

Major Challenges and Barriers in Clinical Decision-making as Perceived by Emergency Medical Services Personnel: A Qualitative Content Analysis

Mostafa bijani (✉ bizhani_mostafa@yahoo.com)

Assistant Professor, Department of Medical Surgical Nursing, Fasa University of Medical Sciences, Fasa, Iran

Saeed Abedi

Fasa University of Medical Science

Shahnaz Karimi

Fasa University of Medical Science

Banafsheh Tehranineshat

Shiraz University of Medical Sciences

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Abstract

Background: Having to work in unpredictable and critical conditions, emergency care services (EMS) personnel experience complicated situations at the scene of accidents which, inevitably, influence their clinical decisions. There is a lack of research into the challenges which these professionals encounter. Accordingly, the present study aims to explore the major challenges and barriers which affect clinical decision-making from the perspective of EMS personnel.

Methods: The present study is a qualitative work with a content analysis approach. Selected via purposeful sampling, the subjects were 25 members of the EMC personnel in Iran who met the inclusion criteria. The study lasted from December 2019 to July 2020. Sampling was maintained to the point of data saturation. Data were collected using semi-structured, in-depth, individual interviews. The collected data were analyzed via qualitative content analysis.

Results: 4 main categories—professional capabilities, occupational and environmental factors, inefficient organizational management, and ethical issues—and 23 subcategories were extracted from the findings of the study.

Conclusion: The results of the present study show that personal and occupational factors, organizational management, and ethical issues are the most significant sources of challenge which affect the clinical decision-making and, consequently, the performance of EMC personnel at the scene of accidents. Thus, it is essential that pre-hospital emergency care managers improve the quality of EMC personnel's clinical decision-making skills and the reliability of care provided by them by creating the right professional and organizational settings, free of occupational distress.

Introduction

In most societies today, quality pre-hospital emergency care is an essential component of caring for patients in need of emergency care [1]. Pre-hospital emergency care consists of all the emergency medical services which are provided to patients outside the hospital before they are transferred to the nearest medical center [2]. In pre-hospital emergency care, seconds and minutes can mean the difference between life and death, between suffering a serious disability and living a normal life. In order for EMC personnel to provide timely care and evaluate patients' status in the shortest possible time, it is necessary that they be equipped with effective clinical decision-making skills and be able to make the right decision for a patient in unpredictable conditions [3-4]. Clinical decision-making, an important process in which the best action to achieve the desired goals is chosen, largely determines the quality of care, patient safety, and the possibility of future complications [5]. As an essential part of the professional duties of the medical personnel, clinical decision-making consists of analysis of information, making decisions, and taking action based on those decisions to accomplish the desired objective [6]. According to Emergency Nurses Association, clinical decision-making is one of the most important professional capabilities in emergency care personnel which can significantly improve the efficacy and quality of care provided [7].

The work environment in pre-hospital emergency care is complicated and unpredictable. At times, the EMC personnel should provide care to patients whose conditions are critical and unstable and who are in a life-threatening situation. Obviously, in order to make an appropriate response to quick changes in a patient's conditions, EMC personnel should be able to decide quickly: they should know how to perform a quick evaluation of a patient's status, determine the clinical priorities, and implement the correct intervention accordingly [8-9]. If EMC personnel do not have good decision-making skills, they cannot make good clinical decisions and make the right intervention, which can make a patient's condition more critical or, in some cases, even cause permanent injuries or death [10].

Our knowledge of how EMC personnel make their clinical decisions or what factors influence those decisions in real settings is quite limited. Also, few studies have qualitatively addressed this field. Accordingly, the present study is a qualitative attempt at investigating the leading challenges and barriers in EMC personnel's clinical decision-making.

