



## Pattern of mortality and morbidity amongst motorized two wheeled vehicle (MTV) riders and pillions in King George hospital, Visakhapatnam

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#### Abstract:

**Background:** Road traffic injuries kill nearly 1.3 million people every year and several are left with injuries and disability. Accidents are not often due to ignorance but for various factors such as non-usage of protective gear, carelessness etc. This study is undertaken to evaluate various factors responsible for Road traffic accidents and the mortality and morbidity pattern among two wheeler riders and also difference with usage of helmets. **Methodology:** A cross sectional study conducted in King George Hospital (KGH), in the months of May and June 2012. A sample of 200 victims (riders and pillions) admitted to casualty and other wards were selected by systemic random sampling method. Patients admitted with delayed complications were not included. Data was collected using pretested questionnaire, every day in the casualty and in other wards of KGH. **Results:** Majority of the victims (87.5%) were males, 76.5% were riders and 23.5% pillions. Age of the victims ranged from 18 to 40 yrs. Accidents occurred more during night time (56%) without enough street light (70%). About 61% of the accidents involved two vehicles. In 13 % of cases the cause of the accident was animals and pedestrians on street. Unconditioned vehicles contributed to 65%, whereas alcoholic state of the riders contributed to 40.5% of the accidents. Mortality was found to be more among nonusers of helmets (82.35%), when condition of the roads (64.71%) and vehicles (64.71%) were not satisfactory. **Conclusion:** Road traffic accidents continue to be a social menace. The segregation of different types of road users is a key step. Encouraging safe behavior is important along with enforcement of road safety regulations.

**Key words:** Accidents; Helmet use; Morbidity; Mortality; MTV

#### Introduction

Road traffic injuries kill nearly 1.3 million people every year and several are left with injuries and disability. WHO estimates that road traffic

injury will increase from ninth leading cause to fifth leading cause of death by 2030 [1]. India has one of the largest highway and road network and has about 1% of world's vehicles but contributes to 6 % of

world's road accidents. Accidents are not often due to ignorance but for various factors such as non-usage of protective gear, carelessness etc. Indian road congress recommends guidelines and standards; however there is need for changes in order to improvise a body which is responsible for implementation of road designing standards [2].

## Materials and Methods

A Cross-sectional study was conducted in King George Hospital (KGH) between May and June 2012 to 1) evaluate various factors responsible for the accidents, 2) to evaluate patterns of mortality and morbidity victims in motorized two wheeled vehicle ( MTV) riders and pillions and 3) to study the mortality and morbidity pattern differences between helmet users and nonusers. A sample of 200 was selected using systematic random sampling method. Data was collected by interviewing the victims admitted to casualty and other wards of KGH using a pre-tested questionnaire. Where condition of victim didn't warrant the interview, the attendants were interviewed. Information collected consisted of personal identification data, history of RTS injuries, human and environmental factors, type and severity of injuries, treatment given and outcome. Kuppuswamy classification was used for classifying education and occupation. Injury Severity Score (ISS) was used to assess the severity of injuries. Consent from institutional ethics committee and informed consent from the participants was obtained prior to study.

## Results

In the present study the total number of accidents taken into consideration was 200. Out of the total victims, 87.5% were males and 12.5% were females. Majority (76.5%) was riders and 23.5% were pillions.

Age wise distribution of the victims ranged from 18 to 60 yrs with 42.5% between 26-40 yrs and 34.5% between 18-25 yrs. There was no definite pattern or relationship between occupation and number of accidents. Relatively two groups - Unskilled workers and clerical/shop owners/ farmers were more affected as compared to others.

The percentage of accidents were higher (80%) in urban and semi urban areas as compared to rural and more of educated people (graduates and above) were affected constituting 21.5% of the study population. (Table 1)

Regarding factors affecting the occurrence of accidents, the percentage of accidents was high at night time (56%) compared to day time i.e. between

6 am to 6pm. The percentage of accidents was high during the weekends with 27.5% occurring on Sundays and 19.5% occurring on Saturdays.

Accidents due to poor street lighting was reported among 70 % compared to adequate street lighting (30%). In India the traffic movement on roads and streets is clumsy with all kinds of vehicles –two and four wheelers, light and heavy vehicles and also animals and pedestrians sharing the same path without proper segmentation. In this study 61% of the accidents involved only two vehicles. In 13 % of the cases animals and pedestrians were the cause for the accident.

