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Barriers and Facilitators of Using Clinical Guidelines for Cardiopulmonary Resuscitation from the Point of View of Emergency Department Nurses

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Abstract

Background: Cardiopulmonary resuscitation (CPR) is an emergency method to restore blood flow and spontaneous breathing in a person who has suffered cardiac arrest. Clinical practice guidelines are recommendations for nurses regarding the care of patients with specific conditions such as cardiac arrest. Accordingly, this study aimed to investigate the experiences of hospital emergency department nurses regarding the implementation of CPR guidelines.

Methods: This study was conducted using a qualitative content analysis approach to investigate the experiences of 11 emergency department nurses. The participants were selected using purposive sampling. Data were collected through in-depth semi-structured interviews until saturation was reached. Data were analyzed using the content analysis method proposed by Graneheim and Lundman simultaneously with data collection.

Results: Data analysis led to the identification of two main categories and ten subcategories. The categories included "barriers" with five subcategories (lack of knowledge and skills, low motivation, work pressure, lack of facilities, and lack of cooperation among the CPR team) and "facilitators" with five subcategories (facility development, teamwork, conscientiousness, adequate training, and effective supervision).

Conclusion: Nursing managers can use nurses' experiences to find appropriate ways to improve the use of clinical guidelines for CPR.

Keywords: Barriers, Cardiopulmonary resuscitation, Nurses, Guidelines, Qualitative study

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Introduction

With the increase in the prevalence of heart disease, a large number of patients with heart problems visit hospitals. These patients are prone to life-threatening disorders such as cardiopulmonary arrest (1). Cardiopulmonary arrest that occurs in different situations, from unexpected events outside the hospital to predictable situations inside the hospital, requires urgent and appropriate measures to save lives and prevent irreparable damage to the vital systems of the body (1,2). Cardiopulmonary resuscitation (CPR) consists of a series of regular and targeted measures that are performed to restore the vital functions of important body organs, such as the heart, lungs, and brain (1).

Although more than 50 years have passed since the invention of CPR, the survival rate of patients is still poor, and if resuscitation is successful, most of these patients need special care (3). The success rate of CPR in Iran has been reported to range from 6.7% to 26.3% (2). Although several years have passed since the formation of the CPR team in hospitals, the performance of this team in hospitals is weak and worrying. In recent years, the insignificant success of the resuscitation team in CPR operations, the increase in mortality after resuscitation, negative consequences in the hospital and society, physical and irreparable injuries to patients, along with increased hospital costs, and time and energy consumption have reduced motivation and self-confidence and weakened the morale of the personnel, hence reducing the quality of the personnel's performance and resulting in dissatisfaction in the society (4).

Nurses are usually the first to recognize the need to initiate CPR in patients with cardiopulmonary arrest in the hospital setting (5). Nurses are trained in resuscitation at university, but the resuscitation procedure changes and is updated every few years (1). Every five years, the

American Heart Association issues new clinical guidelines on how to perform CPR, with the most recent guidelines being updated in 2020 (5).

The failure to use the results of modern medical research causes significant financial damage to patients and hospitals. Clinical guidelines are a systematic collection of the latest and most valid scientific evidence that describes the clinical treatment methods for a patient in a hierarchical manner, considering priorities, efficiency, and cost-effectiveness (6), but their implementation is often incomplete (7). If the clinical guidelines are used correctly, scientifically, and according to the target population, they will lead to an improvement in the quality and quantity of health services (8).

Successful implementation of clinical guidelines is currently considered a national necessity in Iran (7). Furthermore, the number of successful CPR cases is regarded as an important indicator of hospital emergency, and its high rate is considered a sign of emergency success. It seems that examining nurses' point of view regarding the barriers and facilitators of using the new CPR clinical guidelines is necessary to provide practical solutions to increase adherence to the guidelines.

According to a review of the literature, no study has specifically investigated the barriers and facilitators of using clinical guidelines for CPR from the perspective of emergency department nurses. Qualitative research is deemed suitable for a deep and comprehensive study of social phenomena, and when systematic information is not available, it helps to study a real phenomenon comprehensively. Qualitative research is the best way to identify barriers and facilitators (9). Accordingly, considering the cultural, social, and economic differences of various societies and the differences in hospital emergency services in different countries, the present study aimed to investigate the experiences of hospital emergency department nurses regarding the implementation of CPR guidelines using the qualitative content analysis approach.

Methods

This research was conducted through qualitative content analysis involving in-person interviews. Iran's healthcare system includes around 100 000 nurses, with over half employed in public hospitals, 12% in military hospitals, 12% in social care hospitals, 6% in private hospitals, and 6% in emergency medical services (10). The participants of this study were nurses from the emergency departments of three governmental hospitals affiliated with Birjand University of Medical Sciences including Razi, Waliasr, and Imam Reza (AS) hospitals. About 150 nurses work in these departments. The participants were selected using snowball sampling with maximum diversity. The inclusion criteria were having at least a bachelor's degree, having at least two years of work experience, performing CPR at least once per month using the new 2020 guidelines, and willingness to participate in the study.