Methods

The present study is a qualitative work of research with a content analysis approach. Conventional content analysis in qualitative research is applied when there is a lack of knowledge about the concept under study. Since the body of literature on the leading challenges and barriers in EMC personnel's clinical decision-making is quite small, the researchers used the above-mentioned approach for their study [11]. 25 members of pre-hospital emergency care personnel were selected via purposeful sampling and invited to participate in the study. The inclusion criteria were: being Iranian, speaking Persian, having at least one year's experience of work in pre-hospital emergency care, and being able to produce rich and adequate information. Data were collected through semi-structured, individual interviews, in the interval between December 2019 and July 2020. Overall, 25 semi-structured, in-depth, individual interviews were conducted. Each individual interview lasted from 45 to 60 minutes. With the prior approval of the head of the emergency care department and the participants, all the interviews were held in the conference room of the emergency care department. The participants were informed of the objectives of the study before being interviewed. Each interview began with a general question—"What is your typical work day like?"—followed by more specific questions, including: "Based on your experiences, what factors can influence clinical decision-making?", "Do your co-workers have the necessary skills for good clinical decision-making?", "What skills do you need to make the right clinical decision?". All the interviews were conducted with the main objective of the study in mind. The researchers also asked follow-up questions to enhance the clarity of the information given by the participants. Examples of such questions were: "Can you explain that point further?", "What do you by that statement?" and "Can you give an example or share a personal experience?".

At the end of each interview, the participants were thanked for their cooperation and were asked for their phone numbers in case the interviewer had any other questions, needed the participants to confirm their statements, or had to interview a participant again. Immediately after completion, each interview was transcribed. The collected data were analyzed using Graneheim and Lundman's approach to content

analysis (2004): initially, to immerse in the data and to achieve a general idea of it, the researchers read each transcript several times. Next, the words, sentences, or paragraphs which carried significance were selected as meaning units. The meaning units were assigned codes which showed a summary of the meaning of the unit and then the texts were codified. Afterwards, the codes were compared in terms of their similarities and differences, the similar codes were merged, and the codes and texts were reviewed again. Based on their similarities, the meaning units were categorized. To ensure the reliability of the codes, the researchers reviewed the categories and compared them against the data again. The themes were identified after deep reflection and comparison of the categories with each other [12].

To ensure the trustworthiness of the results, the researchers applied Lincoln and Guba's criteria [13]. Accordingly, at the beginning of the study, the researchers put aside all their prior knowledge of and personal beliefs about the significant challenges in clinical decision-making so that they could acquire an accurate and original description of the phenomenon under study free of any preconceptions. Also, to increase the credibility and dependability of the results, the researchers employed the immersion in and prolonged engagement with data, member checking, and peer checking.

Ethical Considerations

All participants gave written informed consent to participate in the study. The present study was conducted in accordance with the principles of the revised Declaration of Helsinki, a statement of ethical principles which directs physicians and other participants in medical research involving human subjects. Moreover, the study was approved by the local Ethics Committee of Fasa University of Medical Sciences, Fasa, Iran (IR.FUMS.REC.1398.168).

Results

The mean and standard deviation of the participants' ages was 33.52 ± 5.89 years. The mean and standard deviation of their work experience was 8.40 ± 4.83 years. The personal characteristics of the participants are shown in Table 1. Analyses of the qualitative data yielded 4 categories and 23 subcategories (Table 2).

1. Professional capabilities

"Professional capabilities" was the most noticeable theme extracted from the participants' experiences. The most important components of professional capabilities as stated by the participants were: clinical knowledge, clinical experience, clinical skills, teamwork skills, time management skills, clinical judgment skills, emotional stability, and resilience. According to one of the participants:

One of the most important professional capabilities that emergency care personnel need to make quick and correct clinical decisions is clinical knowledge. Unfortunately, some of our colleagues here don't have enough clinical knowledge. I mean, for example, they don't know much about the physiopathology of

diseases. How can you possibly make a good clinical decision and take effective clinical measures if you are ignorant about the causes and treatments of diseases? (P10).

Another participant stated that:

Some of our colleagues have a lot of clinical experience and can make a quick diagnosis at first glance at a patient and then make the right clinical decision accordingly. (P3)

Another subcategory of professional capabilities which was found to have an impact on clinical decision-making was clinical skills. One of the participants remarked:

There are people here who don't have the required clinical skills. For instance, they can't do a proper assessment of a patient's status, or they don't know how to use the equipment. On many occasions, when we were on a mission, one of my co-workers couldn't use the cardiac monitoring device or the defibrillator the right way. If you can't do a proper monitoring or assess your patients, how can you make the right clinical decision and do the right thing for them? (P7)

