

A Medical Team's Perspective Regarding Presence of the Family Members of Patients during Cardiopulmonary Resuscitation in the Intensive Care Unit

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Received: 12/11/2014; Accepted: 30/09/2015

Abstract

Introduction: The basic needs of a patient and his/her family members are to be supported during health care and especially during critical situations. One such support is required during cardiopulmonary resuscitation (CPR). Hence knowing the perspective of medical persons about "Family member's Presence during Resuscitation" (FPDR) in the Intensive Care Unit (ICU) is important.

Methods and Materials: This research was a descriptive-analytic cross-sectional study. The population consisted of 360 members of the medical team in the ICUs of educational hospitals in Rasht during 2014–2015. Data were collected by means of census sampling using a two-part questionnaire, which included demographic information and the medical team's perspective. Fischer exact test, spearman's coefficient, logistic regression, and the Kruskal-Wallis test were used to analyze the results of the study.

Results: The findings showed that 156 (43%) medical team members had experience of FPDR. Only 71 (19.7%) stated that they would invite family members to be present during the resuscitation process. The Fisher test showed a significant difference between the medical team's perspective of FPDR ($P=0.033$), with the majority of the emergency specialists (40%) and anesthesiology (4.2%) showing the highest and lowest agreement respectively about FPDR. The logistic regression model showed that the perspective of the medical team with a Bachelor's Degree (BS). In nursing degree ($OR=4.3$, $p<0.021$), an MSC. Nursing degree ($OR=6.9$, $P<0.018$), an anesthesiologist associate degree ($OR=22.5$, $P<0.001$), a BS. anesthesiologist degree ($OR=5.7$, $P<0.029$), and an emergency specialist status ($OR=19.8$, $P<0.032$) had a more positive attitude toward FPDR compared with the general practitioners.

Conclusion: Considering the medical team's perspective of the importance of FPDR, it is necessary to formulate an instruction in ICUs to provide the grounds for it.

Keywords: Cardiopulmonary resuscitation, Family, Intensive Care Unit

Please cite this article as: Golestani M, Asadi Louyeh A, Sheikholeslami F, Kazem Nejad Leyli E; A Medical Team's Perspective of the Presence of a Patient's Family Members during Cardiopulmonary Resuscitation in the Intensive Care Unit. J Holist Nurs Midwifery. 2017;27(3):37-45

Introduction

Sudden cardiac arrest is a major cause of death in many countries [1]. In industrialized countries, the number of cardiovascular disease cases is estimated to be 600,000 per year [2]. In Iran, post-cardiac resuscitation death rates have been reported at more than 90%, and the hospital survival rate is less than 7% [3]. Cardio Pulmonary Resuscitation (CPR) is the conventional hospital treatment for a patient whose heartbeat has stopped [4]. Care-providers often see the death of patients in different hospital care units [5]. Intensive Care Units (ICU) is one of the most stressful and important units in a hospital, in which patients need comprehensive care. Not only the patient but also his/her closest family members are emotionally affected by the critical situation of the patient [6].

Generally speaking, the family should be considered as important as the patient in the nursing intervention programs, considering the role it plays for the patient [7]. In fact, patients and their families are considered as a unit [8]. The family plays a vital role in providing care for the patient [9]. Finding a loved one in a threatening situation and a stressful setting can increase the mental and emotional pressure on the family members. Also, in accordance with the Patients' Rights Charter in Iran, the dying patient has the right to be next to his/her loved ones at the last moment of his/her life [10]. The concept of family-witnessed resuscitation or other aggressive methods has received considerable attention in the last few decades [11]. Typically, family members are kept out of the resuscitation setting until the efforts and the resuscitation measures are completed. The presence of family members by the patient's side is recognized as a requirement [5]. The presence of the family member/s in the resuscitation room reduces the fear of not

