**Magnitude of Road Traffic Accidents in Urban Areas of District Abbottabad**

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**&**

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**ABSTRACT**

The aim of this study is to measure the magnitude of the road accidents and to identify and evaluate the causes and preventive measures of road traffic accidents in urban areas of District Abbottabad. About 50 respondents were selected using cross-sectional technique. The primary data was collected through structured questionnaire and interviews.The results show that the magnitudes of road traffic accidents in district Abbottabad are lower as compared to other Districts of Hazara Division. The reason of the occurrence of road traffic accidents are that people’s behavior that they do not wear seatbelts/helmets and do not follow traffic rules and road signs .It was concluded that male ratio of road traffic accidents are higher as compared to female. The study also shows that the male accidents were more harmful and dangerous that is why the rate of injuries is higher in male than females. It was recommended that in order to reduce accidents seatbelts must be applied, rules and regulations must be followed, education and training regarding motor traffic accidents should be given to the drivers and youth.

**Chapter 1**

**INTRODUCTION**

* 1. **Background of the study**

Motor traffic accidents which are generally unintentional and preventable are a common risk every day to life that can happen to almost every individual, anywhere. The problem of motor traffic accident is gradually becoming a threat to public health and national development in many unindustrialized countries. Motor traffic accidents contribute to poverty by causing deaths, injuries, disabilities, grief, and loss of productivity and material damages.

The British Medical Journal of 11th May 2002 indicated that more people die on the road traffic accident than from malaria universally; and that traffic accident cause about 1.2 million deaths and injury 10 to 15 million people a year in the world. Many people do not know that motor traffic accidents are preventable. (Krug, 2002).Road traffic accidents are the most frequent causes of injury-related deaths universally (Astrom, et.al.2006).

According to the World Report on Road Traffic Wound Prevention (Peden et al., 2004) traffic accidents account for about 3000 daily fatalities universally. Statistical projections show that during the period between 2000 and 2020, fatalities related with motor traffic accidents will decrease with about 30% in high income countries. The reverse pattern is expected in developing countries, where traffic accidents are expected to increase at a fast rate in the years to come.

World Health Organization (WHO) strategy of 2001 reports that currently motor traffic injuries are the leading cause of deaths and injuries, the 10th leading cause of all deaths and 9th leading contributor to the problem of disease universally based on disability adjusted life years. The numbers of deaths resulting from road traffic accidents have been projected to reach 8.4 million In general the importance of injury as a public health issue is not well known in many developing countries (Lie et al 1991). Road traffic accidents are a major universal problem. In developing countries the trend has reached an alarming state, but very little attention is paid to the problem (Odero et al 1997). International reports reveal the problem of accidents being equally serious. According to research carried out by Pierce and Maunder (1998), under the support of Road Research Laboratory in UK, they found out that, road accidents universally are estimated overall 20,000,000 victims for a time period which 70% of the accidents occurred in developing countries. The number of road accidents per registered vehicles was 10% to 20% higher in developing countries than in the developed world. The more general reasons advanced by these researchers for an increase of road accidents in developing countries were as follows, 1. Rapid development process in these countries, 2. Advance growth rates of traffic and 3. Poor road infrastructure, 4. Careless driving, 5. Non-adherence to the traffic regulations by the driver and the traffic officers (due to corruption), 6. The majority of people in developing countries were dependent on public transport for their day-to-day movement. In developing countries the public transport system such as vans has a much higher accident risk than in developed countries.

**1.2 The global burden of RTAs**

Road traffic mishaps (RTAs) are a universal public health problem. Currently ranked ninth, RTAs are expected to be the fifth leading cause of death in 2030. Every year, more than one million people die globally because of RTAs, more than 2500 deaths every day. 90 % of RTA related fatalities occur in developing countries (WHO 2004).The huge number of injury and death due to road traffic accident tells the story of global crisis of road safety. Road accidents are the second leading cause of death for people between the ages of 5 and 29 and third leading cause for people between 30 and 44. With the number of automobiles rapidly rising in developing countries, this epidemic is quickly getting worse in low and middle-income countries and is on its way to becoming the third leading cause of death and disabilities by the year 2020 (WHO 2000).

The loss in road traffic accidents immense in economy and health related issues. Families having accident victims shatters with death and the victims seriously injured often needs medical facilities for the rest of their life and ultimately becomes burden to their family. Road traffic injuries are burdening health care systems in countries around the world. Developing countries suffer from a significant percentage of preventable deaths and injuries from road traffic accidents

The calamity of motor traffic accidents is that they mostly involve the young, perhaps the young and adventurous. Male aged 17 to 30 are especially involved; fatal accidents in this group symbolize not only tragic family losses but also a serious economic loss to the community, for their education and training have been wasted .In highly motorized countries, motor traffic accidents are the mutual cause of death in this group. The total of potentially active and productive years of life lost through such accidents is vast. Harris (1955) estimated that in Canada, among those children who reach their first birthday and who would normally survive to the present life expectancy of 70 years. The loss from motor traffic accidents each year is more than 105000 years of normal life expectancy. The estimated man-years lost in the Unites Stated in 1955 by persons aged 20-29 from automobile accidents, compared with certain other causes.