"Teamwork skills" was another component of professional capabilities referred to by many of the participants. Based on the participants' experiences, having good teamwork skills can contribute to good decision-making and, as a result, providing quality care. Sometimes, the emergency care personnel encounter a large number of patients or casualties and need to possess satisfactory teamwork skills and time management skills to make good clinical decisions. According to one of the participants:

On some missions when we have to deal with a large number of casualties, my colleagues and I get confused and find it hard to make a good decision. In my experience, this is because we are not skilled enough in teamwork and time management. At the scene of accidents, everyone wants to be boss and tell the others what to do and that causes chaos which wastes our time and puts a patient's life at risk. (P19)

Another aspect of professional capabilities with an impact on clinical decision-making is clinical judgment. From the participants' experiences, good clinical judgment plays an important part in making correct and reasonable clinical decisions in all situations, especially in emergency situations where a quick diagnosis is necessary. As one of the participants pointed out:

A skillful and capable member of the emergency care personnel should be able to analyze and interpret the implicit and explicit symptoms of a patient and use that information to make a proper clinical judgment and clinical decision. (P12)

Another participant stated that:

One of the major challenges and problems which I have repeatedly seen in the clinical decision-making of the emergency care personnel is poor clinical judgment. Some of my co-workers don't have the necessary skills in this area and can't come to a good conclusion and decision based on the status of a patient and

analysis of their symptoms. And so they make mistakes in their decision-making and I've sometimes seen them put a patient's life in danger. (P8)

Resilience is another component part of professional capabilities which the participants' experiences showed to affect clinical decision-making. From the participants' point of view, resilience means that the emergency care personnel should be flexible, should be able to adapt to the hard and unpredictable conditions of work in pre-hospital emergency care, and should possess great tolerance. One of the participants stated that:

Having a high tolerance threshold is an essential quality in pre-hospital emergency care personnel. I've witnessed cases where some personnel with good professional knowledge and skills lost their patience in critical conditions or when the number of the injured was high. They couldn't manage the scene of the accident and make a logical clinical decision. (P16)

Another component of professional capabilities which has an impact on clinical decision-making is emotional stability. According to one of the participants:

Work conditions in pre-hospital emergency care are very complicated and unpredictable. So it is necessary for emergency care personnel to be emotionally stable so they can manage the scenes of accidents well, keep calm, make the right decision, and take effective clinical measures. (P25)

Another participant remarked that:

Unfortunately, some of my colleagues do not have emotional stability: they lose their temper easily and can't manage their anger. Sometimes we come across patients who are very aggressive and irritable. If we don't manage our feelings and emotions, we can't make the right decision for them and may even put their lives in danger. (P2)

2. Occupational and environmental factors

Another category of the major challenges and barriers which affect clinical decision-making is occupational and environmental factors. This category consists of the following subcategories: the time of missions, the location of missions (intercity emergency, inner-city emergency, and rural emergency), patients' status and the conditions at the scene of accidents, fatigue and occupational burnout, and spread of infectious diseases.

One of the occupational and environmental factors referred to by the participants is the time of missions. At times, pre-hospital emergency care personnel have to go on a mission at night and in complete darkness or in bad weather conditions, which circumstances can adversely affect the speed and accuracy of the personnel's decision-making. According to one of the participants:

Many times, I've had to be present at the side of a patient in unstable weather conditions, in foggy weather, or at night. It is really hard to work in such circumstances and to judge the situation and make

the right clinical decision quickly. I would rather go on a hundred missions in one shift at day time than get dispatched at night or in bad weather. (P5)

Another occupational and environmental factor from the participants' perspective is the location of missions in pre-hospital emergency care. One of the participants mentioned that:

Serving in inter-city stations and rural areas is much harder and more stressful than working in stations located in the city. Since we have to drive long distances and it takes much time to get to urban medical centers, when patients' conditions are critical, we really get confused and can't make the right decision immediately and provide the necessary care. (P9)

Patients' status and the conditions at the scene of accidents are other factors which affect clinical decision-making. According to one of the participants:

