

A Retrospective Study of Victims in Fatal Motor Bike Accident

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ABSTRACT

Background: Road Traffic Accidents (RTA) are a major health problem worldwide, responsible for significant morbidity and mortality. The increase in the number of motorcycles circulating over the years is a consequence of the low cost, ease of locomotion and fuel efficiency of this vehicle. To find out the pattern of victims in fatal motor bike accident.

Materials and methods: The cross-sectional study was conducted at Tertiary level Hospital in Sylhet during the period from January to December 2014. Data were collected from the emergency unit and hospital ward registers of the eight health facilities. Information from the different registers was entered into a standardized questionnaire.

Results: More than two third (68.0%) victims belonged to age group 21-40 years. Male was found 49(98.0%) and 40(80.0%) were employer. Half (50.0%) of the victims were driver followed by 16(32.0%) were passenger and 9(18.0%) were pedestrian. In head, skull fracture was the commonest form of injury seen (32.0%) which comprises fracture of the vault (18.0%) and fracture of the base of the skull (14.0%). Majority 47(94.0%) victims were alive and 3(6.0%) were death. In died patients, 1(33.3%) had severe haemorrhage and 2(66.7%) had craniocerebral injury.

Conclusion: Male was predominating, half of the victims were driver and more common type of injury was Head, Thorax (Chest) Abdomen and Limbs. Mortality rate was found 6% and most of them were craniocerebral injury.

KEY WORDS

Motor bike accident; Road traffic accident; Victim.

INTRODUCTION

Road Traffic Accidents (RTA) are a major health problem worldwide, responsible for significant morbidity and mortality.^{1,2} According to the recent Global Status Report on Road Safety (2018) RTA are the current leading cause of death for children and young adults (5–29 years) and the eighth for all age groups.¹

The World Health Organization estimates that RTA will become the third leading cause of disability in the world by 2030.³ Therefore, the Sustainable Development Goal (SDG) target 3.6 has called for initiatives to halve the number of global deaths and injuries from RTA by 2020.⁴

Two-wheeled vehicles are increasing in number across the world especially in developing countries because compared to other vehicles, motorcycles are relatively cheap to own and operate.⁵

The increase in the number of motorcycles circulating over the years is a consequence of the low cost, ease of locomotion and fuel efficiency of this vehicle. However, this increase has grown proportionally to the number of traffic accidents, making them a major problem for public health worldwide, since they have been considered one of the main causes of morbidity and mortality in the world.⁶

The poor state of the roads in the country and the inefficiency of the public transportation system, as well as worsening vehicular congestion and increasing unemployment, are major reasons for the thriving motorcycle transport industry.⁷

Factors such as helmet wearing, use of alcohol and other drugs, inexperience of riders and poor driver training, conspicuity of the motorcycle and rider, issues of licensure and ownership, riding speed and risk taking behaviour of riders have been identified as contributory factors to the increased risk of fatal motorcycle crashes.⁸

Motorcycle accidents are a major cause of RTIs and deaths. Almost half of individuals killed in Road Traffic Accidents (RTAs) are motorcycle users.⁹ The problem is

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more pronounced in developing countries owing to many factors such as rapid motorization, using motorcycles for commercial transport, and failure of motorcyclists to wear protective helmets, the burden of motorcycle accidents is aggravated by the habit of reckless driving with tendency to over speed by some motorcycle riders, as well as a significant number of drivers lacking proper certification and valid licensing. Poor traffic regulations and law enforcement and the abuse of recreational drugs and alcohol are also major contributing factors to motorcycle accidents.^{10,11} The present study aimed to measure the magnitude of motor bike accident in the Bangladesh community and to determine the common patterns of major injuries after these accidents in patients attending the Sylhet Medical College Hospital.

