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Emergency service health care workers' opinions and experiences on the practice of family-witnessed resuscitation: a cross-sectional study during the COVID-19 pandemic in Türkiye

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22/757). Administrative permission was granted by the T.R. Ministry of Health Ankara Provincial Health Directorate and respective hospitals. Permission for the use of the Family Presence Risk-Benefit Scale for Emergency Health Care Workers was received from Öztürk E.A. Informed written consent was obtained from all participants and confidentiality was maintained by excluding their names and other identifiers.

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Abstract

Despite the evidence supporting these recommendations and views, healthcare professionals have significantly different perspectives and attitudes toward the benefits of family-witnessed resuscitation. During the COVID-19 pandemic, this cross-sectional study was conducted on 154 healthcare professionals working in the emergency departments (EDs) of four hospitals in Ankara, Türkiye, to investigate their opinions and experiences with family-witnessed resuscitation (FWR). Data were gathered using the demographic form and the Family Presence Risk-Benefit Scale. The data was evaluated using descriptive statistical analyses, sample t-tests, Mann-Whitney U tests, and Kruskal-Wallis tests. According to the findings, the majority of ED healthcare personnel had never performed family-watched resuscitation before and were generally opposed to the practice. Although nurses were more likely than physicians to support FWR, the majority of participants expressed concern about the presence of family members during cardiopulmonary resuscitation. To influence healthcare personnel's attitudes,

interprofessional education should be provided, and institutional rules on family-witnessed resuscitation should be developed while taking into account their inexperience and fears.

Introduction

Cardiopulmonary resuscitation (CPR) can be defined as a series of procedures intended to restore spontaneous circulation. CPR can be performed at two levels: basic life support (BLS) and advanced cardiac life support (ACLS). While BLS refers to essential emergency procedures to maintain adequate ventilation and circulation for victims of cardiopulmonary arrest, ACLS is a set of life-saving protocols and skills during cardiopulmonary resuscitation that involves the use of an automated external defibrillator, airway management, advanced medical procedures, and medications.¹ Ten to twenty percent of all in-hospital cardiac arrests occur in emergency departments (EDs), where resuscitation is carried out more frequently.² Patients with a high burden of critical illness are more susceptible to undetected clinical deterioration that may result in cardiac arrest.³

Family-witnessed resuscitation (FWR) is the presence of one or more family members in the resuscitation area that affords visual or physical contact with the patient during CPR.⁴ Since 1982, when Doyle *et al.*⁵ initially reported on the Foote Hospital emergency department's Family Participation During Resuscitation program, there has been debate over whether it was appropriate to keep family members out of the resuscitation room. Since then, despite position statements, reports, and guidelines from professional organizations, such as the Emergency Nurses Association (ENA),⁶ the American Heart Association (AHA),⁷ and the European Resuscitation Council,⁸ and countless evidence regarding the benefits of family presence during CPR,^{4,9-15} it is still a controversial issue due to the continuing concerns of health care professionals and a lack of institutional protocols.¹⁶ Waldemar *et al.*¹⁷ conducted a retrospective observational cohort study using data from the Swedish Registry of Cardiopulmonary Resuscitation, which included 3257 cardiac arrest patients. The study found no differences in survival between family-witnessed and non-family-witnessed resuscitation within 30 days or immediately after resuscitation. However, previous studies reported conflicting results, including both the advantages and disadvantages of FWR for healthcare

teams and families.¹⁰ Advantages were reported as reduced anxiety, stress¹⁸ and agitation of family,¹⁹ strengthening of family bonds, facilitation of grieving, increased communication, acceptance of death and sharing the last moment,²⁰ and parents' satisfaction and coping.¹³ Conversely, disadvantages or concerns included psychological trauma to family members, higher rates of stress, anxiety, and depression,²¹ interference with resuscitation, disruption to the resuscitation team's focus,^{19,20,22} prevention of providing optimal care, prolonged resuscitation time, and a lack of professional support for the family.²⁰ The literature on FWR reports divergent views and attitudes of healthcare professionals about the presence of patient families during CPR. Furthermore, although FWR is included in the guidelines of various international organizations, the lack of clarity in the legislation and institutional protocols causes healthcare professionals to experience uncertainty in practice. Moreover, cultural, and religious factors may influence health care workers' attitudes. Thus, it is crucial to do cross-cultural studies on FWR practice, especially in EDs where CPR is performed more frequently. This cross-sectional study was carried out to identify the emergency service healthcare workers' opinions and experiences on the practice of FWR.