Sometimes, the scene of an accident is very unsafe and full of hazards and these conditions have a negative impact on our decision-making. For instance, I've occasionally had to appear at the scene of a murder or shooting incident, or where there was an ongoing fight, or where a house or a vehicle was on fire. Well, under such unsafe circumstances, how am I supposed to care for a patient when my own life is in danger? (P11)

Another participant stated that:

Our decisions are also affected by the clinical conditions of a patient. For example, sometimes, the patient is unconscious or the patient is deaf or speech-impaired and can't communicate with us. At such times, it is not possible to acquire reliable data about a patient's status and make the right decision. (P6)

Another subcategory of the occupational and environmental factors which affect clinical decision-making is emergency care personnel's fatigue and occupational burnout. As one of the participants remarked:

Working in pre-hospital emergency care is really demanding and there are not many who can bear the pressure. Sometimes, I've had to go on about 30 missions in a 24-hour shift. Work overload and shortage of experienced staff have caused fatigue and burnout in the personnel and these have negative effects on our concentration, mental acuity, and decision-making. (P13)

Spread of infectious diseases is another dimension of the occupational and environmental factors. According to one of the participants:

When there is an outbreak of a dangerous infectious disease, like Ebola, H1N1, or COVID-19, sometimes there is a conflict between the emergency care personnel's decisions and what the patients want. Even if we judge a patient's condition to be critical and decide that he or she should be transferred to the hospital, the patient or the patient's family don't care about our decision and refuse to have the patient transferred because of their fear of the epidemic. (P15)

On a similar note, another participant stated that:

On a mission, I had to give care to a patient who had symptoms of sudden cardiac arrest. Even though I told the patient and his family that the patient's condition was serious, they ignored my decision and said because of the spread of the coronavirus, they wouldn't have their patient taken to the hospital. (P17)

3. Inefficient organizational management

Another category of the major challenges and barriers in clinical decision-making is inefficient organizational management which consists of the following subcategories: employment of inexperienced and inefficient personnel, management's failure to support the personnel in the case of errors in decision-making and legal troubles, lack of a counseling doctor at the emergency dispatch centers, management's failure to conduct root cause analysis and take corrective action in the case of errors in decision-making, conflicts in the regulations and lack of a clear operations manual, lack of workshops for the professional empowerment of the personnel, shortage of equipment, and inefficiency of the dispatch center.

Employment of inexperienced and inefficient personnel in pre-hospital emergency care by the senior managers is one of the issues under the category of inefficient organizational management which adversely affects clinical decision-making. One of the participants' comments in this relation is as follows:

Employing personnel who don't have the necessary expertise and skills in pre-hospital emergency care is actually gambling with people's lives. Unfortunately, because of organizational benefits and lack of budget, the senior managers hire inexperienced individuals who don't have the necessary knowledge and skills in pre-hospital emergency care. On many occasions, I've seen some of my colleagues who lack expertise in making a diagnosis make wrong decisions and put a patient's life in danger. When we object to the managers, they say the budget is limited and they can't afford to hire skilled workforce. (P23)

Another component part of inefficient organizational management from the participants' perspective is the managers' failure to support the personnel in the case of errors in decision-making and legal troubles. Many of the participants stated that they are not adequately supported by their managers if legal issues arise and the patients press charges against the personnel. They also mentioned that the managers do not take any effective measures toward analyzing the root causes of clinical errors and or take corrective action. According to one of the participants:

Unfortunately, in matters of legal issues and charges, the managers don't support the personnel as much as they're expected to. There are many cases in which, because of a clinical error, patients' families have sued the personnel, but the management failed to give enough support. If you do a good job on a hundred tasks, they will tell you that you are just doing your duties. But if you make a single mistake, you'll immediately get reprimanded. Out of this fear of being reprimanded or sued by patients, some of the personnel do not report the errors in their clinical decision-making. (P24)

“Conflicts in the regulations and lack of a clear operations manual” was another issue referred by the participants. In this relation, one of the participants stated that:

There is not a clear manual which describes the responsibilities of the emergency care personnel. For instance, according to the internal codes, the pre-hospital emergency care personnel should not administer intravenous medications and if they do and their action puts a patient’s life in danger, they will be held liable. Sometimes, we really don’t know what the right decision is and what kind of action we should take. When a patient is having a seizure, should I administer diazepam to them or not? (P20)

