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Compilation of Care Strategies for Trauma Victims in the Prehospital Phase: A Mixed-Method Study

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ABSTRACT

Prehospital care for injured individuals aims to prevent further harm at the accident scene. One of the main challenges in prehospital care is to address the mental and emotional issues that arise after an accident, as caretakers often have to assess and transport patients without specific guidelines. This study aimed to develop effective care strategies for trauma victims during the pre-hospital phase. The present mixed-methods study was conducted in three phases. In the first phase, we compiled a list of concepts derived from a content analysis that identified challenges in patient management during the prehospital phase. In the second phase, literature on the challenges of prehospital care in traffic accidents was reviewed. In the third phase, utilizing the Delphi method, the initial draft of the identified challenges and proposed corrective solutions developed from the literature review and content analysis were sent to experts in accidents and disasters. A compilation of prehospital care strategies for traffic accident victims intended to treat traumatic victims was finalized. Formulating these strategies in an emergency program and conducting related training courses in a standardized form can effectively improve prehospital care.

Keywords: Traumatic Patient; Road Traffic Accident; Prehospital Care; Challenges

Introduction

Traffic accidents involve collisions between vehicles or a vehicle and a stationary object on the side of the road, often resulting in financial or physical harm. Each year, over 1.35 million people die in these accidents worldwide [1]. According to a global burden of disease study, traffic accidents account for over a third of all injury-related burdens worldwide [2]. Notably, low-income and middle-income countries experience a disproportionately high number of deaths and injuries from traffic accidents, with the death rate in low-income countries being three times higher than that of high-income countries [3].

Patients with traumatic injuries require proper management in the post-accident phase to improve their chances of survival and reduce neurological deficits and permanent disabilities [4]. Prehospital care for victims aims to prevent further injuries at the accident site. This involves an initial assessment of the patient, providing cardiopulmonary resuscitation(CPR) if necessary, and immobilizing the spinal cord in cases of suspected spinal cord damage[5]. In majority of countries, prehospital services are the responsibility of nurses and emergency medical technicians, but ordinary people and drivers of heavy vehicles are among the main individuals responsible for providing care to the injured [6,7].

The presence of bystanders at the scene of an accident is a common phenomenon, and sometimes, their attempts to help can lead to further injuries for the injured individuals. Bystanders' emotional reactions may compel them to assist and transport the injured, even if they lack the necessary knowledge and skills [8]. Additionally, interactions between the

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prehospital personnel and other individuals at the accident scene during patient transfer are crucial for reaching a common understanding, resolving conflicts, and providing effective care. Therefore, the presence of prehospital personnel, their interactions with the patient and bystanders, and their conduct at the scene are essential components for providing prehospital care [9, 10].

One study suggested that despite improvements in response to prehospital emergencies in Iran, it is still not possible to reduce the death rate caused by traffic accidents. The study proposed several reasons for this problem, identifying the lack of interactions and a common understanding as fundamental social issues [11]. Additionally, a study aimed to understand the experience of trauma patients from traffic accidents, from the moment of the accident to the end of specific treatments, revealed key concepts such as emotional responses, the need for information and assistance, experiences with treatment, and the relationship between the patient and the rescuer. Consequently, the main problems identified were psychological and emotional issues after the accident, which were examined and addressed in the study [12].

Several studies in the field of prehospital care and management of patients with spinal cord injuries in the acute phase have revealed a significant difference in providing care to these patients between the prehospital phase and the hospital care. The majority of personnel relied on their experiences rather than using valid assessment tools for patients with spinal cord injuries. There is a lack of standardized examinations and guidelines for prehospital personnel in examining spinal cord injury patients. This absence of a standardized guide has led to chaos and increased emotional behaviors when transferring patients suspected of spinal cord injury. Therefore, the present study aimed to develop corrective strategies for transferring patients suspected of spinal cord injuries at the scene of traffic accidents.

Materials and Methods

The present study focused on mixed methods and was conducted in three phases. In the first phase, a conventional qualitative content analysis was performed. Purposeful sampling was used to select participants, which continued until data saturation was achieved.

