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## Explaining the challenges of pre-hospital emergency healthcare workers in providing care at the scene

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### ABSTRACT

**Background and Purpose:** Pre-hospital emergency healthcare workers face various problems because of the complexities of providing care during emergencies. These challenges can affect their successful performance in achieving their professional goals. To identify these challenges, the present study was conducted to explain the challenges of pre-hospital emergency workers in providing care at the scene.

**Materials and Methods:** The present qualitative study was conducted at Shahrekord University of Medical Sciences in 2022 using the contractual content analysis method. Twenty pre-hospital emergency workers were selected purposefully, and data were collected using individual in-depth semistructured interviews and analyzed using Granheim and Lundman's approach.

**Results:** The findings include three categories (systemic obstacles, society's cultural ignorance, and religious obstacles) and seven subcategories (manpower-related obstacles, inappropriate and insufficient equipment, lack of attention and support, inconsistency between organizations, disruptive measures of care, wrong attitude and wrong belief, and gender-related barriers) of obstacles that cause emergency healthcare workers to face challenges in providing care at the scene.

**Conclusion:** The factors that need consideration in strengthening pre-hospital emergency healthcare include improving the training process of students, planning for in-service training of employees, increasing their motivation levels, noticing their psychological issues, developing inter-organizational protocols and policies, and educating, training, and employing women in pre-hospital emergency care.

**Keywords:** challenge, on-scene care, systemic barriers, cultural barriers, religious barriers, pre-hospital emergency staff

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## INTRODUCTION

Every year, approximately 5 million people worldwide die from various accidents, such as driving and unexpected natural and unnatural disasters.<sup>1</sup> In 2018, the World Health Organization (WHO) estimated that 1.35 million people globally die yearly from road traffic accidents (RTA); furthermore, 20–50 million people are seriously injured or disabled due to RTA. Low- and middle-income countries, which house more than half (60%) of the world's motor vehicles, bear more than 90% of mortalities and injuries resulting from RTA. This will be a significant challenge because, without effective interventions and actions on the ground, RTAs are estimated to increase by 67%; globally, by 2030, RTA will become the fifth leading cause of death.<sup>2</sup> In this regard, pre-hospital emergency care plays a vital role in reducing preventable disability and mortality. It also includes a wide range of activities such as responding to emergency requests over the phone, sending the workers to the patient's place, providing care by trained people, continuing medical and healthcare in vehicles such as ambulances and helicopters, and transporting people to medical centers designated by the guidance headquarters.<sup>3</sup>

The changes in healthcare needs have led to greater demand for emergency medical services, and hence, developing countries have felt the need for integrated and organized pre-hospital emergency services. Moreover, they are seeking to develop and modernize their systems.<sup>4</sup> Today, approaches towards pre-hospital emergency systems have changed, and as a result, WHO considers the pre-hospital emergency system as one of the inseparable components of any effective and efficient healthcare system.<sup>5</sup> In this regard, addressing various problems in the pre-hospital emergency system is essential. Additionally, the healthcare systems should pay attention to the problems and challenges they encounter in improving emergency systems.<sup>6</sup>

Pre-hospital emergency personnel has encountered various problems that affect their successful performance in achieving their professional goals. Although the studies discuss various challenges of this profession, what is more, important are the challenges these personnel face while caring for patients at work.<sup>7</sup> Unforeseen incidents and unstable field conditions make it difficult for the personnel to perform effectively on the scene, thereby preventing them from providing better care.<sup>8</sup> Many of these conditions are expected in different countries, but in different cultures and environments, underlying problems usually pose challenges to providing care at the scene.

