

Epidemiology of Road Traffic Accidents in Emergency Hospital in Erbil City

Sherzad Ali Ismail, Maarooof Tahseen Hasan

Abstract

Road traffic accident is considered as a major cause of death worldwide, it has been rapidly increasing to become one of the common causes of increasing mortality and morbidity in the population. A cross-sectional study for a 1 month period of all road traffic accidents and injuries was conducted in Emergency Hospital for the period 1st December 2008 to 1st January, 2009. A total of 180 injuries were encountered at the Emergency Hospital Department. The majority of victims were males, with a male to female ratio of 2.6:1. This study on road traffic accidents revealed that, out of 180 victims, 11% were under 10 years, 53.8% between 11 and 30 years and 41.1% were more than 30 years. Only 25% of those involved in accidents were wearing a seat belt. Most of the accidents and injuries occurred from 8.00 am to 4.00 pm (74%). Head injury was the most frequently noted type of injury (51.8%), followed by lower limbs injury (27.1 %), upper limbs (14.1%), chest (4.7%) and back (2.4%). Road traffic accidents are a major but neglected public health challenge that requires concerted efforts for effective and sustainable prevention. It is mostly affecting young age groups that need comprehensive health educations regarding safety measures of driving in addition to addressing road safety measures to policy makers.

Introduction

Road traffic accident (RTA) is considered as a major cause of death worldwide, it has been rapidly increasing to become one of the common causes of increasing mortality and morbidity in the population. A World Health Organization (WHO) advisory Group in 1956 defined accident as an "unpremeditated event resulting in recognizable damage 1. Worldwide, the number of people killed in road traffic crashes each year is estimated at

almost 1.2 million, while the number injured could be as high as 50 million – the combined population of five of the world's large cities 2. For every fatal accident, there are about 10-15 serious injuries and about 50 minor injuries 3. What is worse, without increased efforts and new initiatives, the total number of road traffic deaths worldwide and injuries is forecast to rise by some 65% between 2000 and 2020, and in low-income and middle-income countries

deaths are expected to increase by as much as 80% 2. Around 85% of all global road deaths, 90% of the disability-adjusted life years lost due to crashes, and 96% of all children killed worldwide as a result of road traffic injuries occur in low-income and middle-income countries. Over 50% of deaths are among young adults in the age range of 15–44 years. Among both children aged 5–14 years, and young people aged 15–29 years, road traffic injuries are the second-leading cause of death worldwide 2. Road traffic injuries are a major but neglected global public health problem, requiring integrated efforts for effective and sustainable prevention. Of all the systems that people have to deal with on a daily basis, road transport is the most complex and the most dangerous.

There is thus an urgent need to recognize the worsening situation in road deaths and injuries and to take appropriate action. The aim of this study was to highlight the situation of RTA in Erbil city during certain period of time and to reveal the factors

underlying RTA that are regarded as important prerequisites for their prevention.

Methods

This is a cross-sectional study conducted in Erbil Emergency hospital from 1st December 2008 to 1st January 2009. Emergency hospital is receiving all types of accidents in Erbil governorate inside and also outside the city, but for the purpose of this study, only RTA are included in this study, and other types of accidents like fall from height, burns, ...etc are excluded. Emergency hospital introduce emergency health services for all Erbil population, a governorate of 7,981 km² area, and 1,370,000 populations according to 2002 data, constituting 18.8% of all Kurdistan populations and 4.7% of all Iraq populations. During the period of the study (one month), total number of (201) RTAs were recorded by emergency hospital. Appropriate questionnaire was designed that consists of 34 questions about (general information of the patients, accident information, car condition, driving system,

and patients' clinical examination). Data collection was done after the injured patients were arrived the emergency hospital and receiving emergency treatment, the patient himself/herself or his/her relatives were asked the questions when the patient is unconscious or confused. All data entered to Microsoft Excel sheets and descriptive statistical data analysis is done by SPSS. Chi-square test is used as a test statistic, P-value equal and less than 0.05 was regarded as significant.

