve quality of care. In this model, patients, family members, doctors, nurses, students, and other staffs have a planned and purposeful engagement.[2,3] The presence of family members during the rounds is

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a good opportunity to meet the patients' need, family members and treatment team and doctor learners. Because patients who admitted to intensive care units are often ill and unable to communicate with the treatment team or participate in medical decisions making. On the other hand, family members are interested in receiving important medical information and share the needs, values, and preferences of very serious ill patients with the treatment team.[4,5]

Today, the family members' presence during wards' rounds is introduced as a underresearched and challenging issue, especially in developing countries. Healthcare providers have been mentioned some positive aspect such as facilitating communication, providing opportunity to family to participate in medical decision-making,[6] decreased family anxiety,[5] family satisfaction,[7] better understanding on patients' disease,[4] promoting student's self-efficacy in family centered care, and decision-making,[8] increased trainees' communication skills,[9] positive impact on physician's perceived comfort, staff involvement,[10] improvement of collaboration and relationships between team members,[11] and understanding of the care plan by team.[12] Despite mentioned advantages, there are some concerns, including the longer duration of the rounds,[13] reduce authority of trainees,[7] the limitation of the necessary discussions, patient's privacy problems, family discomfort to ask questions and discuss about the various aspects of problem management and imposed stress or anxiety to patients.[4]

In some reports, researcher believed that, the outcomes of family presence during teaching rounds in adult care settings is also an underinvestigated issue.[4,11,14] Therefore, they have suggested more clinical trials in this field. In the healthcare system of Iran, the presence of family members during the teaching rounds has not been considered, and therefore, in this context, this topic has been less respected by researchers. The propose of this study was to determine the effect of family presence at teaching rounds on patient's anxiety and satisfaction in cardiac intensive care unit (CICU).

Materials and Methods

This randomized controlled trial was performed from May to August 2018 aimed at determining the effect of family presence at teaching rounds on patient's anxiety and satisfaction in CICU in Ali Ebn Abitaleb hospital in Rafsanjan, Iran.

Sixty eligible patients and their families, who were hospitalized in CICU in Ali Ebn Abitaleb Hospital affiliated to Rafsanjan University of Medical Sciences, Rafsanjan, Iran, enrolled in the study randomly based on inclusion criteria. The inclusion criteria for patients were age higher than 18 years, having informed consent to participate in the study, candidates for teaching round, having cognitive ability to answer questions, being alert, and no history of hospitalization in CICU. The inclusion criteria for family members include being over 18 years of age, being a prime family member (mother, father, sister or brother child, and spouse and grandparents), having a wish and request to attend beside the patients, no history of known mental illness, and no history of presence during the teaching round. Exclusion criteria include cancelling of continued being in research by the patients or families and the occurrence of any acute situation for the patient and family.

The research council of Rafsanjan University of Medical Sciences approved the project and ethics code (code of ethics: IR.RUMS.REC1397.196) obtained; then, one of the researchers were present in the CICU department, provided the introduction letter and obtained the consent of the hospital authorities. According to the rules of most hospitals in Iran during teaching rounds, family members are not allowed to stay beside of patients. But, in coordination with the head of the department of CICU, who was one of the executives of the research project, the strategy of the department was changed to allow the presence of some family members during teaching rounds.

To sampling, at first, the individuals were chosen based on the inclusion criteria, then the objective of the study were explained to the patients, and their families who were eligible to entering the study; after obtaining written consent, they were assigned into two study groups (with and without presence family member during teaching round) equally by random minimization method. The demographic characteristic and the Spielberger State-Trait Anxiety Inventory (STAI) were completed via face-to-face interview before intervention for all patients across two groups.

At Ali ebn Abitaleb Hospital, the teaching rounds start at 9:00 AM, after the completion of the morning rounds. In this study, patient's first teaching round was intended, which was performed during the first 24 h after admission to the hospital. The round members included professors, trainee students, medical interns, assistants, and nursing staffs/head nurses. Typically, the teaching round for each patient lasts 3–45 min.

In the intervention group, the selected family member presented and participated in the round. But in control group the teaching round performed without family member's presence. After completion of the rounds, the STAI and patient's satisfaction about quality of round questionnaire were completed for patients in both groups by a researcher fellow, via face-to-face interview.

In this trial, 60 patients were assigned into two groups: "family presence during rounds" and "family absence during rounds" equally based on categories STAI levels in three categories of 20–40, 41–60, and 61–80, using the random minimization method.[15] The samples were randomly assigned into categories of two groups, such that the total number of samples in each category was equal. Sampling continued until the required sample size was obtained. To blinding, the members of round team, patients, and family members did not know exactly that the impact of the family members presence on the level of anxiety, and their satisfaction was considered by the researchers.

