

PATTERN OF INJURIES AMONG MOTORCYCLISTS DURING ROAD TRAFFIC ACCIDENTS

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ABSTRACT

Background: Motorcyclists are prone to injuries during road traffic accidents. **Objective:** To assess the frequency and pattern of injuries associated with Motorcycle related road traffic accidents in Emergency department of a tertiary care hospital. **Methodology:** A total of 500 patients of road traffic accident were included in this cross sectional study, from 1st March to 31st July 2017. This study was conducted in Emergency Department of Sheikh Zayed Hospital, Rahim Yar Khan. Data was collected by filling a questionnaire after interview of patients or attendant. Frequency of motor cycle related injuries and their pattern were noted. Informed consent was taken. Data was coded and analyzed by using SPSS version 20. **Results:** Injured patients included in the study were 500. A large number of injured, 397 (79.4%) persons were riding on motorcycles. The injuries ranged from minor abrasions to severe head injuries and poly-trauma. Majority of cases were of head injury 164 (41%). **Conclusion:** Head injuries are the most common and fatal injuries among motorcyclists. Major causes of accidents in motorcyclists were not following safety measure, over speeding, not wearing helmet, behavioral issues and poor enforcement of traffic laws.

Key Words: Road traffic accidents, Motorcyclists, Sustainable Development Goals, Over Speeding, Safety Measures

INTRODUCTION

The causes of road traffic accidents are preventable and can be avoided in majority of the cases.^{1,2} The situation is becoming more worrisome as a result of continuous increase in number of vehicles on road.³ The mostly inflicted vehicle in road traffic accidents in Pakistan is motorcycle.^{4,5} Evidence based interventions and implementation of safety rules have resulted in remarkable reduction in the number of road traffic accidents in many countries.⁶ The injuries caused due to road traffic accidents range from non fatal minor abrasions to fatal head injuries and severe polytrauma.^{7,8} Pakistan produced 2.2 million motorcycles in the year 2016 and reached the highest level of motorcycle production in the history of the country.^{9,10} The objective of this study was to assess the frequency and pattern of injuries associated with motorcycle accidents.

METHODOLOGY

This was a cross sectional study conducted in emergency department of Sheikh Zayed Hospital, Rahim Yar Khan. Data was collected from 1st March to 31st July 2017. All injured of Road Traffic Accidents were included irrespective of age and gender. Data was collected in Trauma room and Surgical bay (where patients of Surgery, Neuro surgery & Orthopedic are admitted), by filling a questionnaire after interview of patients or attendants. Informed consent was taken. The

treating doctor decided whether the injured was fit and willing to answer the questions. If injured was severely injured then the data collection was delayed until stabilized and shifted to surgical wards of emergency department. The research instrument was questionnaire. Data was coded accordingly and entered by using SPSS version 20. Data was analyzed statistically and frequencies were calculated. For numerical data mean and standard deviation was calculated. Appropriate test of significance was applied, analysis carried out and P value of <0.05 was taken as significant.

RESULTS

Total number of injured due to road traffic accidents included in this study were 500, among these 397 (79.4%) were motorcyclists. Analysis of injured motorcyclists revealed most of the injured were male 348 (87.7%) and only 49 (12.3%) were females. 21 (5%) of motorcycle accidents victims were less than 12 years, 50 (13%) were 12 to 17 years of age 278 (70%) were 18 to 45 years of age and 48 (13%) were more than 45 years of age.

Out of 397 (79.4%) injured motorcyclists, 275 (69%) were driving motorcycle themselves and 122 (31%) injured were riding as passengers. Mean years since driving was 9.16 years. There were 131 (47.6%) persons riding alone, 99 (36%) injured told that 2 persons were riding motorcycle, 40 (14.5%) injured told 3 persons were riding on motorcycle at the time of accident, 4 (1.5%) injured told that they were 4

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Received: 10-05-2018

Accepted: 03-06-2018

persons riding on motorcycle at the time of accident and 1 (0.4%) injured told that they were 5 persons riding on motorcycle at the time of accident. Total number of injured due to accident in which motorcycle was involved were 397 (79.4%) and 275 (84%) of them were driving motorcycles and out of these 275 only 43 (16%) drivers had valid driving license. Those persons who were seriously injured were admitted and labeled as major trauma 340 (86%) and others who were discharged immediately after treatment were labeled as cases of minor trauma 57 (14%). (Figure I)

Figure I: Nature of Injury among motorcyclist after road traffic accidents.