However, it is necessary to examine the care challenges of pre-hospital emergency personnel as it depends on their quality of care. Considering that these people are the first people who arrive at the scene of the accident (and in other words, they come in contact with the injured person), and therefore, any existing factor or obstacle can affect the process of providing care that poses a threat to the patient's health.<sup>7</sup>

The treatment and medical education of the country, which the Ministry of Health defines, focus on integrating prevention and care services in medical accidents and emergencies, and this approach follows the strategies recommended by the WHO. Hence, this raises a question regarding the main service providers in pre-hospital emergency care are about with the challenges of providing services at the pre-hospital emergency level.<sup>8</sup> In other words, improving the working conditions of these people and the quality of providing care by them can effectively reduce the injury of people and their mortality in the early stages of the injury. In this regard, examining the specific conditions in which those people provide care is essential. The scene of the accident is very variable and can play a significant role in providing services. The psychological and physical barriers of these people can also affect their process of providing care.<sup>9</sup> In this regard, the results of a study showed that pre-hospital emergency service personnel experience significant job stress. This is because they are the first responders in emergencies, including road accidents and natural disasters, with only minor injuries and illnesses.<sup>10</sup> Therefore, examining the challenges these people face in providing care, improving the quality of care, and achieving the health system's goals is necessary.

Various studies have considered the changing environment of care<sup>10,11</sup> as a significant challenge in this field. The different geographical conditions and the multiple care scenes in the pre-hospital emergency area sometimes vary significantly, causing certain obstacles to appear in certain conditions that may not be faced by other groups of personnel in different geographical areas.<sup>12</sup> Therefore, the challenges faced by this personnel group still need to be clarified in many contexts and conditions. In other words, it should be said that many studies have not been able to make a general outline of the challenges faced by this group of healthcare personnel at the scene, especially under specific conditions; therefore, it is difficult to determine the challenges and potential areas of the system for reforming and integrating services.<sup>13–15</sup>

Various studies have investigated the challenges of pre-hospital emergency workers under different health systems. Mohammadi et al. in Sistan and Baluchistan showed that improving the quality of services in a pre-hospital emergency requires reformation of the organizational structure, administrative rules, regulations, provision of employee welfare facilities, and human resources.<sup>14</sup> In their study on the challenges of providing services in pre-hospital emergency centers, Eri et al. in Golestan pointed out three subclasses: organizational issues, individual issues, and extra-organizational issues.<sup>15</sup> In Mashhad in 1988, Motie et al. investigated the stress-causing factors of pre-hospital emergency workers, and their results showed that contrary to hospital research, stress is more intensified in pre-hospital emergency technicians due to the factors related to management and the work environment.<sup>16</sup> In their study on the occupational injuries of pre-hospital emergency workers, Firozbakht et al. in Semnan showed that reducing working hours, adjusting night and evening shifts, and organizing welfare programs can reduce injuries among healthcare workers.<sup>17</sup>

The analysis of the results of different studies shows that emergency personnel have faced different challenges in different environments. Since these challenges have not been investigated in this province with its unique geographical features, this study was conducted to explain the challenges of pre-hospital emergency workers in providing care at the scene.

## **METHOD**

The current research is a qualitative study with a contractual content analysis approach conducted at Shahrekord University of Medical Sciences in 2022. Our present study discusses pre-hospital emergency workers' experiences and explores their challenges in providing care in the field. Due to the paucity of studies on this phenomenon, we used qualitative content analysis to conduct this study. Content analysis was used conventionally since the researchers needed a specific theoretical model and structure in this field.

The sampling was done in a targeted way by pre-hospital emergency workers of Borujen city. The entry criteria included the ability to express experiences in providing care at the scene of the accident and a minimum of 6 months of work experience in the pre-hospital emergency work environment. On the other hand, the exclusion criteria included administrative and dispatching personnel and individuals with a history of providing care in other parts of the health system, such as hospitals. To achieve the maximum diversity in sampling, the participants were selected by observing the maximum diversity in age, number of years of service, degree, and field of study.

To collect data, in-depth face-to-face semi-structured interviews were conducted individually. The place and time of the interview were determined according to the choice and satisfaction of the participants. After stating the purpose of the study to the participants and collecting their demographic information, the main interview questions were asked in a semi-open manner (Please describe your experiences of providing care at the scene? What are the problems faced during the process of providing care at the scene of accidents? Describe your experiences in this field) and followed by probing questions (Please explain more or what do you mean by this sentence?). Interviews were continued until data saturation was reached, that is, until no new themes or categories were obtained from the interviews. All the interviews were recorded in Farsi by a tape recorder.

