The Egyptian Journal of Hospital Medicine (April 2018) Vol. 71(1), Page 2380-2386

Road Traffic Accident: What Is Being Practiced on The Scene to RTA Casualties in Al-Ahsa City, Saudi Arabia?

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ABSTRACT

Background: In Saudi Arabia, road traffic accidents (RTA) is a burden to health, economy and community because of the increasing number of deaths and disabilities. Many victims of RTA had poor pre-hospital care undertaken by untrained lay people. Provision of first aid to RTA victims has helped in reduction the related morbidity and mortality.

Aim: To assess how the car drivers' attitude and practice in case of RTA in Al-Ahsa city, Eastern Province, Saudi Arabia.

Methods: This is a descriptive cross-sectional study between March and May, 2017 among drivers in Al-Ahsa city situated in the eastern part of Saudi Arabia. Using pretested interview-based questionnaires. More than 252 responses have been collected by trained medical students, and 249 responses have been included.

Results: All the participants were male. 44.2% were bachelors and 45.4% students. A large number of the participants are non-first aid trained (73.9%). 70.7% of the participants do not have willingness to provide first aid for road traffic accident victim. The majority (71.1%) have witnessed an RTA sustaining injured individuals and 36.9% have intervened. 67.5% of the responders have been involved in RTA themselves, and 29.3% of them have sustained at least one injury.

Conclusion: There is an insufficient experience in dealing with RTA. The knowledge of the drivers about first aid should be sought further and explored. RTA in Saudi Arabia is a major problem that require an action and consideration from both the community and the government by increasing awareness and putting strict rules to enhance the community to assume a safe driving and improve their skills.

Keywords: Road traffic accident, RTA, Saudi Arabia, First Aid, Car, Drivers, Attitude, Practice, Resuscitation, Pre-hospital Care, Emergencies, Injuries.

INTRODUCTION

Road traffic accidents (RTA) burden is not only limited to injury and health, but also on economy and community [1, 2]. RTA is a major concern for most of the countries because of the increasing number of deaths and disabilities occurred on the roads [3]. Issam Barrimah defined RTA as "any crash on a road involving at least one moving vehicle irrespective of it was resulting in an injury" [4]. The World Health Organization (WHO) defined Road Traffic Injury (RTI) as "a fatal or non-fatal injury incurred as a result of a collision on a public road involving at least one moving vehicle " [5].

Globally, injuries caused by RTA are considered among the major causes of death and disability [1]. The problem is rising rapidly and reports indicate that by 2020, RTI will be the third leading cause of disability and the leading cause of death by the year 2030 [1]. According to the WHO reports, RTA caused 1.24 million deaths on the road and approximately 50 million people have been injured worldwide. It is important to mention that RTI is a burden to hospitals being on the top of the trauma admission causes.

In Kingdom of Saudi Arabia (KSA), cars are the main method of transportation either inside or outside cities [6]. Saudi Arabia extends for more than 2 million Km^2 in the south west of Asia [6]. A population of more than 27 million lives in KSA in 13 administrative provinces, one-fourth of them are non-Saudi [6].

The authorities in Saudi Arabia reported that more than 6 million cars are there on the road of the country [6]. In KSA, fatalities caused by RTA represents 4.7% of all mortalities, compared with a rate not exceeding 1.7% in Australia, United Kingdom (UK), and United States (US) [6]. Unfortunately, the number of road mortalities in KSA has increased in the last decade from 17 to 24 deaths per 100,000 populations that is higher than the numbers recorded in US and UK [6]. RTA fatalities are considered to be the main cause of death in males aged 16-30 years [6].

RTA is a serious problem in KSA with accident to injury ratio of 8:6 in comparison with 8:1 worldwide [6], and accident to death ration of 32:1 compared with 283:1 in USA [6].

Received: 20/12/2017
Accepted: 30/12/2017
DOI: 10.12816/0045316

RTA is very consuming for the available facilities and resources. The Saudi Ministry of Health records reported that RTA victims occupies 20% of beds in hospitals and 81% of the declared deaths in hospitals are due to RTI [6]. Due to RTA, 86,000 deaths and 611,000 injuries were recorded over the last 2 decades, and 7% of injuries lead to a permanent disabilities [6]. It is estimated that 19 people killed daily and 4 persons are injured hourly, and most of these people are the young and economically productive groups, making RTA a serious public health problem [4, 6]. Furthermore, it was declared by the Secretary General of the Shura Council that Saudi Arabia annually spend approximately 26 billion Saudi riyals on the four-million car accidents [4].