The inclusion criteria were: people who had experience in prehospital emergency care. Data were collected through open and semi-structured interviews with individuals who had experienced spinal cord injuries, witnessed traffic accidents, or were involved in rescue operations. To facilitate the interviews, appointments were scheduled in advance, allowing for a comfortable environment. The purpose of the research was clearly explained to the participants, and they were allowed to proceed with the interview. The interviews followed a semi-structured format, continuing until data saturation was reached. The general question of the interview was to "express your experience of providing aid in the emergency department," and then questions such as "explain more" were used. Data saturation occurred after the fifteenth interview.

To analyze the data, the recorded interviews were transcribed verbatim and examined using MAXQDA software (Version 10). The data analysis process followed the steps suggested by Lundman and Graneheim [13]. These steps for interview analysis involve conducting each interview immediately after completion, reading the entire text for overall understanding, identifying semantic units and primary codes, classifying similar primary codes into broader categories, and uncovering the hidden meanings within the data.

In the second phase, a literature review on prehospital care for traffic accidents was conducted to investigate the challenges of care. Resources and texts related to challenges in prehospital care were searched in databases such as PubMed, Scopus, and Elsevier using keywords such as "traumatic patient," "road traffic accident," "prehospital care," "disability," and "challenges." The selection process focused on prehospital emergency care

and trauma care challenges from 2010 to 2024. Exclusion criteria were a lack of access to the full text and any repetition of titles or content. Having reviewed various sources, the challenges faced by traffic accident victims were identified.

In the third stage, the researchers discussed these challenges with the experts and managers of the prehospital emergency department using the Delphi method. The purpose of the Delphi method is to achieve a consensus among experts on a specific topic through the use of questionnaires and iterative feedback. This approach allows for a thorough examination of expert opinions, characterized by three main features: unbiased responses to questions, the repeated distribution of questions and collection of feedback, and the group analysis of responses. The review process was conducted in three rounds, with experts' opinions being incorporated and re-evaluated in each round.

The project has received ethical approval under code IR.LUMS.REC.1400.123.

Results

Fifteen technicians and bystanders are interviewed. The average duration of the interviews was 35 min. They were three female and 12 males. Half of them were interviewed in the hospital and the other half in the emergency center and in their homes. In the initial phase, following the data analysis, we identified several categories related to unplanned interventions and emotional responses in the context of prehospital care for traumatic victims (Table 1).

Approximately 30 resources were identified in the second phase. These resources were utilized to develop guidelines for managing traumatic patients and facilitating their transfer. The literature review findings and content analysis phase were combined to create a preliminary draft (Box 1). Subsequently, the Delphi method was implemented using the preliminary draft of the content analysis and literature review.

A panel of Delphi members, consisting of 25 experts, senior managers, and specialists in prehospital emergency care, was selected.

Table 1. Categories and Subcategories Derived from the Interview

Categories	Subcategories	Categories	Subcategories
Unplanned interventions	- Unprotected release - Unprotected transmission - Failure to stabilize the injured - Removing the injured from the accident scene	***Attempting to save***	- Fear of secondary incidents - Need for safety - Instability in the situation - Self-blame
Emotional behaviors	- Violence against emergencies - Insistence on pulling out the injured - Insistence on a quick rescue - Emotional dissonance - Insistence on transfer	***Desperation***	- Injured individuals in distress - Emergency response for the injured - Worsening the condition of the injured
Emotional decisions	- Failure to contact the emergency room. - Transporting the injured using private vehicles - Action taken for insecure transfers	***Emotional atmosphere***	- Difficulty in managing emotions - Psychological pressure from those around you - Excitement as a form of relief
Emotional intervention	- Interfering with rescue efforts - Unapproved assistance at the scene - Congregating and obstructing rescue paths - Intervening with a false sense of heroism		

Box 1. Challenges of prehospital management for potential spinal cord injuries according to experts