**1.3 RTAs in developing countries**

In developing countries, including Tanzania, the situation is different to developed Countries, road traffic accidents are increasing with time and mortality due to road crashes is also on the rise (Asogwa 1992). When taking the population figures into account, developing countries in Sub-Saharan Africa have the highest frequency of various accidents worldwide Peden et al,(2004). Although an implication of this is that the risk environments in countries need further practical attention, few studies have investigated how people in those societies identify risk. This situation calls developing countries to put more effort toward control and prevention of road traffic accident and their conclusion. This can be achieved through multidisciplinary approach and research. Such consideration should be undertaken, because traffic accidents have negative impacts on social and economic improvements in developing countries. In this problem there are many agents: (1) The laws who are interested in legal enforcement (2) The Insurance companies and vehicle holders in the financial cost of car crashes (3) The Road accident victim and their relatives in those of lives or disability and related cost of medical care (4) the health care system and medical recruits who are responsible for the emergency treatment and life savings of accident victims (Asogwa 1992).

**1.4 Road Accidents in Pakistan**

We have always doubted about the statistics of deaths occurring through accidents as we don’t have good roads and even worse safety measures taken to secure our roads and the people that drive on them. The response time for an accident on the highway would be just severe. Instead, according to the (World Health Organization), the global average of deaths in road accidents is 18 per 100,000 people so we are doing just fine at 17.4 per 100,000 people.

We estimate that the only reason why Pakistan is below the global average is because our speeds. Easily, average motorway and highway speed would be 80-90 km/h. And average speed within the cities would be below 60 km/h. The fatalities mostly occurred due to quality and safety equipment in cars including, the obvious disrespect of wearing seat belts and how dangerous are our roads. But thinking that speed only kills would be incorrect, Europe, household and the fastest Autobahn has the lowest fatality rate of just 10.4 per 100,000 people.

Other countries have: Bangladesh 11.4, China 20.5, India 18.9, Saudi Arabia 24.8, UAE 12.7, USA 11.4, United Kingdom 3.4, Afghanistan 19.8, and Iran 34.1.

So beside with quality of cars, motorway and highway should be planned with safety in mind and the response time to an accident of emergency vehicles should be reduced, also, properly trained paramedical staff should be hired as well, because in India, 138,258 people died of road accidents in 2012 to overtake China as the biggest contributor to road deaths. While China worked to bring the rate of fatalities down in accidents on the road.

**1.5 Statement of the problem**

The road accidents in this country seem to be in primacy. These accidents have been categorized by the National Road Safety Commission as fatal, severe and minor.

This classification is based on the amount of damage to human lives and properties. The root causes of road accidents and its effects on human lives and properties have been associated with human faults.

The purpose of this thesis is to find out the magnitude of road accidents in District Abbottabad, to identify the causes, and to evaluate the preventive measures to minimize the road traffic accidents

**1.6 Research objectives:**

The objectives of my research are:

1. To measure the magnitude of road traffic accidents (RTAs)

2. To identify the causes of road traffic accidents

3. To evaluate the preventive measures to minimize accidents

**1.7 Purpose of study**

This study is essential for setting needs for the curative action of wounds. The purpose of this study would to measure the causes of road accidents, number of injuries and disabilities from road accidents and to determine the preventable factors leading to road accidents.

**1.8 Study Area**

The study area of the research is as follows:

1. Ayub teaching hospital (Ayub medical complex), Abbottabad.

2. Benazir District Headquarters, Abbottabad.

**1.9 Structure of the thesis**

The chapter one gives the background of the study, problem statement and states the main objective of the study; it also highlights ways of investigating issues in relation to the study.

The chapter two evaluates some of the theories and theoretical model based on the system theory as a base of knowledge of this study. The chapter three includes research methodology, target population, sample size and sampling techniques, data collection, variables, and data analysis The chapter four contains results and finding. Finally paper ends with Chapter 5 containing conclusions and recommendation of my research.

**Chapter 2**

**LITERATURE REVIEW**

This aspect of the study analyses the various literatures related to the topic under consideration in order to reveal critical facts and findings which have already been identified by previous researchers and numerous studies in and around the causes, effects and economic implications of road accidents with particular reference to causes of deaths of road accident casualties.

**2.1 State of Road Accident**

Motor traffic accident in this country has become one of the growing concerns in recent times. This is as a result of the incredible effect of road accidents on human lives, properties and the environment.

Heidi (2006) stated that 1.2 million people in the world lose their lives through road accidents every year. This number has increase to 1.3 million people who lose their lives globally every year and between 20 and 50 million people sustain various forms of injuries annually as a result of road accident. The most affected of these consequences of road accidents is the people in the age group of 15 and 29. Car crashes cost the world an amount of US$518 billion annually. It is estimated that if nothing is done globally to decrease the extensive nature of road accidents and most especially the causes of deaths of casualties before they are sent to hospitals then by the year 2020, 1.9 million people will be killed by road accidents in the world, (World Health Organization, 2011).

A research conducted by Salim and Salimah (2005) also specified that motor traffic accident was the ninth major cause of death in low-middle income countries and predicted that road accident was going to be the third major cause of deaths in these countries by 2020 if the trend of vehicular accident was to be permitted to continue.

**2.2 A model for road traffic accident**

Road traffic accidents bear strong elements of man-environment adjustments and maladjustment a familiar approach in geography (Muhlrad et al 2005). Based on the logic of a improved human ecological model of a disease the approach can be transferred to studies of road traffic accident. A model for road traffic accident as encouraged by the ecological model of a disease was developed by Jorgensen and Abane (1999) who made a empirical adjustment of this basic model to suit road traffic accident analysis. The model is categorized by three main components:

1. The vehicle (corresponding to the vector in disease ecology) which defines automobiles into its composition, age, technical conditions and safety equipment like seat belts in a car.