The main outcome was patient's anxiety score. Furthermore, the patient's satisfaction about various clinical aspects of round was measured as secondary outcome.

Data were collected through face-to-face interviews. Data collection tools consisted three parts. The first was of a demographic questionnaire for patients and family (age, gender, marital status, occupation, education, type of relationship, duration of hospitalization, and medical diagnosis). The STAI was the second part. The STAI contains 40 self-reported questions in two parts: obvious and hidden anxiety. The obvious anxiety scale consists of 20 questions examining common and ordinary feelings of individuals (the person's the most often feelings). In this study, the obvious anxiety scale was intended. This scale scores from 1 to 4 (never to many times) with range score of 20–80.

The internal consistency coefficients of this scale have reported 0.86–0.95, and also over 2-month interval test–retest reliability coefficients considered from 0.65 to 0.75. The third part of data collection tool was the " patient's satisfaction about various clinical aspects of round." This questionnaire was based on the study of Adibi *et al*. The content and face validity of the questionnaire have been confirmed and its reliability has been acceptable with the Cronbach's alpha of 0.77–0.63.[16]

The sample size was calculated 30 for each group, based on the results of similar studies[17] and considering the 95% confidence level, second type error 90%, standard deviation 3, and ef fect size 5.21.

$$n = 2\,(z_{1-\alpha/2} + z_{1-\beta})^2\,\sigma^2 / d^2$$

In order to the ethical consideration, the code of ethics was obtained from the ethics committee by deputy of the research and technology at Rafsanjan University of Medical Sciences (code of ethics: IR.RUMS.REC.1396.196). Moreover, the ethics of research such as explanation of the study purpose, confidentiality, voluntarily participation of the individuals in the study, the possibility of discontinue participation in the study, and ensuring that their participation or nonparticipation in the study does not effect on treatment process, intended by the researchers.

The data were analyzed using software SPSS version 22 (by IBM company, NY, USA) at the significance level of 0.05. Kolmogorov–Smirnov test was used for determining the normality of distribution of quantitative variables; Chi-square test was used for comparison of ratios and the paired sample *t*-test for comparison of mean scores within groups. Independent-sample *t*-test was used for the comparison of mean scores between groups.

Results

The results of Kolmogorov–Smirnov showed that all of the quantitative variables distributed normally.

The data analysis results showed that the mean and standard deviation of the patient's age was 62.05 ± 14.06 with a minimum of 24 and a maximum of 89 years. Furthermore, the mean and standard deviation of family member's age was 15.08 ± 12.38 with a minimum of 22 and a maximum of 80 years. In terms of family relation type, 29 (48.3%) of family members were child, 24 (40) were spouses, 5 (8.3%) were mothers, and 2 (3.3%) were fathers. The medical diagnosis of 18 (30%) patients were myocardial infarction, 24 (40%) patients were acute coronary syndrome, 14 (23.3%) arrhythmias, and 4 (6.7%) with heart failure. The results indicate that there was no significant difference between the study groups in terms of patient's demographic variables such as gender, marital status, level of education, age, and place of residence and duration of stay in hospital; therefore, the two groups were similar in this view [Table 1].

The intragroup comparison of STAI score in the intervention group, results showed that, the mean and standard deviation of STAI score at before intervention was 53.100 ± 7.95 and reached to 45.30 ± 8.34. Results of paired samples *t*-test showed that this change in STAI score was statistically significant (P = 0.001 95% confidence interval [CI]: 4.24, 11.35). In control group, the mean and standard deviation of STAI score at before intervention was 52.100 ± 7.71 and reached to 51.100 ± 8.76. Results of paired sample *t*-test showed that this change was not statistically significant (P = 0.175) [Table 2]. Results of intergroup comparison of patient's STAI score showed that there was no statistically difference between two study group at before intervention phase (P = 0.589); but, after intervention, the SATI score in intervention group was significantly lower than control group (P = 0/011, 95% CI: −10.222, −1.377, effect size = 0.720) [Table 3].

Comparing patient's satisfaction score about quality of round showed that the mean and standard deviation of satisfaction score in intervention group was 61.40 ± 9.23 and in control group was 55.43 ± 9.23. There was significant difference between groups in this view (P = 0/036, 95% CI: 0.409, 11.523, effect size = 0.555) [Table 4].

Discussion

The results of this study indicated that the anxiety score in patients whose family members were present during the teaching rounds was significantly lower than those patients whose family members were not allowed to attend the patient's bedside. Also, the family member's presence has led to patient's higher satisfaction about various clinical aspects of round.

