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ROAD TRAFFIC ACCIDENTS; STUDY OF RISK FACTORS

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ABSTRACT... drhussainbabar@gmail.com **Context** : Road traffic accidents are a major yet neglected public health problem in developing countries. Trends in motorization indicate an increase in road traffic injuries; furthermore, by 2020, they could rank third in the order of burden of disease Road traffic accidents are an important yet preventable cause of death and disability in developing countries, like Pakistan. **Objective:** To explore preventable aspects of the road traffic accidents. **Design:** Cross sectional study **Setting:** Casualty department of District Head Quarter Teaching hospital Dera Ismail Khan. **Patients & Methods:** All non-fatal and non-comatose cases of road traffic accidents victims reporting to casualty department were included in the study. The victims of the accidents were interviewed to obtain information about circumstances leading to accidents. The information collected comprised: time of accidents, nature of injury, narcotic consumption of driver, condition of road and vehicle, safety belts, road signs and vehicle speed beside demographic characteristics of respondents. **Results:** Age revealed that age group 21-25 years were highly affected 18 % while age group 51-55 years were least affected 2 %. Among them were male 76 % and were female 24%. 93 victims belong to rural area (62%) while 57 were from urban (38%). Among victims, 37% were motorcyclist, 23% bicyclist , 22% motorized two-wheelers and 18% bus users. The accidents were more common during the daytime in 100 cases (66%). Fractures of bones was common injury in 90 cases (60%) afflicted to the victims followed by multiple injuries like blunt injuries, abrasions and lacerations. Among victims , only 2% used protective helmets. All helmet users were motorcyclists. No seat belts were found to have been used by the victims. There was no evidence of any narcotics consumption by the driver prior to accidents. **Conclusion:** Road traffic accidents are predictable and preventable but good data is important to understand the ways in which road safety interventions can be effective. Cost-effective preventive measures can be designed to address this global problem.

INTRODUCTION

Road traffic accidents are a major yet neglected public health problem in developing countries. An estimated 1.2 million people worldwide are killed as a result of road traffic injuries each year and as many as 50 million are injured, occupying 30 to 70% of orthopedic beds in developing countries hospitals. In 2002, road traffic crashes ranked as the 9th leading cause of burden of disease, accounting for 2.6% of all global disability adjusted life years lost. Trends in motorization indicate an increase in road traffic injuries; furthermore, by 2020, they could rank third in the order of burden of disease^{1,2,3}.

The economic consequences of road traffic injuries include costs of prolonged medical care, loss of family breadwinner and loss of income due to disability, which together often push families into poverty⁴. According to World Health Report, released on 7th April 2004, road traffic accidents kill at least 5000 and injure 12000 persons in Pakistan, every year. Road traffic accidents are an important yet preventable cause of death and disability in developing countries, like Pakistan^{5,6}.

In Pakistan, health policies have been biased towards curative services and treatment rather prevention. In such a environment, injuries would not be expected to be on the agenda for health decision makers⁷. Recognizing the burden of mortality and morbidity caused by road traffic accidents, the WHO dedicated the year 2004 to road safety to create awareness on the issues. April 7, 2004 World Health Day focused on "Road Safety".

A new area of research termed Accidentology, which looks at interaction between vehicles, road users and road infrastructure to identify solutions is now emerging. There is a need to identify the risk factors involved in road crashes. The purpose of this study is to explore preventable aspects of the road traffic accidents, so that problem can be addressed through public health intervention, resulting less the burden of disease^{8,9}.

MATERIALS AND METHODS

This cross sectional study was carried out in casualty department of District Head Quarter Teaching hospital Dera Ismail Khan, NWFP, Pakistan. It was conducted during the period from 1.7.2006 to 31.8.2006, on convenient based sampling method. All non-fatal and non-comatose cases of road traffic accidents victims reporting to casualty department were included in the study.