The interviews were scheduled at times and locations agreed upon by the participants, and they were conducted in quiet, noise-free settings. Each interview lasted 45 to 90 minutes. The main questions were as follows: "Do you use the new CPR guidelines?", "When was the guideline you are using formulated?", "When did you receive the last in-service training in CPR?", "What barriers and facilitators did you experience during this process?", "Would you please elaborate on the barriers to and facilitators of this process?"

Data analysis was conducted concurrently with data collection through interviews, and participant recruitment was continued until data saturation was achieved (after interviewing 11 participants). Granheim and Lundman's qualitative content analysis approach was employed for data analysis (11). The individual's responses to the interview questions served as the unit of analysis, which were further broken down into meaningful units to extract codes. These codes were then compared based on their similarities and differences, and organized into subcategories and main categories.

To check the rigor and trustworthiness of the data in the present study, four criteria proposed by Lincoln and Guba including credibility, transferability, confirmability, and dependability were used (7). In the current study, it was attempted to increase the credibility of the data by conducting in-depth interviews, interacting and cooperating with the participants sufficiently, collecting valid data, and asking the participants to confirm the data. To increase the dependability of the data, all stages of the study were described to provide the readers with a correct and clear image. To elevate the confirmability of the data, the researcher sent transcripts, codes, categories, and subcategories to other research members to confirm the coding process. Furthermore, to enhance the transferability of the research findings, an effort was made to provide detailed explanations about the research procedure and activities so as to enable others to follow the research process and the characteristics of the studied population.

To comply with ethical considerations, the researcher reassured the participants of the protection of their rights by introducing himself, explaining the objectives of the study, and obtaining oral consent. They were also assured that their information would remain confidential and de-identified.

Results

This study investigated the experiences of emergency department nurses regarding the use of clinical guidelines for CPR. The participants included seven men and four women. The average age and work experience of the participants were 11.84 and 35.92 years, respectively. The

demographic characteristics of the nurses are presented in Table 1. After analyzing the data, two main categories and ten subcategories were obtained (Table 2).

Barriers

The participants identified five barriers to full adherence to CPR guidelines including lack of knowledge and skills, low motivation, work pressure, lack of facilities, and lack of cooperation among the CPR team. Some comments from the participants are provided below:

Lack of knowledge and skills

"*There are cases where nurses and physicians are still unaware of the new CPR and may not comply with some principles. Their noncompliance may be related to their lack of knowledge and skills*" (Participant 9).

Low motivation

"*This is not just my opinion; all colleagues, nurses, and physicians say the same. For patients aged 70 to 80 years, no effort is made at all; they say that the patient should not be bothered. This is because, even if they come back, there are usually water and electrolyte disorders and thousands of other problems*" (Participant 1).

"*Not everything is in our hands. There is one patient who returns, and there is also one patient who does not return despite compliance. That's all; you know, CPR may sometimes not be fruitful*" (Participant 3).

Work pressure

"*In one shift, we had three to four patients in critical condition. If there was a case of CPR, we would not be able to participate, which is why some CPRs go wrong*" (Participant 11).

Lack of facilities

"*One day, the defibrillator wire was cut off. When we checked, we realized that someone had apparently glued it. The patient was not given electric shock, and the shock was delayed*" (Participant 2).

Lack of cooperation among the CPR team

"*I follow CPR guidelines, but since the CPR team leader is a doctor, I am not given that much leeway to do what I think is right*" (Participant 4).

Facilitators

The participants stated that facility development, teamwork, conscientiousness, adequate training, and effective supervision could lead to greater adherence to CPR guidelines. Some statements of the participants are presented:

Facility development

"*They put up an updated CPR poster for us, but we might not bother to use it, because the only place we need to go is the CPR room, and that's it. We can also study with a computer, but for this we need a dedicated computer*" (Participant 7).

Teamwork

"*It would be great if there was a team completely dedicated to CPR and nothing else. Of course, it may work in hospitals that have a high number of CPR cases*" (Participant 5).

Conscientiousness

"*If we act out of our conscience and consider ourselves obliged to observe a series of principles, there is no trick and we work with our heart and soul for the patient*" (Participant 6).

Adequate training

"*For me, face-to-face CPR training classes are more attractive. This really has a much greater effect; colleagues must participate in these courses*" (Participant 8).

