

## Experiences of Pre-hospital Emergency Personals in Road Traffic Injuries of South-East of Iran: Qualitative Research

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### Abstract

In many countries road crashes are the main cause of mortality. Iran is one of the countries with considerable road traffic injuries. Pre-hospital interventions have an important role in preventing mortalities and disabilities caused by traffic accidents. This study aimed to explore the experiences of personals at emergency pre-hospital posts on traffic injuries in Zabol, Iran. This qualitative research, was performed to explore the experiences and perceptions of a purposeful sample of Iranian pre hospital emergency personal (n=12). Data collection was continued until data saturation. Data was collected using in-depth semi-structured interview and analyzed by thematic analysis. Five main categories emerged from the interviews as, continuous stress in missions, accidental companions' challenges in the accident scene, individual and legal barriers in missions, unsafe feels in convenient missions, Uncoordinated rescue organizations. This study showed that different factors affect the quality of pre-hospital clinical services to the aimed victims that should be considered to improve the quality of pre-hospital clinical care in dynamic programs. Policy makers in health system can use these findings to promote the quality of pre-hospital services, especially in the field of traffic injuries.

**Keywords:** Emergency pre hospital services; Traffic accidents; Iran; Thematic analysis; Qualitative research

### Introduction

Road traffic accidents cause death, injury, disability and economic problems for people [1]. Increasing various incidents and injuries is one of the most important threats to the life of people in different regions and countries of the world, which annually causes more than 6 million deaths in the world [2]. Among these incidents, traffic and driving accidents were one of the most common incidents that threat the life of many people in the world. Due to the fact that the deaths caused by traffic accidents have not reduced globally and in spite of a decrease in such accidents in some countries, in 2012 the United Nations approved an enactment called this decade (2010-2020)

measures for road safety and asked all member states to take preventive action to reduce incidents and traffic accidents [3].

On the other hand, driving in and out of cities has become a critical health problem and this issue has led to recognition of Iran as one of the countries with the most number of deaths caused by driving accidents and traffic incidents. A total of 0.5 percent of the world's driving accidents occurs in Iran, which means that incidents in Iran are twenty times higher than elsewhere. According to the statistics of Iran Forensic Medicine Organization, 27567 people were killed in driving accidents and 276762 people were injured through these accidents in 2006. This ends up with the highest rate of deaths caused by accidents in Iran [4].

The results of one research had reported the rate of mortality caused by traffic accidents in Iran, 30-40 percent of death percentage in 100000 people [5].

According to the report of World Health Organization, 23000 people in Iran died because of road accidents in 2008. In 2010, the number of estimated deaths caused by traffic accidents in Iran was 252224 people with the rate of 34.1 in 1000000 people. This rate in 2011 was equal to 27.22 in 100000 people based on the estimation of Iran Forensic Medicine Organization [6].

Sistan & Baloochestan province is the poorest province of Iran by considering proper roads, so that only 207 kilometers of its roads in north and south have four lanes and other roads are two ways with the width of 7-7.5. On the other hand, according to the high risk of connection roads that has about 130 high risk points in these roads, as well as the working environment of people of Sistan and Baloochestan province and the special climate and weather conditions of this region has caused this province to become one of the most adventurous provinces in the country and the highest rate of death has reported here caused by accidents and incidents. The biggest problem in traffic issues is not having standard roads. Unfortunately, enough attention has not paid to the infrastructure and the creation of separate ways of going and returning in highways. Therefore, roads with a low width cause mortal accidents that its samples are abundant in the roads of this province [7].

Emergency medical services are an important part of the health care system. Emergency care plays an important role in reducing disability and preventing mortality in low and middle income countries. This is true if emergency care is well planned and supported at all levels [8]. The burden of death and the disability and mortality due to the lack of appropriate emergency care in low and middle income countries is very high [8].

Due to the fact that a qualitative study with enrichment and insight allows for a deep understanding of concepts and phenomena [9], this study is conducted with a qualitative approach with the aim of exploring experiences of paramedics about traffic accidents on the road.