MATERIALS AND METHODS

The cross-sectional study was conducted at Tertiary level Hospital in Sylhet during the period January to December 2014. Data were collected from the Emergency Unit and hospital ward registers of the eight health facilities. Information from the different registers was entered into a standardized questionnaire. Socio-demographic characteristics captured included age group, sex, occupation, and type of road user (Pedestrian, car passenger, car driver, or motorcyclist (Drivers) and motorcycle passengers). Clinical characteristics captured included type of injury (Not injured, traumatic brain injury, wound, fracture, and two or more injuries) Glasgow Coma Score (Classified as normal 15, mild coma 14–10, heavy coma, 9–7, or deep coma (6–3) and death (Yes or no). Type of RTA was designated as involving a motorcycle or others (Vehicle or bicycle). All deaths due to motorcycle accidents, being coroner's cases are usually accompanied by a duly signed order from a Coroner, requesting for an autopsy to be performed on the body. The coroner's papers contain information such as the name of the deceased (If known) sex, age and residential address, place where the body was found and a report of the accident as documented in the extract from the police diary. Also, family members sometimes provide bio-data of the deceased as well as other useful information concerning the circumstances of death. The records of all deaths resulting from motorcycle accidents were extracted from the autopsy registers, further information was recovered from autopsy reports, hospital case notes, where applicable, extract from police diary. The data retrieved were analysed using the IBM Statistical Package for Social Sciences (SPSS) version 23 and the results were presented in percentages, tables, pie charts and bar chart. Necessary permission was taken before commence the data collection.

RESULTS

Table I shows that more than two third (68.0%) victims belonged to age group 21-40 years. Male was found 49(98.0%) and 40(80.0%) were employer.

Table I Socio-demographic characteristics of the victims (n=50)

Variable	Frequency	Percentage (%)
Age (Years)		
≤20	5	10.0
21-40	34	68.0
>40	11	22.0
Gender		
Male	49	98.0
Female	1	2.0
Occupational status		
Student	4	8.0
Employer	40	80.0
Unemployed	6	12.0

Table II shows that half (50.0%) of the victims were driver followed by 16(32.0%) were passenger and 9(18.0%) were pedestrian.

Table II Motorcycle accident victims at the time of accident (n=50)

Variable	Frequency	Percentage (%)
Driver	25	50.0
Passengers	16	32.0
Pedestrians	9	18.0

In head, skull fracture was the commonest form of injury seen (32.0%) which comprises fracture of the vault (18.0%) and fracture of the base of the skull (14.0%). Abrasions and lacerations was found 15(30.0%) in thorax and 19(38.0%) in abdomen. Ten (20.0%) was found fracture pelvic in limbs (Table III).

Table III Type of injury of the victims (n=50)

Variable	Frequency	Percentage (%)
Head		
Abrasion/laceration	15	30.0
Skull fracture (Vault)	9	18.0
Skull fracture (Base)	7	14.0
Intracranial haemorrhage	10	20.0
Brain injuries (Contusion and laceration)	8	16.0
Thorax (Chest)		
Abrasion/laceration	15	30.0
Lung laceration	10	20.0
Heart laceration	3	6.0
Vascular (Aorta and jugular)	1	2.0
Rib fracture	15	30.0

Variable	Frequency	Percentage (%)
Abdomen		
Abrasion/laceration	19	38.0
Liver laceration	13	26.0
Splenic laceration	10	20.0
Kidney laceration	3	6.0
Bowel perforation	5	10.0
Limbs		
Fracture pelvic	10	20.0
Fracture femur	7	14.0
Fracture radius	5	10.0
Fracture tibia	4	8.0
Fracture ankle joint	1	2.0

Table IV shows that majority 47(94.0%) victims were alive and 3(6.0%) were death.

Table IV Outcome the victims (n=50)

Outcome	Frequency	Percentage (%)
Death	3	6.0
Alive	47	94.0

In died patients, 1(33.3%) had severe haemorrhage and 2(66.7%) had craniocerebral injury (Table V).