Polytrauma was found among 59 (15%), head injury were 164 (41%), cases of Leg Injury (Lower Limb) were 118 (30%), cases of Arm Injury (Upper Limb) were only 6 (1.5%) and other injured who got injuries on other parts like back or abdomen were 50 (12.5%). (Table I)

Table I: Site of injury

Site of Injury	No	%age
Polytrauma	59	14.9
Head Injury	164	41.3
Leg Injury (Lower Limb)	118	29.7
Arm Injury (Upper Limb)	6	1.5
Other	50	12.6
Total	397	100

Only 24 (6%) injured told that they got training about driving motorcycle. This study shows that only 19 (5%) were wearing helmet.

DISCUSSION

RTAs especially motorcycle related accidents affect the poor or lower middle class of Pakistanis by the loss of their bread winners. Our findings are consistent with other data available on the topic that almost 80% injured were riding on motorcycles. Few reasons for motorcycle

accidents may be the violation of one-way traffic rules, change of lanes without using indicators, underage driving and not using side mirrors, sudden entry from street road to main road.^{11,12,13} This study stated that the most victims of road traffic accidents were male (87%) adults which are consistent with the available literature.^{14,15} Underage drivers are also identified as an issue but majority of drivers were adults and experienced persons as mean years since driving was calculated 9.16 years in current study. Most of the victims in our study got serious injuries resulting in life long disabilities sometimes.

Motorcyclists can avoid common mistakes by paying proper attention to the vehicles around them. Be watchful for any obstructions on the road like vehicles, pedestrians and debris in order to allow enough time to avoid hitting anything on the road. During rainfall be extra careful for oil on the road as rain water lifts oils from the pavement and road becomes more slippery. Rain also limits the visibility for other drivers so keep relatively more distance from other vehicles.¹⁴ Driving a motorcycle is relatively dangerous but it also offers obstruction-free vision, motorcyclists can use this advantage to avoid accidents.^{15,16} When motorcyclists move in groups and one of them stops suddenly then others may hit from behind, so avoid moving in groups.¹⁷

It is established from available data that change in road users' behavior can have the biggest impact on reducing RTA related injuries and deaths. It demands coordinated actions by all concerned especially by government departments, by health sector, by elected representatives, by non governmental organizations and by the media. Collective efforts will persuade people to identify their concerns and gain the skills and confidence necessary to avoid risky behaviors leading to road traffic accidents. The role of the health sector is increasing beyond its responsibility of providing clinical and curative care services. Political, economic, social, environmental and behavioral factors can all promote healthy practices or can be harmful. Governments must create a supportive environment and opportunities for making healthy choices as equal and strict implementation of traffic laws can bring a major social change,¹⁸ as this study showed that only 5% of motorcyclists were wearing helmet.

There are a few limitations also related to this study, factors like shorter time duration and inadequate human resources prevented achieving a bigger sample size for the study. Strength of this study is that data was directly collected from emergency department and in front of the injured hence recall

bias was minimized. Injuries were properly documented owing to the advantage of collecting data from the hospital. Data was collected from the main and only public tertiary care hospital in the region.

The economic costs not only restricted to families but also puts burden on legal systems. This situation is more troubling in countries like Pakistan that is struggling with other development needs and having limited resources and 90% of road traffic deaths occur in developing countries while these countries only have 54% of total registered vehicles of the world.^{19,20}

In Pakistan, a motorcycle is considered as a cheaper mode of transportation for personal and family use. Motorcyclists constitute up to 80% of total injured due to road traffic accidents as they are more vulnerable.^{21,22} Motorcycles have become a popular mode of transportation in Pakistan due to the lack of public transport network in the country. The haphazard traffic can be seen everywhere in Pakistani cities and towns and makes it unsafe for walking and cycling. In most of the cities and towns public transport is hard to get and road rage is common in society.^{23,24}

The SDG 3 target is set to halve the deaths due to road traffic accidents till 2020.²⁵ It clearly states that road traffic accidents have a broader impact on health and development, and the member countries need to focus on achieving this goal within stipulated period. SDG 11 Provision of safe, affordable and easily accessible transport system for all in order to improve road safety, and special attention to vulnerable sections of society like women, children and disable persons till 2030. Strong political will and effective administrative measures are required to achieve the target of reduction in RTA related deaths as set by SDG 3 (to halve the deaths due to road traffic accidents till 2020).^{26,27}

CONCLUSION

The frequency of motorcycle accident injury is quite high in our region and most of the injured faced major fractures, with almost half of the riders have head injury. Appropriate measures at governmental, social level are suggested to control this preventable cause of morbidity and mortality.