First aid includes a set of actions performed for an injured person or a person suffering a sudden illness in sake of saving patient life by maintaining basic vital signs in optimal condition until the arrival of advance medical care [2, 7]. Rescuing a victim of RTA is not limited to providing a proper first aid, it also includes calling the ambulance to provide the advanced management [2]. Providing first aid for car crash victims is very important to avoid irreversible brain damage caused by hypoxia which may ensue in a short time, i.e. 4-5 minutes [2]. 60% of all RTI deaths have occurred on the road before arriving to the hospital [9]. It has been found that prompt and appropriate first aid can prevent deaths by 39% and the severe consequence of injuries if it is introduced immediately and effectively to RTA casualty before the arrival of the emergency services [8, 9]. Different studies have supported the idea that lay person should participate in rescuing RTA victims; this is because that he will be the first responder in the scene [3].

It has been found that the post-crash care is largely ignored [6]. The studies in the European countries showed that only 10% of RTA victims had the chance to receive professional medical help within 10 minutes [2]. Also, it was reported that victims of RTA had poor pre-hospital care that was undertaken by untrained lay people who lack the knowledge and skills in handling such situations [10].

To the best of our knowledge, no previous studies have been conducted to study the attitude, and practice toward RTA first aid in Saudi Arabia, especially in Al-Ahsa city. Therefore, this study is intended to study theses parameters among drivers in Al-Ahsa city.

Research Objectives

The primary objective of the study is to assess:

- The car drivers' attitude and practice in case of RTA in Al-Ahsa city.

Research Methodology

Study design

This is a descriptive cross-sectional study conducted between March and May, 2017 in Al-Ahsa city, Eastern Province, Saudi Arabia.

Target population and sampling

The study included all types of drivers, i.e. professional and non-professional from Al-Ahsa city situated in the eastern part of Saudi Arabia. Drivers who were not resident of Al-Ahsa city have been excluded. The data were collected from random drivers at gas stations, car maintenance centers, taxi stations, and bus stations around the city as well as the industrial city where most of car workshops are located. A convenience sampling technique has been used in this study.

Data collection

Out of 252 interview-based questionnaires have been collected, only 249 have fulfilled the inclusion criteria. Data collection was done by trained medical students. A brief pilot study preceded the main study for the purpose of testing the questionnaire for any major defect and validation. The questionnaire was built in English using literature review and validated by an epidemiologist, emergency medicine, and surgeon experts. The questionnaire consisted of 3 sections. The questions were either a multiple choice or open questions. The first section included the sociodemographic characteristics of the participants, e.g. age, gender, marital status, education level, occupation, driving experience, license availability, and first aid training. The other two sections were intended to assess the attitude and practice about first aid for RTA victims among drivers in Al-Ahsa city. Before administering the questionnaires to participants, the questionnaire was translated from English to Arabic then back from Arabic to English.

Ethical considerations

An ethical approval from the Ethical Review Committee in College of Medicine in King Faisal University has been obtained. An informed consents were taken from the participants before proceeding with the interview. The collected data were processed and analyzed anonymously.

Statistical analysis

A descriptive analysis was performed according to the type of variables included. The analysis was done using appropriate statistical tests. A p value of < 0.05 was considered significant in the study. Finally, SPSS Statistics version 21 has been used to analyze the data.

RESULTS

I. *Biographical data*

Out of 252 completed questionnaires administered in Al-Ahsa city, 249 fulfilled the inclusion criteria and underwent analysis. Our study has three sections: biographical data, RTA first aid attitude assessment and RTA first aid practice assessment. All participants were male with an average age of 29 ± 11 (SD) years. The largest reported age group was for those aged 24 and below (50.2%) followed by the group aged between 25 and 34 years old (26.5%).