### Methodology

#### Ethical approval

This study is extracted from master's thesis approved by the Zabol University of Medical Science's Ethics Committee. The participants filled in the consent form and the right to reject the study at any stage.

The researchers assigned a code for every participant to keep their confidentiality.

### Study design, recruitment and setting

According to aim of the study, the methodology of the study was chosen as qualitative research, because the qualitative research is a systematic and subjective way to describe experiences in life [9].

The data reported here come from the same participants and interviews reported in our accompanying article. Participants were paramedics recruited from the Zabol pre hospital emergency posts. An invitation letter sent to members of the Zabol pre hospital emergency posts.

Purposive sampling was employed to recruit the respective paramedic teams' members. The intention was to recruit a diverse sample of professionals, in terms of years of service and role specialism. Participants with mean age 35.3 years and job experiences 8.3 years, were ultimately recruited from fifteen different road emergency posts. We aimed to recruit until data saturation was achieved, which we anticipated to equate to 8 participants. Data saturation was ultimately achieved on recruiting 12 paramedics and therefore, recruitment ceased at this point. All participant interviews were conducted face to face by the researcher.

### Data collection

Data was gathered through semi-structured interviews. First, interviewer proposed some general questions to start the interviews such as "Please explain your experiences as mission of accident road traffic". Then, based on the participants' responses and trend of the interview, next questions were arranged. Each interview lasted about 45-60 min. The time and location of the interviews were arranged with the participants. Interviews were recorded as audio files (MP3) and transcribed verbatim. This study was conducted from November 2017 to March 2018. In general, researchers performed 14 interviews with 12 participants.

### Data analysis

The analysis was done based on the six-stage method of Braun & Clarke in thematic analysis [10]. First, the interviews were listened for two times and then were transcribed by two researchers. Second, initial codes were extracted. Third, the sub-categories were formed. Fourth, the similar sub-categories were grouped under a category or theme. At the fifth stage, the themes were labeled. The final stage consists of linking the themes to the existing articles (e.g., main category continues stress in missions, accidental companions challenges in the accident scene, individual and legal barriers in missions, unsafe feels in convenient missions, Uncoordinated rescue organizations).

### Rigor

The rigor of the study was assessed through credibility, dependability, conformability, and transferability strategies [11]. Credibility ensures that the phenomenon was accurately identified and described. In this study, triangulation assured credibility: the audit trail; the repetitive comparison of statements, formulated meanings, and the exhaustive description; and the review of statements and formulated meanings by three participants and three researchers (MM, AA, and MF). Dependability indicates consistency in findings. The researchers re-questioned the participants when the data were vague.

They also used code-recode procedure to the analyzed interviews. The data also examined by an external reviewer. Conformability indicates the confirmation of the results by others. Many attempts were made to present a detailed explanation about the study steps from the beginning to the end, bracketing the previous knowledge and attitudes on the research topic, and checking the results by the other researchers. Transferability refers to generalization of the findings to other settings or contexts. The researchers attempted to include participants with different type of base work.

### Results

After analyses of data, five themes were extracted from the interviews, which were the continuous stress in missions, accidental companions challenges in the accident scene, individual and legal barriers in missions, unsafe feels in convenient missions, Uncoordinated rescue organizations.

#### Continuous stress in missions

According to the results of the study, extracted from the interviews, the paramedics present in inter-road bases and carry out different missions of road traffic incidents in their shift of work. When paging them for a mission, one arisen issue is the stress caused by unawareness about the mission and events that they may encounter. Paramedics face constant stress until arrival to the incident place, affecting their body internally leading mouth drying, the sense of sweating, worry and increasing of heart rate. These symptoms will vanish in the time of arriving and entering to the incident place and encountering with injured people gradually.

The amount of stress and worry in people with different work experiences varies. But the important thing is the effects of these stresses on non-working hours and in dealing with their own family which have a bad effect on technicians.

