

## ORIGINAL RESEARCH

# Attitudes of Emergency Nurses and Patients' Family Members Towards the Presence of Family Members During Cardiopulmonary Resuscitation; a Cross-sectional Study

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**Abstract:** **Introduction:** Family presence during cardiopulmonary resuscitation (CPR) is one of the elements where family-centered care is practiced. This study aimed to investigate the attitudes of Iranian emergency nurses and patients' family members regarding the presence of family during CPR. **Methods:** In a cross-sectional study, 350 emergency nurses and 254 family members of patients admitted to the emergency department of an educational hospital in Iran were enrolled. Data were collected from May to November 2020 using convenience sampling and using a 27-item questionnaire of participants' attitudes towards family presence during CPR. **Results:** The mean attitude scores of nurses and family members of patients regarding family presence during CPR were  $86.79 \pm 7.50$  and  $92.48 \pm 6.77$ , respectively ( $p < 0.001$ ). The highest and lowest mean scores of nurses' attitude towards family presence during CPR were related to "CPR performance will be negatively influenced" and "Family members have the right to be present during CPR of their relatives/ Allows relatives to stay with the patient until the end/ Makes the patient less worried", respectively. The highest and lowest mean scores of family members' attitude towards family presence during CPR were related to "Family members may interfere with CPR" and "May be beneficial to the relatives' grieving process", respectively. **Conclusion:** Overall, the results of this study showed that the attitude of emergency nurses and patients' family members towards family presence during CPR was positive. Of course, the mean attitude score of nurses in this regard was significantly lower.

**Keywords:** Family; Resuscitation; Cardiopulmonary resuscitation; Nurses; Attitude; Emergency Service, Hospital

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## 1. Introduction

Cardiac arrest occurs when a person's heartbeat stops (1). According to the American Heart Association, 475,000 people in the United States experienced cardiac arrest in 2018 (2). Car-

diopulmonary resuscitation (CPR) is an emergency lifesaving procedure that can reverse cardiac arrest (3). When cardiac arrest occurs for patients, their family members in the waiting room are informed of the patient's condition by an emergency nurse (4, 5).

Patient and family-centered care have substantial benefits for the family, patients, and health care providers. Family presence during CPR is one of the elements where family-centered care is practiced. Family presence during CPR benefits the family and patients, and indeed healthcare profes-

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sional guidelines exist on the implementation of CPR during family presence (6). An integrative review showed that family members would like to be present during CPR. However, the practice is rarely implemented by healthcare professionals (7). Qualitative research in Brazil found that the perspectives differ across family members, patients, and healthcare professionals about family presence during CPR. However, environmental, sociocultural, and care-related factors predict perspectives towards family presence during CPR (4, 8-10). In Iran, the family is very valuable in culture and religion, and the presence of family members in the final moments of life is important (11). On the other hand, family presence during CPR is a challenging issue in Iran (9). However, previous evidence in Iran has shown that emergency nurses are not prepared for the presence of family members during CPR (4, 9, 12). For example, a study in Iran showed that the attitudes of most emergency nurses and most patients' family members towards family presence during CPR were negative (12). However, there is limited information on the attitudes of emergency nurses and patients' family members towards family presence during CPR (13). Therefore, the present study aimed to investigate the attitudes of Iranian emergency nurses and patients' family members regarding the family presence during CPR.

## 2. Methods

### 2.1. Study design and setting

In a cross-sectional study, 350 emergency nurses and 254 family members of patients admitted to the emergency department of an educational Hospital in Amol, affiliated to Mazandaran University of Medical Sciences, Mazandaran were studied regarding their attitude towards the presences of patients' family during CPR. Data were collected from May to November 2020 using convenience sampling. This study was approved by the Ethics Committee of Mazandaran University of Medical Sciences (IR.MAZUMS.REC.1399.7820). The objectives of the study were explained to participants and informed consent was obtained from them. Participants completed the questionnaires in a private room without the presence of a research team.

### 2.2. Participants

Participation in this study was voluntarily. The nurses with the experience of caring for a patient who underwent CPR were included. In addition, family members of patients that underwent CPR, who were over 18 years old were included. Participants who did not consent to participate in the present study were excluded.