89.6% of participants were Saudi and 10.4% of them were Non-Saudi. 84.3% of the participants are living in urban area and 15.7% are living in rural area. The top reported levels of education are bachelor with a percentage of 44.2% and high school with a percentage of 39%. Figure (1) shows the percentage of other educational levels. 45.4% of the participants work as students, and 20.1% are professional drivers. The other occupations are presented in figure (2). The majority of the responders (61.9%) are single, 37.4% are married and 0.8% are divorced.

Regarding the possession of a driving license, 95.6% of participants own a driving license and 4.4% of them did not. The average age at which drivers start driving is 17 ± 4 (SD) years old and the average driving experience is 12.10 ± 11.30 (SD) years. Table (1) shows the grouped driving experience years in percentage.

The majority of the participants (73.9%) did not have first aid training, and those who received first aid training constitute 26.1% of the whole sample.

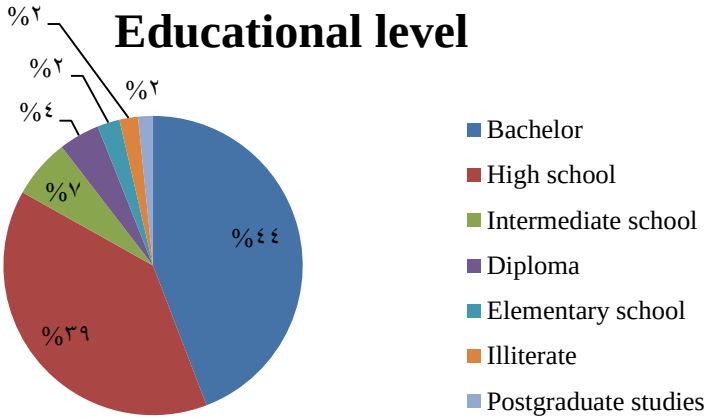

Figure (1): Educationl level

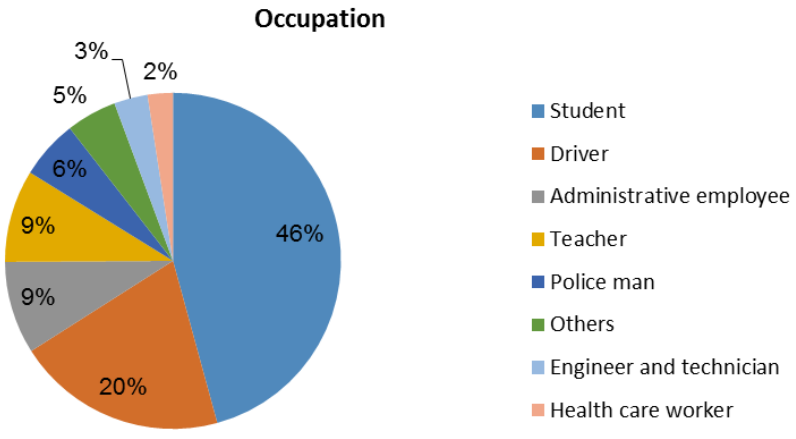

Figure (2): Occupations

Table (1): Driving Experience in years	
0-5 years	33.3%
6-10 years	26.5%
11-15 years	11.6%
16-20 years	6.8%
Above 20 years	5.6%

II. RTA first Attitude assessment

The attitude of the participants in case of RTA has been assessed. It has been found that 43.4% of the participants will call the emergency service and keep driving when they see a road traffic accident. Another 43.4% will stop and check the presence of injuries and provide what is necessary. The other responses are presented in table (2). The responses of the drivers have been significantly correlated with the following factors (P value < 0.05): age group, nationality, marital status, driving license possession, occupation, and driving experience.