2. The environment, containing the road system and the broader physical and built up environment. The physical environment splits further into different characteristics such as; Daytime and climate (weather conditions and road conditions), Spatial conditions (arrangements and Macro structures), Settlement configuration (Urban or rural / sparse or populated area), situation of areas of residence and working areas, Principle of traffic separation, structure and road constructions qualities.

3, The actions of the population; including its characteristics such as age and gender ratio as well as attitudes and general traffic behavior. And it goes more into driving behavior, driving knowledge, driving style, risk compensation and risk driving (influence of alcohol and drugs).

The fatality rate over the years has been used to compare road accident prevalence in enormous number of countries. Fatality rate is well-defined as the number of deaths which occurred through road accidents with respect to some measure of the use of road system. However, Fatality rate has been defined by several authors to suit the needs of their researches.

Ghee et al (1997) stated that fatality rate is defined as the number of injury accidents occurring per annum per million vehicle kilometer moved. Ghee et al (1997) defined the fatality rate for road accidents in a given country to be dignified in respect of the number of persons killed through road accidents per 10,000 licensed vehicles in a country.

As population increases and the number of licensed vehicles in developing countries are increasing rapidly, Rajesh (2006) proposed that fatality rate is defined as number of road accident deaths per 100,000 licensed vehicles.

Jacobs and Cuttings (1986) studied into the previous accident models developed by earlier researchers to develop upon them. A study was conducted to find the effects of speed limits on road accidents by Fieldwick (1987) who identified that speed parameters have substantial impact on road safety and severity in both rural and urban roads.

**2.3 Causes of Road traffic accident**

Many researchers have arisen with the causes, effects and recommendations to road accidents in Ghana and elsewhere. For instance, Ayeboo (2009), identified that the many accidents on our road networks have been related to various causes which include over speeding, drink driving, wrong over taking, poor road network and the off-street vehicles which ply on our roads.

Furthermore, the National Road Safety Commission (NRSC) has acknowledged over twenty causes of road accidents in Ghana which include excessive speeding, lack of proper judgment of drivers, insufficient experience, negligence, wrong overtaking, carelessness, intoxication, over loading, brake failure, dazzling and defective light, boredom, unwillingness to alight from motion objects (vehicles, motor cycles, human being and wild animals), skid and road surface defect, level crossing and obstacle. Other factors are Unspecified enforcement of road laws and traffic regulations, use of mobile phones when driving, failure to buckle the seat belt and corruption, (National Road Safety Commission, 2007).

Elsewhere, the causes of road accidents have also been linked to one or combination of the following four factors, equipment failure, road infrastructure, motorists’ behavior and poor road maintenance. However, studies have shown that over 95% of all road crashes are caused by the behavior of the driver and the combination of one or more of the other three factors, (Driving guidelines, and no date).

According to the country report on Road Safety in Cambodia, road accident is caused by human factors (road users), road defects and vehicle flaws. It was found in the report that road accident in Cambodia was increased by 50% in five years while the fatality rate was doubled. To help reduce the rate of road accident it was recommended that Road accidents Safety Committee was set up, accident data system was established, accident valuation policy and driver training measures were to be put in place, Ung Chun (2007).

**2.4 Causes of Casualty’s Death in Road Accident**

The cause of death of casualties has been associated with many factors such as minor collision, failure of drivers and vehicle inhabitants to put on seat belt and riders failing to put on helmet, Afukaar et al (2009).

Studies have revealed that sleep related accidents tend to be more severe and as such most people are killed. This situation is as a result of the driver’s incapability to prevent and stop certain actions such as applying the brakes before collision and steering onto the main road if the vehicle veers off the road. The research acknowledged that in order to reduce the risk of drowsy driving and its related crashes, drivers are advised to have sufficient sleep, motorists’ are to avoid drinking especially when feeling sleepy and reduce driving between midnight and 6 :00 am, Strohl et al (1998).

Homes and Reyner (1995) proposed that due to the inactive nature of the sleeping driver to control the vehicle prior to the accident, sleep related accidents have high risk of death as compared with the other forms of motor accidents. Moreover, in a research conducted in the North Carolina, sleep related accident was found to the most severe accidents amongst all other types of road accidents, Allan et al (1995).

Also, Zomer (1990) recognized that the number of casualties in sleep related road accidents is 50% higher than all accidents. It had three times fatalities and doubles the extremely injured as compared with non-sleeping related road accidents. The sleep related accidents are usually more severe and kills a lot of people because there is no control on the part of those involved in the accident, mostly, the driver. In this vain, there are certain circumstances which might have been avoided to reduce the number of casualties but due to the driver’s incapability to control the vehicle the people suffer the consequences.

Broughton (2007) identified that when two vehicles collide, the driver and inhabitants of the older vehicle are usually at more risk of being killed than those in the newer vehicle. In that study, it was expected that the mean risk of death of drivers of vehicles which were registered in 2000 to 2003 was less than half of the risk for the drivers of vehicles which were registered in 1998 to 1999, Broughton (2007). This phenomenon may be due to weaker nature of the various parts of the older vehicles and probably the improvement and transformation in the manufacturing of newer vehicles However, casualty rate increases in collision with more up-to-date cars on non-built-up roads where speeds are higher as compared with that of older cars.