### 2.3. Data gathering

Data were collected using a two-part questionnaire including 1) participants' demographic characteristics and 2) participants' attitudes towards family presence during CPR. Demographic characteristics of nurses such as age, sex, marital status, level of education, clinical work experience, employment status, shift work, tendency to work in a non-nursing profession, and work in a non-nursing profession were collected. Also, baseline characteristics of family members of patients such as sex, marital status, level of education, and family member's relationship to the patient, as well as the age of the patient who was resuscitated, and survival of the resuscitated relative were collected.

The attitude towards family presence during the CPR questionnaire was designed by Leung and Chow (2012) (14). This tool consists of 27 items in four areas, including 1) attitudes towards patient and family member rights for family presence during the CPR (3 items; range of scores: 3 to 15), potential advantages of family presence during the CPR (8 items; range of scores: 8 to 40), potential disadvantages of family presence during the CPR (12 items; range of scores: 12 to 60), and opinions about supportive requirements for the implementation of family presence during the CPR (4 items; range of scores: 4 to 20). Participants rate the items of this tool on a five-point Likert scale from strongly disagree (score of 1) to strongly agree (score of 5) for the first 23 items and from very unimportant (score of 1) to very important (score of 5) for the last four items. This tool is scored between 27 and 135. In Iran, the reliability of the present questionnaire was confirmed by Zali et al., with a Cronbach's alpha of 0.763 (12). The questionnaire was pilot-tested on randomly selected nurses (10 in number) and family members (15 in number), and minor modifications were made (to resolve confusing wording) based on their feedback about the content, sentence structure, and clinical relevance. Reliability was assessed, resulting in a Cronbach's alpha of 0.80, indicating high internal consistency.

Trained nurses contacted the family members of deceased patients by phone six months after the death and interviewed them. An individual interview was requested with the explanation of its purpose and an appointment in the hospital was made where appropriate specialists were informed and called for support (12).

### 2.4. Statistical analysis

The sample size of the family members was calculated using the formula of  $Z^2_{1-\alpha/2} \times \delta^2 / d^2$  with  $d=10\%$  and  $1-\alpha=0.95$ . All statistical analyses were performed using SPSS for Windows, version 16.0 (SPSS Inc., Chicago, IL, USA). Descriptive statistics were presented as mean  $\pm$  standard deviation for continuous variables and frequency with percentage for cat-

**Table 1:** Baseline characteristics of nurses and their correlation with the mean attitude score regarding the presences of family during cardiopulmonary resuscitation

Variables	Nurses (n=350)	Attitude score	p-value
<b>Age (year)</b>			
20-25	35 (10.00)	87.65 ± 6.30	
26-35	227 (64.86)	86.45 ± 7.50	0.029
36-45	65 (18.57)	85.82 ± 6.00	
46-55	23 (6.57)	87.86 ± 8.48	
<b>Gender</b>			
Male	56 (16.00)	85.19 ± 7.30	0.081
Female	294 (84.00)	87.10 ± 7.50	
<b>Marital Status</b>			
Single	171 (48.86)	86.84 ± 7.33	0.470
Married	179 (51.14)	86.74 ± 7.64	
<b>Level of Education in nursing</b>			
Bachelor of Science	315 (90.00)	87.00 ± 7.66	0.110
Master of Science	35 (10.00)	84.94 ± 5.59	
Working experience (year)	7.11 ± 5.09		
≤ 10	296 (84.57)	86.71 ± 7.40	0.750
> 10	54 (15.43)	87.25 ± 8.09	
<b>Employment Status</b>			
Temporary	192 (54.86)	86.65 ± 7.28	0.148
Official	158 (45.14)	86.95 ± 7.45	
<b>Work shift</b>			
Fixed	77 (22.00)	86.62 ± 7.44	0.320
Rotational	273 (78.00)	87.77 ± 8.24	
<b>Tendency to work in a non-nursing profession</b>			
Yes	143 (40.86)	87.07 ± 7.72	0.880
No	207 (59.14)	86.30 ± 7.17	
<b>Working in a non-nursing profession</b>			
Yes	33 (9.43)	86.87 ± 7.60	0.260
No	317 (90.57)	86.09 ± 6.44	

Data are presented as frequency (%) and mean ± standard deviation. Attitude score ranges from 27 to 135.

egorical variables. The Kolmogorov-Smirnov test was used to check the normality of data distribution. The association between attitudes of the two study groups was assessed using the Pearson correlation test. Independent t-test and one-way analysis of variance (ANOVA) were used to compare groups. Statistical significance was set to  $p < 0.05$ .