Table (2): Attitude toward when witnessing an RTA	
Call ambulance or police and keep driving	43.4%
Stop and check the presence of injuries and provide help	43.4%
Pretend that not have seen anything keep driving	8.4%
Stop to watch the accident only	4.4%

The responders have been exposed to a scenario in which the driver is coming across a victim lying in the middle of the road and appears to be unconscious. The highest percentage was recorded for the option "pull over and provide first aid and call 997" (31.3%). Other recorded options include "pull over and warn the coming cars and call 997" (28.1%), "keep driving and call 997" (18.1%), "pull over, drag the victim out of the roadway, and call 997" (13.3%), " keep driving to my destination" (4.8%), and "pick up the victim and take him to the nearest hospital" (4.4%) respectively. (Figure 3)

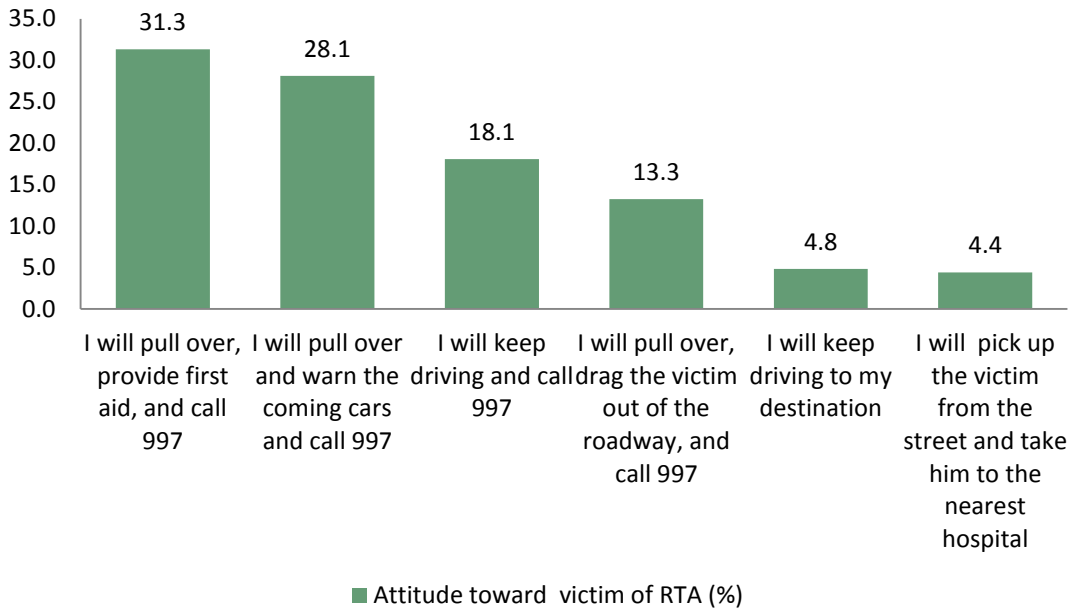

Figure (3): Attitude toward victim of RTA (%)

The participants have been asked how they will park their cars if they decided to help in a RTA. The uppermost percentage was for the option "I will park my car behind the victim and place the safety triangle by (43.4%). Other options have gained lower percentages and they are as follow: “I will park my car behind the victim and turn on the warning lights” (24.9%), “I will park my car to the side of the road and place the safety triangle” (16.1%), “I will park my car to the side of the road and turn on the warning lights” (14.5 %), and “I don't know” (0.4%). The vast majority of the participants (92%) believed that it is necessary to provide first aid immediately for road traffic accident victim at the scene, the rest did not believe so (8%). In regard to the willingness to provide first aid in case of RTA, most of the participants (70.7%) did not have willingness to provide first aid for road traffic accident victim. Those who retain the willingness comprise 29.3% of the responders. The reasons behind unwillingness were the ignorance about the first aid provision (54.6%), fear of doing

harm than help (42.1%), no materials or tools to provide first aid (19.3%), medico-legal reasons (18.2%), blood phobia (11.4%), and fear of infection (2.8%). However, 21% had no reason for not having willingness to provide first aid. The willingness of the responders to provide first aid was only significantly correlated with first aid training with a p value less than 0.05.

III. RTA first practice assessment

71.1% of the participants have witnessed a road traffic accident that sustained injured individuals. Those who have witnessed an RTA with casualty have been asked further question which was “Have you intervened?” 36.9% answered by "yes", the other 63.1% answered by "no". Those who have intervened have been asked another question about their action. The highest percentage was for calling emergency services (59.5%) followed by made sure that the scene is safe for them and others (31.1%). Other reported actions are listed in table (3). Those who have not intervened, have been questioned about the reason for not having an action. 38.7% attributed that avoidance to that they were not trained and did not know how to give first aid, 30.6% decided to not interfere with no reason, and 11.7% said that someone else did it. Some other less frequent reasons were shown in table (4). The type of injuries that victims sustained in RTA witnessed by the responders have been sought. 44.8% couldn't identify the type of injury, 34.29% reported fractures, 33.3% reported wound and bleeding, 10.5% reported airway and breathing problems, 9.52% reported head and neck injuries, and 4.8% reported other injuries.