For the purpose of study, a road traffic accident was defined as any vehicle accident occurring on a public road or highway and which takes place between two or more objects, one of which had to be any kind of a moving vehicle.

Any injury on the road without involvement of a vehicle (a person slipping and falling on the road and sustaining injury) or injury involving a stationary vehicle (person getting injured while washing or loading a vehicle) were excluded from the study.

A vehicle is defined as any mechanically or electrically powered device not operated on rails and includes cars, buses, trucks, vans, motorcycles and bicycles.

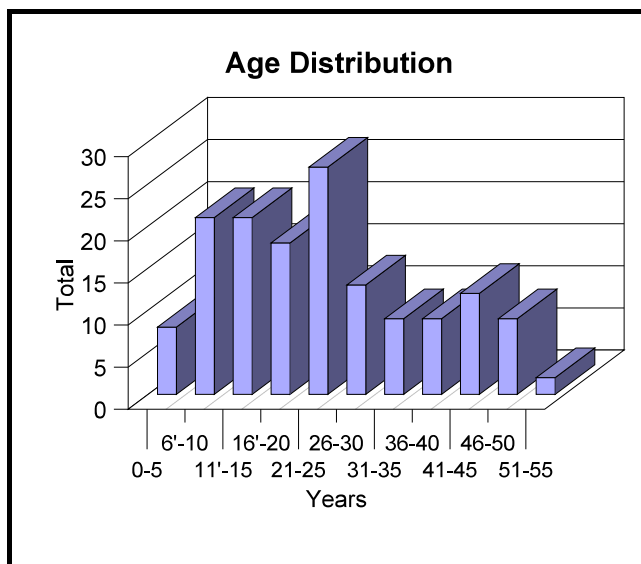
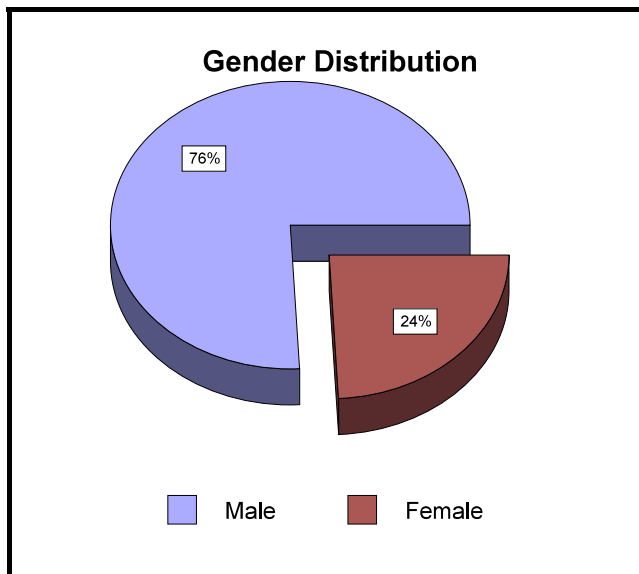
The victims of the accidents were interviewed to obtain information about circumstances leading to accidents. These interviews were based on pre-designed proforma filled either in causality or in the ward of hospital¹⁰. The information collected comprised: time of accidents, nature of injury, narcotic consumption of driver, condition of road and vehicle, safety belts, road signs and vehicle speed beside demographic characteristics of respondents.

Limitations of the study were missing information from fatal, comatose patients, police records and inspection of accidents sites. Descriptive statistical analysis was performed.

RESULTS

There were 150 out of 173 road traffic accident victims who agreed to participate in this study, thus response rate was 86%. The distribution of study subjects according to age revealed that age group 21-25 years

were highly affected 18% while age group 51-55 years were least affected 2%. Among them were male 76% and were female 24%. 93 victims belong to rural area (62%) while 57 were from urban (38%).



