

Research

Challenges of scene management in traffic collisions from the perspective of road emergency responders in East Azerbaijan, Iran

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Abstract

Introduction

Thousands of traffic collisions occur each year on Iran's roads. This study aimed to investigate the challenges of scene management in road traffic collisions in the East Azerbaijan Province of Iran.

Methods

Data were collected using in-depth semi-structured interviews and analysed by content coding and merging. Subcategories and themes were then extracted after integrating similar codes. Participants were selected using the purposive sampling method, and interviews continued until data saturation was reached.

Results

Twenty participants were interviewed; nine categories were extracted from the collected data: infrastructure problems, lack of responders' preparedness, triage challenges, deficiencies and limitations, management of special (hazardous) incidents, communication problems with casualties, lack of coordination, lack of psychosocial support from responders, and cultural and social challenges.

Conclusion

Each traffic collision requires an immediate and effective response; however, this involves several challenges as its process is an inter-sectoral issue. The major challenge is the lack of coordination among different responders. Accordingly, these challenges need to be addressed by developing a comprehensive plan, designing a leading organisation, and developing a comprehensive trauma system.

Keywords:

scene management; traffic collisions; emergency; response

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Introduction

Road traffic collisions (RTCs) are a major health problem worldwide, and a social challenge to communities (1). Globally, thousands of RTCs occur every day, accounting for a large number of deaths, injuries and disabilities, including lifelong impairment (1-3). The World Health Organization estimate that 1.35 million people die annually from RTCs, and approximately 50 million people suffer injuries (4), imposing millions of dollars in economic damages.

Iran is a country which has a high rate of casualties and fatalities caused by RTCs (33 per 10,000 vehicles) (5). In 2010, about 153,000 RTCs occurred on the outskirts of Iran (419 RTCs per day on average). In 2013, 162,140 RTCs accounted for 17,994 fatalities and 283,602 injuries (6,7).

Every RTC is a medical, security and social emergency that requires an immediate and appropriate response (8). RTCs not only lead to deaths and injuries but also block the flow of traffic, attract the attention of the public, and bring many people to the accident scene, which in some cases causes further problems and leads to secondary accidents (9).

One of the reasons for the increased number of casualties is the lack of proper management at the scene. For some experts, scene management is the most effective and important stage of RTC management (10).

Different individuals and organisations must play a role in responding to RTCs (10). Drivers and passers-by are usually the first people at the scene (11), who request the attendance of emergency services. Police, emergency medical services, firefighters, traffic authorities and others then attend the scene (8). The speed and quality of the emergency organisations' presence and how they operate together at the scene plays a decisive role in reducing the number of fatalities and casualties. The scene must first be secured (ie. damaged vehicles must be secured, vehicle fires must be extinguished), individuals trapped in the vehicle must be rescued, triage must be performed, first aid must be provided, and the injured must be transferred to equipped medical centres (8,11). Furthermore, the safety of the responders and individuals on the scene must be secured and measures adopted to prevent secondary accidents. The scene must then be cleared, blocked roads opened, damaged facilities and sites repaired, and traffic directed to prevent traffic congestion (8,11).

Inadequate scene management in some cases leads to long and stressful traffic congestion, which, in addition to the economic effects posed by road congestion, causes psychological impacts (12).

Although RTCs are emergency situations that require a rapid response, the importance of scene management has been underestimated. This study aims to address the challenges of

RTC scene management in the East Azerbaijan Province of Iran, from the perspective of emergency first responders, including Red Crescent Society rescuers and emergency medical services paramedics.

Methods

This qualitative study was conducted in 2016 to 2017. Participants were pre-hospital paramedics working in road emergency stations of the East Azerbaijan and Red Crescent Society rescuers, who were selected using the purposive sampling method. Data were collected using in-depth semi-structured interviews. An interview guide was developed for the interviews. Data collection continued until data saturation was reached.

The interviews were recorded after gaining the participants' consent, and the participants' simultaneous movements and their verbal and behavioural reactions were also recorded. In the case of any disagreement to record the interviews, some notes were taken from the participants' statements. The researchers listened to the interviews and then transcribed them verbatim. The transcriptions were repeatedly reviewed to delve into the collected data. Reflection and feedback were used to ensure the consistency and accuracy of the data, and the participants' experiences were evaluated to enhance the vigour and consistency of the data.