Material and Methods

Study design and setting

This descriptive cross-sectional, multicentre study research was conducted from 1 November 2022 to 30 December 2022, during COVID19 pandemic in Türkiye, in the EDs of four hospitals: Ankara Training and Research Hospital, Gülhane Training and Research Hospital, Yıldırım Beyazıt University Yenimahalle Training and Research Hospital, and Ulucanlar Eye Training and Research Hospital within the borders of Ankara province.

Study participants

The total number of healthcare professionals involved in the study was 258. Using the single population proportion formula with a confidence interval of 90% and a margin of error (d) of 5%, the minimum sample size was calculated as 145. Then, by using the stratified random sampling method, emergency healthcare professionals to be included in the sample from each hospital were determined. Accordingly, a total of 154 emergency health care workers voluntarily participated in this study, including 58 participants from Ankara Training and

Research Hospital, 45 participants from Gülhane Training and Research Hospital, 41 participants from Yıldırım Beyazıt University Yenimahalle Training and Research Hospital, and 10 participants from the Ulucanlar Eye Training and Research Hospital. The inclusion criteria for the study were working in the ED for at least 6 months.

Data collection tool and procedure

Data were collected through a self-administered sociodemographic questionnaire and the Family Presence Risk-Benefit Scale. The socio-demographic questionnaire was divided into two sections. The first section had ten multiple-choice questions, and the second section had thirteen questions in total that were designed to elicit the thoughts and experiences of healthcare professionals regarding FWR. In the second section of the form, ten closed-ended questions only accepted a yes or no response. The following were the open-ended questions on the final three: i) What is the meaning of FWR? ii) In your opinion, what are the benefits and significance of FWR? iii) In your opinion, what are the negative effects or risks of FWR?

The Family Presence Risk-Benefit Scale was created by Twibell *et al.*²³ in 2008 to measure nurses' perceptions of family presence during CPR and explore the advantages and disadvantages of family involvement. Family Wealth Risk-Benefit Scale is a 5-point Likert-type scale consisting of 26 items. Scale items consist of five-point Likert scale options: "Strongly disagree=1", "Disagree=2", "Undecided=3", "Agree=4" and "Strongly agree=5". There are nine reverse statements in the scale (items 2, 3, 5, 7, 8, 11, 12, 13 and 14). The score varies between 26 and 130. The average total score is calculated by dividing the number of items. High scores on the Family Presence Risk-Benefit Scale indicate that emergency healthcare professionals perceive family presence as more helpful during CPR, while low scores are interpreted as negative perceptions of family presence. Only one factor was identified, accounting for 53% of the variance in nurses' perceptions of the risks and benefits of FWP. Factor loadings ranged from 0.890–0.0498 and internal consistency was Cronbach's alpha of 0.96. The adaptation, validity, and reliability study of the scale into Turkish was conducted by Öztürk *et al.* in 2020 on a sample of 427 nurses.²⁴ Confirmed by one factor, the Family Presence Risk-Benefit Scale had a Cronbach's alpha of 0.911. The mean total scores of the Family Presence Risk-Benefit Scale were determined to be 35.90 ± 11.49 and 51.46 ± 14.28 , respectively.

Data were collected between 1 November 2022 and 30 December 2022. Healthcare professionals were informed and signed informed consent forms. Then printed versions of the data collection forms were distributed in person to the study participants. The forms were left up to the participants to complete at their convenience, allowing them to avoid the researcher's presence from impacting their answers. Completed forms were collected within the same day, after a few hours. To maintain participant anonymity, numerical codes were appended to their forms without any identifying information.