### 3. Results

#### 3.1. Participants' characteristics

In the present study, 350 emergency nurses and 254 family members of patients were included. Of the nurses, 64.86% had an age of 26-35 years, 84% were female, 90% had a Bachelor of Science in Nursing (BSN) degree, and 84.57% had less than ten years of work experience. Of the family members of patients, 59.45% were male, 79.13% were married, 38.19% had a degree less than a high school diploma, and 33.07% were children of patients. The baseline characteristics of participants are presented in Tables 1 and 2.

#### 3.2. Attitude towards family presence during CPR

The mean attitude score of nurses and family members of patients towards family presence during CPR were  $86.79 \pm 7.50$  and  $92.48 \pm 6.77$ , respectively ( $p < 0.001$ ). The highest and lowest mean scores of nurses' attitude towards family presence during CPR were related to "CPR performance will be negatively influenced" and "Family members have the right to be present during CPR of their relatives/ Allows relatives to stay with the patient until the end/ Makes the patient less worried", respectively. The highest and lowest mean scores of family members' attitude towards family presence during CPR were related to "Family members may interfere with CPR" and "May be beneficial to the relatives' grieving process", respectively (Table 3).

### 4. Discussion

The results of this study showed that the attitude of emergency nurses and patients' family members towards family



**Table 2:** Baseline characteristics of family members and their correlation with the mean attitude score regarding the presences of family during cardiopulmonary resuscitation

Variables	Family members (n=254)	Attitude score	P-value
<b>Age of patient (year)</b>			
10-20	9 (3.54)	97.11 ± 6.77	
21-30	38 (14.96)	89.60 ± 6.48	
31-50	145 (57.09)	92.73 ± 6.60	0.019
51-70	57 (22.44)	92.92 ± 6.83	
71-90	5 (1.97)	93.80 ± 8.13	
<b>Gender</b>			
Male	151 (59.45)	93.00 ± 6.43	0.140
Female	103 (40.55)	91.72 ± 7.21	
<b>Marital Status</b>			
Single	53 (20.87)	91.72 ± 7.07	0.363
Married	201 (79.13)	92.74 ± 6.59	
<b>Level of Education</b>			
< high school diploma	97 (38.19)	92.60 ± 6.90	0.927
High school diploma	93 (36.61)	92.55 ± 6.64	
College education or higher	64 (25.20)	92.20 ± 6.88	
<b>Relationship to patient</b>			
Spouse	82 (32.28)	92.67 ± 7.11	
Child	84 (33.07)	92.35 ± 6.92	
Father	37 (14.57)	91.67 ± 6.64	0.702
Mother	26 (10.24)	92.84 ± 5.48	
Sister or brother	25 (9.84)	94.11 ± 6.68	
<b>Survival after resuscitation</b>			
Yes	34 (13.39)	91.73 ± 6.33	0.488
No	220 (86.61)	92.60 ± 6.85	

Data are presented as frequency (%) and mean ± standard deviation. Attitude score ranges from 27 to 135.

presence during CPR was positive. Of course, the mean attitude score of nurses in this regard was significantly lower. This finding was not in line with the results of studies from Brazil, (8) Trinidad and Tobago, (15) and Iran (9). A study in Brazil (8) found that health care providers had a negative attitude towards family presence during CPR. They believed that changes should be made to the hospital infrastructure to accommodate family members and train staff to meet the emotional needs of families during CPR (8). Another study in Trinidad and Tobago found that families experienced psychological damage from CPR and that family presence during CPR prolonged the resuscitation process (15). Also, a study in Iran showed that emergency nurses have a negative attitude towards family presence during CPR, which can be improved through workshops (9). The attitude of nurses towards family presence during CPR is more positive in Western countries compared to Middle-Eastern countries (16). A study in the USA found that nurses had a more positive attitude towards family presence during CPR than other health care workers (17). However, a study in Singapore found that health care workers had a negative attitude towards family presence during CPR (6). This difference may be due to differences in the culture and religion of nurses (18). Therefore, emergency nurses need to be prepared through work-

shops and effective policies in this area. Also, well-designed interventions are essential to improve the attitude of emergency nurses towards family presence during CPR. The attitude of patients' family members towards family presence during CPR was positive. Consistent with this finding, a study in China (14) found that 80% of patients' family members had a positive attitude towards family presence during CPR. A study in Iran (12) showed that the presence of family members during CPR reduces their anxiety. Also, another study in Iran (19) found that family presence during CPR helps those present accept patients' deaths more easily than their families. However, there is limited evidence regarding the attitude of family members of patients related to family presence during CPR, and there is no policy to support it. Therefore, it is recommended that Iranian researchers pay special attention to the attitude of family members of patients related to family presence during CPR in future studies. Also, well-designed interventions to reduce the gap between the attitudes of nurses and family members and developing policies and workshops can help improve the attitude of emergency nurses regarding family presence during CPR.