The data were analysed using the conventional content analysis method that is frequently used for interpretation and extracting the meaning of data and content (14). After recording the data in form of phrases or paragraphs, the data were coded. Sub-categories were formed by merging similar codes, and themes were extracted by classifying similar sub-categories thematically.

Results

Twenty staff members from road emergency and Red Crescent Society emergency stations were interviewed. The characteristics of the participants and area of experience, including field of study, are outlined in Table 1.

The analysis of 20 interviews resulted in the formation of 247 initial codes; the codes were then merged, and 167 final codes extracted. The integration of similar codes resulted in 28 subcategories and nine categories as follows:

- infrastructure problems
- lack of road crash emergency responders' preparedness
- triage challenges on the scene
- shortcomings, deficiencies and limitations
- management of special collisions and hazardous materials accidents
- difficulties in dealing with victims
- lack of coordination among responders
- lack of psychosocial support for emergency responders
- cultural and social challenges.

Table 1. Participants' level of education, work experience and field of study

Characteristics of participants		
Education	N	%
Associate degree	14	70
Bachelor degree	5	25
Master degree	1	5
Total	20	100
Area of experience		
Experience (years)	N	%
0-4	1	5
5-9	6	30
10-14	9	45
15-19	2	10
20-24	1	5
25-29	2	10
Total	20	100
Field of study	N	%
Paramedicine	9	45
Anaesthesia	3	15
Nursing	3	15
Operating room expert	1	5
Accounting	1	5
Law	1	5
Management	2	10
Total	20	100

Infrastructure problems

From the participants' perspectives, due to infrastructure problems such as freeways, main and rural roads, telecommunications, as well as some unavoidable geographical and environmental constraints, RTC scene management is problematic. Many roads are bi-directional, non-standard and narrow, therefore slowing down ambulance speed.

On freeways, there are no U-turns, underpasses or overpasses. Accordingly, when crashes occur on opposite lanes, rescue teams have to travel a long distance. With the exception of some roads and freeways near the cities, other roads lack proper lighting, making it difficult to find the collision scene and perform rescue operations at night. Heavy traffic on roads leading to large cities cause ambulances and emergency vehicles to be held up.

On many roads, there are no signs indicating the distance from the cities; meaning rescue teams cannot provide the exact location of the accident to the emergency organisation, causing delayed arrival.

P1: "There are blind spots places on roads, where there

is no phone service or two-way radio".

P2: "Our station is in an area where the two-way radio has no signal".

P3: "There is nowhere to turn around. I have to go and... turnaround from... and come back".

P4: "The road we took was two-way and highly congested, I could not overtake maybe for more than 10 minutes".

Road collision emergency responders' unpreparedness

Some RTC emergency responders, especially in the Red Crescent Society, have no relevant education. Their knowledge and skills are not continuously assessed, and training programs are not developed based on their needs. In some cases, such courses are not generally held. The interviewed staff noted:

P4: "We have not studied emergency. We are volunteers".

P5: "No practical training is provided; it is just theoretical. For example, they do not teach us what to do with such a situation you face".

P6: "... during the period I have been a paramedic, no one has assessed us".

Challenges of triage at the scene

One of the major measures to be adopted at RTC scenes, especially when there are a large number of casualties, is triage. According to the participants, most of them have no skill and expertise to do so. On the other hand, the injured and their companions also do not allow prioritising the injured.

P7: "We have been taught how to triage in our courses, but they do not allow us to do so".

P5: "Once I wanted to prioritise the injured, it didn't end well and I was about to get beaten".

P8: "I have done no triage so far".

Deficiencies, shortcomings and limitations

According to RTC emergency responders a major part of their daily challenges is related to lack of supplies, equipment and amenities. They stated that medications were limited and even rare in some cases. Ambulances were not equipped and had difficulty in transporting the injured. In some cases, there is a shortage of ambulances. Inside ambulances there are no fire and ventilation facilities and no emergency equipment.

Some ambulances are outdated and have repeatedly broken down during operations. There are no fire stations on Iran's roads so assistance must come from a fire station within a city.

P8: "The ambulance is not standard".

P3: "In this ambulance, we have no rescue equipment. There is a small capsule for ourselves".

P10: "Our ambulances are outdated and out of order".