The size of a vehicle has also been found to contribute to the death of road users in traffic crashes. From the conclusions of Broughton (2007 of road accidents data from 2001 to 2005, it was revealed that the driver casualty rate increases with the magnitude of the other vehicle in collision. The problem now is, for the past 30 years, the weight and size of vehicles have been improved by 30% yet the number of casualties’ deaths have not reduced in accordance with that. The fact still remains that people end up depend on so much on the strength of their vehicles and take unnecessary risk especially the youth, Broughton (2007).Studies have shown that young drivers and young travelers die more in road traffic crashes than their older counterparts, Broughton (2005).

In a research conducted in Britain and Wales to evaluate the death pattern of various age groups and their sexes within the period of 2000 to 2002, it was found out that 40% of males and 30% of females’ drivers who died in road accidents were in the age group of 16 and 19 years. This number had risen to 44% for males and 38% for females by the end of 2005, (Department of Transport, 2006.

However, it is fascinating to note that this pattern changes with age, as the road users develop then the number of females who die through accidents become more than that of males. From 1994 to 2004, there were 13% deaths for men above 30 years and 30% for females in that same age group, (Department of Transport, 2006b). These sudden changes may be due to the fact that women tend to accumulate more weakness than men as they grow. Further, women are known to travel more often than men at old age to visit their children and other relatives.

Also, Kumar et al (2008) found out in their research in South Delhi that with all the individuals who were killed in road accidents, 88.2% of them were males. This result actually confirmed the studies by earlier researchers as Salgado and Colombaje (1998), Shadev (1994), and Henriksson (2001), all of whom proposed and proved that more males are killed in road accidents than females.

Drink-driving is another factor which was identified by Clarke et al (2007) as a contributor to death of casualties in motor accidents. The reason for this could be link to the incapability of the drunk driver to control the car as a result of sleeping, Zomer et al (1990).

Aside the drunk drivers, passengers and other road users who are drunk may even not be aware of what could be going on around them before, during and after the accident in order to take caution to avoid severe injuries and deaths in condition where they could have done so. In addition to this, when passengers are drunk, then it becomes tremendously difficult for drivers to take their advice even if they are right. The conclusion is that drivers do their own things and end up causing accidents will kill people.

**Chapter 3**

**RESEARCH METHODOLOGY**

The study was designed to conduct in-depth understanding of magnitude, causes and preventive measures of road traffic accidents in urban areas of District Abbottabad. The cross-sectional study was conducted, the study covered both qualitative and quantitative aspects. The study area of my research was Ayub medical complex and Benazir District Headquarters.

**3.1 Target population**

The target population of the research is victims of road accidents in an Ayub medical complex Abbottabad and Benazir district headquarters, Abbottabad.

**3.2 Sample size and Sampling Technique**

The cross-sectional sampling study was used and about 50 respondents were selected which includes 35 respondents of accident victims, 9 respondents of hospitals and 6 respondents were of traffic officers.

**3.3 Data Collection**

The primary data was collected through structured questionnaire and interviews. There were four sections in the questionnaire:

1. Demographic profile

2. Accident victims

3. Hospital information

4. Traffic officers’ information

**3.4 Variables**

1. Age

2. Sex

3. Physical conditions of road

4. Literacy

5. Mode of transport

6. Poor access to health facility

**3.5 Data analysis**

The data was analyzed through MS Excel spread sheet and were represented in the form of tables, charts and conclusion.

**Chapter 4**

**RESULTS AND DISCUSSION**

**4.1 Demographic information of Accident Victims**

This section comprises of the information of individual background.

**4.1.1 Road traffic accidents in relation to Age**

Age is commonly assessing using five-year intervals for group (15-19,20-24,etc).Some studies use larger intervals like 18-24.25-34,etc.

In our study the age mentioned was below18, 18-24, 25-34, 35-44 and above 45.In this study the male and female comparison is being done which shows that male age 18-24 tends to become accident victim than female but the percentage shows that female at this age becomes more victim of accident than males because women have tough time negotiating cross-roads-junctions and slip roads. On average, men drive 60 per cent of the time, and women 40 per cent. The results indicate that in certain crash scenarios, male-to-male crashes tend to be under-represented and female-to female crashes tend to be over-represented. At age 25-34 the accident victims are male as compared to female ,It is reported that male at that time do not drive properly this may be due to emotional trauma, family pressure, grief etc. At age 35-44 very few accidents occurred in both groups.

**Figure 1 Road accidents in relation to age**

**4.1.2 Road Accidents In Relation to Sex**

The results show that male calamity rates are significantly higher. Accident differences are significant only in normal driving conditions. Drivers over age 50 had the lowest accident rates. Car crashes rate differences were caused by lack of attention and impatience among male drivers. Proper means of communication should alert concerned populations to these findings.

**Table 1 Road Accidents In relation to sex**

|  |  |  |
| --- | --- | --- |
| **Sex** | **No.** | **Total** |
| Male | 21 | 58 |
| Female | 15 | 41.7 |

**4.1.3 Occurrence of accident**

The accidents tend to occur more on City Road comprise of male 57% and female 53% in District Abbottabad. Then comes link road which comprise of male accidents 9.5% and female 33% ,female accidents are higher on link road .Then comes approach road which comprise of male 0% accidents and female 6.7%.At highway ,the percentage of male accidents are higher (33%) as compared to female (6.7%).