Vehicles not in satisfactory condition for use i.e. old or technically failed are still used by people as mode of transportation. The accident rate involving such vehicles is high ( 65%) as compared to conditioned vehicles ( 35%).

Regarding follow of Road safety rules, 75.5% of the riders were not using helmets, 40.5% were in alcoholic state and 35 % were not having driving license.

**Mortality pattern:** Total number of deaths was 17. Mortality among the victims was found to be high (82.35%) among the riders as compared to pillions (fig 1) and more (86%) in the age group of 18-40 yrs ((table no 2). The time of occurrence (night or day) was not found to have any association with the number of deaths as it was similar in both times. Table 3 shows mortality was found to be significantly high among those not using helmets (SEP+2.66,  $p<0.05$ ) and mortality was high where the roads (64.71%) and vehicles were not in condition (64.7%).

**Morbidity pattern:** Morbidity pattern as per the abbreviated injury scale and injury severity score 25 % had grievous injuries 75% had simple injuries. 40% of grievous injuries affected lower limbs and in 33 % cases head and neck was affected (fig no 2).

## Discussion

In the present study, it is found that males are much exposed to RTAs than females. This may be due to the nature of work exposing them to accidents. Similar results have been reported by several studies (Singh Y.N et al, Jha N.et al) [3-5]. Majority of the victims are in the age group of 18 - 40 yrs. As this age is considered most active with more of outside activity hence more involvement. Similar results were observed in a study conducted by Manna N et al [6], less number in the older age group of > 60 yrs could be due to less mobility and low vision.

There was no definite pattern or relationship to level of education or occupation to the number of accidents. There were more laborers involved in RTAs may be because of the study setting which is a govt. hospital. People with high incomes tend to go to private hospitals. However some studies (Jha et al) reported that more people with lower levels of education were involved in RTAs.

The percentage of accidents was found to be higher in urban and semi urban areas and during night times. Easy accessibility to the tertiary hospital located in urban areas could be one reason for such cases getting admitted. People from rural areas may prefer a local health centre and come to urban hospital only in severe conditions. Tiredness and fatigue may be contributing to more accidents during night. The effect of street lighting is found to be one significant factor leading to more accident in night time.

Majority of the accidents involved two vehicles. The menace of street animals such as dogs and cows/ buffaloes and erratic behavior of pedestrians is commonly faced by road users in our country. It not only disturbs the flow of traffic but also contributes to accidents. In this study 13% of the RTA was due to such situation, which needs immediate attention.

Most of the accidents were on Sundays and Saturdays. Similar observations were made by others (Jha N et al, Mishra et al) [4,7].

Driving with a history of previous illness such as epilepsy may be dangerous both to the drivers well as people around him. Unaware of this fact people risk their lives by continuing driving. In this study 38.5% of the population was known to have one or more illness. 5% of persons had previous attack of epilepsy. Significantly high fatality was found in persons with chronic disease in a study conducted by Mishra B et al [7]. Alcoholic state of driver is also an important factor to which the morbidity and mortality can be attributed.

Regarding morbidity pattern as per the Injury Severity Score most of them 75% were simple injuries 25% were grievous injuries. Lower limbs, head and neck were most affected.

Mortality was significantly higher among non users of helmet and in cases where the condition of the vehicle or the road was not satisfactory.

## Conclusion

Road traffic accidents continue to be a social menace, incurring heavy loss of valuable human resource, along with a corresponding drain of potential economic growth. The segregation of

different types of road users is a key step. Encouraging safe behavior is important along with enforcement of road safety regulations.