Data analysis

Statistical analyses were performed using IBM SPSS Statistics (Statistical Package for Social Sciences) 20.0 Windows package program. Data obtained from the sociodemographic questionnaire form was analyzed using descriptive statistics. T-test for samples, Mann-Whitney U test, and Kruskal-Wallis tests were used. The answers to the three open-ended questions were first read independently, and then, by comparing verbatim statements, similarities and differences were identified. Then initial codes were generated, and the most common responses were grouped into categories. For each category, a number was assigned, and the data were entered into the SPSS program to calculate the frequencies and percentages.

Results

Demographic characteristics of the study participants

Out of the 154 participants, 46 were physicians, 94 nurses, 10 paramedics, and 4 healthcare technicians. The average age of the participants was 29.34 ± 6.5 years old. Ninety (58,4%) were female, 96 (62,3%) were single. Ninety-one participants had a bachelor's degree, 32 had a medical specialty degree, 18 had an associated degree, and 13 had a master's degree. Approximately more than half (59.7%) had a total working experience of 1-5 years in the ED.

Views and experiences of participants on the practice of family-witnessed resuscitation

The majority of participating healthcare professionals (74.7%) did not have a CPR application certificate and an ACLS certificate (78.6%); however, they received CPR application training (81.8%) and 68.8% of them had participated in CPR application in the last month. Most of the

participants (85.8%) stated that they did not perform CPR with family present. The majority of the participants answered no (96.8%) to the question “Should the patient's first-degree relative be present in the room during CPR?”. However, the percentage of participants who said they would prefer not to be present during their own relative's CPR dropped to 56.5% when questioned. In case they need CPR, the majority of participants (93.5%) did not want their family members to be present (Table 1).

Opinions of participants on the positive and negative effects of FWR

Out of the total study participants, 117 answered the query, “What is the meaning of FWR?”. Most of the respondents stated the meaning as “family members witnessing the CPR application or being present in the same room during the procedures”. All of the participants expressed their opinions on the possible effects or outcomes of FWR. Positive effects of FWR on the family were expressed as “seeing that everything has been done for the patient”, “facilitation of acceptance of death”, and “moral support to the patient”. Negative effects for the family were mentioned as emotional trauma, overreaction of the family to procedures, and a painful memory. From the point of the health care team, only negative effects were stated. These included disruption of the functioning of the healthcare team, risk of interference and violence, inability of the healthcare team to focus, and possible harm to patients due to distraction. Other negative effects or risks included an increase in workload, litigation risk, and stress (Table 2).

Participants’ family presence risk benefit scale average scores

The average score of the Family Presence Risk Benefit Scale of the healthcare professionals participating in the study was 58.84 ± 17.1 . There was no statistically significant difference between emergency healthcare workers’ demographic characteristics, having CPR application certificate or ACLS Certificate, and their Family Presence Risk Benefit Scale scores ($p > 0.05$). However, there were significant differences between the Family Presence Risk Benefit Scale scores of physicians and nurses ($p < 0.01$). In addition, Family Presence Risk Benefit Scale scores of healthcare professionals without CPR application training were significantly higher than scores of those who received CPR training ($p < 0.01$). The Family Presence Risk Benefit Scale scores of healthcare professionals who answered “yes” to the query, “Should the

patient's first-degree relative be present during CPR?" were found to be significantly higher than the scores of those who responded "no" ($p=0.003<0.01$; Table 3).

Discussion

FWR is a practice based on family-centered care that envisions the active participation of the family during CPR. Although professional organizations recommend FWR, healthcare professionals' concerns on this issue continue. While some studies support FWR,^{13,14,27} others do not.^{19,22,25,26} In our study, the majority of participants were against the presence of the patient's first-degree relatives. Similarly, when asked if they would like a family member to be there if they needed CPR, the majority of participants said they would not.

In our study, the average score of the Family Presence Risk Benefit Scale of the healthcare professionals participating was 58.84 ± 17.1 . Since higher scores obtained from the scale indicate a positive perception of FWR, our results indicate that emergency healthcare professionals perceived family presence more negatively than positive. However, nurses were more likely to perceive more benefits for FWR than physicians. This finding supports the results reported in the literature.²⁸⁻²⁹ In the study by Al Bshabshe *et al.*,²⁹ even though 80% of physicians opposed FWR, nurses had a more positive attitude towards FWR than physicians. This is probably because nurses spend more time interacting with patients and families and are aware of their role in patient advocacy.