In this regard, participant 6 narrated:

With the alarm of the pager when I send to a mission, I get stressed, worried and afraid that it is not clear what scene I'll confront ... and what happens on the scene of the incident. So I find a bad inner feeling that annoys me.

In the beginning of my job, I feel stressful so that I felt mentally disturbed and tedious. I thought what would happen? How is injured? How their communication would be? Can I really do something for them or not? But the more experience I have acquired, I can overcome this mental turmoil and it has already reduced but still with me with the same condition as I mentioned, but it has reduced significantly. But at rest, when I think of it, I feel afraid and stressed (Participant 2).

Early in my work, I had a lot of stress, which showed itself as the increase of my heart beats, which was annoying, but gradually by doing more missions, most of my stress lowered (Participant 3).

The stress of the missions will show itself later, too. At the time of rest, with family, and etc. this stress is obvious for me in the time of rest and sleep showing itself by insomnia or sleeplessness and headaches or scenes in sleep pass in front of my eyes like the movie (Participant 12).

#### Accidental companions challenges in the accident scene

In some of the accidents that happen to families on the road, the injured companions, due to concerns about saving lives of injured, unable to recognize good and bad work, and try their best to send the

injured as quickly as possible to the hospital. In this regard, they force the paramedics to carry out the injured only quicker to hospital without first taking initial measures on the scene.

They try to interfere in the activities of paramedics. Due to the interference of the companions and putting paramedics under pressure, the live of injured is at risk. This class is considered as one of the results of the study agreed by most paramedics. The companions of injured person feel bad when they saw their injured drowning in the blood, or being sighing and groaning and kicking. They cause problems and pressure on paramedics. Also, they give non-therapeutic advice to me leading to more stress and mental pressure for me (Participant 10).

Accompaniment is a problem. The best deal with angry companions is to calm them down because mutual clashes lead to make them angrier because they do not have the suitable conditions at that moment and they can be calmed by calming down and sympathizing with them. In this way, they can provide favorable condition for service delivery (Participant 9).

There is a possibility of invasion and attack to paramedics....when injured airways are damaged, you want to put airway or intubated out. A companion is there and becomes angry and thinks you are wasting the time or doing an unnecessary job...all of these happen because of unawareness (Participant 7).

### Individual and Legal Barriers in Missions

Based on the experiences of participants in the accident scenes, due to the crowded around and different circumstances of the injured, the initial measures of care and treatment is provided for them, but the possibility of error is very high. If a problem happens for the injured person, paramedics must be responsive to legal issues and this has made them vulnerable.

In some cases that they feel some measures are necessary for the injured, but the risk is high, they must act with caution to prevent any problem. Also because of the busy roads and the lack of ambulance support in case of damage from other vehicles and faster move to deliver injuries to hospital, there is the risk of ambulance accident. If any events happen for the injured or the ambulance, the paramedics should pay for the loss, which causes them to pay a lot of precautions leading to more damage to the injured.

Throughout such events, paramedics are not supported by managers. Other problems during the delivery of the injured to the hospital are the fact that the hospital creates a problem during the delivery of the injured person and do not return the equipment used by the injured person at the scene of the accident, which is a major problem, since replacing them have an excess expense for the technicians. The injured in accidental scenes are of any age and gender, and occasionally ambulances are not equipped with equipment for children that put technicians into trouble. These are considered as barriers to work.

You should avoid some actions because of fear of legal issues such as crowds and stress, and people gathering around ambulance....a wrong invading or another action....If something happens to the injured and the technician is found guilty there is no support and response by insurance. There is always the fear and anxiety of using different methods that are correct or incorrect. Because at the accidental scene you are alone and should decide by yourself (Participant 2).

Ambulance equipment is acceptable, but a series of facilities for children and infants should be provided, such as ventilator and electroshock device for babies and training personnel about the way of using these equipment and facilities because it is sometimes needed (Participant 5).

In the accident scenes, you are alone and should make a decision that you can only determine its true or false later. If in the hospital it told that the technician was wrong or should do another work, a companion may complain. Nobody understands that you made the best decision at that moment or you wanted to deliver injured as soon as possible to hospital, but if the ambulance damage, you should pay its loss. The management does not provide enough support from its colleagues in such a way that it should and must do (Participant 1).