- Providing inadequate care due to low knowledge and experience
- Colleague's incorrect intervention in treatment
- Doctor's lack of enough experience in the center to advise and take risks in prescribing medicine
- Lack of trust between the consulting physician and the emergency technician or expert
- Forcing people to transfer the patient without intervention at the scene quickly
- Compulsion to transfer the deceased to the hospital
- Compulsion to resuscitate a deceased person due to environmental conditions
- Refusal of the patients/their family to transfer to the treatment center
- Obstruction in the resuscitation of the patient by the people present at the scene (family)
- Performing actions outside the scope of organizational duties due to the stressful environment, such as requesting a transfer to a private hospital
- Providing insufficient care due to the lack of manpower and equipment in Tehran; a shortage of nearly 600 ambulances
- Delays in arriving at the scene of accidents due to difficulty finding the address, estimating distances, or dealing with city traffic
- Intervention of civilians or police in medical affairs
- The compulsion to follow the doctor's orders in providing patient care or transfer
- The compulsion to obey superiors in unnecessary transfers, for example, the head of Tehran's emergency department
- Disruptions in providing care due to delays in the arrival of other rescue teams
- Challenges in accepting patients and lack of available beds in the hospital
- Difficulty finding available beds in the hospital and lack of cooperation from other hospital patients
- Lack of attention from officials to the shortage of ambulance equipment
- Being accountable to the people due to the outdated equipment in the ambulance fleet
- Dealing with the challenge between corporate and government forces
- Facing weak organizational support when people complain about technicians
- Transferring non-emergency patients to reduce work pressure
- Transferring patients from houses without elevators
- Transferring a patient with cardiac and respiratory arrest
- Dealing with the challenge between private and governmental ambulances
- Failing to transfer some patients to the hospital due to fatigue
- Lack of telephone triage by dispatch nurses
- Accepting all missions, including non-emergency ones, by Dispatch 115
- Providing low-quality care due to the high volume of missions
- Delay in providing appropriate care due to fear of life-threatening/infectious diseases
- Lack of timely police presence in missions with unsafe environments
- Patient transfer from areas or bases far from the hospital
- Challenges in returning to the base after completing a mission
- Lack of enough time to have lunch or dinner
- Stress of waking up to wireless or mission-related alarms
- Mistaking the mission of one department for another, causing staff to be sleep-deprived and overworked
- Dealing with religious biases from patients and their families, such as when performing procedures like ECGs
- Struggling to maintain patient confidentiality despite pressure from family members and law enforcement
- Managing personal family issues while on duty
- Disagreements with colleagues regarding treatment plans
- Obtaining informed consent from patients or their families
- Difficulty in identifying the legal guardian of a patient in order to obtain consent
- Patient coverage in therapeutic interventions such as electrocardiography
- Accepting the request of the patient's family not to tell the patient the truth
- Dealing with unreasonable requests from the patient or their family
- Handling requests from officials or patients to file a false incident report, for example, to report an accident free of charge
- Dealing with the challenge of being assigned to fake missions
- Addressing concerns about legal issues due to lack of time to complete patient reports
- Considering a quality control perspective on operational personnel
- The organization's negligence in implementing successful treatment measures such as CPR and successful deliveries
- Lack of timely support and discipline for staff in cases of negligence or work-related issues
- Inattention to the well-being and recreational needs of staff
- Challenges related to deteriorating infrastructure and welfare equipment and poor environmental conditions within the facilities
- Lack of dedicated buildings and facilities for emergencies
- Challenges related to ambulance accidents and the mobility of facilities
- Discrimination in the transfer of personnel to headquarters or VIP areas
- The challenge of the mission lies in the narrow alleys where the ambulance cannot go
- Improper behavior of hospital emergency triage personnel during patient delivery
- The challenge of unprincipled transfers in the hospital due to lack of transfer equipment such as scopes and stretchers
- The challenge of random missions due to the necessity of coordinating with traffic police and police stations
- The challenge related to unnecessary and repetitive deployments
- Challenges related to inefficient and non-emergency management
- Emergency managers' lack of familiarity with the crisis management process, unprincipled transfer of ambulances, and designated areas
- People's inattention to ambulance sirens in emergency cases
- Fear of complaints from the patient and their family
- Insulting and disrespecting the patient's companions
- Lack of a clear protocol and treatment process in dispatches
- Carrying out unnecessary transfers to satisfy the patient's family and those around them