Among victims, 37% were motorcyclist, 23% bicyclist, 22% motorized two-wheelers and 18% bus users. The accidents were more common during the daytime in 100 cases (66%). Fractures of bones was common injury in 90 cases (60%) afflicted to the victims followed by multiple injuries like blunt injuries,

abrasions and lacerations. Among victims, only 2% used protective helmets. All helmet users were motorcyclists. No seat belts were found to have been used by the victims. There was no evidence of any narcotics consumption by the driver prior to accidents.

As road status was concerned, it was smooth in 30% events, damaged in 60% and badly damaged in 10%. Road signs were present in 20% events. Patients told that vehicle brake devices were functional in 80% cases. Condition of vehicles was apparently not bad in 60% events. In 70% cases, over speeding was one of contributing factors.

DISCUSSIONS

The process of rapid, unplanned urbanization and huge growth of vehicles worldwide has resulted alarming increase in morbidity and mortality owing to road traffic accidents. Over past few decades it emerged as a matter of great concern globally.

Throughout the world, roads are bustling with cars, buses, trucks, motorcycles and other types of two and three wheelers. The incidence of road traffic accidents is rising worldwide¹¹.

There are three main aspects of road accidents which are drivers, roads infrastructure and vehicle design. Most tragic accidents often involve all three. Most factors involved in road traffic accidents are created or controlled by man. The aim of present study is to explore aetiological factors and highlights the potential preventive measures and responsibilities¹².

The findings of this study revealed that the highest percentage 18% of these cases were in young age group 21-25 years. Most active and reproductive age group involvement causes a serious economic loss to the community. It was noticed that age below and above the age of 10 and 50 respectively, there is a decrease tendency in accident cases. The reason for this may be that children are taken care of by elders and elders, themselves are less mobile. Males are predominant victims because males being the bread earners for the family are therefore, involved usually in

outdoor activities exposing themselves to accidents. In our society, females are less active and mostly remain indoors.

People from rural area are suffered more 76% as compared to urban people 38%. This is because rural population are more illiterate, un-awareness about traffic laws and having poorly built roads in rural community. Most common mode of transportation in this study are motorcycles 37%. It is popular as considered cost-effective vehicle in middle and low income community.

When temporal distribution of the accidents was studied it was observed that 66% accidents took place in the daytime. This may be because of the increased activities on road during daytime such as commercial activities and attending schools, colleges and offices.

The commonest injury was fracture of bones 60%. This can be due to interplay of gravitational force and velocity of the vehicle at the time of accidents. It was noticed in this study with great concern that law enforcing agencies are not taking interest regarding application of road safety measures. Adopting protective devices like helmet and seat belt are very poorly observed. Our personal behavior is also responsible for this attitude.

Regulations are rarely found in developing countries. When they are made, they are not enforced due to lack of will and ability to enforce^{12,13}. Road conditions are important aetiological factors in road traffic accidents worldwide. In Pakistan, like other developing countries, roads are poorly built and are poorly maintained. As a result, the roads have become death traps. Road signs, on the very few occasions they are present, are often unhelpful if not deceptive. It is government that builds and has the responsibility to maintain these roads.

Vehicle design and functional capacity is also significant factor in causation of road traffic accidents. This study explored that condition of 40% vehicles was not apparently good. Vehicle are poorly maintained due

to poverty, ignorance and corruption among enforcement agents. Over speeding in 70% events is very alarming for traffic police which need to be addressed.

CONCLUSIONS

There is a hidden epidemic on the world's roadways. As developing country vehicle use rises, road traffic injuries are also growing. By 2020, road traffic injuries are expected to be the third leading cause of death and disability worldwide.

Road traffic accidents are predictable and preventable but good data are important to understand the ways in which road safety interventions can be effective.

Road traffic injuries affect mainly males in active and productive period of life, thus creating enormous economic hardship due to loss of breadwinners.

The causes of road traffic accidents are explored in this study, in context of our geographical and societal set-up. At risk population have been defined. Cost-effective prevention measures should be designed to address this global epidemic.

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Of cheerfulness,
or a good temper-
the more it is spent,
the more it remains.

Ralph Waldo Emerson