### Unsafe feels in convenient missions

The action in relay bases of roadside is very challenging. The feeling of insecurity was expressed by all the participants. When the technicians of traffic accident send to a mission, they face various dangers. Different atmospheric conditions such as storms, colds, snow and drain makes it difficult for the mission to be carried out with full caution, since paramedics' lives are in danger or when they are in the accident scene, some cars pass that put their lives in danger. In some cases they are condemned to late arrival because the people on the scene do not know that how far the ambulance passes to reach there.

Organizational problems cause insecurity in work. The number of paramedics in the ambulance, which are two and sometimes even the driver does not have any experience of relief work and working with one person is very hard in the accident scene. Even sometimes the presence of three or more people is required. In this way, one can control the people in the accident scene or even play a role as a bodyguard for other paramedics.

Most of the time in the summer, the roads face with heavy sand storms with very little gap distance, and you cannot move fast. In this climate condition, too many accidents occur. No car can move but all expect ambulance to move in a high speed. So when you come to the scene, a conflict happens why you are late (Participant 1).

Well, of course, the presence of more technicians in each scene will lead to better control of the scene. In accidental patients and collective incidents, it is helpful. For example, in a patient with a heart-respiratory arthritis, in my opinion, the number of technicians plays a very important role, and the massage of the heart will be better and more effective and giving respiration to the injured person will be very effective. Also in larger events such as the reversal of the bus needing more relief and power, it is helpful in triage discussion and the classification of injuries, the number of staff to triage and a more accurate categorization and better transfer of injuries will help (Participant 4).

Insecurity means poor road conditions, bad weather conditions, angry companions and tense patients, and many other things that we try to make the best decision based on the conditions we are in. This decision should lead not only to a better help to the patient, but also prevent problem for ourselves (Participant 6).

Severe conditions, lack of facilities, the probability of infectious diseases from patients with infectious diseases, water and air conditions such as cold or extreme heat, bad road conditions, such as lack of proper routes for missions, high traffic and the low culture of

people in dealing with accident scenes are some of the work insecurities (Participant 8).

### Uncoordinated rescue organizations

Due to the lack of a single center to coordinate the deployment of various relief units at road accident scenes, the emergency between the roads endures the most problems. When an accident occurs, people first make the first call with an emergency between the roads. If there is also a need sometimes for the police, the firefighting and the Red Crescent organization to help with the establishment of a safe environment to handle injuries will help technicians accelerate their activities and save injured people lives. But at once everything is reversed, and only the road emergency is on the scene, and they should do the various actions not described in their job descriptions which also do not help the patients.

In some of the missions, the police, having the responsibility of the scene security arrive to the scene after us or they even do not come. We do not have any firefighting station in the road. The Red Crescent is also due to its timely arrival, do not presence on the scene. In such conditions, calming environment, removing injured people from a broken vehicle, helping injuries, shutting down the fire with manual fire extinguishers is all the works of paramedics (Participant 11).

Unfortunately, all relief groups in the crash are always coming to the place after emergency group. The police, the Red Crescent and the firefighters arrive late....Apparently a quick reaction is defined only for the emergency. I think the formation of a response center to command the relief groups will lead to a more accordance and eliminate discordance and better service (Participant 7).

### Discussion

One of the results of the study is the continuous stress in the missions. Paramedics feel stressful during their activity and sending to the missions of traffic accidents, with different signs in the person. They are struggling with these signs even during the rest and unemployment. This is where these stresses are replaced within the individual and is an integral part of the individual's life. In this regard, the results of a study showed that the personnel of medical emergency were affected by various factors causing stress for them. Time constraints in the course of affairs, late arrival to the accident scene, critical situation of injuries, companions' expectations, fear of failing to save the injured person, openness of the environment and failure to make on time decisions are among stressors indicators [12].