**Figure.2 Occurrence of accident**

**4.1.4 Type of road users**

All varieties of road user are at risk of being injured or killed in a motor traffic accident, there are distinguished differences in fatality rates between different road user groups. In particular, the “vulnerable” road users such as pedestrians and two-wheeler users are at greater risk than vehicle tenants and usually bear the greatest burden of injury. This is especially District Abbottabad the risk is high, because of the greater variety and intensity of traffic mingling and the lack of separation from other road users. The data shows that more accidents occurred in urban areas of Abbottabad as compared to rural areas.

The type of automobile involved in motor traffic accident cannot be ruled out as a contributory factor to the number of people who are killed in that accident. The types of vehicle involved in the road accident are shown in table 4.

In our study the road user (car/jeep) tend to have more accidents(male 53.8% and female 86.7%).The female have higher percentage and then motorcyclist with percentage of male 19% and female 13%.The lowest percentage occurs in cyclist, passenger bus and others.**Figure 3 Distribution of type of road users**

**4.1.5 Type of accident**

In our study different types of accidents are discussed in which Hit and Run is at high level which comprise of female 25%, male 23.8% and others (hit on a wall etc.) comprise of 28.6% male and 25% female. The lowest rate is accident is fall from bus and run over shown in (Figure-4).

**Figure 4 Type of road accident**

**4.1.6 Occupation**

Pakistan has one of the world's worst records in traffic security. Pakistan recorded 14.4 fatalities per 10,000 recorded vehicles. In comparison, Japan verified a fatality rate of 1.7 per 10,000 vehicles and Canada reports a fatality rate of 1.67 per 10,000 vehicles, while rates of motor accidents in Japan and Canada are much higher than in Pakistan.

The accidents occurred mostly between age 18-35 and among them mostly are students which are recorded as 81% male and 100% female, 3% Businessman and 1% civil servant. The reasons the road accidents are higher among students are due to over speeding, drifting, rash driving, narcotics, racing, carelessness, cell phones and wrong overtaking.

**Figure 5 Percentage of male and female occupation of victims**

**4.2 Magnitude of road traffic accidents in District Abbottabad**

Road traffic calamities have become a huge global public health and development problem killing nearly 1.2 million people per annum and wounding or disabling between 20–50 million people worldwide; thus making the loss of 518 billion US $ globally. The report written by WHO in 2013 showed that more than 1.24 million individuals die every year as a result of road traffic injuries, making it “the eighth leading cause of death globally, and the leading cause of death for young people aged 15–29”. Based on current trends, it is projected to be the fifth leading cause of death globally by 2030.

In Abbottabad it was recorded that about 60-75% accidents occurs annually due to people’s behavior, road infrastructure and mismanagement. The magnitude of road accidents is lower in Abbottabad as compared to other District (Haripur).

**4.2.1 Comparison of road accidents to other District**

Figure 6 shows that there is low magnitude of road accidents in District Abbottabad as compared to other District (Haripur).

**Figure 6 Comparison of road accidents of District Abbottabad to other District**

**4.2.2 Source of getting information of accidents by traffic officers in Abbottabad**

In our study, it was recorded that the traffic officers get the information through police personals, local police stations and road users.

**4.2.3 Transport injured people at the site of accident in hospital**

According to the police identification of causes, road accidents were responsible on road users in 90 per cent of the cases, on the road condition and the environment in 6 per cent and on vehicle defects in 4 per cent. Carefulness is needed when understanding these results as police in general have not been trained as engineers and therefore they may underestimate the impact of engineering related causes.

The study shows in the table below that 25% traffic officers send victims to hospitals via ambulance, police vehicle, and by requesting others.

**Table 2 Transport injured people at the site of accident in hospital**

|  |  |  |
| --- | --- | --- |
| **Transportation** | **No**. | **%** |
| By ambulance | 6 | 25 |
| By police vehicle | 6 | 25 |
| By requesting other motorcyclist | 6 | 25 |
| Accident victims higher vehicles themselves | 0 | 0 |
| Other | 6 | 25 |

**4.2.4 Dead bodies of Vctims**

The study demonstrates that the dead bodies of persons who die at the spot by an accident are send to hospitals.

**4.2.5 Problems in receiving patients in AMC and DHQ**

Accidents may be interpreted as resulting from the total forces involved in the competition between man and his environment (Gordon, 1949), and the epidemiology method thus offers a scientific approach to the prevention of road traffic accidents There are diverse categories of problems in receiving motor accident victim. In the light of my research it was observed that in AMC and DHQ 36 % problem is of non-availability of blood, 29% is fatal injuries, 21% is of non-availability of doctors and others as shown in Figure7.

**Figure 7 Problems in receiving patients in Ayub medical complex and DHQ**

**4.3 Causes of Road Traffic Accidents in District Abbottabad**

Causes of road accidents are carelessness, negligence, over speeding, using mobile phone, overtaking, violation of rules and pedestrians. Road infrastructure, weather conditions (heavy rainfall/wind, brake failure, off-street vehicles and drugs.

In our research study, it is recorded that the cause of motor traffic accidents are carelessness male 14% and female 15% .The higher percentage is of carelessness among male and female ,over speeding (male 24% and female 30%),Heavy traffic (male 17% and female 10%) ,overtaking (14%male and 5 %female) and other factors that are shown in Figure 8.

