Original Article

Indian Journal of Legal Medicine
Volume 5 Number 1 / January - June 2024

Demographics of Driver and Pillion Rider in Fatal Cases of Motorised Two Wheeler Accidents

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How to cite this article:

Prabeesh Y, Fairoz Khan, Padmini Hannah Noone *et al.* Demographics of driver and pillion rider in Fatal Cases of Motorised Two Wheeler Accidents. Indian Journal of Legal Medicine. 2024;5(1):21-24.

Abstract

Background: Motorised two wheeler accidents cause a great deal of morbidity and mortality. The demographics of the same including the factors involved helps to identify the risks involved. This can help in policy making in order to save lives.

Methods: A study was conducted during the period 2011 to 2013 after obtaining ethical clearance from the institutional ethics committee. The demographics of driver and pillion riders involved in fatal cases of motorised two wheelers were collected in a prospective autopsy based study in the Department of Forensic Medicine. The data collected included incidence rate of two wheeler accidents compared to total number of road traffic accidents, sex ratio, age pattern, day wise distribution, time of occurrence and vehicles collided.

Conclusion: Out of a total number of 84 autopsies on road traffic accident cases, 37 cases were that of two wheeler accidents. Male predominance pattern was seen in drivers and pillion riders. Drivers were more affected. Age wise the highest number was in the range of 21 to 30 years. Day wise drivers were more affected on Saturday and pillion rider on Monday. Time wise majority of cases were during 12pm to 8pm duration. Vehicles with gear had more incidence. Majority of fatalities occurred on the spot. Most of the vehicles collided with heavy vehicles.

Key words: Motorised two wheeler; Driver; Pillion rider; Autopsy; Demographics; Risks.

INTRODUCTION

Motorised two wheelers form a major part of the traffic since it is an easy and convenient mode of transport. However accidents involving them are common. All over the world accidents involving such two wheelers have increased morbidity and mortality.[1] Analysing the pattern involved can help to know the trends involved and assessment of risk factors involved. Motorcycle injuries constitute a major but neglected emerging public health problem in developing countries and are one of the leading causes of injuries and deaths among victims of accidents.[2] Motor cycle is statistically found to be riskier than car with the risk of being involved in road traffic accident around eight times and the risk of mortality or morbility over 24 times per kilometer journey as that of a car.[3] In this study the various factors involved including the age, sex distribution, time, date and month of incidence, survival period and types of vehicles involved were analysed.

MATERIALS AND METHODS

The present study was conducted in the Department of Forensic Medicine and Toxicology,

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Received on: 11.06.2024 **Accepted on:** 13.08.2024

Vydehi Institute of Medical sciences and Research Center, from November 2011 to June 2013 after obtaining ethical clearance from the institutional ethics committee. The study included all fatalities due to motorised two-wheeled vehicular accidents. Fatalities due to Road Traffic Accident where information on nature of vehicle was not available was excluded from the study. History was collected from the police requisition forms 146(1) and 146(11) and information was also collected from friends and relatives of the deceased were all collected.

RESULTS AND DISCUSSION

Two wheeler accidents showed 31% of the total no of Road traffic accidents in Whitefield area of Bangalore, India. (37 cases out of 84 autopsies)

Table 1: showing sex distribution

Sex	Driver	%	Pillion Rider	%
Male	32	86.49	3	8.11
Female	0	0	2	5.41

Table 2: showing age distribution

Age	Driver	%	Pillion rider
0 to 10	0	0	0
11 to 20	2	5.41	1
21 to 30	12	32.43	3
31 to 40	10	27.03	1
41 to 50	4	10.81	0
51 to 60	2	5.41	0
<60	2	5.41	0

Table 3: showing day wise distribution

Day of incidence	Driver	%	Pillion rider	%
Monday	6	16.22	2	5.41
Tuesday	4	10.81	1	2.70
Wednesday	6	16.22	0	0
Thursday	2	5.41	0	0
Friday	4	10.81	1	2.70
Saturday	7	18.92	0	0
Sunday	4	10.81	0	0

Table 4: showing the month of incidence

Month of incidence	Drivers	Pillion riders
January	7	1
February	1	0
March	4	0
April	2	0
May	2	0
June	1	0
July	0	0
August	1	2
September	1	0
October	6	0
November	3	0
December	5	2

Table 5: showing the time of incidence the occurrence

Time of incidence	Drivers	Pillion riders
8am – 12am	8	2
12pm – 8pm	17	1
8pm – 12pm	5	2
12am – 8am	2	0

Table 6: showing the incidence in vehicles with and without gear

Type of vehicle	Drivers	Pillion riders
Without gear	10	1
With gear	22	4

Table 7: showing time of death occurrence

Place of death	Drivers	%	Pillion Rider
On spot	15	40.54	3
On the way to hospital	2	5.41	0
In hospital	15	40.54	2