Another participant remarked that:

Once, I had a 45-year old patient with severe chest pains. Based on his symptoms, my diagnosis was cardiac arrest and we transferred him to the hospital. In the triage unit, the emergency medicine doctor scolded me for not having given an intravenous nitroglycerin injection to the patient. He said all we know is how to transfer patients! I explained to him that we’re not allowed to administer medicine intravenously. (P1)

Not organizing workshops for the professional empowerment of the personnel was another dimension of inefficient organizational management from the participants’ point of view. According to one of the participants:

Unfortunately, the administration does not take any special measures to update the knowledge and skills of the personnel. Over the past there, not a single workshop has been held and the knowledge of most of the personnel is not up-to-date. We have repeatedly asked for training courses in basic and advanced CPR and trauma emergency care, but the administration says it doesn’t have any budget for workshops. How can the personnel make good clinical decisions and do the right thing for their patients when their knowledge and skills are not up-to-date? (P10).

Another issue under the category of inefficient organizational management is shortage of equipment. One of the participants stated that:

Some of the ambulances in inter-city and rural emergency stations lack such medical devices as suction machines, cardiac monitors, pulse oximeter, and ventilators. Even now that we have to deal with the COVID-19 epidemic, we don’t have access to personal protective equipment, like masks, gloves, and special gowns, and our fear of getting the infection has a negative effect on our diagnoses and, in turn, our decisions and actions. (P24)

According to another participant:

When there is no heart monitor, pulse oximeter, or ventilator inside the ambulance, how am I supposed to diagnose a patient’s cardiac or respiratory problem and make a proper clinical decision that won’t be a threat to the patient’s life? (P18)

Inefficiency of the dispatch center is another aspect of the category of inefficient organizational management. One of the participants' comments in this relation is as follows:

The dispatch center is the brains and director of the operations in pre-hospital emergency care. Unfortunately, employment of individuals who lack the required knowledge and skills in this field disrupts the operations. For instance, one time, the personnel at the dispatch unit announced that a patient had signs of weakness and dizziness and could have hypoglycemia. When we got to the patient's side, we realized he'd had cardiac arrest and that the dispatch center had suggested hypoglycemia by mistake. Misleading information from the dispatch unit can prevent the personnel from making the right diagnosis and, consequently, the right decision. (P4)

4. Ethical issues

The final category of the major challenges and barriers in clinical decision-making is "ethical issues" which consists of the subcategories of respect for patients' physical privacy and respect for patients' sexual privacy. Regarding respect for patients' physical privacy, in the Iranian culture, it is important that patients' physical privacy be maintained and that their private parts not be seen by caregivers, especially opposite-sex caregivers. According to a participant:

Sometimes, we must provide care to female patients, especially young females, who have palpitations or chest pains and are in need of immediate cardiac monitoring. It is not ethical for the patients or even for us who are in the Iranian culture to see the female patient's body. It is really a tough job to make a decision at such times and the patients may get very uncomfortable. (P13)

The participants also mentioned that, considering the dominant Islamic culture in Iran, showing respect for the sexual privacy of patients is very important to patients and their families. One of the participants stated that:

While we were transferring a pregnant woman, we realized she had broken her water and was in labor. The baby was coming and we had to help her deliver it. The poor woman seemed very embarrassed and uncomfortable. It is so hard to make a decision in such conditions. After all, we are Muslim and our ethical principles dictate that at such times, care should be given by a person of the same gender as the patient. But in Iran, there are no female staff members in the pre-hospital emergency care. (P21)

Discussion

At the scene of accidents, the emergency care personnel encounter various clinical challenges which affect their clinical decision-making [14]. At the same time, it is the ethical and professional responsibility of emergency care personnel to provide quality care based on code of ethics to victims at the scene of accidents [15]. The findings of the present study concern pre-hospital emergency care personnel's perception of the major challenges which affect clinical decision-making at the scene of accidents.