Qualitative content analysis by Graneheim and Lundman was used to analyze the data. In the first step, the text of the interviews was implemented word by word, and they were used as the primary data of the research. In the second step, the text is divided into semantic units that are summarized and shortened. In the third step, the design of abstracting the semantic units and selecting the codes is done.<sup>18</sup> Initially, the interviews collected by the researchers were implemented, and the texts of the interviews were read several times to understand the content of the text. Then, the semantic units of the interview text were determined, and initial coding was done. The primary codes were compared and classified based on their similarities, differences, and content. All interviews were implemented and analyzed by the researcher under the supervision of the research team.

## **Ethical considerations**

While studying the ethical principles of agency, independence, and confidentiality were considered in the context of the participants. Before conducting the interview, the participants were informed

about the purpose and method of the study. They also obtained written consent for audio recording and note-taking during the interview.

To study become valid, Lincoln and Guba's criteria were used.<sup>19</sup> After coding, the interview text was returned to the participants to ensure the researcher and participant had the same understanding. The coding and data analysis process was supervised by experts of the research team who had sufficient experience in qualitative research and had worked in pre-hospital emergencies. The maximum diversity was also taken into account in the sampling of employees. All research stages were fully documented, including collection, analysis, and formation of subclasses and classes.

## RESULTS

Interviews with participants were conducted over four months. The face-to-face interviews were conducted with 20 participants, and all interviews were conducted individually. Moreover, the average duration of the interview was 25 minutes, and the location of the interviews was in the pre-hospital emergency room. The characteristics of the participants are listed in [Table 1](#).

The results of the study include three categories (systemic obstacles, society's cultural ignorance, and religious obstacles) and seven sub-categories (manpower-related obstacles, inappropriate and insufficient equipment, lack of attention and support, inconsistency between organizations, disruptive measures of care, wrong attitude and wrong belief, and gender-related barriers) of obstacles that cause emergency healthcare workers to face challenges in providing care at the scene. The categories and sub-categories of the study are listed in [Table 2](#).

### (A) Systemic barriers

This class refers to the factors that disrupt the process of providing care at the scene due to the insufficient knowledge and skills of the personnel and inadequate facilities and equipment of the system.

**Table 1. A summary of the participants' demographic characteristics.**

Number	Age (years)	Work experience (years)	Degree of education	Field of study
1	43	18	MSc	Nursing
2	42	18	MSc	Nursing
3	45	22	BS	Nursing
4	36	10	BS	Nursing
5	35	9	BS	Nursing
6	26	4	Advanced Diploma	Medical emergency
7	43	19	BS	Nursing
8	45	22	BS	Nursing
9	35	10	BS	Medical emergency
10	37	12	BS	Nursing
11	43	18	BS	Nursing
12	32	10	BS	Medical emergency
13	33	10	BS	Medical emergency
14	35	12	BS	Medical emergency
15	28	7	BS	Medical emergency
16	50	25	Advanced Diploma	Medical emergency
17	25	3	Advanced Diploma	Medical emergency
18	35	12	BS	Medical emergency
19	30	9	BS	Medical emergency
20	45	20	BS	Nursing