Table V Cause of death the victims (n=3)

Variable	Frequency	Percentage (%)
Severe haemorrhage	1	33.3
Craniocerebral injury	2	66.7

DISCUSSION

In this study showed that more than two third (68.0%) victims belonged to age group 21-40 years. Male was found 49(98.0%) and 40(80.0%) were employer. Faduyile et al reported the peak age of victims was 31-40 years (29.6%). There were 122 (86%) males and 20 (14%) females with Male: Female ratio of 6:1.¹² An overwhelming male preponderance of between 87.9% and 90.8% were reported in studies in other parts of the world.^{13,14} Delamou et al also compared to victims of other RTA, victims of motorcycle RTA were more likely to be male (73.5% vs. 63.6%) and youth (53.4% vs. 41.3% children or youth, median age 23 years (IQR 17–33)).¹⁵ Occupational distribution differed significantly by the RTA type: the commonest occupational groups involved in motorcycle RTA were students (29.7%) employees (23.6%) and farmers/housewives (23.3%), while employees (24.9%) and farmers/housewives (22.2%) represented the most affected group for other types of RTA. Fouda et al reported there were 181 (90.5%) males with a mean age of 30.7±10.5 years (Range, 7–65 years).¹⁶ Sharma et al observed young adults of the age-group 21-25 years constituted the majority of the victims, 48 (36%) and

the 16-30 year age group accounted for 98 (73%) motorized two wheeler deaths. The overall male: female ratio was 1.6:1.¹⁷

In head, skull fracture was the commonest form of injury seen (32.0%) which comprises fracture of the vault (18.0%) and fracture of the base of the skull (14.0%). Faduyile et al reported analysis of head injuries shows that skull fracture was the commonest form of injury seen (32.7%), which comprises fracture of the vault (19.5%) and fracture of the base of the skull (13.2%).¹² This was followed by abrasions and lacerations to the scalp and face, which accounted for 30.5%. This finding is similar to that of Nwadiaro et al who reported that head injury constituted 40.1% of the injuries in a clinical-based study in Jos.¹⁸ Studies in Ghana by Kudebong et al.²⁰ and Uganda by Kigera and Naddumba also showed that head injury was the commonest type of injury, accounting for 32.2% and 20.0% respectively.^{19,20} The smaller figure reported in Ghana and Uganda when compared to this study may be due to a higher level of helmet use in those countries. Heydari et al in a study in the Fars province in Iran observed that the head was the most frequently injured site (87.8%).²¹ They opined that helmet use among motorcycle occupants was very low in that area and that may readily explain this high level of head injury seen in that study.

Current study showed abrasions and lacerations was found 15(30.0%) in thorax. Faduyile et al. reported the most common thoracic injury in this study was rib fracture (46.7%).¹² This is close to 40.3% reported by Sharma in Northern India and 45.9% reported by Kraus et al. in the US.^{13,22}

Lower extremity injuries accounted for 18.2% of the injuries seen in this study, comparable with 14.8% reported by Heydari et al.²¹ On the other hand, Solagberu et al. reported that lower extremity was the most frequently injured part of the body in motorcycle accidents, representing 70.5%.²³

In died patients, 1(33.3%) had severe haemorrhage and 2(66.7%) had craniocerebral injury. Faduyile et al reported majority of the victims, 72 (50.7%) died of Craniocerebral injuries.¹² This is consistent with the findings in some studies from within Nigeria and from other parts of the world with frequency ranging from 33.3% to 87.8%.^{21,24} Nzegwu et al. in Benin City observed that none of the dead victims in their study wore a crash helmet at the time of the accident.²⁵

LIMITATION

The study has some limitations. This study was cross sectional. So no association between cause and effect could be evaluated.

CONCLUSION

Male was predominating, half of the victims were driver and more common type of injury was Head, Thorax (Chest) Abdomen and Limbs. The fact that majority of victims die of head injuries also signals the need for more research efforts geared towards head protection for motorcycle riders and passengers. Mortality rate was found 6% and most of them were craniocerebral injury.

RECOMMENDATION

The study recommended possible counter measures and solutions to reduce the incidence and mortality of these accidents.

DISCLOSURE

All the authors declared no competing interest.

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