

Investigating the Role of Traffic in Managing the Scene of Road Accidents and its Impact on the Insurance Industry

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Abstract

This study was conducted to reduce the physical, financial and managerial damages of the scene by the first observers and doers of road accident scene leading to explaining appropriate approaches to controlled follow up of cases of car accident and consequently control damages in insurance industry. This research aimed at scientifically identifying and explaining some of effective factors in reducing the fatalities and injuries of accident scenes that cause the insurance company through approach and explaining this management in reducing the related costs which includes about more than 45 % of the cost of insurance industry controls and reduces the cost. In this research, after analysis of the importance of accident management and its effect on reduction of fatalities and financial and physical injuries, the system of accident management will be discussed. The research results show that accident management by traffic police experts, in addition to avoiding secondary accidents and facilitating the scene analysis cause facilitation of outreach to victims and cleaning up the location of accident and reopening the blocked road and finally leads to reduction of fatalities and financial and physical traumas of victims and passing drivers in the way of accident and as a result reduction in insurance costs for the insurance companies.

Keywords: road accidents, traffic, insurance industry

Introduction

Humans from birth till the last moments of their life try to live in a peaceful life. A group of them seek food and other ones seek fame. The common ground of all these people who always seek a desire is what they need to live comfortably. These people reach their dreams by effort and enjoy it but it occurs when all people of a society follow its rules properly. People have two biological and cognitive aspects. So, their reactions are unlimited and unknown and some of them are uncontrollable. People, in order to reach to their destinations use different vehicles according to rules and regulations approved in the society. This is done to prevent chaos and damage to other people. Although there are several deterrent rules, in order to reach their destination sooner, some people do improper and unreasonable acts that cause unfortunate and tragic incidents. These include irreparable outcomes. The present research analyzes the role of managing accidents and consequently controlling losses in insurance industry. Traffic police as a headmaster and responsible organ in executing and observing traffic rules play an important role in all decisions and strategies taken to increase security of transportation in roads. Since traffic police is responsible for handling road accidents and coordination between other systems involved, it is highly important in the accountability process for accidents in the country roads. Based on the accident type, in addition to drivers, various individuals and organs attend in the scene. In order to organize activities in organs

simultaneously and developing immunity in the scene and avoiding secondary accidents and interference of different individuals, they need only one manager. The main duty of traffic police as the headmaster of accident scene is identifying different aspects of phenomenon of crisis, correct and easy prediction of it if possible, measuring it to control and prevent reoccurrence of accident and identifying definite or temporary steps that should be taken in each analysis and management. Several factors affect the reduction of fertility and injuries in the accident scene such as delay in proceedings, not observing the security issues, unfamiliarity with proper relief to victims etc. in analyzing the reasons for increase in the rate of death and injuries one of the main points is lack of proper management in accident scenes and unless specific attention is paid to this issue, death and injuries to victims increases after accident.

Literature review

In order to prevent potential accidents and promoting the level of security in the process of road rescue, systematic management of risk is necessary in this process. In this process, managing road accident scenes as one of the most important sub-processes of road security operations in the Red Crescent Organization and experts of accident scene from the Naja Traffic was taken into account. The issues addressed in this study can desirably maintain the basic information required for the future security tests in implementing the management processes of accident scenes and taking preventive actions, and minimize the possibility of error occurrence and its outcomes. Various factors, including the human factor, road, and vehicles are involved in traffic accidents. In the meanwhile, some infrastructures should be considered for the road and vehicle section which needs long-term planning. One of the most important issues is the social culture issue, for example, Mental and the family tensions, and road racing and fish tailing, anxiety and rush, personality type, job stress, tiredness and drowsiness, using vehicles for fun etc. are points that should be taken into account in programs. It should be trained through media to empty the accident location when paramedics arrive. One of the important disadvantages and problems of our society which is considered a serious threat is the way of training members of society. With a simple research and analysis of other countries in which governments train people with an appropriate strategic programming from childhood until one reaches the legal age of getting drivers' license; even if people are not inclined to take drivers' license, they are familiar with the rules and regulations of this system and feel responsible about it. They train people in such a way that they do not ignore other people's mistakes and not be indifferent because they know that they may hurt themselves; so, they immediately call the relevant authorities to follow the case and solve the problem. This training may be one of the simplest duties of government but, the most important part of duty is to transfer the contents of a rule particularly traffic rules that is unfortunately ignored in our country. In our country, authorities by laying down hefty fine and not continuous and proper training of people are able to force a few number of people to accept and obey traffic rules. When law is enforced selectively by members of society, we witness harrowing car accident that managing them is hard for lack of sufficient information. Some people, because of not having enough information about car accident and behave out of emotion leads to other accidents. Their actions sometimes have such a negative effect on the process of managing car accidents and relief whose damages are serious. Because of not having enough information and unreasonable expectation of some drivers, it is expected from accident experts that conditions for examining accident scene to be in their favor to use insurance policy and this issue usually causes the longevity of tracking time and closing of the case.