Also, emergency medicine is a stressful job. Paramedics suffer from severe stress due to their job. Insomnia, distraction, anxiety, depression, fatigue, frustration and extreme anger are among stress symptoms during work. These symptoms gradually cause family disputes, cardiovascular, gastrointestinal and neurological diseases in life that lead the person to burnout [13].

In another study, attention was paid to the importance of identifying stress and managing paramedics in creating a safety culture. These points include safety in missions, group work, positive attitude of management, increasing job satisfaction to reduce stress [14]. Also, in emergency care, staffs are exposed to physical and psychological stress that burden more physical stress which leads to a mental impact [15].

Paramedics are very stressful when sent to missions that encounter badly injured patients which must be taken into consideration and

control for success in missions [16]. The results of the mentioned studies in relation to the results of this study are important for stress management in missions.

The lack of assistance by the injured companions is another result of the study. Paramedic success in rescuing the victims at the accident scene related to the co-operation of the injured companions. They impress upon the operation, help with cure and indigenous interfere of people, who occasionally feel compassion for them lead to a disruption in relief operations.

The results of a study conclude that the people in accident scenes and their companionships a challenge for the paramedics. This study introduces people as experts in the field of technical, legal and medical issues doing a lot of interference. Relatives of injured person try by all their efforts to move their patient quickly to the hospital. They prefer not to take any measures on the scene [17].

Other study results showed that large numbers of people in crash scenes cause a lot of problems for paramedics and pre-hospital emergency. Indigenous interventions and various recommendations disrupt the conduction of curing measures on the scene. The biggest problem in this field is the poor knowledge of people about initial aids [18].

In another study, low awareness of people about conducting first-aids and their interventions in cure measures of emergency medical services are considered as the problems in most of developing countries. Some of these problems include the unassuming gathering on the scene of the accident, non-normative suggestions on scenes and sometimes wrong contact with relief centers [19]. In Iran, the gathering of people on the accident scene and lack of awareness about conducting the first aid on the scene of the accident to the injured and accompaniment with the paramedics are considered as the major problems stated as the result of this study.

Other results of the study are personal and legal barriers to missions. Paramedics in missions are alone when doing curing actions and essential medical treatment and they should make decisions based on scene conditions. Their knowledge and scope is limited and are not allowed to perform different actions for the injured person out of their job description. However taking some actions in some crash scenes are essential for saving injured people lives. If a problem happen for the injured and his companions complain about that, the paramedics involve in legal issues and should be responsive. They also do not have official support. Also, if in missions, ambulances or equipment are damaged due to bad environmental conditions, they must be responsive and pay for its loss by themselves. Cold, heat, sandstorms of this region are problematic in these missions. High speed of ambulance to get an injured person faster to the hospital should not be accompanied by any incidents because the paramedics are faced with personal and legal problems. They also do not have any insurance support.

In this regard, the results of a study showed that personnel of emergency medical services feel a high degree of personal inadequacy because they face many constraints in their missions. The expectations of the injured or their companions are very high, but they face legal and personal constraints. Factors like high workload, ambiguity in role and description of duties, job insecurity, poor managerial support from employees, low opportunities for promotion and lack of progress lead to the occurrence of individual incompetence and consideration of many precautions [20].



Technicians are confronted with a term called "Workspace Technician". There is no clear indication that what medicines can prescribe or treat. That's why they work has no accordance with the needs and wants of the injured. Long routes for missions, being alone in missions, long distances to hospitals, inappropriate ambulances are considered to be fundamental problems that confront technicians with legal and operational issues [21]. Another study showed that many conditions are not available to emergency technicians for missions. Time of mission, arrival to the scene, therapeutic and emergency measures, road traffic and safe delivery to the health center are the work limits [22].

Insecurity and an unpleasant feeling of mission is another result of the study. The aspects of the dangers of missions with ambulance, conditions of work environment, small and large accident scene, number of injuries and severity of injuries, present people from the relatives of injured people on the scene and the number of paramedic forces are important in creating these insecure feelings.