**Table 2. Category and subcategories and examples of the codes.**

Category	Sub-categories	Examples of the codes
Systemic barriers	Barriers related to human resources	Inadequate scientific and practical qualifications of some personnel at the time of entering the system Low driving skills in inexperienced personnel Fear of some personnel providing service at the scene
	Inappropriate and inadequate equipment	Expensive ambulances and equipment Fear of driving fast and crashing Lack of some advanced care equipment
	Ignorance and lack of support	Responsibility of the technician to compensate for the damage to the ambulance and equipment Fear of driving fast and crashing Managers' lack of attention to personnel psychology
	Inconsistency between organizations	Lack of coordination in providing care at the scene by different organizations Failure to order other organs from the emergency department Delay in care due to the functioning of some organs
Cultural ignorance of society	Disruptive measures of care	Not allowing the staff to provide care by the patient's companions The conflict between family members and personnel during care Swarming and threatening personnel by patients' companions
	People's wrong attitude in providing care	Applying different opinions of people to provide care Involvement of people in the process of providing care People's view of dispatch code as a patient's transporter
Religious barriers	Wrong attitude and belief	Not allowing the staff to provide care due to knowing that this action is against God's will by the patient's companions Expecting miracles from the staff
	Gender-related barriers to providing care	Delay in providing care to the female patient due to time spent on convincing the family Lack of female caregivers in the system Not allowing male personnel to provide care to female patients

### 1. Human resource-related barriers

From the point of view of pre-hospital emergency workers, human resources have a vital role in providing care at the scene, and the level of knowledge and skill of the personnel can directly affect the quality of care provided at the scene. The experiences of pre-hospital emergency workers revealed that various factors pose challenges in providing care at the scene. These factors include insufficient knowledge, skills of the personnel, fear, and inexperience, and in some situations, there needs to be a match between their qualifications and the requirement of their duties.

In our workplace, we have employees who do not have the level of education related to the field of emergency medicine, and they cannot provide care for many specialized cases... (43 years old, BS)

At the scene of an accident, when I desperately need help, my colleague gets lost, and my work doubles, and I can't take good care... (32 years old, BS)

## 2. Inappropriate and insufficient equipment

The inadequacy and inefficiency of some equipment and facilities of the emergency system in different areas can be a challenge in providing care at the scene. Of course, providing quality care requires functional and adequate equipment. In this context, the employees stated that worn-out equipment or expensive vehicle or equipment and the responsibility of the employees towards this equipment are some of the obstacles in providing care at the scene. When high-speed care is required in many critical situations, employees fear using the devices; this fear can be considered an important obstacle in causing damage to the devices and equipment.

The price of the ambulance is high, and I am afraid of driving quickly when I get a code because if I have an accident, I have to pay for the damages... (26 years old, Advanced Diploma)

It happened at the scene that the equipment was worn out, and the work was made difficult (45 years old, BS)

## 3. Ignorance and lack of support

The emergency workers stated that despite the special features of their profession, which requires a high speed of action in providing services to the injured, if they have a problem such as an accident or equipment failure, they should be responsible for the costs. Also, the system is indifferent to psychological conditions and does not support people while passing through depression, stress, and dealing with injuries and deaths. From the point of view of the personnel, this condition is considered an obstacle to providing care at the scene.

At the beginning of my career, when I went to the scene of an accident, I was upset... In this situation, the system does not support... (43 years old, BS)

With these expensive devices, if something goes wrong, we have to pay damages, and the system does not support us at all (43 years old, MSc)

## 4. Inconsistency between organizations

The occurrence of accidents requires the involvement of various organizations at the scene, which should provide care for the injured person. The experiences of the emergency workers showed that factors such as the lack of coordination between the care-providing agencies at the scene and the lack of a uniform executive protocol for post-scene care that all agencies hold to, and the lack of command from the other emergency relief agencies can be considered as challenges in providing care at the scene. The organization's lack of awareness and implementation protocol not only undermines the performance of other organs but also prevents emergency workers' proper implementation of care.

Everyone did their own thing on the stage. I expected the relief systems to respect our opinion (36 years old, BS)

We often need more than the presence of different agencies at the accident scene to help us... I think the agencies do not have a single approach or description of operational duties... (35 years old, BS)

## **(B) Cultural ignorance of society**

### 1. Disruptive measures of care

The emergency workers stated that the existing conditions and behaviors on the part of the people and those around the patients at the care scene cause the care process to be challenging. The lack of awareness about the care process among the people and the lack of consent from those around the patient can prevent the person from providing timely and appropriate services to the injured people. Some critical obstacles in providing care are congestion at the scene, the threat of assault on the emergency personnel, and conflicts and acts of violence against the personnel during the care; sometimes, these obstacles will prevent them from saving patients' lives.