Definitions of key terms

Accident management system

Numerous factors affect the increase in fatalities resulted from accidents whose analysis requires a system that manage these factors in a coordinate and integrated way. Unfortunately the current attitude to accident is from the technical and engineering aspect and its management aspect is less paid attention to. The studies conducted in this area and also the reasons for failure in lack of control on accidents and fatalities shows the necessity of a comprehensive management system in the area of road security, nowadays this system is called accident management system. By implementing accident management system, goals and duties of organizations involved in the accident location is identified. Of the important achievements of this type of management can be referred to cases such as preventing repeated activities, facilitating the accident investigation, reduction in financial and physical damages, facilitating and fluidity of traffic, secure movement in roads, regulating the movements, respecting rules and regulations, coordination between different sectors to enforce control rules in roads and other similar cases that altogether cause increase in road security. Enhancing role and explaining his duties in the accident scene and representation of appropriate plans and measures provides necessary grounds for managing the accident scene.

Analysis of the condition of accident scene management by the police in Iran

The recent researches in Iran show that nowadays 25 %, i.e. one fourth of unnatural fatalities is resulted from traffic accidents. Death derived from accidents may occur at the scene or in the way to drive injured to the hospital and or the victim arrives at the hospital and even the primary cures are done for them but they die because of damage severity. Studies show that more than 38.5 % of death is resulted from accidents occurs a few minutes after accident or in the way to hospital, 15 % after arriving at hospital and less than 4 hours after the accident and 35 % after 4 hours from accident. In Iran and almost all countries around the world there are special guides to investigate accidents and reduce its effects and outcomes so that agents can take measure about discipline, safety and traffic supervision in the location according to a specific law. Traffic police is in fact the last circle in the chain of security organization that should take measure to prevent accident and reduce death and damages of roads. Even if they do not have significant technical facilities and equipment, they should settle their forces to encounter different problems and incidents in accident prone areas according to a certain plan.

The act of reporting and recording accident information is a complex activity. In most of injury and death accidents, the general expectation from them is to help victims and participate in taking them to hospital. Besides, they secure the accident area to avoid future accidents. If signs of consuming alcohol or drug are seen, an officer should take the accurate and necessary decision to definitely recognize the decision and besides if there are witnesses in the accident scenes, take necessary information from them and examine the available traffic control supplies immediately and carefully. The more the time of accident cars remain in the accident scene, the possibility of the future accident rises and any kind of investigation and gathering in the accident scene leads to more crisis than the first accident. Despite the occurrence of numerous accidents is due to lack of enough attention to the security issue in the accident scene, up to now, it has not paid attention comprehensively and a managerial strategy is not provided in this regard. Reduction in accident outcomes greatly influences the security promotion. This decrease of effects may occur before and after occurrence of accident. A series of actions before and after accidents to increase security and reduce death and injuries resulted from accident is defined in form of accident management.