Professional capabilities, including clinical knowledge and skills, were found to play an important part in pre-hospital emergency care personnel decision-making. Similarly, in their study of the barriers to nurses' clinical decision-making in the university hospitals of the south of Iran, Mousavi et al. (2016) report that having knowledge, clinical experience, and clinical skills are essential to making good clinical decisions—the clinical decision-making mean score of the nurses who had poor clinical knowledge, experience, and skills was unsatisfactory [16]. Another important component of professional capabilities which has a significant impact on clinical decision-making is clinical judgment. According to the study of Engebretsen et al (2016), clinical judgment is a necessary skill for all nurses, especially pre-hospital emergency care nurses, as it enables them to make accurate diagnoses and make proper clinical decisions [17]. (17). Likewise, the results of the study of Anderson et al. (2019) show that clinical judgment and critical thinking play a key role in making clinical decisions in all situations, in particular the critical and complicated conditions which prevail in pre-hospital emergency care [18].

In the present study, “teamwork skills” was found to be another important aspect of professional capabilities which affects clinical decision-making. In Grover's qualitative-exploratory study of emergency nurses' experiences of teamwork in a hospital in Australia (2017), the participants stated that teamwork skills are among the essential clinical skills which emergency nurses must possess. The participants' experiences showed that when the emergency department is busy and a large number of patients must be attended to, teamwork skills can significantly facilitate clinical decision-making. The personnel with poor teamwork skills get nervous and confused at such times and cannot make logical decisions for their patients [19].

Another important factor under the category of professional capabilities is resilience. Based on the experiences of the participants in the present study, the prevailing work conditions in pre-hospital emergency care can influence the decision-making and performance of the personnel. The participants pointed out that pre-hospital emergency care personnel must be highly resilient to be able to cope with their stressful work conditions and make the right decision. On a similar note, the results of the study of Lin et al. (2019) show that emergency nurses must possess high levels of resilience and tolerance so that they can employ their capabilities in the critical conditions of emergency situations and, by making quick and correct clinical decisions, implement effective clinical interventions [20].

Occupational and environmental factors constitute another category of the major challenges and barriers which affect emergency care personnel' clinical decision-making. According to the study of Li, et al (2018), shortage of experienced nurses in emergency departments, increase in workload, and fatigue and burnout are the most significant occupational factors which adversely affect the personnel' diagnoses and decision-making and lead to patients' dissatisfaction and poor-quality care [21].

Another category of the major challenges which affect emergency care personnel' clinical decision-making is inefficient organizational management. According to the study of Bijani et al. (2019), employment of inexperienced personnel who lack the required expertise, lack of facilities and equipment, inadequate support for the personnel, absence of clear instructions, conflicts in the regulations, and

failure to hold workshops for the professional empowerment of emergency nurses are the most significant challenges which affect the quality of triage in emergency departments [22]. These findings are consistent with the results of the present study.

Another important category which was found to affect emergency care personnel' clinical decision-making is ethical issues. Showing respect for the privacy of patients and maintaining their human dignity are among the most important ethical responsibilities of caregivers [23]. Accordingly, all caregivers are expected to maintain their patients' privacy and dignity [24]. In the present study, too, the views of the interviewed pre-hospital emergency care personnel showed that one of the key factors which influence clinical decision-making is showing respect for the physical and sexual privacy of patients. The dominant religious-cultural beliefs and values in Iran dictate that the bodies of all individuals, especially women, should be covered, in particular their genitalia and breast area, and that there should not be any physical contact between men and women who are not related to each other. Thus, to respect the privacy of patients and accident victims, even in pre-hospital emergency care, it is necessary that patients receive care from same-gender caregivers. But the national laws of Iran forbid women from working in pre-hospital emergency care. Therefore, there is need for changes which will allow the employment of female personnel in emergency care. On a similar note, the results of the study of Torabi et al. (2020) show that, from the viewpoint of pre-hospital emergency care personnel, maintaining the physical and sexual privacy of patients is among the key aspects of clinical and ethical decision-making [25].

Conclusion

Their unpredictable and critical work environment and conditions expose emergency care personnel to a variety of challenges which affect their clinical decision-making. Therefore, it is necessary that those challenges should be identified and addressed in order for the quality of emergency services to improve. Based on the results of the present study, occupational factors, organizational management, and ethical issues are the most significant challenges which influence pre-hospital emergency care personnel's clinical decisions at the scene of accidents. Therefore, it appears that cultural, professional, and organizational settings in which the challenges of clinical decision-making have been largely addressed and eliminated will contribute to emergency care personnel's mental peace and better performance. Pre-hospital emergency care administrators and authorities can use the findings of the present study to create a supportive environment, free of occupational distress, to improve the quality of emergency care.