Some of the participants stated that the presence of family members provides the opportunity to see that everything has been done and facilitates the acceptance of death, while the main negative effect was stated as emotional trauma, which is similar to those expressed in previous studies.^{4,10,20,25} The majority of the participants stated the disadvantages of FWR for the healthcare team as disruption of functioning, risk of interference, and inability of the healthcare team to focus. Fewer participants expressed increased workload and stress. These results are consistent with other research showing the worries of medical professionals over family interruption and intervention during CPR.^{10,16,19,20}

Another striking finding of this study is that a considerable number of healthcare workers expressed the risk of being exposed to violence, and a few mentioned the risk of being sued, as also reported in a previous study.³⁰ Although CPR may result in a significant increase in survival rate, it is an invasive procedure and certain complications such as ribs and sternum fractures, and death during CPR might be unavoidable. Moreover, medical errors that occur as

a result of a lack of skill during this procedure can lead to claims for malpractice suits. Concerns about malpractice litigation, particularly due to the absence of institutional protocols, may alter the attitudes of healthcare professionals toward FWR. Therefore, the concerns of healthcare professionals, as well as the rights of the patients and family members should also be considered.

Limitations

The major limitation of this study is that it was conducted during the COVID-19 pandemic for a very short period. Originally, the study was planned to be carried out at all training and research hospitals affiliated with the Ministry of Health of the Republic of Türkiye in Ankara; however, only four hospitals were granted authorization to conduct the research because of the pandemic. Therefore, the generalizability of the results is limited. Additionally, although isolation measures were relaxed during data collection, visits of patients' relatives at hospitals were still restricted, which might have affected participants' opposing views. The second limitation relates to the study's cross-sectional design that analyses data from a population at a single point in time and limits drawing future predictions from results. The opinions and experiences of health professionals on FWR may change over time. Further studies in different socio-economic and cultural backgrounds with larger samples are recommended.

Conclusions

The findings of this study suggested that emergency healthcare professionals have reservations about family members being present during CPR, despite a wealth of literature supporting the beneficial effects of FWR. To relieve the concerns of health care professionals and to focus more on holistic family-centered care, legal and institutional policies should be developed. In addition, it is advised that healthcare personnel should have inter-professional education about the advantages of FWR as well as the ethical and legal aspects of this practice.

References

1. Soar J, Böttiger BW, Carli P, et al. European Resuscitation Council Guidelines 2021: Adult advanced life support. *Resuscitation* 2021; 161:115-51.
2. Kimblad H, Marklund J, Riva G, et al. Adult cardiac arrest in the emergency department – A Swedish cohort study. *Resuscitation* 2022;175:105-12.
3. Mitchell OJL, Edelson DP, Abella BS. Predicting cardiac arrest in the emergency department. *J Am Coll Emerg Physicians Open* 2020;1:321-26.
4. Fernández EM, Martín GM, Herrera MJ. Family-witnessed resuscitation and invasive procedures: Patient and family opinions. *Nurs Ethics* 2021;28:645-55.
5. Doyle CJ, Post H, Burney RE, et al. Family participation during resuscitation: an option. *Ann Emerg Med* 1987;16:673-5.
6. Emergency Nurses Association. Clinical Practice Guideline: Family presence during invasive procedures and resuscitation. Available from: <https://media.emscimprovement.center/documents/familypresencecpg3eaabb7cf0414584ac2291feba3be481.pdf>
7. 2005 American Heart Association Guidelines for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care. Part 2. Ethical Issues and Part 12 Paediatric Advanced Life Support. *Circulation* 2005;112:IV6–11 and IV167–187.
8. Bossaert LL, Perkins GD, Askitopoulou H, et al. European Resuscitation Council Guidelines for Resuscitation 2015: Section 11. The ethics of resuscitation and end-of-life decisions. *Resuscitation* 2015;95:302-11.
9. Henderson DP, Knapp JF. Report of the national consensus conference on family presence during pediatric cardiopulmonary resuscitation and procedures. *J Emerg Nurs* 2006;32:23-9.
10. Porter JE, Cooper SJ, Sellick K. Family presence during resuscitation (FPDR): Perceived benefits, barriers and enablers to implementation and practice. *Int Emerg Nurs* 2014;22:69-74.
11. Carroll DL. The effect of intensive care unit environments on nurse perceptions of family presence during resuscitation and invasive procedures. *Dimens Crit Care Nurs* 2014;33:34-9.