Results

A total of 180 RTA victims were encountered at the Emergency Hospital Department. The majority of victims were males (72%) 130, they were outnumbered by females (28%) 50 with a male to female ratio of 2.6:1. More than half (61%) 110 of RTAs occurred inside and (39%) 70 outside Erbil city. Among all car accidents, four-wheelers constitute the most common types of RTAs (74%) 133, long vehicles (trucks) (19%) 34 and motorcycles (7%) 13. This

study revealed that, most frequent age groups of RTA victims were 21-30 years old, while least frequent age groups was 71-80 years old (2%), with range of 78 years old and average of 35 years old, (Table 1). Both illiterate (34%) 62 and primary educated (36%) 64 persons together constitute majority of RTA victims (70%) 126, while higher educated persons constituting minority of RTA victims 11% (20) with negative linear correlation ($r = -0.9$), (Figure 1).

Most of the RTAs occurred between two times: 8:00-11:00 am (38%) and 12:00-4:00 pm (36%), (Figure 2). Only (25%) 45 of RTA victims were wearing seat belt, while the rest (75%) 135 were not wearing seat belt during the accidents.

Majority of RTAs occurred on Wednesdays while minority on Sunday and Monday, Table 2. Head injury was the most frequently associated injuries (51.8%), followed by lower limbs injury (27.1%), upper limbs (14.1%), chest (4.7%) and back (2.4%). There was no statistical significance

between wearing seat belt and head injuries ($X^2 = 0.373$, $df=1$, $P\text{-value}=0.603$), Table 3.

Discussion

In many countries, motor vehicle accidents rank first among all fatal accidents 1.

There are almost 885,000 deaths from road accidents annually in the world 4, for every death there is as many as 30-40 minor injuries and 10-15 serious injuries requiring long periods of expensive care, nursing and treatment 5. In the present study, the highest number of RTA victims (33%) was found between the age group of 21 and 30 years, the people of the most active and productive age group. The similar findings were also reported in Delhi, South India, Nepal and other studies 6-13.

The frequency of RTAs in this study was 2.6 times higher in males (72%) than in females.

Other similar studies supporting this finding and reported that, 80% the victims involved in RTAs were males 8, 9, 12-14. However,

in other study, male to female ratio was very high (9:1) 11. This is because males in our society have more opportunities to drive cars than females.

It was observed that peoples with low education levels (including both illiterate and primary educations) were more affected (70%), and RTAs were increasing with decreasing education levels. Similar results were also observed by other studies 6, 15. Although statistically there was a strong downhill linear relationship between education levels and frequency of RTAs, but this correlation couldn't be established with confidence, because in cross-sectional study, the data collection of the two variables has occurred at the same time, cause-effect relationships cannot be established 16-18.

The highest number of RTAs was recorded on Wednesdays and lowest on Sundays and Mondays. So, RTAs started in the beginning of the week, gradually increases to reach its peak in the middle and decreased in the end of weeks.

This finding was similar with a study from Delhi where the highest numbers of RTAs observed on Mondays and Wednesdays 11 and it differs from other studies in Delhi 6, where the highest numbers of RTAs recorded on Saturdays. It is obvious that in our community, Fridays and Saturdays are official holidays of most governmental officers and hence weekends.

The peak time of the majority of RTAs was in the day time between 8:00 AM to 12:00 PM (38%). Between 12:00 and 4:00 PM also there was a high number of RTA (36%). Two peaks for accidents were also reported in Delhi 6, 19. These were in between 9:00 and 10:00 AM and between 4:00 and 5:00 PM. These hours are the busiest as commuters go to and return from the schools, offices, factories and business place and these times coincide with the period when people are more active and mobile.