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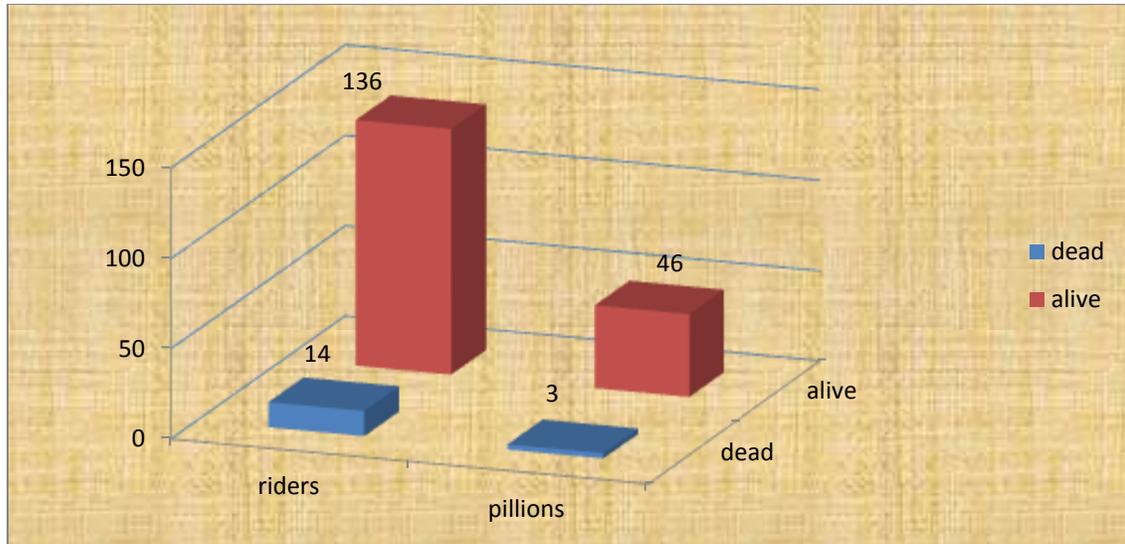
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**Table 1 Distribution of study population as per various demographic criteria**

Variable	male	female	total
Age (yrs)			
<18	9(5.14%)	2(8%)	11(5.5%)
18-25	61(34.85%)	8(32%)	69(34.5%)
26-40	72(41.84%)	13(52%)	85(42.5%)
41-60	31(17.71%)	1(4%)	32(16%)
>60	2(1.14%)	1(4%)	3(1.5%)
Occupation			
Profession	22(12.57%)	6(24%)	28(14%)
Semi-Profession	24(13.71%)	7(28%)	31(15.5%)
Clerical, Shop owner, farmer	35(20.04%)	2(8%)	37(18.5%)
Skilled worker	21(12%)	1(4%)	22(11%)
Semi-skilled worker	20(11.42%)	3(12%)	23(11.5%)
Unskilled worker	35(20%)	2(8%)	37(18.5%)
Unemployed.	18(10.28%)	4(16%)	22(11%)
Education status			
Professional	21(12%)	6(24%)	27
Graduate or post graduate	35(20%)	8(32%)	43(21.5%)
Intermediate/ diploma	26(14.85%)	1(4%)	27(13.5%)
High school	28(16%)	3(12%)	31(15.5%)
Middle school	13(7.42%)	2(8%)	15(7.5%)
Primary school	20(11.42%)	2(8%)	22(11%)
Illiterate	32(18.28%)s	3(12%)	35(17.5%)

**Figure 1 Mortality among drivers and pillions**



**Table 2: Mortality vs age of the victim**

Age of Victim	Mortality No. (%)
<18 yrs	0(0%)
18-25 yrs	6(35.29%)
26-40 yrs	9(52.94%)
41-60 yrs	2(11.76%)
>60 yrs	0(0%)
total	17

**Table 3: Mortality among the accident victims as per various criteria.**

Criteria	Dead	Alive
Helmet use		
Using helmet	3(17.64%)	46(25.13%)
Not using Helmet	14(82.35%)	137(74.87%)
Condition of the vehicle		
Satisfactory	6(35.28%)	64(34.97%)
Not Satisfactory	11(64.70%)	119(65.03%)
Condition of the Road		
Satisfactory	6(35.29%)	95(51.91%)
Not Satisfactory	11(64.71%)	88(48.09%)
Alcohol		
Alcoholic state	9(52.94%)	72(39.34%)
Non Alcoholic state	8(47.06%)	111(60.66%)
Time of occurrence		
Day time	8(47.06%)	80(43.71%)
Night time	9(52.94%)	103(56.29%)

Figure 2: Morbidity pattern among the study population