67.5% of the responders have been involved in RTA by themselves while 32.5% have not. When it was asked about the number of road traffic accident the participants had, the result came up with that the participants had at least 1 accident in their life and a maximum of 21 accidents with a mean of 3 and standard deviation of 3. 29. 3% of those who have been involved in RTA have sustained at least one injury, whereas 70.7% have not. The results showed that the most injury occurring is contusion by 72.9%. The other injuries are shown in figure (4). Finally, less than 1% of those who sustained an RTA became handicapped.

Table (3): Action done for the witnessed RTA	
Called 997 or other emergency services	59.50%
Make sure the scene is safe for you and others	31.10%
Provide first aid	20.30%
Drive carefully past it	20.30%
Transferred victim to a near hospital	17.60%
Others	2.70%

Table (4): Reasons of non-intervention in RTA	
I am not trained	38.7%
No reason	30.6%
Someone else did it	11.7%
Ambulance has arrived	7.2%
The incidence site was crowded	6.3%
Scared of doing harm than help	4.5%
Other	6.3%

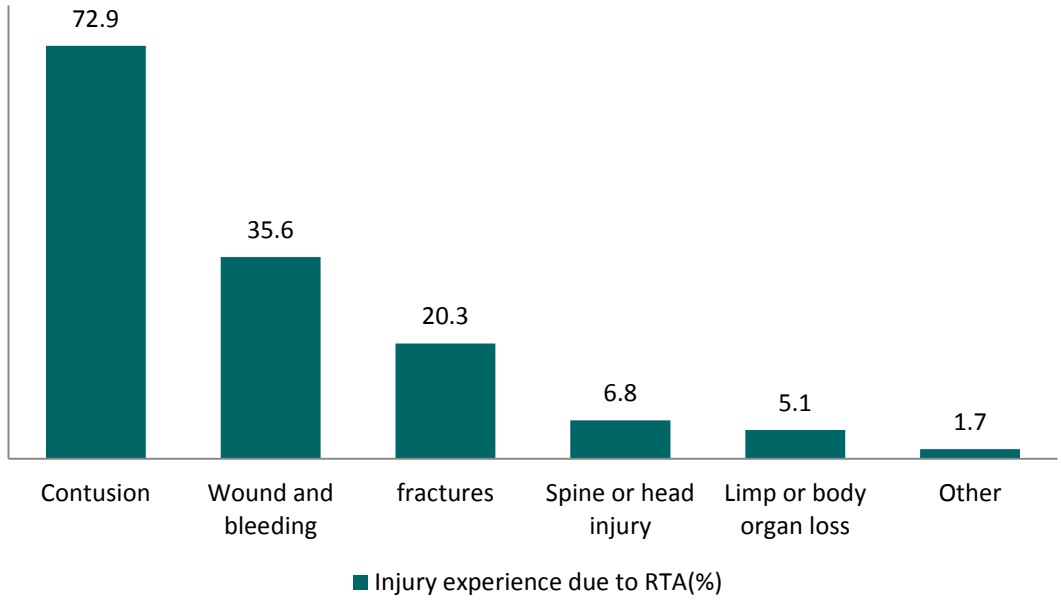

Figure (4): Injury experience due to RTA (%)

DISCUSSION

This was a descriptive cross-sectional study aimed to assess the car drivers' attitude and practice in case of RTA in Al-Ahsa city.