**Figure 8 Causes of Road Accidents in District Abbottabad**

**4.3.1 Condition of the car just before the accident**

In our study, it was observed that 75 % male have good condition car and 100 % female also have good condition car .5% male had worse /poor car conditions as shown in (Figure 9).

**Figure 9 Condition of the car**

**4.3.2 Condition of the day at the time of accident**

In our study it is shown that 76% male and 75 % female indicated that the weather was dry, and 14%male and 6%female indicated rainy weather .The weather is also the factor of road accidents

**Figure 10 Condition of the day**

**4.3.3 Speed of the car**

Bagaria (2007) observed that a mixture of factors such as the presence of a speed breaker and non-functioning street light led to a bunch of motorcycle accidents.

Study of RTA fatalities from Patna showed that the majority of RTAs (73%, n=241) took place on straight roads, 1% at T junctions, 10% at Y junctions and 8% each at four-way Junctures and traffic roundabouts (Singh and Misra, 2001). A study of 13777 motorized. Two wheeler accidents from Hyderabad showed that 81% of accidents involving motorized Two wheelers were from rural areas and ‘major groups of two wheeler accidents involved. Rural and roadside accidents among males and urban and highway’ accidents among females (Umar and Jena,)

In our study, the accident occurred due to over-speeding by male and female as recorded in the Figure 11; 81% male and 60 %female drivers drive fast.10% male and 20 % female speed is recorded at 100km/h due to which unnecessary accidents are occurring.

**Figure 11 Speed of the car**

**4.3.4 Number of passengers applied seatbelt**

Sharma et al (2007) observed that 9% of school students between 14 and 19 years of age never used a seat belt while riding in the front seat of a car; 10% used it only rarely and 52% used it sometimes.

In our research study 95% male and 63% female didn’t applied seatbelt as shown in (Table 3) which is causes person to be injured at the time of accident.

**Table 3 Number of passengers applied seatbelt**

|  |  |  |
| --- | --- | --- |
| **Applied Seatbelt** | **%Male** | **% Female** |
| Yes | 5 | 38 |
| No | 95 | 62 |

**4.3.5 Violation of road signs**

Road calamities appear at a very high rate, with an estimated road traffic death rate 38.1 per 10000 populations (WHO, 2013). Only Bangkok alone, there are 2433 reported accidents in 2014 (ThaiRSC , 2015. Thailand will need to give importance to accidents in order to prevent and reduce risk of accidents from happenings in the future. Accidents partly come from violations of traffic law especially where no traffic officer present (Leelavijarn *et al*., 2014).

With traffic capacities increasing since the 1930s, many countries have adopted pictorial signs or otherwise simplified and standardized their signs to overcome language barriers, and develop traffic safety. Such pictorial signs use symbols (often silhouettes) in place of words and are usually based on global protocols. Such signs were first developed in Europe, and have been adopted by most countries to varying degree.

In our study Table 4 shows that 67% individual violated a road sign which is another cause of road traffic accident.

**Table 4 Violation of road sign**

|  |  |  |
| --- | --- | --- |
| **Violation of road sign** | **No.** | **%** |
| Yes | 12 | 33 |
| No | 24 | 67 |

**4.3.6 Condition of the road at the time of accident**

Roundabouts are a popular alternative to intersections. Numerous studies have indicated that roundabouts are associated with lower RTA numbers and less severe injuries compared to T- or X-intersections (e.g. De Brabander, Nuyts, & Vereeck, 2005; Guichet, 1997; Retting, Persaud, Garder, & Lord, 2001).

In our research study it was recorded that 15 % male and 35 % female said that there was traffic at the time of accident.35 % female and 13 % male said that the road was bumpy .13 % male and 5 % female said that the road was slippery and wet due to which the accident occurred. Fewer percentages of individuals’ shows that it was bare road and the individuals were overspending and drifting on the bare road that is why they got injured due to calamity.

**Figure 12 Condition of road at the time of accident**

**4.3.7 Factors of the occurrence of road accidents**

Research indicates, however, that drivers increase their speed when road width increases and that drivers move their lateral position closer to the lane edge (Lewis-Evans & Charlton, 2006). Lane markings (lines) are crucial to guide the driver and assist him or her in maintaining lateral position. Driver behavior depends on the design of the markings (e.g. lane width, color).

There is evidence that the effect of road markings on driver behavior is unconscious and that road markings are more effective in affecting driver behavior than road signs. However, road markings should never be introduced without road signs or vice versa.

In our study it was recorded that the higher percentage of male (45 %) and female (32%) said that people’s behavior facilitates the occurrence of road traffic accidents in Abbottabad. In terms of vehicles there is lower percentage of male 20 % and female 21 %.

**Figure 13 Factors of occurrence of road traffic accidents**

**4.3.8 Time period of accident**

The total vehicle-kilometers (vehicle-miles) moved in the urban area were not known, calamity rates for urban roads could not be calculated. A number of 24-hour traffic volume counts were obtained, and the percentage of accidents and dimensions during the various light conditions were compared. For both daytime and night, the percentages of accidents and dimensions were very similar. There were distinctive differences in accidents during dawn and dusk. The percentages of accidents at dawn were abnormally low compared to other times during the day. The accident mostly happened during day time as compared to night because of heavy traffic, violation of rules .over speeding and overtake.