**Table 3:** Comparing the attitudes of nurses and family members regarding family presence during cardiopulmonary resuscitation (CPR)

Statement	Nurses (n=350)	Family (n=254)
Family members have the right to be present during CPR	2.02 ± 0.75	3.73 ± 1.05
Permission should be obtained in advance, if possible, from the patient prior to witnessed CPR	2.47 ± 1.01	3.98 ± 0.89
I would be present during CPR of my relative if allowed	2.90 ± 1.24	3.73 ± 1.10
Presence of family members would benefit the patient	2.85 ± 1.36	3.19 ± 1.32
Allows relatives to ensure everything was done	2.18 ± 1.11	3.75 ± 1.11
Allows relatives to stay with the patient until the end	2.02 ± 0.91	3.79 ± 1.09
Makes the patient less worried	2.02 ± 0.91	2.51 ± 1.51
Family members provide support to the patient	2.73 ± 1.21	3.85 ± 1.07
Would benefit the family members	2.36 ± 1.03	3.88 ± 1.03
May be beneficial to the relatives' grieving process	2.43 ± 1.02	1.87 ± 0.94
Improves relatives' understanding of CPR	2.86 ± 1.24	3.93 ± 1.00
May impair patient dignity	2.30 ± 0.97	3.79 ± 1.10
Relatives may have a bad last impression of patient	4.18 ± 0.97	3.73 ± 1.16
Process of CPR is too distressing to relatives	3.93 ± 1.24	2.76 ± 1.15
Relatives may have long-term psychological sequel	4.02 ± 1.11	3.78 ± 1.03
Family members may interfere with CPR	4.32 ± 0.89	4.40 ± 0.92
Will prolong the CPR, making the decision to stop more difficult	4.06 ± 1.23	2.54 ± 1.19
Increases the emotional stress of physicians	3.66 ± 1.30	2.05 ± 0.99
Negatively influences the physicians' performance	3.88 ± 1.20	1.96 ± 0.93
Increases the emotional stress of nurses	3.84 ± 1.21	3.46 ± 1.23
Negatively influences the nurses' performance	4.38 ± 0.88	3.33 ± 1.20
CPR performance will be negatively influenced	4.44 ± 0.78	3.12 ± 1.19
May increase litigation or complaint	4.18 ± 1.15	4.12 ± 0.87
Should be supported by a member of staff	2.15 ± 0.74	3.82 ± 0.96
Facilities must be available to screen off the area where the CPR takes place to allow privacy	3.57 ± 1.22	3.60 ± 1.08
The physician should speak with or write to the relatives afterwards to discuss the CPR	3.40 ± 1.25	3.58 ± 1.17
If required, the doctor should arrange appropriate referrals for witnessing relatives	3.54 ± 1.05	4.12 ± 0.85

Data are presented as mean ± standard deviation. The range of score for each question was 1 to 5.

## 5. Limitation

The present study had several limitations. The main limitation of this study was the lack of evaluation of patients' attitudes towards family presence during CPR. The study also assessed the attitudes of emergency nurses and patients' family members using a self-report questionnaire that may lead to a response bias. All responses were from one department at one single hospital, which may have a negative impact on external validity.

## 6. Conclusion

The results of this study showed that the attitude of emergency nurses and patients' family members towards family presence during CPR was positive. Of course, the mean attitude score of nurses in this regard was significantly lower.

## 7. Declarations

### 7.1. Acknowledgments

None.

### 7.2. Authors' contributions

Study concept and design by all authors; Data acquisition by all authors; Data interpretation by all authors; drafting of the manuscript by all authors; Revision of the manuscript by all authors; the final version of the manuscript is approved by all authors.

### 7.3. Funding and supports

None.

### 7.4. Conflict of interest

The authors declare no conflict of interest.

### 7.5. Availability of data

The datasets generated and analyzed during the current study are available from the corresponding author on reasonable request.

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