

Epidemiological Pattern of Injuries Resulting from Road Traffic Accidents in Khartoum, Sudan

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Abstract

Background: Traffic accidents are increasingly becoming a threat to public health and national development in many developing countries. Sudan isn't an exception, the number of vehicles is rapidly increasing while the road's widths remain as same as before, so many accidents took place, and serious losses and damages to both human beings and vehicles may occur. This study was aimed at identifying the epidemiological pattern of injuries and determinants that contribute to road traffic accidents (RTA) in Khartoum Teaching Hospital Sudan. **Methodology:** Hospital based descriptive study was conducted in Khartoum Teaching Hospital. 150 road traffic victims who attended the emergency room or were admitted to the hospital from February-May 2012 and fulfilled the inclusion criteria were included in the study. A pre-test standardized administered questionnaire was used for data collection. **Results:** Males were more affected (85%); laborers were the highest among the victims (43%). Sixty three of RTA causes were related to the drivers. **Conclusion:** Urgent intervention is needed through the involvement of many sectors and specialties. There is an urgent need to setup a database to collect, store and analyze information related to road traffic accidents. This will help the authorities to plan strategically for appropriate interventions across the country.

Keywords

Road, Traffic, Accidents

1. Introduction

Road traffic accidents which are generally unintended and preventable are a

common risk every day to life that can happen to almost every one, anywhere and at any time [1]. The problem of road traffic accidents is increasingly becoming a threat to public health and national development in many developing countries [1]. Road traffic accidents contribute to poverty by causing deaths, injuries, disabilities, grief, and loss of productivity as well as material damages [2] [3] [4]. In Sudan, the number of vehicles is rapidly increasing and at the same time, the road's widths remain the same as before. Thus, road traffic problems and conjunction are found anywhere, resulting in many accidents, serious losses and damages to both human beings and vehicles.

Many factors contribute to RTA such as environmental factors, driver behavior, road conditions and culture of not adopting safety policies like wearing seatbelts or crash helmets [5]. According to the latest WHO data published in 2017, Road Traffic Accidents Deaths in Sudan reached 9882 or 3.69% of total deaths. The age adjusted Death Rate is 35.23 per 100,000 of population; Sudan ranks 27th in the world [6].

Road traffic accident is an accident, which takes place on the road between two or more objects, one of which must be any kind of a moving vehicle [7]. The aim of this study was to investigate the epidemiological pattern of injuries resulting from road traffic accidents in Khartoum, Sudan.

2. Methodology

2.1. Study Design and Setting

A hospital-based descriptive study was conducted at Khartoum Teaching Hospital from February to May 2012.

Inclusion Criteria

All the RTA victims; who attended the emergency room or admitted to the hospital during the study period.

2.2. Exclusion Criteria

Any injury on the road without involvement of a vehicle (e.g. a person slipping and falling on the road and sustaining injury) or injury involving a stationary vehicle (e.g. persons being injured while washing or loading a vehicle).

2.3. Method of Data Collection

The data collection instrument was a pre-test standardized self administered questionnaire composed of 58 close-ended questions. The questions covered the personal identification data, time, place, and cause of the accidents, type of vehicles involved in accidents, category of road users and the types of injuries suffered by the victims.

2.4. Ethical Considerations

An ethical clearance was obtained from the Institutional Review Board at Al Neelain University and permission was obtained from the hospital authority. A

verbal inform consent was obtained from each participant prior to the interview.

2.5. Data Analysis

The collected data were analyzed using Statistical Package for Social Sciences (SPSS) version 16.00 and excel tables.

3. Results

Total number of patents was 150. They fulfilled the inclusion criteria and agreed to participate voluntarily in the study. **Table 1** shows the background characteristics of the participants. Most of them were males (85%). Age ranged from 5 - 50 years. Moreover, **Figure 1** illustrates the usage of seat belt among the victims. **Table 2** displays the causes of RTA that related to the driver, with the most common cause is inattention (55.3%). Furthermore, **Table 3** and **Table 4** demonstrate the Causes of RTA that related to the street, the passengers respectively.

4. Discussion

The present study revealed that majority of the victims involved in RTA were males (85%), and we expected this as in our country males are more exposed to outdoor types of work, while females tend to work indoors. This is in accordance with a study conducted by Bhardwaj *et al.* in rural Haryana [8], in addition to similar studies conducted in India, a country with similar nature as regards of male exposure to outdoor work [2] [9] [10]. Furthermore, laborers constituted the largest group (43%) involved in RTA, with similar finding in India [2]. The reason of such result may be due to the fact that the laborers work more and travel more than others as part of their work.