The review of existing literature suggests that the effects of family member's presence during teaching rounds in the adult patient's position are less respected by researchers, and the focus of most studies was done on the presence of parents at the bedside of their children. Results of a recent systematic review showed that the family-centered rounds increased understanding of information and elevate medical team confidence, as well as reduced parental anxiety. But, it is unclear that if the family centered rounds compared with standard rounds, increases family satisfaction or not.[5] In another study, family satisfaction about their presence at rounds was high; but, on the 1st day of hospitalization, they had less desire to hear bad news and also they mentioned concerns about privacy issues.[18] Voos *et al*. showed that implementation the family centered rounds in a neonatal intensive care unit, after 6 months, could increase collaboration among team members and promote family satisfaction regarding communications.[19] In most of these studies, positive aspects of family presence during rounds have been emphasized.

There are limited studies in which the adult patient outcomes for family involvement during the teaching rounds have been examined. The focus is often on trainees, families, and the treatment team outcomes.[7,12,20,21] In the existing literature, some studies reported positive patient outcomes, including,

Table 1: Comparison of demographic characteristics patients across the studied groups

Demographic Characteristics	Control group, *n* (%)	Intervention group, *n* (%)	*P*
Age, mean±SD	63.47±12.89	60.63±15.27	0.440*
Educational level			
Under diploma	20 (66.7)	19 (63.3)	0.787**
Upper diploma	10 (33.3)	11 (36.7)	
Residence place			
Urban	16 (53.3)	17 (56.7)	0.795**
Rural	14 (46.7)	13 (43.3)	
Marital status			
Single	0 (0)	1 (3.3)	0.500***
Married	30 (100)	29 (96.7)	
Duration of hospital stay			
Half day	8 (26.7)	12 (40)	0.374**
1 day	11 (36.7)	12 (40)	
One and half day	8 (26.7)	3 (10)	
2 days	3 (10)	3 (10)	
Gender			
Male	17 (56.7)	14 (46.7)	0.437**
Female	13 (43.3)	16 (53.3)	

*t-test for independent groups, **Chi-square test, ***Fisher's exact test.
SD=Standard deviation

Table 2: Results of paired sample *t*-test in comparison of State-Trait Anxiety Inventory score before and after intervention inside each group

Groups	Mean±SD		Mean changes±SD	95% CI		*P*
	Before intervention	After intervention		Upper	Upper	
Family presence	53.1±7.95	45.30±8.34	−7.80±9.53	4.240	11.359	0.001
Family absence	52±7.71	51.10±7.76	−0.90±3.54	−0.424	2.224	0.175

SD=Standard deviation, CI=Confidence interval

Table 3: Results of independent samples *t*-test in comparison of State-Trait Anxiety Inventory score before and after intervention and its changes between groups

STAI Score	Mean±SD		Mean difference±SE	*P*
	Family presence group	Family absence group		
Before intervention	53.1±7.95	52±7.71	−1.1±2.02	0.589
After intervention	45.30±8.34	51.10±7.76	−5.80±2.20	0.011

SD=Standard deviation, SE=Standard error

Table 4: Results of independent samples *t*-test in comparison of patient's satisfaction score and it's mean changes between study groups

Satisfaction Score	Mean±SD		Mean difference±SE	*P*
	Family presence group	Family absence group		
Patient's satisfaction score	61.40±9.23	55.43±12.07	−1.1±2.02	0.589
Mean changes	−7.80±9.53	−0.90±3.54	6.90±1.85	0.001

SD=Standard deviation, SE=Standard error

researchers in a nonrandomized clinical trial conclude that the family centered round reduced patient's hospitalization time, facilitated using of simple language during the rounds, elevated feeling of inclusion in discussion at rounds, participation in the decision making, and preference for FCRs. They found no significant difference in the duration of rounds.[22] But, the results of a systematic review showed that family presence bedside the rounds had a limited effect on patient-centered outcomes.[23] Although this aspect of the teaching rounds has not been addressed by researchers, we can look at the subject from a wide range of angles and discuss it properly; naturally, the variety in patient population, cultural backgrounds, and educational system can lead to a variety of family centered rounds consequences in different societies.

In spite of the efforts of the researchers, this study had its own limitations. Although the researchers tried to minimize the impact of confounding factors by matching the samples of the three groups based on the STAI scores in pretest, repeatedly, the study is suggested in larger and more specialized samples. On the other hand, STAI questions may not be a familiar scale for the elderly that constitute the majority of the research samples, so researchers tried to complete the questionnaire by interview.

Conclusions

The results of the present study revealed that FCR was able to correct patients' STAI score and their satisfaction about various clinical aspects of round. Therefore, by implementing this program while taking advantage of other benefits, it is possible to improve patient's outcomes. Due to the differing conditions and characteristics of adult patients for the presence of family members during medical rounds and the limited number of studies available for comparison other aspects of patient outcomes, further clinical trials are recommended.

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Conflicts of interest

There are no conflicts of interest.

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