P11: "We don't even have the primary medications".

Management of special collisions and accidents caused by hazardous materials

Vehicles carrying smuggled goods are usually driven at high

Table 2. Categories and subcategories extracted from coding interviews with emergency staff and road paramedics

Code	Subcategory	Category	Code	Subcategory	Category
Bidirectional roads and slow traffic Lack of U turns, underpasses and overpasses Non-standard and narrow roads Poor roadway lighting No distance signs on roads No warning signs on roads Dangerous turns and road accident sites Traffic congestion	Road deficiencies	Infrastructure problems	Difficulty of triage on the scene Lack of mastery of staff to do triage Prioritising noisy casualties Individuals' non-cooperation in doing triage	Limited skills of staff in triage	Triage challenges on the scene
Lack of cellular signalling in some parts of the road Lack of cars and mobiles equipped with GPS No emergency contact facilities on some roads	Communication problems		Unsafety of the scene for triage Ethical issues of triage Priority of release to triage Performing triage in unstable conditions Stabilisation of the injured preventing triage	Inherent difficulties of triage	
Road surface frost and slipperiness in cold seasons Blizzards, snow, and road closures Foggy weather and visibility restriction Lack of air emergency under unfavourable weather condition Difficulty in providing emergency services to mountainous roads Difficulty in providing emergency services to fall crashes (valleys, cliffs, dams and rivers)	Geographical and environmental constraints				
Shortage of emergency medicines	Shortage of medicines	Shortages deficiencies and limitations	Ambulance speed limit Ambulance insurance limits for carrying more individuals	Limitations of laws and regulations	Communication difficulties of accident victims
Improper height and lack of airbags in ambulances Ambulance shortage Lack of fire and ventilation facilities in ambulances Lack of rescue facilities in emergency ambulances Ambulance communication defects Lack of navigation equipment in ambulances Out-of-work ambulances Inadequate Red Crescent Society ambulances Equipment shortages of Red Crescent Society paramedics	Shortage of ambulances and lack of necessary equipment		Lack of a single emergency rescue number Limited number of operators Lack of position signs on roads Landline interferences Centralised Red Crescent Society operator response	Limitation of emergency calls	
Lack of fire stations on roads Long distance from urban fire stations to roads	Shortage of fire stations		Lack of knowledge of the passers-by and drivers regarding the exact location of the accident The injured left on the scene due to delayed call Incomplete information provided to emergency services	Misinformation by those asking for emergency services	
Low number of emergency and Red Crescent Society stations High workload and multiple working shifts Lack of support by the relevant organisations Lack of psychosocial support for the paramedic Background and family problems of staff Lack of debriefing sessions for staff	Shortage of human resources and their support		Detection and assignment of operations by the operator Operators' mistake in announcing the accident location Delay in accident detection and delayed notification by operators	Operators' lack of familiarity with the area	
Lack of facilities to secure the scene Lack of personal protective equipment Inadequate safety management facilities in hazardous accidents	Shortage of safety equipment		Accidents caused by smuggler cars Threat to the security of staff in a traffic accident Difficulty in managing the spilled smuggle load	Accidents of smuggler cars	
		Accidents of fuel vehicles High risk of fire in fuel accidents Risk of explosion in fuel accidents Crashes of cars with dangerous loads Difficulty in clearing the scene in special accidents	Accidents involving fuel and hazardous material containers	Management of special accidents	