**4.3.9 Number of vehicles involved in an accident**

The risk of intersection collisions varies on rural and urban roads, with around 50% of urban crashes and 30% of rural crashes happening at junctions. In urban areas the probability of an intersection collision occurring is high as they typically have a higher density of junctions. On rural roads while the likelihood of a collision may be lower (because of fewer intersections) the consequence of the accident is often significantly worse because of the increased speeds involved.

In my research study, it was concluded that the collision occurred mostly between two cars .The percentage of collision of two cars are recorded as 58% male and 73 % female as compared to other number of cars in Figure 14.

**Figure 14 Number of vehicles involved in road traffic accidents**

**4.3.10 Type of vehicles involved used by the victim**

The number of bikers killed or seriously bruised in Great Britain increased in both 2013 and 2014.There were 5558 serious accidents involving motorcyclists in 2014. 339 motorcyclists were killed in reported road accidents (an increase of 2.4% on 2013) and 5289 were seriously injured (an increase of 8.7% on 2013, and the highest level since 2009).

The research study illustrates that types of vehicles used by victim to carry day-to-day movement in District Abbottabad are saloon cars with a percentage of male 81% and female 100% the female percentage is higher as compared to male because male also uses other vehicle like motorbike, bicycles, trucks etc.

**Figure 15 Types of vehicles involved used by the victim**

**4.3.11 Causality at the time of accident**

There were 1106 car drivers who were killed in road traffic crashes in 2005 at Britain and Wales and a study into this data by Clarke et al (2007) showed that 40% of those who died worn no seat belts and most of them were people between the age 17and 29 years. It was further identified that the desire for buckling the seat belt increases as one grows beyond 30 years. One of the commonest thing identified by researchers as the cause of death in road traffic crashes is anoxia-loss of oxygen supply –which cause a blockage in the air ways of the casualties and if immediate aid is not to the casualty, he/she dies after a short while due to inadequate supply of oxygen (British Red Cross, 1997).

In my research ,it is recorded that injuries that occurred from motor traffic accidents among males and females are Head and face (male 21% and female 25 %) ,Upper limb and lower limb (male 25% and female 6 %) and most higher percentage is of Others which include broken bones, ligament damage ,ACL torn, bone bruise, abrasions, disability etc.

**Figure 16 Causality at the time of accident**

**4.3.12 Fatal Injuries at the time of accident**

It is related to an injury which almost causes a death but not certainly does. Motor traffic injuries are one of the most common reasons of trauma reporting to the emergency departments of tertiary hospitals that need specialty or super-specialty care. Research from different Indian sites revealed that 23 to 40 percent of trauma cases seen at the emergency departments of tertiary hospitals were due to RTAs (Muralidhar and Roy, 2004; Sharma; Verma and Tewari, 2004; Goel et al, 2004). Between 14% and 50% of unusual deaths from unspecified urban areas and 13% of unusual deaths from rural areas (Cardona et al, 2008) were recognized to RTA. Almost two thirds (61%) of fatal head injuries (Pathak et al, 2008) and half of the fatal chest injuries (50%) (Pathak et al, 2006) were due to of RTA.

**Table 5 Fatal injuries at the time of accident**

|  |  |  |
| --- | --- | --- |
| **Fatal injuries** | **Male** | **Female** |
| Head | 27 | 80 |
| Cervical spine | 18 | 20 |
| Chest | 18 | 0 |
| Abdomen | 0 | 0 |
| Pelvic | 9 | 0 |
| Lower limb & Upper limb | 27 | 0 |

In my research the Table 5 shows the percentage of fatal injuries of road accidents. In which Head injury (male 27%, female 80%) and cervical injuries (male 18% and 20%) recorded are higher in males and females due to carelessness, negligence and other factors.

**4.3.13 Class of the injured person**

If the road accident was a two car accident, one of the drivers is certainly going to be responsible. It is almost impossible to have a two car accident without at least one of the drivers being considered negligent in some way. The drivers get more injured as compared to other class (Passenger, Pedestrian, Motorcyclist, and Cyclist as shown in Figure 17.

**Figure 17 Class of injured person**

**4.3.14 Condition at the site just before accident**

It was recorded that accidents occurred mostly due to vehicle on the way and overtaking (Figure 18).Overtaking is a kind of vigorous driving behavior which is quite commonly involved in by drivers and yet also rated as one of the most hazardous man oeuvres to perform (Harris, 1988).

**Figure 18 Condition of the site just before accident**

**4.4 Preventive measures to reduce road accidents in District Abbottabad**

Evidence shows that motor traffic accidents (RTAs) affect a large proportion of morbidities and mortalities in developed as well as developing countries. However, Road Traffic accidents continued to be ignored as an important public health issue till recently, because accidents and injuries were observed upon as random or accidental events that were an inevitable part of road transport. Current years have brought about a change in perception and a new understanding has emerged in terms of looking at road injuries as avoidable events that can be prevented or controlled through intervention (World Health Organization, 2004).

**4.4.1 Safety measures to reduce road traffic accidents in District Abbottabad**

Road calamities appear at a very high rate, with an estimated road traffic death rate 38.1 per 10000 populations (WHO, 2013). Only Bangkok alone, there are 2433 reported accidents in 2014 (ThaiRSC, 2015. Thailand will need to give importance to accidents in order to prevent and reduce risk of accidents from happenings in the future. Accidents partly come from violations of traffic law especially where no traffic officer present (Leelavijarn *et al*., 2014).