Abbreviations

EMS: Emergency Medical Services

Declarations

Ethics approval and consent to participate

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Consent to publish

Not applicable

Availability of data and materials

The datasets used and/or analysed during the current study are available from the corresponding author on reasonable request.

Competing interests

The authors declare that they have no competing interests

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Authors' Contributions

All authors (MB, SA, SK, and BT) have participated in the conception and design of the study. MB and SK , contributed the data collection and pre-pared the first draft of the manuscript. MB, SA and BT, Critically revised and checked closely the proposal, the analysis and interpretation of the data and design the article. All authors read and approved the final manuscript.

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Authors' Information

1. Assistant Professor, Department of Medical Surgical Nursing, Fasa University of Medical Sciences, Fasa, Iran.
2. Student Research Committee, Fasa University of Medical Sciences, Fasa, Iran.
3. Assistant Professor of Medical Education, Fasa University of Medical Sciences, Fasa, Iran.
4. Assistant professor, Community-based Psychiatric Care Research Center, Department of Nursing, School of Nursing and Midwifery, Shiraz University of Medical Sciences, Shiraz, Iran.

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Tables

Table 1. Individual characteristics of the participants			
Participants	Age (year)	Educational level	Work experience (years)
P1	38	Bachelor's degree in EMS	11
P2	35	Associate's degree in EMS	10
P3	39	Bachelor's degree in EMS	16
P4	26	Bachelor's degree in EMS	2
P5	30	Associate's degree in EMS	8
P6	31	Associate's degree in EMS	7
P7	37	Bachelor's degree in nursing	9
P8	34	Associate's degree in EMS	10
P9	33	Bachelor's degree in EMS	8
P10	46	Master's degree in nursing	18
P11	29	Bachelor's degree in EMS	5
P12	42	Bachelor's degree in EMS	15
P13	28	Associate's degree in EMS	4
P14	25	Bachelor's degree in EMS	2
P15	29	Bachelor's degree in EMS	3
P16	39	Associate's degree in EMS	14
P17	32	Bachelor's degree in EMS	5
P18	30	Bachelor's degree in nursing	6
P19	33	Associate's degree in EMS	12
P20	41	Bachelor's degree in EMS	15
P21	27	Bachelor's degree in EMS	3
P22	29	Bachelor's degree in EMS	5
P23	41	Associate's degree in EMS	17
P24	39	Associate's degree in EMS	13
P25	25	Bachelor's degree in nursing	2

Table2. . Themes and subcategories extracted from content analysis

Theme	Subcategories
<i>Professional capabilities</i>	<ul style="list-style-type: none"> • <i>Clinical knowledge</i> • <i>Clinical experience</i> • <i>Clinical skills</i> • <i>Teamwork skills</i> • <i>Time management skills</i> • <i>Clinical judgment skills</i> • <i>Emotional stability</i> • <i>Resilience</i>
<i>Occupational and environmental factors</i>	<ul style="list-style-type: none"> • <i>Time of missions</i> • <i>Location of missions</i> • <i>Patients' status</i> • <i>Conditions at the scene of accidents</i> • <i>Fatigue and occupational burnout</i> • <i>Spread of infectious diseases</i>
<i>Inefficient organizational management</i>	<ul style="list-style-type: none"> · <i>Employment of inexperienced and inefficient personnel</i> · <i>Management's failure to support the personnel in the case of errors in decision-making and legal troubles</i> · <i>Lack of a counseling doctor at the emergency dispatch centers</i> · <i>Management's failure to conduct root cause analysis and take corrective action in the case of errors in decision-making</i> · <i>Conflicts in the regulations and lack of a clear operations manual,</i> · <i>Lack of workshops for the professional empowerment of the personnel</i> · <i>Shortage of equipment, and inefficiency of the dispatch center.</i>
Ethical issues	<ul style="list-style-type: none"> · <i>Respect for patients' physical privacy</i> · <i>Respect for patients' sexual privacy</i>