<p>The negative impact of excessive shifts Disruption of personnel's focus on the gory scenes The conflict between response to emotions and decisions to provide services on the scene High impact of children's death or injury The severe impact of heartbreaking events on staff The long-term impact of excruciating scenes Employee's depression caused by painful scenes</p>	<p>Influence of excruciating scenes on emergency staff</p>	<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Mental and physical security of responders</p>	<p>Multiple musculoskeletal injuries of emergency staff Various hazards on the scene for the personnel Chance of car crash during scene stabilisation Probability of ambulance accident during the operation</p>	<p>Possibility of staff injury</p>	<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Mental and physical security of the paramedics</p>	
<p>The lack of a single emergency call number Inadequate equipment in hospitals and lack of patient admission Lack of coordination Lack of cooperation among emergency stations Lack of cooperation among cities Not paying for ambulance repair costs Lack of coordination between 115 emergency department and hospitals Non-permanent presence of a medical consultant Not paying the costs of callers Limited authority of emergency personnel to perform therapeutic interventions Not having the right to prescribe medications without the physician's advice Paramedics' confusion due to lack of medical consultants</p>	<p>Lack of inter-sectoral cooperation (in the Ministry of Health)</p>		<p>Inappropriate treatment of individuals by paramedics Individuals increasing expectations from emergency organisations Drivers creating danger on the scene Individuals' sensitivity to quick arrival of emergency services Blaming the paramedics for fatalities Negative feelings of staff regarding individual's harsh behaviours</p>	<p>Inappropriate treatment by paramedics</p>		<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Lack of coordination among organisations offering emergency services on the scene</p>
<p>Exposure to casualties who are drunk, addicted, or drug consumers Fear of transmitting infectious diseases to paramedics Non-use of personal protective equipment</p>	<p>Transmission of communicable diseases</p>		<p>A decrease in the concentration of paramedics on the scene due to side issues Impact of companion's stress on paramedics Paramedics' mental obsession during operation Inappropriate mental state of the injured Confusion about some actions Effect of scene crowdedness on paramedics' decision-making power Spectators' pressure on paramedics to transfer casualties quickly</p>	<p>High levels of stress on the scene and its impact on staff performance</p>		
<p>Unrelated education and unprofessionalism of some paramedics Lack of ongoing or sufficient training for staff Failure to train staff to handle special situations such as chemical accidents Mismatch of theoretical training with field needs Unpreparedness of personnel for special traffic accidents Low skill and speed of unexperienced staff in the field</p>	<p>Poor information and inadequate skills of emergency staff</p>	<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Unpreparedness of emergency staff</p>	<p>Insurance problems on the scene Legal problems of carrying more casualties by the ambulance Employee's liability insurance ambiguity of the one responsible for clearance/ no scene clearance Lack of rules and enforcement mechanisms for scene management Problems with managing the valuables of the casualties Problems with interrogation in staged accidents Ambiguity of the one responsible for fatalities Lack of a central unit to coordinate operations Failure of organisations to inform each other Interference of emergency organisations in each other's affairs Non-compliance with scene commander Conflict of emergency staff on the scene Police delayed arrival Unsafety of scene Police mistreatment with other staff Police pressure to transfer the injured without observing the principles Lack of control by spectators and incitement against other staff Inappropriate police deployment on the scene Absence of electricity departments when needed Lack of fire departments Improper treatment of Red Crescent Society staff by hospital staff Triage for Red Crescent Society emergency staff Lack of providing required equipment for the Red Crescent Society</p>	<p>Lack of inter-sectoral cooperation</p>	<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Lack of coordination among organisations offering emergency services on the scene</p>	

<p>Losing golden time because of road traffic Dangerous driving behaviours by ambulance drivers Drivers not giving way to ambulances</p>	<p>Lack of cooperation to give way to the ambulance</p>	<p>Cultural problems in scene management</p>	<p>Insistence of relatives to accompany them on the ambulance Insistence of injured companions on quick transfer to hospitals Lack of possibility to accommodate companions of the injured in the stations</p>	<p>Barrier of companions</p>	<p>Cultural problems in scene management</p>
<p>Assessment of female casualties with the guidance of staff and their companions to observe cultural barriers</p>	<p>Religious problems</p>		<p>Individuals' unawareness of the rescue process Individuals' aggression towards emergency staff and not providing the right information Expecting paramedics to rescue the injured Individuals' lies to paramedics about the car's load</p>	<p>Individuals' insufficient awareness regarding the responsibilities of paramedics</p>	
<p>The crowdedness of the scene is a factor for subsequent accidents Crowdedness caused by the public and spectators hinders emergency operations Finding no room to park the ambulance Non-standard transportation of patients by personal vehicles in the case of late ambulance arrival Individuals' involvement in treatment procedures and increasing injuries Not observing precautions such as smoking on the scene Non-standard displacement of the injured by passers-by</p>	<p>Crowded scenes</p>	<p>Cultural problems in scene management</p>			

speed, with drivers performing dangerous actions when they perceive they are being followed. This may pose problems to the emergency team; and sometimes loads are dangerous and require special management.