The panel of Delphi members consisted of 25 experts, including prehospital emergency technicians(n=6), an emergency medicine physician, a manager of the roadside emergency base, directors of the emergency center(n=6), faculty members(n=8), hospital emergency managers(n=2), and deputy director of the National Emergency Department. The average work experience was 12.72±10.2 years.

At the first round a questionnaire sent to 15 prehospital emergency experts. Once the responses were gathered, the items mentioned by the experts were reviewed, confirmed, and included in the questionnaire after reaching a consensus. Since the data collected in the first and second stages (initial draft) were extensive and inconsistent, the data were classified for the second round. Therefore, additional or duplicate items were removed after collecting the responses from the first round.

The findings from the experiences of specialists and experts were then compiled into Box 1.

In the second round, challenges were sent to 10 prehospital emergency experts. They were asked to prioritize each item's importance, so they rated the items from 1 to 10. After collecting the responses in the second stage, the categories were prioritized in prehospital care for patients with potential spinal cord injuries using the experts' opinions(Table 2).

In the third round, the challenges identified in the second stage were shared with the panel of experts, and solutions were presented accordingly (Table 3). The final round presented the challenges and solutions to senior managers in prehospital emergency and disaster risk management to finalize.

Table 2. Determining the Challenges Based on Priority and Percentage of Importance

Priority	Items	Percent
1	Emergency managers not being familiar with the crisis management process and unprincipled ambulance transfers	94
2	Ineffective and unrelated management of prehospital emergencies	89
3	Lack of timely police presence in unsafe environments during missions	82
4	Lack of telephone triage by dispatch nurses	75
5	Dispatch 115 taking on all missions, including non-emergency ones	75
6	Colleagues making wrong interventions in treatment	72
7	Weak organizational support for technicians	70
8	Inadequate care due to poor knowledge and experience	69
9	Poor quality care due to high workload	65
10	Lack of clear protocol and treatment process in dispatches	64
11	Encountering religious prejudices from patients and their families while providing service	60
12	Handling unreasonable requests from patients and their families	60
13	The challenge of conducting simulated missions	59
14	Delay in providing appropriate care due to fear of life-threatening risks	58
15	Failure to transfer some patients in need due to overcrowding	57
16	Insulting and disrespecting the patient's companions	57
17	Providing inadequate care due to lack of manpower and equipment	55
18	Feeling compelled to follow the doctor's orders in providing care and transferring the patient	55
19	Involvement of non-medical personnel or relief forces in medical affairs	54
20	Delay in reaching the accident scene due to difficulty in locating the address	54
21	Disruption in providing care due to delayed arrival of rescue forces	53
22	Patients being transferred quickly without proper intervention	53
23	Patients and their families refusing to wait for emergency assistance	52
24	Transporting injured individuals from areas far from the hospital	52
25	Conflicting opinions with colleagues regarding therapeutic interventions at the scene	50
26	Challenges in returning to base after a mission	50
27	Lack of trust between consulting physicians and emergency technicians	49
28	Difficulties in accepting patients due to lack of hospital beds	49

Table 3. Challenges of Prehospital Care in Spinal Cord Injuries and Related Solutions