The personnel of relief teams are often subject to very difficult, dynamic, and rapidly changing conditions. Relief work can be very dangerous physically and psychologically. During missions, most personnel in some cases involved horrible events and often sad ones. The evidence shows that most of the injuries and deaths of rescuers are directly or indirectly that many injuries and death are directly or indirectly related to the stressful nature of their work, which is insecure [23]. Most people who use emergency medical services suffer somewhat from physical and psychological harm. They are the source of violent behavior against paramedics. Incidence of violent behaviors in accident scenes is very high against paramedics [24]. Also, the results of studies show that between 66% and 80.3% of pre-hospitals measures face threats and violent behaviors during missions throughout the year [25].

Pre hospital emergency is one of the unsafe jobs that its staff is exposed to various threats from people and injured. One of the most important reasons of violence is arriving late on the scene, however; all the conditions are not suitable for the ambulance to be available for urgent incidents. But people expect the ambulance be available after their call and if the death of injured person happen during the time of arrival, their violence would be increased [26].

Another result of the study is the discordance between relief organs. On the accident scenes, relief groups do not act through a team. Sometimes the paramedics are the first group arriving on the scene and face more problems through the order of accident scene conditions, saving and exiting injured from the accident scene. In these scenes, they have no adequate equipment leading to higher risk of death because of not providing suitable conditions.

In one study, the accompaniment and participation of other organizations is one of the most important problems of out of organization relating to other organizations based on the viewpoint of emergency personnel. The lack of proper accompaniment of hospital personnel, the lack of informing about emergency tasks through media, the lack of other organizations' knowledge about emergency service, the lack of accordance and accompaniment of other organizations like police, firefighting, Red Crescent in accidents for providing a better services are the important factors of paramedics [27]. Other study results showed that the interference of tasks can be seen among relief units. They sometimes are not aware of each other tasks. This issue will cause reducing of emergency efficiency in accident scenes [28].

Among the capabilities of this study is acquiring the experiences of personnel working in road stations and confronting traffic incidents directly. They also face many challenges in their work. Also, the low number of participants reduced the ability to generalize the study.

## Conclusion

The results of the study showed that the personnel of pre hospital emergency in personal, professional, social and cultural aspects on the accident scenes face various problems. In order to enhance the quality of services, the emergency medical services needs to pay attention to different parts like adjusting organizational structure, adjusting administrative rules and regulations, reviewing educational programs, supplying required equipment and facilities for human forces and also supplying welfare equipment for personnel. Moreover, the promotion of emergency medical services should be done through training to people and accompaniment and participation of other organizations in society.

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## References

1. Zimmerman K, Jinadasa D, Maegga B, Guerrero A (2015) Road traffic injury on rural roads in tanzania: measuring the effectiveness of a road safety program. *Traffic Injur Preven* 16: 456-460.
2. Bliss T, Breen J (2012) Meeting the management challenges of the decade of action for road safety. *IATSS Res* 35: 48-55.
3. World Health Organization (2015) Global status report on road safety.
4. Schwebel DC, Davis AL, O'Neal EE (2012) Child pedestrian injury: a review of behavioral risks and preventive strategies. *Am J Lifestyle Med* 6: 292-302.
5. Shahraz S, Bhalla K, Jafari N, Pourmalek F, Bartels D, et al. (2009) Adverse health outcomes of road traffic injuries in iran after rapid motorization. *Arch Iran Med* 12: 284-294.
6. World Health Organization (2014) Global Health Observatory data repository.
7. Taravatmanesh S, Hashemi-Nazari SS, Ghadirzadeh MR, Taravatmanesh L (2015) Epidemiology of fatal traffic injuries in the sistán and baluchistan province in 2011. *Int J Inj Contr Saf Promot* 3: 161-168.
8. Alimohammadi H, Monfaredi B, Amini A, Derakhshanfar H, Hatamabadi H, et al. (2013) Fitness of function and education of pre-hospital emergency technicians in dealing with trauma patients. *Bimonthly Educ Strateg Med Sci* 6: 55-59.
9. Piri F, Firouzkouhi M, Abdollahimohammad A, Mirzaiepour M (2018) Exploring pemphigus challenges based on the patient experiences: a descriptive phenomenological research. *Prensa Med Argent* 104:1.
10. Black JM, Ubbes VA (2009) Historical research: a thematic analysis of convention and conference themes for selected professional health education associations from 1975 to 2009. *Int Elec J Health Edu* 12: 33-47.