Every day, hundreds of tons of fuel and hazardous chemical materials are transferred on Iran's roads. Accidents involving hazardous materials can be highly dangerous and management of such accidents tremendously difficult. Another problem with the scene management of such RTCs is clearing the scene of hazardous materials, which may lead to secondary accidents due to slippery roads.

P11: "...the one who is smuggling acid, for example, does not say that his load is acid or oil".

P13: "... he never gives the right information, and our job is like someone who is driving in the dark with his eyes closed".

P14: "... they tell the operator that it is like the previous one; however, we go and see the car has been smuggling hazardous substances and has had an accident, and the driver has told us lies that he had had a heart attack. We ask him about the reason, and he responds you wouldn't have come otherwise".

Difficulties in dealing with victims

Individuals involved in an RTC, or passers-by, seek urgent help from an emergency organisation. However, there is still no single phone number across the country to ask for emergency services. Each organisation has its own phone number, which is confusing for the caller. Some emergency organisations only respond to calls from their own province. Also, provincial operators are not fully familiar with all addresses and cannot quickly locate and report them to emergency services. Those asking for rescue teams often provide incomplete information and quickly hang up the phone. Lack of information leads to delayed emergency services arrival to the scene and the late provision of rescue advice. In this regard, the participants argued:

P14: "Individuals who call to report an accident are often passers-by and don't know the exact address or sometimes there is a similarity between the names of two places which have completely different addresses".

P15: "One of the main reasons for the delayed arrival of the forces to the scene is providing incorrect, incomplete, or even unreal addresses to the operator".

Lack of coordination between responders

Traffic collision scene management requires teamwork, and many organisations may be involved. When a large number of organisations and individuals are involved it is challenging to coordinate them. Participants stated that they had experienced many problems in this regard. From their perspective, no organisation is in charge of clearing the scene and there are no rules on how to manage the scene: "No specified organisation is in charge of fatalities, and sometimes we witness bodies left on the scene for hours. No one is in charge of their valuable belongings until the police arrive".

There is no centre to coordinate and guide the operation. Organisations enter the scene and adopt their own measures. This means some actions are repeated and some necessary activities may not be performed well. Although the commander is the police, they often do not arrive on time and can cause problems on their arrival, for example, they may insist the injured person is transferred with no triage and first aid. They also do not fulfil their primary task of securing the scene and providing safety. Electricity, fire and road departments operate slowly and are not coordinated.

Participants reported that hospital personnel treat Red Crescent Society staff harshly. In some cases, the emergency department does not even inform the hospital. In recent years, the use of air emergency services has also been made possible; however, coordination between services is usually difficult. Coordination is a problem when there is a need for more than one station or when more than one city is involved.

P16: "According to the regulations, we don't take any dead bodies at all; however, individuals ask us to take care of the person who has no vital signs and transfer him to the hospital more quickly".

P13: "... even once a police officer came to me and said if a riot occurs, you are the one responsible for it, so come on take him to the hospital quickly".

P17: "...the police have repeatedly insulted us and our colleagues".

P18: "... in recent years, they make staged accidents to claim for car insurance money".

Lack of psychosocial support for emergency responders

RTC scenes are always hectic, and dangerous for all individuals due to the numerous hazards present. The likelihood of contagious disease transmission, explosions, secondary collisions, aggression and beatings by spectators and companions, and exposure to hazardous substances may affect the wellbeing of paramedics. As does, for example, witnessing injured children and severed limbs/crushed limbs. Emergency workers observe these scenes, yet they have to act rationally and professionally. Such contradictions are sometimes difficult.

P19: "Sometimes the injured is drunk and he/she is not feeling well. He may start fighting".

P17: "One of our own safety concerns is exposure to injuries and the likelihood of disease transmission".

P14: "Our work is so stressful that most of our colleagues suffer from hypertension".

P20: "Due to occupational stress and difficult working conditions, we often have hypertension and problems with our lumbar spine".

Cultural and social problems

The cultural and social characteristics of individuals involved in RTCs are among the challenges reported by study participants. One challenge is the victim's companion insisting on immediate transfer to hospital. Many people are unaware of the rescue process and complain about not receiving timely services. In

some cases, they behave aggressively toward the emergency services personnel.