One of the most common modes of transportation used by people in this study was the four-wheelers (car, jeep, van) and this is reflected by the fact that car

occupants constituted the highest number (74%) of RTA victims, followed by trucks (19%) and motorcycles (7%) among motorized vehicles. This is because in our community, peoples prefer possessing cars than motorcycles or even bicycles. This phenomenon is reflecting the behavior of the peoples and economic status of the community. In low-income countries, walking, cycling, motorcycling and the use of public transport are the predominant transport modes 20.

For example: others observations in Aligarh in Northern India were found that two wheelers and bicycles were commonly involved, while the latter was the highest (19.4%) among the vehicles involved in RTAs in Pondicherry in South India 6.

Inability to classify the victims into drivers and pedestrians was regarded as one of the limitations of this study.

Mandatory seat-belt use has been one of the greatest success stories of road injury prevention and has saved many lives.

Several studies on the benefits of seat-belts

for drivers and front-seat passengers have found that seat-belts can reduce the risk of all injuries by 40–50%; of serious injuries by 43–65%; and of fatal injuries by 40–60% 20. In this study, head injury was the most frequently noted type of injury (51.8%), followed by lower limbs injury (27.1 %), upper limbs (14.1%), chest (4.7%) and back (2.4%), this is because only (25%) of RTA victims were wearing a seat belt, while the rest (75%) were not wearing seat belt during the RTAs with no statistical significance between head injuries and wearing seat belt.

Conclusion and Recommendations:

Road traffic accidents are regarded as one of the factors of morbidity in Erbil governorate which mainly affecting young age groups in certain times of the day and in specific days of the week.

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Table (1): Frequency distribution of RTAs by age groups.

Age groups	Frequency	Percentage
<10	19	11%
10_20	36	20%
21_30	60	33%
31_40	25	14%
41_50	22	12%
51_60	8	4%
61_70	7	4%
71_80	3	2%
Total	180	100%

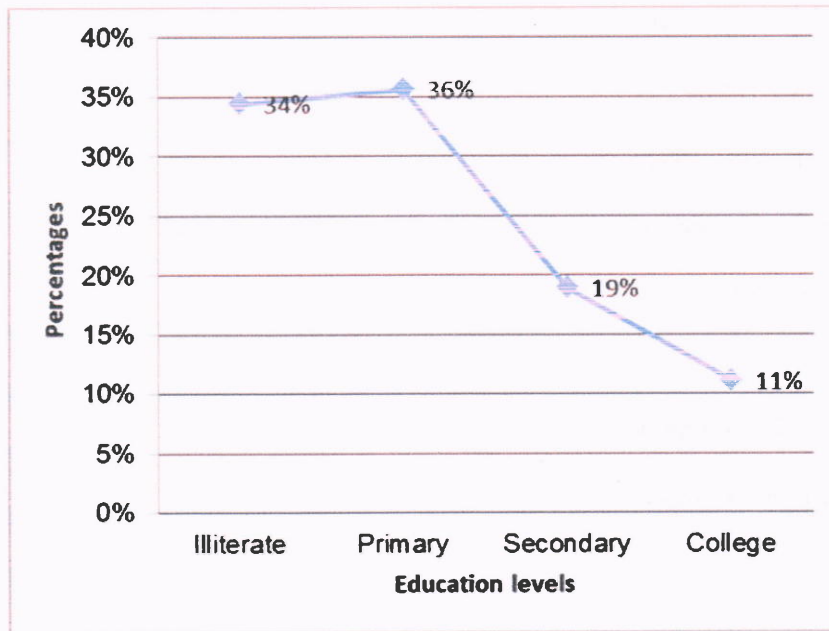


Figure (1): Distribution of RTAs victims by Educational status.