being aware of the patient's condition. They are assured that every necessary measure has been taken for the patient, and this helps them accept the death of their loved ones [12]. However, the medical staff has different perspectives of Family member's Presence During Resuscitation (FPDR) in ICUs [2]. This perspective may be affected by the lack of policies and guidelines regarding the presence of family members during resuscitation [13]. Ward's study showed that health care providers hold different perspectives regarding FPDR based on their occupation, expertise, and the level of experience [14]. The main reasons for their objection are 1) the emotionally adverse effects on the family, such as increased mental pressure, uncontrollable mourning, 2) and lack of space, and 3) interference from family members and disturbance and mental pressure on the resuscitation team, such as increased team pressure, concentration impairment, ethical issues. There are increasing number of complaints from the resuscitation team. In contrast, the supporters of FPDR believe that the old practice, in which the patient is separated from the family, must be discontinued [12].

Various studies show different results in this regard. Jabre et al. showed that FPDR was associated with positive outcomes of psychological variables; it did not interfere with medical efforts, increase stress of the medical team, or affect the outcome of forensic conflicts [2]. Similarly, Ward's study showed that nurses were more interested in FPDR than physicians were [14]. The findings of the study conducted by Dabiriyani et al. also showed that 53.3% of physicians and 56.7% of nurses showed no reluctance about FPDR [5]. However, Badir, in a study in Turkey, showed that 82% of the physicians and nurses in the emergency department (ED) and ICUs stated that FPDR was not to be entertained

[13]. The medical teams in Iran's treatment centers have a different approach to FPDR. Considering the close relationship between the medical team and the patient, it is up to the team to decide whether the family members should be present at the time of resuscitation. However, few studies in Iran have considered the differences and the contradictions in this regard, and the effects of FPDR on outcome. Some family members make a request to attend the CPR process. Also, considering the absence of specific policies, as well as the high mortality and sensitivity of the EDs and the ICUs, the critical conditions, and the elevated anxiety and depression of the families of patients, the researcher decided to conduct a study to determine the medical team's perspective of FPDR in ICUs at the Educational Therapeutic Centers in Rasht. The final aim was to make recommendations for the adoption of an appropriate policy to reduce the stress and anxiety of the patient, the patient's family, and the medical team by investigating these perspectives, reflecting the results of the research, and summarizing the results.

Methods and Materials

The present study was a descriptive-analytic, cross-sectional study conducted in the EDs and ICUs of seven educational centers of Rasht in 2014-2015. The study population consisted of 435 members of the medical team, including doctors, nurses, and anesthesiologists. In all, 360 subjects completed the questionnaire over 50 days period, using the census method, and 75 individuals did not give their consent to participate in the study. "Physicians" in the study refer to all general practitioners, ED specialists, and anesthesiologists. "Nurse" refers to all nurses with a B.Sc. or M.Sc. degree in nursing, and "anesthesiologist" refers to the anesthesiology specialists and experts

in the research setting. The inclusion criteria included the condition that the medical team members worked in ICUs (CCU, ICU and dialysis unit) and the EDs at the research hospitals at the time of this study.

The data-collection instrument included a questionnaire made by the researcher, adapted from instruments developed by Debirian et al. [5], Fulbrook et al. [16], and Varae [17]. The questionnaire consisted of two parts. The first part consisted of the subjects' personal characteristics (age, gender, educational degree, employment status, work experience, and work shift). It had seven questions with a "yes" or "no" answer, and one question that sought a positive or a negative perspective of FPDR and the personal experience of the personnel regarding it. The second part included questions about the perspective of the medical teams in the EDs and ICUs, including the decision-making domain (five questions), the process domain (10 questions), and the outcome domain (14 questions). In this part, the responses were arranged on the Likert scale. These ranged from complete agreement to complete disagreement. Ten questions had scores in negative. Scores of less than 33%, 33.3–66.6%, and above 66.6% were considered respectively as "disagreement", "having no idea", and "agreement" with regard to the medical team's perspective. To determine the validity of the instrument, the content validity method was used. The questionnaire was distributed among 10 faculty members. The Content Validity Ratio (CVR) and Content Validity Index (CVI) of the instrument were investigated and approved by the expert panel. To determine the reliability of the instrument, the test-retest method was used. The questionnaire was given to 14 treatment team members working in the ED and ICU of one of the centers. The same