In Iranian culture, people are interested in watching RTC scenes closely. This causes congestion at the scene and, while causing secondary accidents, it also hinders rescue operations. Some of these spectators intervene in the process and, in some cases, assist in moving the injured and relocating the victims, which deteriorates the victim's condition. Although the scene is dangerous, some individuals do not observe primary precautions. Some drivers do not give way to ambulances, thereby delaying help. There are also obstacles to the assessment of injuries by paramedics (eg. all paramedics are male).

P3: "Unfortunately, individuals do not have the necessary knowledge, and because they want to help, they sometimes cause more harm".

P10: "They may just tell us come on pick up the injured. They often come and take the stretcher from us to be put in the ambulance. Some of them are provoking...".

P10: "As we arrive at the scene, the insured's relatives insist on transferring him to the hospital as soon as possible, not allowing us to provide first aid as they think of these measures on the scene to be a waste of time".

Discussion

This study aimed to identify the challenges of scene management in RTCs from the perspective of emergency responders. Infrastructure problems refer to deficiencies in roads, which includes narrow roads or lack of lights. These shortcomings challenge the response. There is a clear relationship between road structures and effective management of large scale crashes (14). Previous studies have addressed these issues (9,12,15,16).

Emergency services require specialised knowledge and clinical skills. Each scene is different, and the injuries have different types and ranges; hence, scientific insight and clinical skills are required to assist casualties. Some paramedics have no scientific background and only work by passing some relevant courses. This is problematic: in providing proper assistance to the injured, and the risk of injury to the paramedics. Even in developed countries, the lack of trained and experienced responders has also been reported (17-19). In-service training and continued empowerment programs for respondents can be an acceptable solution to this problem, even for volunteers. Triage on the scene, especially when the number of casualties is high and when all the casualties cannot be treated at the same time, is the main focus of the scientific literature. However, the findings of this study showed that triage is highly difficult and sometimes impossible in RTC scenes in Iran. However, previous studies have not addressed this problem, and the researchers of the present study failed to detect them.

Lack of ambulances and shortage of human resources, supplies, equipment and drugs make RTC management difficult on East Azerbaijan's roads. The shortcomings have also been addressed in previous studies. Elmqvist et al mentioned the shortage of equipment in pre-hospital care (20). Finding an appropriate vehicle is not a convenient task in India (16). In Germany, two types of ambulances are employed (18). Ismaili et al and Khankeh et al pointed to the lack of fire stations on the roads and the non-responsiveness of city fire departments to RTCs (13,21). Mohammadi et al also listed deficiencies such as inadequate pre-hospital emergency services, lack of supplies, lack of ambulances and the shortage of emergency bases, all of which were also mentioned by participants in this study (22).

There are many organisations involved in managing a RTC scene, each of which has its own structure, rules, hierarchy, guidelines and specifications. Moreover, these organisations may not consider the significance of other organisations task at the scene. Soori et al pointed to the shortcomings in coordinated policy making, the lack of unified management, and the lack of precise description of the tasks of organisations (providing a practical model) (23), which were also addressed in this study. Khorasani Zavare also considered the lack of coordination to be highly significant (9). Andersson et al noted that each organisation usually focusses only on its own tasks and is less cooperative with other organisations (24). The overall findings of this study, which corroborate the findings of previous studies, indicate that lack of cooperation and arrangement among organisations as one of the main challenges in RTC scene management in Iran. Developed countries, such as The Netherlands, have initiated a 'coordinated reference framework' to expand coordination between the different emergency services (14). This national trauma system could be an acceptable strategy to be adopted by emergency responders (16).

Limitations

RTC scene management is a collaborative process, and many organisations are involved in this process. Accordingly, a comprehensive investigation is required to explore the challenges. In this study, we only interviewed emergency medical service paramedics and Iranian Red Crescent Society rescuers, which might have limited the generalisation of study findings.

Conclusion

Every RTC requires an immediate and effective response. However, as this process is cross-sectoral and requires a large number of organisations on the scene and given that there are numerous shortcomings and deficiencies, they face several challenges. In this study, 167 challenges were detected in

the form of 28 subcategories and nine categories, the most important of which perhaps was the lack of coordination between the organisations in charge. Accordingly, it is necessary to develop a comprehensive response plan to designate responsibilities, train and empower paramedics, improve infrastructures, and practice the plan to address these challenges.

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Competing interests

The authors declare no competing interests. Each author of this paper has completed the ICMJE conflict of interest statement.

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