The influence of accident management in reducing death and injuries

By accident management we mean a systematic, programmed and coordinated movement in which people, companies and mechanical equipment and different techniques are applied to reduce the effects of accidents and crisis and also the continuation of clashes and collisions after accident (secondary accident) reduces and leads to the increase in drivers' security and that of injured and emergency agents after the accident. In other words, accident management is an organized and coordinated application of technical and mechanical and human resources that leads to reduction in the amount and pressure resulted from accidents and development of security level of drivers and victims of accidents. Also practicing proper management causes the increase in efficiency and security and safe movement of drivers and facilitating relief to those injured in accident.

Information about car accident

Road accidents are rare incidents with vast consequences. In the meanwhile, information that can be obtained from such incidents is the most valuable data for experts and researchers for portraying the probable reasons for an accident. Thus, data of an accident are important components of safety detection and are highly valuable. Experiences derived from an investigation and data collection of accident scenes is the best key of solving related problems. Aims and intentions should also be determined only by using real information related to accidents. Police is the best organization to gather information of accident because they are among first people who attend in accident scenes. Since numerous organizations deal with these data, the performance of police force is so necessary and important with regard to the fact that they are highly responsible about gathering reliable data.

Classification of accidents and effects of applying accident management

Since type and quality of accidents greatly influences the method of investigation, reaction and relief of the organizations related to the accident, accidents are classified into different types. They are classified according to traffic jam, their impacts on the flow, amount of delay resulted, profile of different accident and rescue workers and officials (Responders). These four levels begins from the fourth level which is an accident with few effects on traffic flow and ends in the level one which are severe and injurious accidents and leads to the obstruction of the path. This classification may be not be completely accurate and specific but can greatly help to identify responsible groups and necessary support. Specific reaction for an accident takes place by the first person who is present at the accident scene and is classified and determined based on different effective determiners.

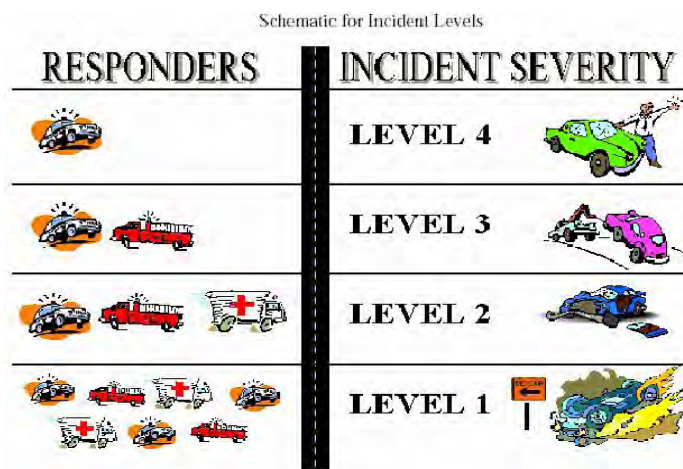


Figure 1. Different levels of accidents and quality of relief to Effective indicators in classification of accidents

1. The amount of delay on traffic flow: long delay on traffic flow which increases by accident intensity.

2. More injuries and fatalities and victims in the accident scene: increase in the number of death and injuries in the accident scene leads to traffic jam while relieving them.

The effects of lack of integrated management in increasing the financial and physical losses

In Iran, the organizations related to accidents and incidents include police force specially traffic police, relief bases (Emergency), relief and survival (red crescent), toll house, fire department, legal medicine, towboats (municipality, private section), car relief, Saipa relief, news and media. Since these organizations, according to description of duties specified do their duties and activities independently, in addition to huge waste of time and high cost, it leads to a decrease in profitability and job return.