Effective supervision

"*The camera records both sound and video. Perhaps if*

Table 1. Characteristics of the participants based on demographics

Participant code	Age (year)	Gender	Work experience	Education
1	35	Male	9	Master's degree
2	32	Male	8	Undergraduate degree
3	28	Male	5	Undergraduate degree
4	36	Female	13	Undergraduate degree
5	38	Male	15	Undergraduate degree
6	40	Female	17	Master's degree
7	48	Male	24	Undergraduate degree
8	35	Female	12	Undergraduate degree
9	37	Male	14	Undergraduate degree
10	33	Female	7	Undergraduate degree
11	36	Male	9	Undergraduate degree

Table 2. Main categories and subcategories

Main categories	Subcategories
Barriers	Lack of knowledge and skills
	Low motivation
	Work pressure
	Lack of facilities
	Lack of cooperation among the CPR team
Facilitators	Facility development
	Teamwork
	Conscientiousness
	Adequate training
	Effective supervision

there was no camera, they would have performed CPR for 15 minutes, then they would have written in the report for 40 minutes, but since there is a camera, they are obliged to comply because it can be controlled and must be effective" (Participant 10).

Discussion

The present study analyzed the experiences of emergency department nurses regarding barriers and facilitators of implementing CPR guidelines. In this study, the lack of knowledge and skills was one of the main barriers to the use of CPR guidelines, and adequate training was believed to facilitate the effective implementation of CPR guidelines.

From the participants' point of view, professional competencies, including clinical knowledge and skills, had a significant effect on the quality of CPR. In this regard, the results of Darvishpoor et al.'s study showed professional knowledge and awareness of nurses are essential to the effectiveness and success rate of CPR (4). A study conducted by Munezero et al. showed training plays a significant role in increasing nurses' knowledge about CPR, and continuous training programs in this field are necessary (12). Therefore, managers should implement interventions and programs while considering the empowering and strengthening factors to improve the performance of nurses in CPR.

According to the participants, lack of facilities is one of the major barriers affecting the use of CPR guidelines. Bijani et al also showed lack of adequate equipment affects the quality of triage in emergency departments (13). By contrast, facility development was identified as a facilitator. Maintaining adequate equipment in units and regularly checking their functionality can facilitate the use of clinical guidelines (14). Having additional computers available or assigning computers to nursing staff can facilitate adherence to CPR clinical guidelines.

Another factor affecting the implementation of CPR guidelines is the work pressure. Wolf et al. reported that high workload and fatigue in hospital emergency departments lead to patient dissatisfaction and low-quality care (15). Providing adequate staff in the emergency department can help reduce the workload.

Lack of cooperation among the CPR team was identified as a barrier to the implementation of CPR guidelines in this study. Similarly, lack of support from peers and managers was one of the most important barriers to adherence to clinical guidelines among a group of Pakistani nurses in a study by Noureen et al (16). Therefore, it is crucial to evaluate factors that enhance the working environment. The nurses in this study mentioned teamwork as a facilitator. This shows the importance of nurses' participation in the implementation of the guidelines. A "bottom-up" approach is helpful in this regard, and encourages nurses to use clinical practice guidelines (17). Nurses must interact with physicians and other professionals to determine the most appropriate CPR guidelines and other research evidence.

In the present study, nurses mentioned sufficient motivation as the primary factor necessary for the successful application of CPR guidelines. Janssen et al. found that nurses who expressed a lack of motivation and commitment to using clinical guidelines or those who were resistant to change were less likely to use clinical practice guidelines (14). Approaches to management, such as respect, organizational accountability, strategic planning, support, and communication (18), have the potential to boost nurses' motivation to apply clinical guidelines.

Conscientiousness was another factor that facilitated adherence to CPR guidelines. Participants expressed the belief that that nurses should consider their conscience in CPR. Conscience is the agent of doing the right thing without external supervision (19). It is better to strengthen conscientiousness with the inner feeling of adhering to the guidelines in any situation during student life (10). For better adherence to CPR guidelines, it is better to organize educational workshops for nursing students at the university.

The other identified facilitator was effective supervision. As monitoring the implementation of clinical practice guidelines is effective in improving the quality of care (20), managers should consider systems that monitor adherence to guidelines and provide appropriate feedback to nurses without creating fear. Monitoring CPR with a camera is helpful.

The current study only examined the perspectives of hospital emergency department nurses, and the viewpoints of other caregivers were not taken into account. In addition, considering the cultural, economic, and social differences between nations, future studies should investigate the barriers to and facilitators of implementing CPR guidelines in different countries and regions. Thus, the results are not generalizable, but transferable as they can be applied to participants with backgrounds similar to those of the present study.

Conclusion

The results of this study showed that the implementation of CPR guidelines by emergency nurses in hospitals is associated with a number of barriers and facilitators. The requirement for high-quality CPR is to create favorable conditions for the utilization of updated guidelines. Hospital emergency managers can reduce cardiac arrest mortality and increase patient access to safe care by identifying barriers to the effective implementation of CPR guidelines and taking measures to eliminate them. Policymakers are expected to provide suitable conditions for the better implementation of CPR guidelines by increasing the number of staff, providing more

equipment, training people, and enhancing professional commitment and conscientiousness.

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Competing Interests
There is no conflict of interest in this study.

Ethical Approval
This article was approved by Birjand University of Medical Sciences (IR.BUMS.REC.1401.208).

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