12. Lederman Z, Wacht O. Family presence during resuscitation: Attitudes of Yale–New Haven Hospital staff. *YJBM* 2014;87:63-72.
13. McAlvin, SS, Carew-Lyons A. Family presence during resuscitation and invasive procedures in pediatric critical care: A systematic review. *Am J Crit Care* 2014;23:477-84.
14. Jabre P, Belpomme V, Azoulay E, et al. Family presence during cardiopulmonary resuscitation. *NEJM* 2013;368:1008-18.
15. Tennyson CD. Family presence during resuscitation: Updated review and clinical pearls. *Geriatr Nurs* 2019;40:645-47.
16. Sak-Dankosky N, Andruszkiewicz P, Sherwood PR, Kvist T. Integrative review: Nurses' and physicians' experiences and attitudes towards inpatient-witnessed resuscitation of an adult patient. *J Adv Nurs* 2014;70:957–74.
17. Waldemar A, Bremer A, Holm A, et al. In-hospital family-witnessed resuscitation with a focus on the prevalence, processes, and outcomes of resuscitation: A retrospective observational cohort study. *Resuscitation* 2021;165:23-30.
18. Leske JS, McAndrew NS, Brasel KJ, Feetham S. Family presence during resuscitation after trauma. *J Trauma Nurs* 2017;24:85-96.
19. Hassankhani H, Zamanzadeh V, Rahmani A, Haririan H, Porter J. Family presence during resuscitation: A double-edged sword. *J Nurs Scholarship* 2017;49:127-34.
20. Fernandes AP, de Souza Carneiro C, Goetze L, et al. Experiences and opinions of health professionals in relation to the presence of the family during in hospital cardiopulmonary resuscitation: An integrative review. *J Nurs Educ Pract* 2014;4:86–94.
21. Metzger K, Gamp M, Tondorf T, et al. Depression and anxiety in relatives of out-of-hospital cardiac arrest patients: results of a prospective observational study. *J Crit Care* 2019;51:57–63.
22. Kurtoğlu Çelik G, Keleş A, Demircan A, et al. Evaluation of patients' families' attitudes to witnessing invasive procedures in the emergency department. *Eurasian J Emerg Med* 2013;12:61-5.

23. Twibell R, Siela D, Riwtis C, et al. Nurses' perceptions of their self-confidence and the benefits and risks of family presence during resuscitation. *Am J Crit Care* 2008;17:646–53.
24. Öztürk EA. Factors affecting the perceptions and self-confidence of nurses on the risks and benefits of family presence during resuscitation. Master thesis, Ondokuz Mayıs Üniversitesi, Samsun, 2020.
25. Günes UY, Zaybak A. A study of Turkish critical care nurses' perspectives regarding family-witnessed resuscitation. *J Clin Nurs* 2009;18:2907–915.
26. Leung NY, Chow SKY. Attitudes of healthcare staff and patients' family members towards family presence during resuscitation in adult critical care units. *J Clin Nurs* 2012;21:2083–93.
27. Dwyer T, Friel, D. Inviting family to be present during cardiopulmonary resuscitation: Impact of education. *Nurse Educ Pract* 2016;16:274–9.
28. Ferrara G, Ramponi D, Cline TW. Evaluation of physicians' and nurses' knowledge, attitudes, and compliance with family presence during resuscitation in an emergency department setting after an educational intervention. *Adv Emerg Nurs J* 2016;38:32–42.
29. Al Bshabshe AA, Al Atif MY, Bahis MA, et al. Physicians' characteristics associated with their attitude to family presence during adult cardiopulmonary resuscitation. *Biomed Res Int* 2020;4634737.
30. Bashayreh I, Saifan A, Batiha AM, et al. Health professionals' perceptions regarding family-witnessed resuscitation in adult critical care settings. *J Clin Nurs* 2015;24:2611-9.