In our study .48% people said to reduce overspeeding and rash driving.15% said to follow road signs ,traffic rules ,10% said to avoid overtaking and 13% said to wear seatbelt in order to reduce the rate of accidents in District Abbottabad.

**Table 6 Safety measures to reduce road traffic accidents in District Abbottabad**

|  |  |  |
| --- | --- | --- |
| **Safety measures** | **No.** | **%** |
| Reduce over speeding /avoid rash driving | 29 | 48 |
| Avoid overtaking | 6 | 10 |
| Avoid cell phones | 4 | 7 |
| Follow road signs/traffic rules | 9 | 15 |
| Wear seatbelt/helmet | 8 | 13 |
| Approved license | 1 | 2 |
| Training of local drivers | 2 | 3 |

**4.4.2 Problems in implementing traffic safety measures in Abbottabad**

Issues are mostly politicized and personal benefits are involved and sometime cause hurdles in implementation.

**4.4.3 Rules and regulations to reduce road traffic accidents**

Respondents give importance to law implementation as a serious factor to road safety. This corresponds to the well-known fact of weak law enforcement of Abbottabad police officers to control traffics and accidents. This causes many drivers fail to follow the traffic laws. If severer traffic laws are enforced, then there will be fewer injuries and deaths.

Below in the Table7,it has been concluded that if there is enforcement of rules and regulations then the chance of occurrence of road accidents will be lower.

**Table 7 Rules and regulations to reduce road traffic accidents**

|  |  |  |
| --- | --- | --- |
| Rules and regulations | No. | % |
| Yes | 6 | 100 |
| No | 0 | 0 |

**Chapter 5**

**CONCLUSION AND RECOMMENDATIONS**

On the basis of the finding of the study, the following conclusions were drawn and recommendations were formulated.

**5.1 Conclusion**

Accident rates were observed for each sex. Rates are expressed in number of annual accidents per 1,000 drivers of the same sex. Male-to-female percentages were also calculated. Accident ratios show significantly higher male rates; on average, more than three times higher (3.42 times).Statistical testing between the two sexes indicates substantial difference at the 5% level.

Analyses of the data reported in this study discovered a definite trend of significantly higher accident rates for male drivers compared with female drivers. Related trend was obtained after accident rate adjustment to account for distance traveled by each sex and for public transport accidents. Accident rate examines by region showed similar results. Rates, in general, were higher in the low-income region compared with the high-income region. In more complicated driving conditions, such as adverse weather or road surface .Male and female accident rates were compared in four different weather conditions: clear, foggy, rainy, and windy. Four road surface cases were considered: dry, wet, foggy, and windy/rainy. Visibility situations were characterized under two lighting conditions: daytime lighting, and dark conditions.

Results specify that the trend of higher male accident rates is observed in all normal conditions; that is, in clear, dry, daytime, and adequate night lighting conditions. In enormously difficult driving conditions (rainy and wet) female accident rates drop to zero. This could be an indication of extremely careful driving by females or that females may not choose to drive at all in adverse conditions. In foggy weather both sexed have lower rate of accidents. In dry weather condition the female and male accident rate differences are small. An overall conclusion that can be drawn from this analysis is the emphasis of higher male accident rates reflecting a lesser degree of carefulness in males driving under normal conditions. In the present study, drivers were characterized into five age groups as shown in Figure I. Accident rates and ratios were arranged for the two sexes for all age categories. The results approve higher male accident rates at age 25-34 due to family pressure and other traumas. Higher ratio of female accidents were observed with the age of 18-24.Lowest ratio was observed between both sexes with the age of below 18, 35-44 and above 45.The causes of road accidents were drawn that these are violation of stop sign, using inappropriate lane, violating yield sign, disregarding mandatory signs, and wrong overtaking. Reduced attention and driver impatience are believed to be the major contributors to the commitment of these liabilities. Furthermore, female drivers did not take risks to commit the serious law-breaking mistakes. The study also revealed that males’ accidents were more harmful and dangerous with regard to their consequences. It was recognized that the accidents occurred more because of local Suzuki /taxi driver. It was observed that 95% individuals do not wear seatbelt/helmet that is why the rate of injuries (Head and Face, Upper limp and lower limp and others) and fatality (Head, cervical spine chest and others) is higher between male and female. Furthermore, it was observed that 67 percent individuals don’t follow road signs and their behavior is not appropriate they do violate Rules /traffic signals due to which the rate of accidents is higher.

It was perceived that in order to improve medical services in AMC and DHQ the individuals recommended first aid facility, availability of blood reservoir, availability of trained staff ,hygiene emergency wards ,latest equipment which must be sterilized, ambulance service, admit patients without filling forms.

It was perceived in order to reduce accidents seatbelts must be applied, speed should be in your control, do not overtake from wrong side, rules and road signs must be followed and implemented.

Road traffic accidents in Abbottabad have not received the attention warranted, considering the magnitude of the problem. There is the need to view motor traffic accidents as an issue that needs vital attention aimed at reducing the health, social and economic impacts.

**5.2 Recommendations**

1. Education on motor accidents should be intensified specially among the youth.

2. The drivers should have approved license and they should avoid driving off street model vehicles

3. Drivers of vehicles such as cars and buses should be given special training to be able to avoid unnecessary accidents.

4. The accident data base of the country should be continued to include more variable so that researcher could really determine the actual factors contributing the casualties’ death in road accidents.

5. Finally, institutions that implement road traffic regulations should do well to apply the law.