In general, the attitude of the responders is based on encouragement to provide help. The vast majority believe that it is necessary to provide first aid for road traffic accident victim at the scene. More than three fourths of the responders have shown their desire to provide help in case of RTA. The types of help were mainly calling emergency services only or pulling over and checking the presence of injuries and provide what is necessary with equal percentages. This was an example and a reflector of the community mores, which can be concluded from the drivers responses for the questions in the attitude section. The previously conducted studies have shown similar attitude in which the attitude was supportive to provide first aid [3]. The safeness of the drivers' attitude in approaching any casualty they witnessed has been assessed. According to the responses, the majority would assume unsafe position of their cars in which they will use them to protect the victim from the coming vehicles by parking them behind the victim (68.3%). Furthermore, the first choice of warning the coming cars, the drivers prefer, is safety triangle followed by the rear warning lights. As it has been reported in the literature, the safest way to approach a casualty is by pulling over at the side of the road and use safety triangle in a distance of 45m [7].

Even though people responses indicate a community with the mores of assistance, the majority have no willingness to provide first aid in case of RTA (70.7%). This unwillingness is significantly correlated with first aid training. People attributed this mainly to the fact that they don't know how to provide first aid and the fear of doing harm than help. In other studies, people believed that first aid should performed by individuals with expertise who are qualified to treat RTA casualty, which was the same in our study [3].

The majority of the participants have witnessed an RTA (71.1%). In comparison to the previously conducted studies, the percentage of people who witnessed an RTA in this study is higher [10, 11]. This number is reflecting the high incidence of RTA in Saudi Arabia in comparison to other countries [6, 10, and 11]. Only a small percentage of them have given a help in that incidence they witnessed (36.9%) in comparison to 55% and 90% in other studies [10, 11]. The given percentage is indicating a low confidence of the responders in regards to provide first aid. However, we believe that it would be more appropriate if a question was directed to the participants seeking directly for their confidence to provide first aid, which will allow a proper way of comparison with literature. In a similar way to a previously conducted study, the most common intervention done in our study was calling emergency services (59.6 %) [10]. however, it was not the same in Kampala study where the performed intervention was lifting or moving the victim [11]. The WHO said in a case of RTA lay people can provide help by the following means: securing the scene by fire extinguishing, warning the coming vehicles, and prevent further crashes or injury to the bystanders, calling emergency services, and providing the needed first aid to the victims [10]. The reason for those who were not helped was mainly the lack of knowledge of first aid, which is similar to what has been reported in other studies [10]. The injuries sustained by the victims in the witnessed accidents have not been identified by the responders which means a lack of knowledge in recognizing common injuries. However, other injuries have been reported and they were mainly fractures and bleeding wounds.

A high percentage of the responders have been involved in RTA by themselves (67.5%). This percentage signifies how driving practice in Saudi Arabia is not being safe and community should be encouraged to assume safe driving. Fortunately, the percentage of those who have been injured is small, only 29.3%, and it was mainly contusions. Disability among those sustained an RTA was less frequent and the incidence is less than 1%.

Conclusion

RTA is increasingly a major public health problem in Saudi Arabia. Even though, the attitude and believes of the drivers are supportive to provide first aid to RTA victims, the willingness is absent even with their experiences. It is mainly attributed to the lack of knowledge about first aid and the fear of doing harm than help. In addition, there is an insufficient experience in dealing with RTA victim, the better experience in dealing with RTA victims has been correlated with previous Frist Aid training. It has been noticed that drivers are approaching casualties unsafely which may danger them and others. Our study showed a high incidence of RTA which can be related to a reckless way of driving. In conclusion, the knowledge of the drivers about first aid should be sought further and explored. RTA in Saudi Arabia is a major problem that require an action and consideration from both the community and the government. Awareness campaigns as well as rules should be built to enhance the community to assume a safe driving. In addition, the drivers' RTA first aid knowledge and skills should be targeted and

improved since they are the first responders on the road even before the arrival of the emergency services.

ACKNOWLEDGMENT

The authors extent their gratitude to Dr. Bhupendrabharthi B Gosai, Head of Department of Biomedical Sciences, for his help in modifying the questionnaire. Also, we would like thank Abdulelh A. Alsmaiel, Ibrahim A. Alyaeesh, Mohannad K. Alholybi, Abdullah S. Alsaqer, Saad K. Boqursain, Mohammed J. Alnuwaysir, Abdulrahman M. Alsuwailim, and Hader H. Almomen for their effort paid for the data collection for this study.

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