Once, when I arrived, we saw that the previous patient had died... but his companion threatened us, and we had to take care... (37 years old, BS)

In an accident scene, there were so many people that breathing was impossible. It isn't easy to work in these conditions (35 years old, BS)

## 2. People's wrong attitude in providing care

People's wrong attitude towards describing the duties and performance of the pre-hospital emergency system are considered other obstacles in providing care at the scene. Interference and application of people's opinions, along with the insistence and coercion of system employees to implement their non-scientific opinions, can interrupt the process of implementing care at the scene; further, another disturbance occurs when there is a wrong misperception such as an ambulance should be called only for transporting a patient or a deceased person, and this misconception also can disrupt the process of implementing care at the scene. On the other hand, sometimes people announce the wrong code since the emergency services are provided free of cost during the accidents; they announce the unnecessary code considering the lack of personnel. This can cause problems in the care process in the scene where they need it.

In one scene, many companions commented and insisted that my colleague and I were not concentrating. They had heard something, and they said, do this too... (42 years old, MSc)

When we are sent to the scene, we sometimes realize that the patients' companions know that their companion has died, and they want us to carry only the body. They do not know someone may need more critical help in this situation (43 years old, BS)

## (C) Religious barriers

### 1. Wrong attitude and belief

Another obstacle the staff raises during care at the scene is the misinformed religious attitudes in providing the patient's care. In some cases, the companions prevented the implementation of the process of rescuing and reviving the patient, as they considered this was an interference in God's work. This is a situation in many cases where it is possible to save patients' lives. Also, the surrounding people sometimes have unreasonable expectations, such as miraculous savings and outcomes from the healthcare personnel that will lead them to save the patients' lives.

When we arrived, we tried to resuscitate an elderly patient, but his children did not let him and said that this was interfering in God's affairs... (45 years old, BS)

Sometimes I face a situation where I have to revive the person, and people forget that we are just a tool and have unreasonable expectations... (36 years old, BS)

### 2. Gender-related barriers to providing care

Another barrier to providing care is the existence of religious attitudes related to the gender of the care provided. Generally, in the situation where the emergency healthcare providers are male, resistance arises from the patient's family in receiving care from non-same-sex caregivers. This resistance causes a delay in care or absence of care at the scene and can be considered as one of the gender-related barriers.

Some family members do not allow men to care for women in need, and we lose a vital opportunity (43 years old, MSc)

The patient is giving birth, and due to the lack of female staff, we have faced problems in providing care (45 years old, BS).

## DISCUSSION

The present study aimed to explain the challenges pre-hospital emergency workers face in providing care at the scene of an emergency. The experiences of the staff indicated that the challenges of providing care at the scene are divided into three categories: systemic barriers, society's cultural ignorance, and religious barriers.

During a qualitative study, Bahrami et al. examined the challenges the Mashhad pre-hospital emergency department faced. They categorized them as (a) human resource challenges (individual characteristics of human resources and employee dissatisfaction), (b) organizational challenges

(lack of equipment and lack of manpower), and socio-cultural challenges (environmental-social challenges and cultural challenges). While explaining the concept and challenges faced by pre-hospital healthcare personnel in providing preventive and care services in the emergency room of Golestan province, Eri et al. stated that there are three subcategories of challenges: organizational issues, individual issues, and extra-organizational issues. Researchers have noted that organizational issues are mainly focused on management, human resources, and equipment, while individual issues are focused on the motivational issues of the employee. In the extra-organizational field, issues related to people's attitudes, weak knowledge, and the cooperation of other organizations have been reported.<sup>15</sup>