Table 1. Views and experiences of participants on family-witnessed resuscitation.

CPR Application Certificate	n	%
Yes	39	25,3
No	115	74.7
CPR Application Training		
Yes	126	81,8
No	28	18,2
Advanced Life Support Application Certificate		
Yes	33	21.4
No	121	78.6
Have you participated in CPR practice in the last month?		
Yes	106	68.8
No	48	31.2
Experience on Family Witnesses During CPR Application?		
Yes	19	14.2
No	115	85.8
Should the patient's first-degree relative be present during CPR?		
Yes	5	3.2
No	149	96.8
Would you like to be present during the CPR of your relative?		
Yes	23	14.9
No	87	56.5
Undecided/I don't know	44	28.6
Should a family member be present during his/her own CPR?		
Yes	10	6.5
No	144	93.5

Table 2. Views of participants on the positive and negative effects of family-witnessed resuscitation (N=154).

Positive Effects of FWR	n	%
Seeing that everything is done for the patient	27	17.5
Facilitation of acceptance of death	10	6.5
Moral support to the patient	6	3.9
Negative effects and risks of FWR		
Emotional trauma to the family	71	46.1
Disruption of the functioning of the healthcare team	59	38.3
Risk of interfering with the application	47	30.5
Risk of violence mobbing	43	27.9
Overreaction of the family to procedures	25	16.2
Inability of the healthcare team to focus	29	18.8
Painful memory for the family	15	9.7
Patients may be harmed due to distraction	14	9.1
Increase in workload	6	3.9
Litigation risk	7	4.5
Stress	3	1.9

Note: Since more than one answer was given, n was multiplied.

Table 3. Participants' family presence risk benefit scale average scores according to some variables (N=154).

Demographic Characteristics	n	Median	Min.-Max.	Mean ±SS	Statistical test	p
Gender						
Woman	90	57	31-115	57.49±16.8	Mann Whitney U	0.184
Man	64	63.5	29-102	60.73±17.3		
Marital status						
Single	58	57	30-115	58.36±16.6	Independent samples <i>t</i> test	0.789
Married	96	58	29-102	59.13±17.4		
Education Level						
Associate Degree	18	54.5	35-80	55.56±15.6	Kruskal-Wallis	0.607
Bachelor	91	60	29-115	60.21±17.7		
Master	13	64	30-79	57.69±16		
PhD	32	55	33-102	57.25±16.8		
Profession /Title						
Physician	46	52.5	29-102	53.87±17.4	Kruskal-Wallis H=11.015	0.012
Nurse	94	61	31-115	61.3±16.6		
Health care technician	4	75	54-93	74.25±17.9		
Paramedic	10	55	36-69	52.4±11.7		
Experience in emergency department (months)						
6-12	37	58	41-102	57.86±14.2	Kruskal-Wallis	0.093
1-5	92	57.5	34-110	58.5±18.2		
6-10	15	63	56-105	61.33±14.8		
9-16	5	80	64-90	76± 15		
16-20	5	45	68-110	47.6± 14		

CPR Certificate						
Yes	39	56	29-93	56.28± 15.8	Mann Whitney U	0.289
No	115	59	30-115	59.7± 17.4		
CPR practice training						
Yes	126	57	29-102	56.67± 15.9	Mann Whitney U. Z=-2.992	0.003
No	28	69.5	33-115	68.61± 19.1		
Advanced life support certificate						
Yes	33	57	29-93	57.73± 19	Mann Whitney U	0.728
No	121	58	30-115	59.14± 16.6		
Should the patient's first-degree relative be present during CPR?						
Yes	5	3.2	68-112	57.5± 17.3	Mann Whitney U. Z=-2.977;	0.003
No	149	96.8	29-115	57.95± 16.4		

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