Items	Strategies
-Addressing emergency managers' lack of familiarity with the risk management process of accidents and disasters	- Compiling the national crisis management program within the emergency program - Training courses related to systematic evaluations - Appointing disaster experts as managers or consultants
Addressing unethical patient transfer in ambulance services	- Training and periodic exams during service and their impact on salaries and benefits - Utilizing experienced personnel alongside young recruits for ongoing missions
Addressing challenges associated with ineffective management	Surveying personnel to assess management strengths and weaknesses - Establishing key performance indicators for different management levels - Utilizing experienced professionals and experts for specific roles
Addressing the challenge of management not related to prehospital emergency	-Defining the necessary indicators for different levels of management, professional qualifications, and competence to select experienced individuals with expertise in emergency medicine for management positions
Addressing the lack of timely police presence in missions within insecure environments	- Revising the description of the duties of rescue forces, especially the traffic police and law enforcement bodies - Combining the emergency number and emergency unit number - Implementing codified and systematic planning with coordination outside the system with law enforcement units
Deficient telephone triage conducted by dispatch nurses	-Teaching dispatch nurses specialized triage -Conducting in-service training and regular exams and assessing the impact of these exams on salaries and benefits -Rotating the personnel, including technicians and emergency nurses, to gain experience in all three environments –Hiring emergency personnel with an interest in dispatching and high capabilities in emergency triage
Accepting all missions, including non-emergency missions, as directed by Dispatch 115	Highlighting accurate telephone triage to prevent unnecessary
Preventing wrong intervention of colleagues in treatment	-Deploying experienced doctors in prehospital emergency centers -Formulating instructions and SOP for emergency cases -Training doctors with expertise and monitoring their performance
Addressing the lack of organizational support for technicians	-Ensuring the psychological well-being of staff by addressing personal and work-related stress, taking into account biological and social factors -Establishing an effective organizational structure to address technicians' needs and improve communication within the organization
Addressing inadequate care due to insufficient knowledge and experience	Improving the technician's knowledge and experience in providing care through in-service training, periodic exams, and linking exam performance to salaries and benefits
Preventing poor quality care resulting from high workload	-Improving the quality of care by adjusting the number of missions for each base -Increasing the resources and bases -Changing the process of sending or collecting fees for non-emergency missions -Encouraging personnel by recognizing successful missions to increase work motivation -Scheduling shifts of less than 24 hours for technicians
Addressing the lack of clear protocols and treatment processes in dispatches	- Designing protocols and treatment processes for spinal cord injuries and other emergency traffic accidents - Compiling instructions and local standard operating procedures (SOP) for emergency cases in collaboration with the vice-chancellor of medicine and the university -Providing protocol training through continuous and in-service training
Dealing with any religious prejudices held by the patient and their family while providing the necessary services	- Investigating and being aware of cultural beliefs and attitudes regarding prehospital emergency care - Respecting the religious beliefs of the patient and their family as long as it does not cause any delay in providing care -Utilizing local resources from the same region for prehospital emergency care
Managing unreasonable demands from patients and their families	-Providing public education and awareness about triage principles and understanding prehospital emergency procedures -Collaborating with radio and television to educate families about the responsibilities of emergency personnel

Table 3. Challenges of Prehospital Care in Spinal Cord Injuries and Related Solutions (continued…)