The study revealed that the highest number of RTA victims(24%) were encountered in the age group of 20 - 29 years, revealing that people of the most active and productive age are the most involved in RTA, which add a serious economic loss to the community. Jha *et al.* in Nepal reported a similar finding [11]. On the other hand, numerous studies reported that the age groups between 16 to 30 years and 15 - 35 years were more involved in RTA [9] [12]. Moreover, fewer accidents were encountered in the age group below the 20 and above 50 years. The reasons may be that both age groups are less mobile so they are less exposed to accidents, previous reports from India repeatedly confirm this observation [2].

Most of the male victims were between the ages of 20 - 29 years, while most of female victims were between the ages of 30 - 39 years. Moreover, findings of this study mimic the results presented by Mishra *et al.* in Nepal that most victims were young unmarried males [13].

Concerning the educational level of victims, this data confirms the results concluded by others [14] [15]. Those with lower level of education, primary school and illiterate (65%) were more involved, while higher educated victims

Table 1. The background characteristics of the road traffic victim.

	Characteristic	Frequency	percentage
Gender	Male	127	85%
	Female	23	15%
Age	Less than 9 years	19	12.7%
	10 - 19 years	18	12%
	20 - 29 years	36	24%
	30 - 39 years	28	18%
	40 - 49 years	26	17%
	50 years & more	23	15%
	Educational level	Illiterate	45
Primary education		52	34.7%
Secondary education		40	26.7%
University graduate		13	8.7%
Occupation	Unemployed	16	10.7%
	Officer	9	6%
	Laborer	65	43.3%
	Student	32	21.3%
	Retired	4	2.7%
	Driver	13	8.7%
	Housewife	11	7%

Table 2. The causes of RTA that related to the driver.

	Causes	Frequencies	percent
1	Inattention	83	55.3%
2	Over haste	82	54.7%
3	Using mobiles while driving	24	16%
4	Talking with others	6	4%
5	Bypassing	24	16%
6	Vehicle malfunction	12	8%
7	Noncompliance of traffic light	9	6%
8	Alcohol consumption	5	3%
9	Others	16	11%
	Total	150	100%

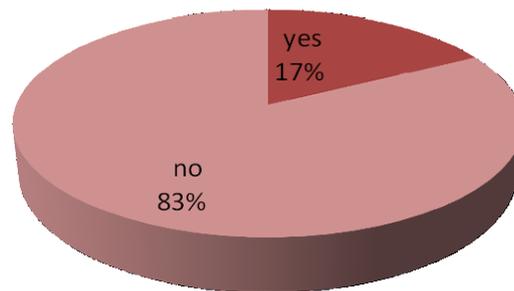
were only (8.7%). That highlights the influence of level of education per se, or it may reflect the origin of individuals as most of those with low level of education from rural areas not familiar with the transportation vehicles or the rules of road [13].

Table 3. The causes of RTA that related to the street.

	Causes	Frequencies	percent
1	Traffic road	3	2%
2	Narrow road	5	3.3%
3	Lack of traffic light	1	0.7%
4	Others	15	10%

Table 4. The causes of RTA that related to the passengers.

	Causes	Frequencies	Percent
1	Inattention	35	23.3%
2	Non compliance of pedestrian places	10	6.7%
3	Suicide	0	0%

**Figure 1.** The usage of seat belt among the victims.

The causes & risk factors of RTA can be divided into causes related to the drivers, street or passengers. The drivers constitute more than 63% of the causes, inattention & over hast were the commonest cause 55%, taking by mobile & by passing 16%, noncompliance of traffic lights 6% & alcohol consumption 3%. Inattention constitutes most of the causes that related to the passengers followed by noncompliance to passenger places. About the causes that related to the street narrow roads, holes on the roads& lack of the traffic light were the commonest causes.

Despite the importance of using seat belt and its role in minimizing the injuries that can result from the RTA, this study shows that only about 17% of people used it and this could be due to lack of knowledge or due to negligence.

5. Conclusions & Recommendations

Road traffic accidents continue to be a growing menace, resulting in heavy loss of valuable man-power and human resources, along with a corresponding drain of potential economic growth. An intervention is needed through the involvement of many sectors and specialties. One part of the solution is to set up a new database to collect, store and analyze information relating to road traffic accidents. Governments need to know the causes, effects, incidence rates, and af-

ected populations, in order to discover the appropriate intervention for our country.

At the same time, it is important to increase the traffic awareness of the public through delivery of effective information, education and communication messages using the mass media and other channels. In addition it is necessary to develop and implement school-based road safety training programs targeting the school children. Such programs are expected to address the socioeconomic and other aspects of RTA with focus on the safety and prevention education.

Disclosures

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