Table 8: showing survival period

Survival Period	Driver	%	Pillion rider
On spot	14	37.84	3
< 1 hour	3	8.11	1
1 to 6 hours	3	8.11	1
> 6 hours	12	32.43	0

Table 9: showing the collision pattern

V / S	Drivers	%	Pillion rider	%
Self / Skid	4	10.81	0	0.00
Pedestrian	1	2.70	0	0.00
Object/ Tree/Poles	3	8.11	0	0.00
Two wheelers	2	5.41	0	0.00
Car/Sumo/Jeep	3	8.11	0	0.00
Tractor/ mini loader	3	8.11	0	0.00
Lorry/Water tanker/ Bus	16	43.24	4	10.81
Tipper/Big Lorry/ Trailers	4	10.81	1	2.70

Results are presented in table 1 to table 9.

It was observed that Male predominance is seen in the pattern (table 1), the majority of the victims were between 20 and 30 years (table 2). Day wise distributions of the fatalities indicated maximum

on Saturday followed by Mondays in drivers (table 3). It was observed that the month of January had higher incidence (table 4), It was observed that the time of incidence the occurrence (table 5) was higher between 12pm to 8pm. It was observed that the incidence rate was higher in vehicles with gears. (table 6) in most cases death occurred on the spot (table 7) and survival time was minimal (table 8) Following Pattern emerged.

Two wheeler accidents are the second commonest among road traffic accidents which constitutes 31% of total cases that was autopsied at this center. Male predominance was commonly seen, Females are pillion riders, and Age of incidence being commonest was noticed in 21-30 years of age group followed 31-40 years. Fatalities are most commonly seen during Saturday and Mondays.

Most of the deaths occurred on the spot compared to deaths in the hospital and the survival period is more than 6 hours in most of the cases, in both rider and pillion rider in the current study. Among the motorized two wheeler crashes, head-on collision especially with the heavy vehicles that is water tankers/lorry/bus were most with 46%. The next was self-fall, occurring after skid or by loosing balance. This is seen in 18%.

DISCUSSION

In a study done on motorcycle related injuries in Teheran for a period of 2 years, shows that crashes involved in another vehicle were commonest kind of accidents. Fatalities related to head injuries were the commonest cause of death. The peak age of victims ranges from 20-39 yrs. Most of the injuries occur during Fridays. This is compared to current study which also showed that crashing involving another vehicle were common with peak age of victims ranging from 20-39 yrs. Most common cause of death was related to fatality of head injuries and most common days of occurrence were on Fridays and Mondays[4].

In a prospective study done in Port Hardcourt on 186 cases of road traffic accidents, 47.3% of them are motorcycles. Females involved in 25 numbers of cases and pillion passengers were being injured, most of the injuries occurred in rainy season. Motor car collision were the commonest mechanism of injury this in contrast with the current study where male to female incidence show that female were involve only in 5% of cases. Riders were most commonly injured compared pillions. Accidents were most commonly seen in winter season, motorcyclists – water tanker/lorry/bus collision were the commonest Mechanism of injury.[5] In a study in India,[6] Gender wise preponderance was of males. In majority of cases it was riders' who were involved in fatal injuries; amounting to 61.2%. Nonetheless, even pillion riders' involvement shows a significant 6.1% of the total.

In a study carried out in Karachi;[7] of the total 2090 autopsies, 581 (27.8%) were victims of RTA. Of these RTA victims 324 (55.8%) were of those between the ages of 19 and 40 years. There were 510 (87.8%) males and 71 (12.2%) females with a ratio of male: female being 7:1. This ratio was 4.2:1 for those aged 0-18 years and 11:1 for those aged 19-40 years (p=0.05).

On the spot care and first aid measures are extremely important in saving lives. Similar results with respect to age, sex, time of occurance, type of vehicle involved were obtained in s study conducted by Jain A *et al*.[8] Male preponderance has been mentioned in other articles as well.[9] Weekend has been mentioned as having higher incidence in other studies as well.[10] According to a study on key factor analysis[11] the researchers have analysed the direct factors involved which determines the severity of the road traffic accidents. In case of two wheelers they have concluded that the gender of the automobile driver, visibility, and drunk driving or not are important factors. Perhaps visibility is the reason why January is seen as having higher incidence in the present study. Heavy motor vehicle collision with two wheeler was seen as having higher incidence in a previous study as well.[12] Hence the authors have recommended separating the two in the road to reduce such incidences.

Conclusion and Acknowledgement

In the present study it can be seen that male sex, young age, geared vehicle, weekends and collision with heavy vehicles, are seen to have a higher incidence of mortality. Knowledge of these risk factors can help to make policies for saving lives. On the spot care has to be given importance and initiatives for starting treatment at the earliest has to be encouraged.

Acknowledgement

We would like to thank our colleagues for their contributions and support.

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