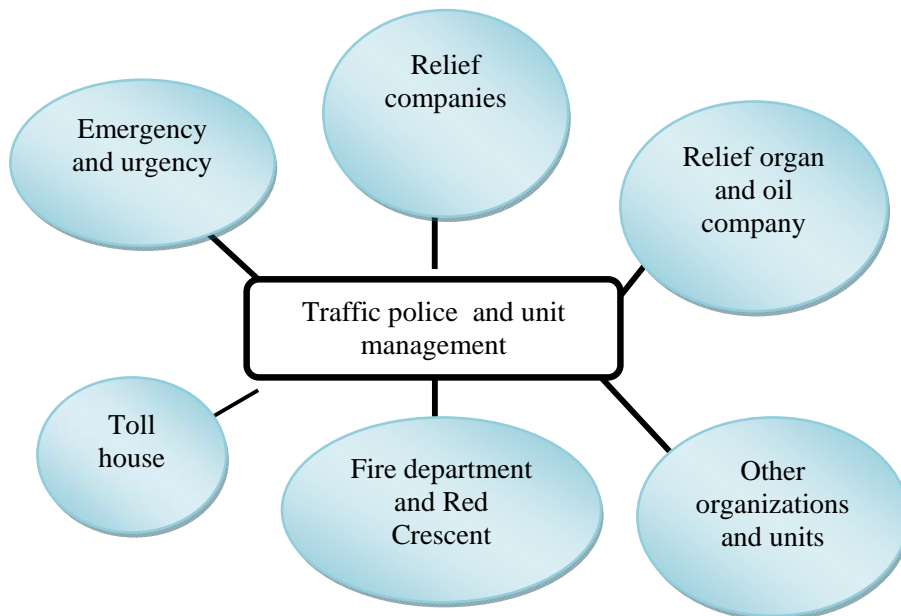


Figure 2. Unit management

Research methodology

Since social phenomena are complex and each phenomenon, though unique, calls for looking from different angles and can have different dimensions, a phenomenon cannot be paid attention to in a unique way or a method cannot be preferred over others. Any approach is appropriate in its place and should be applied and research methods can be categorized with regard to objective, direction, time, implementation and deepness.

Research design

An experimental design was used for this study and viewpoints were derived from studying accident scene management by police is in survey method.

Data collection instrument

Data collection was done through library method and analysis of texts, articles and theses. The questionnaire used in this research is researcher-made that is designed based on studies and observations and surveying elites and includes 24 closed-type questions with a likert scale including too much, much, average, weak, very weak option.

Research sample

In the present research, in order to choose statistical sample, among accident expert officers, commanders and employees participating in relief operations and drivers going through Tehran roads, 10 people were randomly chosen because of time limits and inaccessibility of related authorities,

Data analysis Method

In this research by using questionnaire, the collected data were analyzed using SPSS software and its results are mentioned in the following.

Results and discussion

In this chapter, in general, information is derived from the data collected from questionnaires and their analysis. The items mentioned are represented in form of tables and figures.

Does the management of accident scene by police experts affect reopening of road and decreasing the traffic jam?

Table 1. Frequency and %age of the impact of accident scene management in reducing traffic jam

	Very much		Much		Average		Weak		Too weak	
	F	%	F	%	F	%	F	%	F	%
The impact of accident scene management in reducing traffic jam	2	20%	5	50%	2	20%	1	10%	0	0

The results of the above table show that 50 % of respondents acknowledged that management of accident scene play significant role in reducing traffic jam. 20 % of them evaluate the role of management scene in reducing traffic jam as very much and the other 20 % evaluated it as average. And only 10 % of them stated that it has weak effect on reducing traffic.

Is the reduction of financial and physical damages in traffic scene related to police operation?

Table 2: The relationship between police operation and reduction of financial and physical damages

	Very much		Much		Average		Weak		Too weak	
	F	%	F	%	F	%	F	%	F	%
The relationship between operation and reduction of financial and physical damages	0	0	10	100%	0	0	0	0	0	0

Results of table 2 show that 100 % of respondents acknowledged the significant relationship between the police operation and the reduction of financial and physical damages

Does managing accident scene affect preventing the secondary accidents?