Items	Strategies
Addressing the challenge of going on a fake mission.	-Tracking calls to reduce these cases and deal with violators through judicial authorities -Making people aware of the consequences of misusing emergency services
-Avoiding delays in providing appropriate care due to fear of life-threatening risk.	- Ensuring the scene is secure for the technician to provide optimal care - Dispatching the rescue team and providing the rescue unit number simultaneously - Having police presence at the scene to support the medical staff during the mission -Educating people and developing a legal framework to punish individuals who mistreat the personnel
-Patients not being transported due to overcrowding	- Making the team leader responsible for providing interventions to prevent chaos -Getting the police and the emergency team to reduce crowding and ensure timely transfer of the injured
A framework to deal with wrongdoers who insult and disrespect the patient's companions	- Maintaining the safety and security of the scene and controlling aggression and conflict between the attendants and the technician - Educating families through mass media on the necessity of maintaining respect for emergency personnel -Ensuring the presence of the police and the development of a legal system
Providing inadequate care due to lack of manpower and equipment	-Resolving the lack of human resources and hiring skilled and experienced personnel in prehospital emergency -Recruiting the required manpower according to the needs assessment
Enforcing compliance with doctor's orders when providing care and transferring the patient	-Training doctors and standardizing assessments to enhance their knowledge and experience in telephone patient assessment -Establishing quality indicators for care and the necessary steps to obtain a doctor's order, distinguishing it from other primary and supportive measures
Intervention of people or relief forces in medical affairs	-Keeping the mental peace of the scene by the team leader to prevent unnecessary interventions -Ensuring the presence of police forces to maintain the peace of the scene and prevent crowding
-Reducing delays in reaching accident scenes due to improved navigation	-Equipping all ambulances with GPS for quick access to accident locations
Disruption in the provision of care due to the delayed arrival of rescue forces	Running the SOS system for easier coordination of relief forces
Avoiding pressuring individuals to transfer patients quickly without proper intervention	Educating people that rapid patient transfer is not the primary focus of care Informing the public through the media
Patient and family refusing to wait for emergency arrival	Dispatching an ambulance for an incident that occurred in your area
Transporting the injured from distant bases to the hospital	-Dispaching multiple helicopters to transport the injured from remote and inaccessible areas -Changing the dispatch process to increase capacity
Conflict of opinion with colleagues regarding the performance of therapeutic interventions at the scene	Designating a leader for missions and ensuring that other colleagues follow orders Compiling and teaching standard protocols and ensuring their implementation
Addressing the re-mission challenge on the way back to the base	Improving the quality of care by adjusting the number of missions for each base
Addressing the lack of trust between consulting physicians and emergency technicians	-Training doctors and implementing systematic assessment to enhance knowledge and experience -Rotating personnel and doctors -Establishing a single leadership to coordinate the team and ensure adherence to their directives
Challenges in accepting patients and shortage of hospital beds	-Improving the communication system between prehospital and hospital emergency units -Managing prehospital and hospital emergency units-Strategically planning the guidance of staff to refer patients to desired hospitals with minimal waiting time for admission -Accepting emergency patients and performing quick, life-saving interventions -Coordinating with the MCMC system to allocate hospital beds to traffic accident patients

Discussion

In this research, the participants shared their experiences and identified ineffective management as a challenge in providing effective care and relief. Based on their experiences, the participants suggested solutions such as developing a national crisis management plan for accidents and disasters, providing written training courses and in-service programs, and appointing disaster experts as managers and consultants. Canonical et al. reported improper management and insufficient resources as obstacles to providing optimal care to victims of traffic accidents [14].

Inadequate management of prehospital services and related challenges significantly impact subsequent actions and interactions in health services, particularly in prehospital care [15]. Moreover, ineffective management contributes to a decline in the professional motivation of prehospital service providers, leading to a decrease in service quality. A study demonstrated that the effectiveness of management style and training in scientific management methods can enhance prehospital service quality and improve staff job satisfaction [16]. Therefore, establishing essential indicators for different management levels, utilizing experienced personnel and relevant experts for specific roles, and providing ongoing training can improve inefficient management.

The participants in this research highlighted the lack of coordination among relief and inter-organizational forces. They faced disruptions in care provision due to delayed arrival of rescue forces, absence of police and Red Crescent in missions, lack of telephone triage by dispatch nurses, difficulty in reaching dispatch missions, incorrect interventions by colleagues, and absence of clear treatment protocols in dispatches. Shakeri et al. suggested that strengthening work group culture and interdepartmental coordination can improve aid delivery. They also recommended corrective solutions such as improving dispatch processes, responding in special conditions, and using new technologies [17]. Additionally, revising the laws, enacting extra-organizational laws, and updating the description of duties of each organization were suggested as measures to address the lack of inter-organizational coordination. One study on intra-organizational coordination, concluded that if organizations do not adopt similar structures and lack the organizational flexibility to adapt to new conditions resulting from inter-organizational coordination, the information exchange between organizations may not be successful [18]. Johnson et al. identified communication failure between the EMS and other emergency response centers, such as the police and fire departments, as a major problem in the EMS at accident scenes [19]. Therefore, revising the responsibilities of relief organizations and designing the SOS system can enhance inter-organizational coordination and improve the effectiveness of relief efforts.