11. Thomas E, Magilvy JK (2011) Qualitative rigor or research validity in qualitative research. *J Spec Pediatr Nurs* 16: 151-155.
12. Kalani MR, Motie MR, Samadi A (2010) Prevalence of job stressors in male pre-hospital emergency technicians. *J Fund Mental Health* 12: 420-429.
13. Golshiri P, Pourabdian S, Najimi A, Mosa Zadeh H, Hashemina J (2013) Factors effective on job stress of nurses working in emergency wards. *J Health Syst Res* 9: 50-56.
14. Patterson PD, Anderson MS, Zions ND, Paris PM (2013) The emergency medical services safety champions. *Am J Med Quality* 28: 286-291.
15. Iranmanesh S, Targari B, Bardsiri HS (2013) Post-traumatic stress disorder among paramedic and hospital emergency personnel in south-east Iran. *World J Emerg Med* 4: 26-31.
16. Davis JS, Graygo J, Schulman CI (2013) Pre hospital information for optimal patient care. *The Am Surg* 79: 441.
17. Bayrami R, Ebrahimipour H, Rezazadeh A (2017) Challenges in pre hospital emergency medical service in mashhad: a qualitative study. *Hospital J* 16: 81-89.
18. Alinia Sh, Khankeh HR, Maddah BSS, Negarandeh R (2015) Barriers of pre-hospital services in road traffic injuries in tehran: the viewpoint of service providers. *Int J Comm Nurs Midwifery* 3: 272-282.
19. Aniek H, Ward W, Patel D, Shafi A, Oddy L, et al. (2014) Perspectives on reproductive healthcare delivered through a basic package of health services in afghanistan: a qualitative study. *BMC Health Services Res* 14: 359.
20. Eri M, Jafari N, Kabir M, Mahmoodishan G, Moghassemi M, et al. (2015) Concept and challenges of delivering preventive and care services in prehospital emergency medical service: a qualitative study. *J Mazandaran Univ Med Sci* 25: 42-57.
21. Bhatti JA, Waseem H, Razzak JA, Shiekh NU, Khoso AK, et al. (2013) Availability and quality of prehospital care on pakistani interurban roads. *Ann Adv Automot Med* 57: 257-264.
22. Gibbons J, Breathnach O, Quinlan J (2017) Emergency aero medical services in ireland: a retrospective study for "MEDEVAC112". *Irish J of Med Sci* 86: 33-39.
23. Khan K, Charters J, Graham TL, Nasriani HR, Ndlovu S, et al. (2017) A case study of the effects of posttraumatic stress disorder on operational fire service personnel within the lancashire fire and rescue service. *Safety and Health at Work* 1: 1-13.
24. Petzäll K, Tällberg J, Lundin T, Suserud BO (2011) Threats and violence in the Swedish pre-hospital emergency care. *Int Emer Nurs* 19: 5-11.
25. Sheikh-Bardsiri H, Aminizadeh M, Sarhadi M, Khademipour G, Mousavi M (2013) The frequency of violence in workplace against emergency care personnel in Kerman, Iran, and the factors affecting the occurrence. *J Manage Med Inform Sch* 1: 95-101.
26. Bernaldo P, Gómez C (2015) Psychological consequences of aggression in pre-hospital emergency care: Cross sectional survey. *International J Nurs Studies* 52: 260-270.
27. Moradi Z, Eslami AA, Hasanzadeh A (2015) Job burnout status among pre-hospital emergency technicians. *Iranian J Emer Med* 2: 1-5.
28. Leonard DL (2017) Incident Traffic Management Response. PhD dissertation, Walden University, USA.