Bahrami et al. evaluated the performance of pre-hospital emergency in Yazd, and they stated that the biggest challenge was the lack of vital equipment. Inadequate manpower and unequipped ambulances can reduce the effectiveness of the missions carried out by the hospitals.<sup>20</sup> While explaining the work challenges of pre-hospital emergency workers in the Sistan region, Mohammadi et al. in Sistan and Baluchistan reported that pre-hospital emergency workers face many problems in performing their work assignments.<sup>14</sup>

Firozbakht et al. stated that due to the inevitability of stressful factors in pre-hospital emergency workers, it is necessary to consider a few strategies for reducing injuries among healthcare personnel. These strategies include reducing working hours, holding welfare programs as a team, and passing appropriate protective laws.<sup>17</sup> While examining the health status of the operational staff of the pre-hospital emergency division in Golestan province, Moshtagh-Eshgh et al. stated that there are some inevitable occupational stressors among healthcare personnel. They also mentioned that it is necessary to know accurate knowledge of the stressors in the work environment and implement measures to improve their working conditions; this approach can help maintain the professional health of these workers.<sup>21</sup> In their study on occupational stress factors of pre-hospital emergency workers in Mashhad, Motie et al. stated that inadequate rest time and personnel, insufficient facilities, and inaccurate work assessment methods were the most common stress factors.<sup>16</sup>

In this regard, it should be said that obstacles aimed at manpower and equipment are essential as they can challenge the quality of providing care at the accident scene. Also, in many situations, the general public's views and attitudes are not only helping the employees but also pose an essential obstacle in providing service at the accident scene.

The review study by Haqqani and Sadeghi (1389) aimed to determine the effectiveness of current training methods for the staff working in pre-hospital emergency divisions in Iran; after considering the necessary working conditions in Iran and comparing them with other parts of the world, they stated that the training given to the staff in the field of nursing or other areas do not have the necessary education or competence. They emphasized giving more attention to modifying the teaching method and content of the courses related to pre-hospital emergency attention.<sup>22</sup> Roshanzadeh et al. conducted a study on children's safety in the pre-hospital emergency and the challenges in this field. They found that in addition to various challenges, such as the lack of suitable equipment for children, human resources, training, and experience, errors in evaluation and decision-making are the most critical challenges in pre-hospital emergency care.<sup>18</sup> Dianti et al. reported the knowledge, attitude, and performance of pre-hospital emergency workers on issues related to forensic medicine at an average level.<sup>23</sup>

The analysis of the mentioned studies indicates that knowledge barriers in various fields may cause disturbances in providing care by the pre-hospital emergency workers at the scene. Many of these obstacles are related to education. In addition to the defects related to the educational career of these employees, it should be noted that the performance of these employees, like other health professions, is based on up-to-date evidence. Therefore, in-service training to compensate for the shortcomings of the academic career and improve and update these employees' knowledge is considered essential.

## CONCLUSION

In this study, we explain the experiences of pre-hospital emergency workers in the context of the challenges they face in providing care at the scene. Our findings showed that various systemic, cultural, and religious barriers can interfere with delivering care at the scene.

To manage and reduce the effects of these challenges, comprehensive planning is needed in educational organizations and organization laws. Improving students' training process in this nascent health field and hiring graduates from this field to their job description can reduce many



obstacles related to the employees' knowledge. It is essential to implement an in-service training plan for employees and steps to increase employees' motivation. Further, providing up-to-date equipment can also play an effective role in resource management. Paying attention to psychological issues and supporting these employees will effectively reduce obstacles. To manage and reduce the effects of cultural barriers, public education and information on the nature of work and job descriptions of emergency workers should be carried out to increase public awareness. It is essential to promote the cooperation and performance of organizations such as the Red Crescent by developing inter-agency protocols and policies, and the police force will also help raise inter-agency collaboration; this can reduce the obstacles in providing care at the scene. The training and employment of women in the pre-hospital emergency department should align with the compliance plan to the religious values of Iranian society.

One of the limitations of this study is that it was not possible to conduct interviews with other organizations and educational systems, and these interviews would have helped in the extensive explanation of these challenges.

### Conflict of interest

There is no conflict of interest between any of the authors of this study.

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