Table 3. The prevention of secondary accidents by management of accident scenes

	Very much		Much		Average		Weak		Too weak	
	F	%	F	%	F	%	F	%	F	%
The relationship between operation and reduction of financial and physical damages	5	50%	2	20%	3	30%	0	0	0	0

Results of the above table show that 50 % of respondents confirm the significant impact of accident scene management in preventing secondary accidents. 30 % of them believe in average impact and 20 % believe in significant impact.

Does management of accident scene influence the process of doing operation accurately and quickly?

Table 4. Performing operation accurately by management of accident scenes

	Very much		Much		Average		Weak		Too weak	
	F	%	F	%	F	%	F	%	F	%
Performing operation accurately by management of accident scenes	0	0	8	80%	2	20%	0	0	0	0

Results of the above table show that performing management of accident scenes operation accurately with a high %age (80%) is greatly effective. And, 20 % allocated an average impact to it.

Does management of accident scenes affect the safety increase?

Table 5. Safety increase by accurately managing accident scenes

	Very much		Much		Average		Weak		Too weak	
	F	%	F	%	F	%	F	%	F	%
Enhancement of safety by accurately managing of accident scenes	6	60%	4	40%	0	0	0	0	0	0

Results of the above table show that 60 % of respondents acknowledged the great impact of safety enhancement by managing the accident scenes accurately and 40 % of them state its impact as much.

Does people's lack of knowledge about accident scene issues have any impact?

Table 6. The impact of people's lack of knowledge about accident scene issues

	Very much		Much		Average		Weak		Too weak	
	F	%	F	%	F	%	F	%	F	%
The impact of people's lack of knowledge about accident scene issues	10	100%	0	0	0	0	0	0	0	0

As it can be seen from table 6, 100 % of respondents acknowledged the significant impact of people's lack of knowledge about accident scene issues

Is people's lack of cooperation with police and experts in the accident scene effective?

As it can be seen from table 7, experts announced that people's lack of cooperation with and experts of accident scene will have high negative impact (100%).

How much does the more control over roads affect the reduction in accidents?

Table 7. The impact of people's lack of cooperation with police and experts in the accident scene

	Very much		Much		Average		Weak		Too weak	
	F	%	F	%	F	%	F	%	F	%
The impact of people's not cooperating with the and experts in the accident scene	10	100%	0	0	0	0	0	0	0	0

Table 8. The impact of more control over roads in reducing accidents

	Very much		Much		Average		Weak		Too weak	
	F	%	F	%	F	%	F	%	F	%
The impact of more control over roads in reducing accidents	10	100%	0	0	0	0	0	0	0	0

The above table shows that more control over roads greatly influences the reduction of accidents (100%).

Conclusion and suggestions

By the development of human societies and expansion of social and economic relations between countries, economic capability and capacity plays important and determinant role in social, cultural, economic policies and relations between them. The more the financial power and capability of countries, the more developed their scientific, political, military, social, cultural and technological progress will be. In the meanwhile, nowadays, transformation has turned into an inseparable part of people's life and one of the main pillars of economic growth and social development indicators. In people's daily life, transformation provides possibility of doing different activities besides providing access. Any country with regard to the geographical, territorial conditions and its economic capabilities and infrastructures, uses one of the common approaches for ground, air and marine transportation. In our country, road transportation as the dominant form of this category, connected all populated areas, input and output areas. The transportation section with regard to producing job opportunities includes 11 % of country's occupation and it is about 6 % in domestic gross production. Based on analysis of first question, 50 % of respondents acknowledged that management of accident scenes plays important role in reducing traffic jam. 20 % of them evaluated the role of scene management as very much and the other 20 % evaluated it as average. And, only 10 % of them stated that it has weak impact on reducing traffic jam. Besides, 50 % of respondents acknowledged the significant impact of accident scene management in preventing secondary accidents. 30 % of them believe in its average impact and 20 % believe in the high impact.