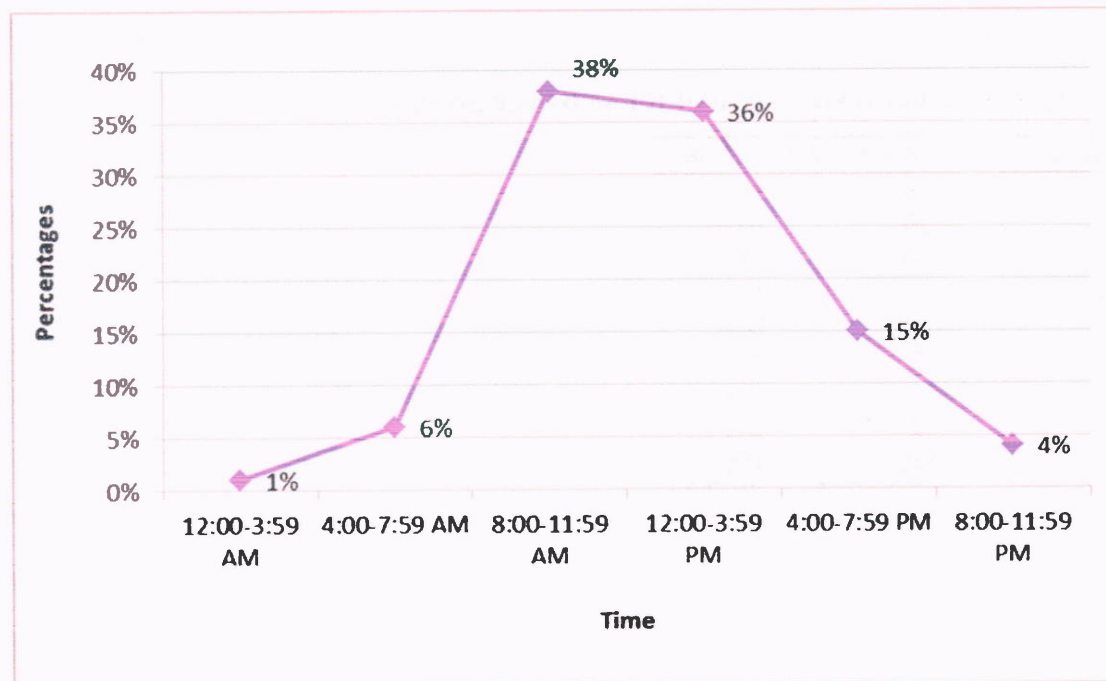


Figure (2): Distribution of RTAs by time of day.

Table (2): Frequency distribution of RTAs by days of the week

Week day	Frequency of RTA	Percentage
Sunday	17	9%
Monday	17	9%
Tuesday	27	15%
Wednesday	36	20%
Thursday	30	17%
Friday	26	14%
Saturday	27	15%
Grand Total	180	100%

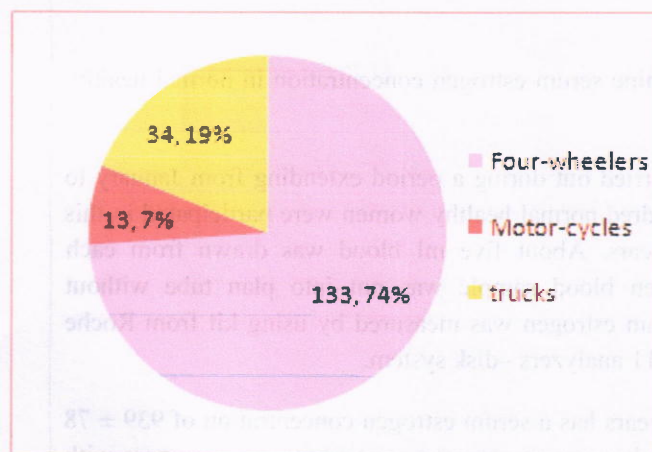


Figure (3): Distribution of RTAs by type of vehicles.

Table (3): Frequency distribution of RTAs by types of injuries

Injuries	Frequency of RTA	Percentage
Head	44	51.8
Upper limb	12	14.1
Lower limb	23	27.1
Back	2	2.4
Chest	4	4.7
Total	85	100.0