

# Epidemiology of Fatalities in Road Traffic Accidents in Faisalabad During 2008-2009 – an Autopsy Study

Uzma Masud, Muhammad Asif Shehzad, Ahmad Saeed

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## ABSTRACT

**Objective:** To evaluate gender and age specific trends as well as pattern of injuries in fatalities due to RTA in Faisalabad. **Study Design:** Non interventional, Descriptive. **Place and Duration of Study:** The study was conducted at Postmortem unit of the Department of Forensic Medicine, Punjab Medical College Faisalabad over a period of two years (2008 & 2009). **Methodology:** Study includes 86 subjects in which cause of death was road traffic accidents. Subjects were selected from the cases of traumatic death brought for autopsy at the Postmortem unit of Department of Forensic Medicine, Punjab Medical College Faisalabad from Faisalabad City & Sadar area. Manner of death was decided on the basis of the circumstances of the

death and findings of autopsy examination. The data was tabulated and analyzed on the basis of variables like age and sex of the victim, month and day of the occurrence and pattern of fatal injuries on the body. **Results:** Out of 86 fatalities due to RTA, 74 (86%) were male and 12 (14%) were females. Most vulnerable age group was 20-29 years as 24.4% victims belonged to this age group. Maximum deaths (23.3%) occurred on Thursday. Head injury caused death in majority of the cases (53.5%). **Conclusion:** There is a need to develop preventive strategies to reduce road traffic accidents fatalities considering the magnitude of the problems and groups at high risk. **Key words:** RTA, road traffic accidents, fatalities, age group, autopsy.

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## INTRODUCTION

Road Traffic Accidents are a major public health problem worldwide, accounting for almost 1.2 million deaths per year. In 2002, the overall global road traffic injury rate was 19/100,000 population, with 90% of cases in low socioeconomic and middle income countries. Furthermore, according to World Health Organization, the number of road traffic deaths in low income and middle income countries is expected to increase by 80% from 2000 to 2020.<sup>1</sup> Increasing fatalities due to road traffic accidents is a global problem. Motor vehicle accidents were the major cause of mortality in Brazil in the year 2000.<sup>2</sup> During 2000 & 2001 Islamic Republic of Iran was one of the countries who have highest death rate (30/100000 population) due to RTA in the world.<sup>3</sup> In Saudia Arabia 21905 deaths occurred due to road traffic accidents during 1997-2002.<sup>4</sup> In the year 2000, in Colorado, USA 43% of trauma related deaths were due to road traffic accidents<sup>5</sup> while in 2003 in Sao Paulo, Brazil 23% traumatic deaths were the result of road traffic accidents.<sup>6</sup>

Thousand of the people in Pakistan become victims of road traffic accidents every year. In Pakistan 10,125 crashes were reported to police including 4193 fatal cases of RTA during the year 2006.<sup>7</sup> Data regarding pattern and frequency of fatalities due to road traffic accidents is scarce in Pakistan. Especially in Faisalabad no such study has been conducted up till now. Objectives of our study are to evaluate gender and age specific trends as well as pattern of injuries in fatalities due to RTA in Faisalabad. This study will help in planning the strategies to reduce mortality and morbidity due to road traffic accidents.

## MATERIAL AND METHODS

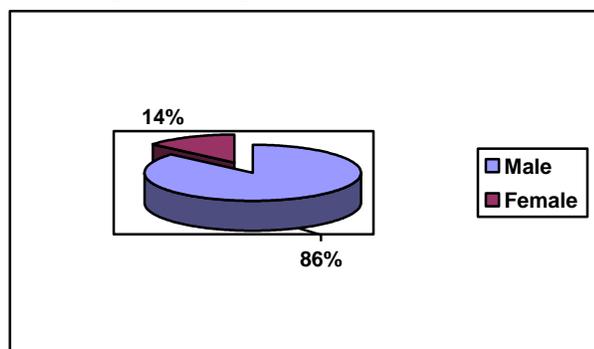
It was a descriptive cross-sectional study in which record of the postmortem unit Punjab Medical College, Faisalabad from January 1, 2008, through December 31, 2009 was reviewed retrospectively. A non-probability convenience sampling technique was used. Cases from Faisalabad City & Sadar were

included in the study. Out of 630 autopsies conducted during study period (2008-2009), 86 cases in which death occurred due to road traffic accidents were selected on the basis of information furnished by police as well as autopsy findings. Information regarding gender, age, day of death and site of the fatal injuries was abstracted. Data was entered in Epi Data 3.1 and analyzed by using Epi Info 3.5.1. Rates were calculated per 100,000 population.

## RESULTS

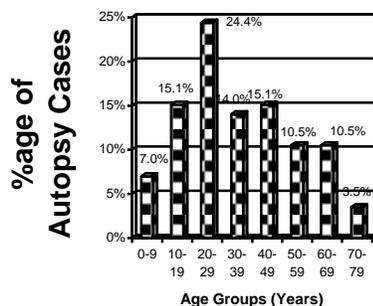
A total of 86 autopsy cases were included in the study, of which 74 were males and 12 were females. Gender based percentage of victims is given in Fig.1

**Figure-1**  
Percentage of Autopsy Cases by Sex



Average age ranged from 2 years to 79 years with mean age  $34.4 \pm 18.3$  years. Maximum deaths were found in the age group 20-29 years which were 21, out of 86 (24.4%). Age wise distribution of the RTA victims is given in figure 2.