participants completed it again after two weeks. Accordingly, the reliability of the instrument was confirmed (ICC=0.835, $r=0.718$). After obtaining a permit for sampling, the researcher referred to the subjects in the morning, evening, and night shifts over the week. After obtaining permission from the head nurses and the ED and ICU authorities, the questionnaire was distributed in one stage and completed using the self-efficacy method. It should be noted that due to overcrowding in the EDs and ICUs on some days, and at the request of some head nurses in these wards, 140 questionnaire were given to the head nurses of the departments and collected seven days later. The remaining questionnaires were collected by the researcher on the same day, within one hour after the time of distribution.

Data was collected within 50 days, from July 23 to September 11, 2014. After the questionnaires were completed, the data were coded, and entered into the SPSS software version 21. To determine the frequency distribution of the medical team's perspective of the statements of the questionnaire, the descriptive indexes were used. To test the statements, the binominal test was used. And the ratio of the opponents' perspective to the supporters' was tested at a constant value of 50%. The opinion of the people with no idea was excluded from the analysis. The Kolmogorov-Smirnov test was used to determine the normality of the data distribution. Since the medical team's perspective did not follow normal distribution in different domains, the Mann-Whitney and Kruskal-Wallis tests were used. Since the overall perspective score followed normal distribution, one-way ANOVA was used to analyze the data. The significance level of the tests was analyzed at $p<0.05$, and the

hypotheses were tested in two ways. The Spearman's test was used to examine the correlation coefficient of the relationship between the studied quantitative variables and the perspective scores. Also, the Fisher's test was used to compare the frequency of the medical team's perspective of FPDR, and the multiple logistic regression model was used to determine the perspective-related factors.

Results

The results of this study showed that 348 (96.7%) of the study subjects had participated in CPR training courses. The majority of them (94.2%) were active in these courses. Of the subjects, 30.6% announced that they had been offered the opportunity to attend a family member's CPR; 48.1% said they were eager to be present at the time of the CPR of a family member; 19.7% stated that they would invite the patient's family members to attend the patient's CPR; 43.3% had the experience of the presence of family members during CPR; 16.4% and 28.1% reported that they had positive and negative experience in this regard respectively. Other demographic characteristics of the studied subjects have been presented in Table 1.

Regarding the determination of the medical team's perspective of FPDR for each domain, the Kruskal-Wallis test showed a significant difference between the decision ($P=0.019$), the outcome ($P=0.01$), and the medical team's overall perspective domains ($p=0.0001$) based on the level of education. Regarding the determination of the medical team's perspective in terms of the individual, social, and occupational variables for each domain, the Spearman's test showed a

Table 1: Distribution of the individual characteristics of the subjects

Demographic variables		Number (%)
Gender	Female	296 (82.2)
	Male	64 (17.8)
	Total	360 (100)
Level of Education	BS. in nursing expert	251 (69.7)
	MSc. in nursing expert	18 (5)
	Associate degree in anesthesiology	32 (8.9)
	BS. In anesthesiology	24 (6.7)
	ED Specialist	5 (1.4)
	Anesthesiology specialist	7 (1.9)
	General practitioner	23 (6.4)
	Total	360 (100)
Work shift	Fixed morning shift	54 (15)
	Fixed evening shift	3 (0.8)
	Fixed night shift	4 (1.1)
	Circulating shifts	299 (83.1)
	Total	360 (100)
Employment status	Temporary-to-permanent	112 (31.1)
	Permanent	137 (38.1)
	Contractual	62 (17.2)
	Etc.	49 (13.6)
	Total	360 (100)