In the context of the lack of nurses for telephone triage, one of the challenges of inter-organizational coordination in the present study was the lack of education and specialized skills. Dippy et al. believe dispatch personnel should undergo in-service training in telephone triage of injured patients and learn specialized skills [16]. Shakeri et al. reported that relevant education was one of the conditions for success in rescue response, which was important only in EMS and fire dispatches. Nevertheless, most dispatch personnel did not complete the in-service and specialized training courses [17]. In this regard, Van Scotter et al. showed that training through the Internet and social networks was a new method to empower dispatch employees [20]. Canonical et al. found that the competence of personnel and effective communication between relief organizations were among the facilitators of providing effective care to victims of traffic accidents [14]. Based on the solutions of this research, coordination should continue from contacting the emergency dispatch to the transfer of patients to the hospital, which is made possible by revising the description of organizational duties and determining the work limits of each organization.

One of the challenges identified by the panel of experts in the current study was the lack of a clear treatment protocol in emergency dispatches. To support this finding, Sadeghi et al.'s study emphasized the importance of establishing inter-organizational coordination, trust, transparency, and a protocol with specific and compatible structures to improve medical responses [21]. Other studies also highlight the importance of revising guidelines and protocols to ensure that rescue departments coordinate with each other based on the nature of the incidents, enabling an effective rescue response [15, 22]. Therefore, improving inter-departmental interactions can be achieved through amending laws and developing protocols. Furthermore, to enhance the aid process and promote sustainable coordination, it is essential to focus on reducing the sense of constraining organizational power and to rely on maintaining their independence. This approach will help establish coordination without interfering with organizational responsibilities and prejudices. Another issue related to the lack of inter-departmental coordination is the challenge of responding to false missions. Azami et al. also found that people's lack of awareness of emergency numbers and their tendency to dial 115 instead of contacting parallel agencies such as the police or fire department can lead to wasted rescue time and hinder a timely response [23]. To address this issue, the expert panel suggested educating the public about emergency numbers through mass media and implementing call tracking to reduce non-urgent cases. They also recommended dealing with offenders through legal authorities. In the present research, unprincipled conflicts among people at the scene of an accident were identified as a significant challenge. Orkin et al. also noted that public interventions in traffic accidents involved calling emergency services and traffic police and transporting injured individuals in private vehicles. However, over 81% of those who intervened lacked adequate information and training for basic medical care at the accident scene [24]. Alinia et al. indicated that people's lack of familiarity with first aid principles sometimes worsens the injuries or even causes more disabilities for the injured. This lack of knowledge is also an obstacle to providing prehospital services in traffic accidents [15]. Yang et al. found that people gathering at the accident scene not only causes crowds and delayed response but also leads to unconscious and emotional interventions and insufficient first aid knowledge, which can exacerbate the condition of the injured [25]. Therefore, teaching people first aid is proposed as a solution to reduce traffic accident casualties. The religious prejudices of the patient and the family were another challenge when providing care. In Iran, a Muslim country with strong religious beliefs, people adhere to certain principles, including the gender adaptation factor. This means that if the injured person is a man, there are no restrictions, and people come to help. However, if the injured person is a woman, many people withdraw from helping and do not act [26]. Therefore, addressing cultural beliefs and attitudes toward prehospital emergency care, respecting the religious beliefs of patients and their families, and involving resources in providing prehospital care are some of the proposed solutions in this study.

Conclusion

Some prehospital care strategies for transferring traumatic victims in traffic accidents were proposed. These strategies include having disaster experts review prehospital care solutions, revising the duties of rescue forces, especially traffic police and law enforcement bodies, and educating the public about emergency numbers and first aid at the scene of the accident through mass media. Moreover, gathering and tracking calls to reduce unnecessary cases and dealing with offenders through judicial authorities are important solutions identified in this study. Hence, it is advisable to incorporate these strategies into emergency programs and conduct formal training courses to improve prehospital care.

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Conflict of Interests

Authors declare that they do not have any conflict interests.

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