**Figure-2**  
Percentage of Autopsy Cases by Age Group



Maximum deaths in RTA occurred on Thursday 20 (23.3%). Distribution of the cases by the day of the road traffic accidents is given in Table 1

**Table-1**  
Frequency Distribution of Autopsy Cases by Day of Week

Day	Frequency	Percent
Sun	14	16.3%
Mon	13	15.1%
Tue	11	12.8%
Wed	13	15.1%
Thu	20	23.3%
Fri	8	9.3%
Sat	7	8.1%
Total	86	100.0%

Regarding the site of fatal injury leading to death, head injury was found to be at the top (53.5%). Distribution of the RTA cases by site of the fatal injuries is given in Table 2.

**Table-2**  
Distribution of RTA Cases by Site of Fatal Injuries

Site of Fatal Injuries	Frequency	Percent
H	46	53.5%
H, C	10	11.6%
H,C,U,L	2	2.3%
H,C,A,U,L	1	1.2%
H,A	2	2.3%
H,U	4	4.7%
H,U,L	1	1.2%
H,C,L	2	2.3%
H,L	4	4.7%
C	1	1.2%
C,A	1	1.2%
C,U	1	1.2%
C,L	2	2.3%
A	3	3.5%
A,U	1	1.2%
A,L	1	1.2%
L	4	4.7%
Total	86	100.0%

(H=Head, C=Chest, A=Abdomen, U=Upper Limb, L=Lower Limb)

## DISCUSSION

We conducted our study on RTA fatalities in Faisalabad choosing multiple variables like rate, sex, age, day of the week on which accident took place

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and distribution of fatal injuries on the body of the victims. In our study the death rate due to RTAs was found to be 0.54/100,000 population/year. When the results were analyzed according to its distribution in the sex groups, it was found that rate among the males was 1.97/100,000/year and that among the females was 0.28/100,000/year. Studies on road traffic accidents in different countries show different fatality rates such as Hyderabad, India 38.2/100000<sup>8</sup>, Sao Paulo, Brazil 17.9/100000<sup>6</sup>, Tehran, Iran 30/100000<sup>3</sup>, Transkei region of South Africa 63/100000<sup>9</sup> population per year. Rate of road traffic fatalities in Faisalabad is lower than all the countries referred above. One reason for this difference is lack of proper road traffic accidents recording database. Second reason for this low rate is that study included only those cases in which autopsy examination was conducted. The cases in which police investigation officer is satisfied with the cause of death, he disposes off the body without referring for autopsy examination. The male/female ratio in deaths due to RTAs was found to be 1:6. Out of 86 autopsies, males were 74 (86%) and female were 12 (14%). Similar trend has also been shown in the studies conducted at Bharatpur District Chitwan, Nepal<sup>10</sup>, Argentina<sup>11</sup> and Qatar.<sup>12</sup> The results of above studies are consistent with the approximate results of our study. This is due to the fact that male travel more than females owing to their socio-economic responsibilities and that less females are independently using vehicles. In our study the age group most vulnerable to fatal road traffic accidents was 20-29 years (24.4%). In a study conducted in Nepal in 1998-1999, highest percentage of the fatal RTA cases occurred in the 20-29 years (28.6%) of age group.<sup>13</sup> In another study conducted in Western Nepal on different Epidemiological Determinants of RTAs revealed that most of the victims (147, 40.8%) were young (15-30 years).<sup>14</sup> A study published in 2005, conducted in Khulna city of Bangladesh revealed that almost 25% victims were between ages 30-39 years.<sup>15</sup> In a retrospective hospital based study, in Qatar showed that the highest frequency of fatal head injury was found to be in the young adult group (20-44 years).<sup>12</sup> A cross-sectional study was conducted in Dubai from 2002 to 2008. The age distribution of road traffic injuries shows 2 peaks, in the age groups 18 to 26 years and 63 to 71 years.<sup>16</sup> The increased vulnerability of age group 20-29 years

to fatal RTAs is due to the reason that this age group is most mobile and dynamic among all the age groups for purpose of employment and other economic responsibilities. Our study identified an increased tendency of the deaths due to RTA on Thursday, (23.3%). Thursday is the last working day of the business week in Faisalabad and business activities are at its peak in markets and industrial sector leading to massive movement of the people. Studies conducted in Doha, Qatar<sup>12</sup> and Mysore, India<sup>17</sup> on injuries due to road traffic crashes also revealed a higher incidence of accidents during weekends.<sup>12</sup> Head and neck injuries following the road traffic crashes are the most common cause of morbidity and mortality in most developed and developing countries and may also result in temporary or permanent disability.<sup>12</sup> Our study showed a high incidence of fatal injuries over head as compared to the injuries over other parts of the body. The fatal injuries involving Head was found to be (53.5%). The study which was conducted in Western Nepal revealed that Head injury caused death in (43.3%) of the cases.<sup>14</sup> Studies conducted in Southern Brazil<sup>18</sup> indicated that head was the most effective body part (34.9%) in transport related injuries. It is quite evident that Head being the sensitive part of our body harboring the most delicate neurological structure, cannot bear extensive trauma and leads to death in the majority of RTAs. Our study showed the same as has been revealed in almost all the similar studies.

## CONCLUSION

Though fatalities due to road traffic accidents in Faisalabad are less than all the other countries of this region, however, these can further be reduced by adopting a comprehensive preventive strategy to create an awareness of safe traveling practices especially among the groups at high risk.

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#### AUTHORS

- **Dr. Uzma Masud**  
Demonstrator Department of Forensic Medicine  
Punjab Medical College, Faisalabad  
Email address: drmasood@hotmail.com
- **Dr. Muhammad Asif Shehzad**  
Demonstrator Department of Forensic Medicine  
Punjab Medical College, Faisalabad
- **Dr. Ahmad Saeed**  
Professor Department of Forensic Medicine  
Punjab Medical College, Faisalabad