significant reverse correlation between the age and the medical team's perspective of FPDR in the outcome ($P=0.006$ and $r=0.145$), and work experience in ICUs and the decision-making ($P=0.44$, $r=-0.106$) and the outcome domains ($p=0.002$, $r=-0.16$), and the overall work experience and the decision-making ($P=0.016$, $r=-0.127$) and the outcome domains ($r=-0.187$, $p=0.0001$). Concerning the comparison of the status of the medical team's perspective of FPDR, Fisher's test showed a significant difference in the medical team's perspective of FPDR ($P=0.033$) (Table 2). With regard to the determination of the factors that predict a positive perspective of the medical team towards FPDR, the logistic regression model showed that members of the medical team with a B.Sc. nursing degree

($OR=4.3$, $p<0.021$), M.A. nursing degree ($OR=6.9$, $P<0.018$), anesthesiologist associate degree ($OR=22.5$, $P<0.001$), B.A. anesthesiologist degree ($OR=5.7$, $P<0.029$), or an emergency medicine specialist's status ($OR=19.8$, $P<0.032$) had a more positive attitude toward FPDR compared with the general practitioners. Also, with regard to an increasing experience level, the medical team had more negative perspectives about the presence of the family so that the relative likelihood of a year's experience was 0.876 with a CI of 0.794–0.967 (likelihood less than 1). However, with increasing age, there was a greater likelihood of a positive perspective of the presence of the family. With a one-year increase, the perspective score likelihood increased by 1/1 times above the mean ($OR=1/1$) (Table 3).

Table 2: Comparison of the frequency of the medical team's perspective on FPDR in ICU ward based on academic degree

Academic degree	Perspective			Total	Sig *
	(Disagree) N(%)	(No idea) N(%)	(Agree) N(%)		
BS in nursing	55(21.9)	251(100)	9(3.6)	251(100)	0.033
MSc. in nursing	5(27.8)	18(100)	0(0)	18(100)	
Associate's degree in anesthesiology	8(25)	32(100)	0(0)	32(100)	
BS in anesthesiology	1(4.2)	24(100)	3(12.5)	24(100)	
ED Specialist	2(40)	5(100)	0(0)	5(100)	
Anesthesiologist specialist	1(14.3)	7(100)	2(28.6)	7(100)	
General practitioner	2(8.7)	23(100)	0(0)	23(100)	
Total	74(20.6)	360(100)	14(3.9)	360(100)	

Table 3: Predictive factors for the positive perspective regarding FPDR

Resuscitation questions	Regression coefficient	Standard error	Sig.	Relative likelihood	CI 95%	
					Lower limit	Upper limit
Active participation in CPR	-1.033	0.612	0.091	0.356	0.107	1.180
Attending a patient's CPR, as a family member	0.952	0.261	0.0001	2.591	1.554	4.318
Invite family members to attend CPR	1.438	0.369	0.0001	4.212	2.043	8.682
Experience of family presence during cardiopulmonary resuscitation			0.01			
Positive experience	0.489	0.394	0.097	1.631	0.916	2.905
Negative experience	1.738	0.468	0.0001	5.686	2.272	14.228
Degree of education			0.004			
BS. in nursing	1.460	0.630	0.021	4.308	1.252	14.819
MSc. in nursing	1.942	0.824	0.018	6.972	1.387	35.063
Associate's degree in anesthesiology	3.114	0.801	0.0001	22.522	4.689	108.169
BS in anesthesiology	1.746	0.797	0.029	5.732	1.201	27.357
ED Specialist	2.988	1.392	0.032	19.849	1.279	303.750
Anesthesiologist specialist	0.495	1.081	0.647	1.64	0.197	13.661
General practitioner						
			Reference group			
Overall work experience	-0.132	0.050	0.008	0.876	0.794	0.967
Age	0.111	0.046	0.016	1.117	1.020	1.223