Doing accident scene management with frequency %age of 80 % will be highly effective. And 20 % believe in an average effect for it. 60 % of respondents acknowledged the great effect of safety promotion by accurate management of accident scene and 40 % of them believe in their significant effect. Experts announce that lack of people's cooperation with police and experts of accident scene will have high negative impact (100%) and more control over roads will have high impact (100%) on reducing accident. These cases show that, despite great efforts made during recent

years, we were not able to apply appropriate approach to manage incidents comprehensively and coordinately. Thus, an issue called accident and incident management in most countries was implemented and is considered as a necessity for our country.

From the results of this study, the following items are suggested:

- Necessity of having a vast network of telecommunications and creating a direct and efficient radio communication system with a frequency for all regulatory and executive respondents on the scene of the accident;
- Providing and conveying the instruction to investigate the accident scene (including familiarity with accident management, methods of using vehicles and equipment) step by step measures to investigate accident and injuries, from the time of announcement and investigation of accident, attendance in the location, informing to other drivers, communication (methods for using communication tools like VMS etc.) cleaning the scene;
- Accurate and detailed analysis of the reasons for death and injuries of road accidents and the police role in them
- Planning for dynamic training and updating employees focused on the organizational and managerial framework should be taken into account and will be given priority.
- Increasing efficiency and effectiveness of responsible organizations, to the point that investigating accidents and attendance in the location was immediately conducted; so, in general no non-standard defined delay is performed.
- Applying accident information system along proper intervals in the road, promoting coverage of mobile phone for all country roads desirably and installing SOS relief phones to the appropriate number.
- Founding an organization or institute to promote traffic safety at the national level by possessing appropriate legal, scientific and financial support.
- In carrying out any operation on the road, it is necessary to ensure the effective endeavor of all organizations to cooperate and coordinate. Success of measures in the field of reducing road losses and damages depends on coordination and active participation of all the responsible organizations.
- Providing equipment and facilities of police and expert human resources appropriate for the population, vehicle and road in the Field of shielding.
- Strengthening the relief chain to the victims of accident, from the moment of accident occurrence till transfer to medical centers.
- Preventing secondary accidents by purposeful use of intelligent technology and equipment, and electronic traffic signs
- Paying attention to the first aid training to drivers and applicants of receiving various license

References

- Ahadi, M. R. Doagoian; D., & Tavangar, M. (1010). Analysis of the role of heavy vehicles in road accidents: case study: Haraz axis. *Traffic Management Studies Quarterly*. 5(17).
- Ahmadinejad, M. Shariat, A. & Ahmadi Finney, AR. (2006). Applying disaster management practices to improve the transportation network in road accidents.
- Ayati, E. (2005). The cost of traffic accidents in Iran, Ferdowsi University of Mashhad.
- Ebrahimi, (2008). Examining the status of the transport network at the time of accident from the disaster management perspective, Study Groups.

- Esmaeili, A.R. Azizi, H.R, & Zahiri, M. (2010). Evaluation of the role of the Traffic police in the management of the scene of road accidents: a case study: Ardabil province. *Traffic Management Studies Quarterly*. 5(17).
- Esmaeili, A.R.(2005). Comparative study of the laws, regulations and the quality of traffic control in Iran and the world.
- Faradain, F.B. (2009). A guide to traffic accident management, translated by Nick Peikar, Golgooneh. Saes Naja Publication center.
- Mohammadi, H. & Mahmoudi, P. (2006). Effect of climatic phenomena on traffic and road accidents in Sanandaj - Hamedan roads. *Geography and area development*. 6. Spring and summer.
- Nikzad, M. (2007). Traffic accidents and damages arising out of it, the NAJA Saes Publication.
- Pak Gohar, AR., Khalili, M. & saffarzadeh, M. (2009). A study on the role of human factor in the incidence and severity of road traffic accidents based on regression model of CART and LR. *Traffic Management Studies Quarterly*. 4(13), Summer.
- Road Safety Guide (World Assembly - Pyark). (2005). Department of Education, Research and Technology, Ministry of Transportation Translated by Nori Amiri and M. Ghorbani.
- World report on preventing injuries resulted from road accidents (2006). Department of Education, Research and Technology, Ministry of Transportation.