Discussion

The results of this study showed that there was a significant difference in the medical team's perspective of FPDR; the EDs and the anesthetic experts had the most and the least agreement levels respectively. However, the results of the study conducted by Dabiriyani showed that there was no significant difference between the attitude of physicians and nurses about FPDR [5]. According to Taraghi et al., there was a significant difference between the opinion of physicians and nurses about FPDR. The negative response of the physicians and nurses in the study done by Taraghi and colleagues were attributed to the interference of family members in resuscitation operations [12]. In the study conducted by Varai, most physicians and nurses opposed FPDR [17]. It seems that cultural differences, lack of instructions and staff to provide mental support to the family, family members' interference during resuscitation, stress of the medical team, and the level of education can affect the medical team's perspective. This perspective differs according to profession, expertise, and the level of experience. It seems that the level and type of education affect the medical team's perspective of FPDR. Boehm's study showed that nurses supported FPDR more than physicians did [18]. Wolf also wrote that most physicians and nurses working in ED and ICU believe that FPDR is not appropriate for the family. According to the author, cultural differences may be the possible reason for the difference in findings in this regard in different societies [11]. It seems that cultural differences, the level of education, and the type of education affect the medical team's perspective of FPDR.

The findings of this study confirmed that the medical staff who invited the patient's family to participate in the CPR of their patient had a more positive perspective of FPDR than those who did not invite the

family. Similar findings were found in the results of some other studies, too [13, 16]. In the present study, the medical personnel who had a positive experience with the presence of the family at the time of CPR had a more positive perspective of FPDR than those who did not have a positive experience. However, the relationship between these two variables was not significant. There was a reverse significant correlation between the age and the medical team's perspective of FPDR in the outcome domain, the work experience in ICUs in the decision-making and the outcome domains, and the overall work experience in the decision-making and outcome domains. Baumhover's et al research showed a negative relationship between supporting FPDR and the medical team's age. As the age of the medical team increased, FPDR was less supported [19]. Soleiman pour showed that there was no significant difference between the medical team's positive attitude regarding FPDR and the age and gender of the ED specialists, but there was a significant difference with regard to the experience domain, as experienced physicians had a more negative opinion toward FPDR [20]. In this regard, the results of the study by Chapman et al. indicated that the participants with higher levels of education and experience expressed more advantages and fewer risks of FPDR [21]. The results of many studies about the effect of higher education on the positive perspective of FPDR are similar to the findings of the present study. Perhaps, with the increase in the knowledge base, the resuscitation team member would be more able to manage their critical conditions and perspective of FPDR.

Since one of the basic needs of the family members and the patient is to be supported in critical situations, the family members' need to be with their loved ones during serious crises, their requests for FPDR, and the lack of specific policies in this regard, it is

recommended that the medical team staff be trained with regard to these critical conditions and they pay more attention to the emotional needs of the patient's family members. Also, according to the results of this study regarding the effect of age and work experience on the medical team's perspective of FPDR, it is recommended that further research should be done on the effect of age and work experience of the medical team on their perspective of FPDR. Since some of the questionnaires were completed in the presence of the researcher and others in his/her absence (due to the conditions of the EDs and ICUs), all the responses may not reflect the opinions of the respective respondents or have a high degree of accuracy.

Acknowledgments

This article is the outcome of a M.Sc. dissertation on Critical Care Nursing and a research project approved on June 1, 2015, with the number 9163 by the Guilan University of Medical Sciences. Thereby, the authors would like to thank all the participants at the educational centers and the Chancellor of Research and Technology of the Faculty of Nursing and Midwifery of Rasht Shahid Beheshti University for their sincere cooperation.

Conflict of interest

No conflict of interest has been declared by the authors.

Author contributions

All authors have agreed on the final version and meet at least one of the following criteria [recommended by the ICMJE

(<http://www.icmje.org/recommendations/>):

-Substantial contributions to conception and design, acquisition of data, or analysis and interpretation of data;

-Drafting the article or revising it critically for important intellectual content

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