REFERENCES

1. World Health Organization Available from: http://www.who.int/gho/road_safety/en/ Accessed on 5th October, 2017.
2. Asian Development Bank (ADB), Road Accidents Costing: Road Safety Guideline developed for Asia and Pacific Region, Retrieved from: <http://www.adb.org> Accessed on 5th October, 2017
3. WHO Global status report on road safety: time for action. Geneva, World organization, 2009. Available from: http://www.who.int/violence_injury_prevention/road_safety/status/2009 Accessed on 6th October, 2017
4. Jooma R, Road Casualty Report 2009 by (RTIPC) Road Traffic Injury and Prevention Center 2009.
5. Injuries in the European Union: summary of injury statistics for the years 2008–2010. Amsterdam: Euro Safe; 2013 Available from: http://ec.europa.eu/health/data_collection/docs/idb_report_2013_en.pdf Accessed on 12th October, 2017
6. Global status report on road safety 2015. Geneva: World Health Organization; 2015 Available from: http://www.who.int/violence_injury_prevention/road_safety/status/2015/en/ Accessed on October, 2017
7. Association of Motorbike Accidents with Behavior related Factors in Karachi Available from: <https://www.researchgate.net/publication/282331911> Accessed on 5th October, 2017
8. Government of Sindh. A Transport Policy, Sindh Transport Department 2011.
9. Pakistan Bureau of Statistics (PBS) Available from: <http://www.pbs.gov.pk/industry-tables> Accessed on 10th October, 2017
10. Pakistan Bureau of Statistics (PBS) Available from: <http://www.pbs.gov.pk/content/2-summary-statistics> Accessed on 10th October, 2017
11. Attitudes towards Road Safety and Aberrant Behaviour of Drivers in Pakistan By Zahara Batool Submitted in accordance with the requirements for the degree of Doctor of Philosophy The University of Leeds Institute for Transport Studies February, 2012
12. Atubi, et al. A. O. Global Positioning and Socio-Economic Impact of Road Traffic Accidents in Nigeria: Department of Transport Technology Federal University of Technology, Akure Ondo State American International Journal of Contemporary Research Vol. 5, No. 5; October 2015
13. Guidelines for essential trauma care Geneva: World Health Organization; Available from: http://www.who.int/violence_injury_prevention/publications/services/guidelines_traumacare/en Accessed on 12th October, 2017
14. Bachani AM, Koradia P, et al. Road traffic injuries in Kenya: the health burden and risk factors in two districts. *Traffic Inj Prev* 2012; 13(S-1):S24-30.
15. Neeraj K, et al. Epidemiological study of road traffic accident cases attending tertiary care Hospital, in Bhopal Madhya Pradesh. *National J Community Med.* 2012; 3: 395-9.
16. Zia Y. Pedestrian injuries and fatalities by patterns in reported road traffic crashes - Islamabad. *J Pak Med Assoc.* 2014; 64: 1162-5

17. Tom Whyte. Head injury and effectiveness of motorcycle helmets, *Human Impact Engineering, Australia Paper* Number: 13-0108
18. Bachani AM. Road traffic injuries in Kenya: the health burden and risk factors in two districts. *Traffic Inj Prev.* 2012; 13 Suppl 1: 24-30.
19. World Health Organization. Global status report on road safety: Time for action. 2010
20. The Express Tribune Road accidents: Rahim Yar Khan leads Punjab in motorcycle fatalities Published on February 13, 2017. Available from: <https://tribune.com.pk/story/1324825/road-accidents-rahim-yar-khan-leads-punjab-motorcycle-fatalities/> Accessed on 10th October, 2017
21. Road Traffic Accidents. Available from: <http://internationaljournalofresearch.org/index.php/JSMaP> e-ISSN: 2395-0463 Volume 01 Issue 03 April 2015 Accessed on 10th October, 2017
22. Lozano R1, et al. Global and regional mortality from 235 causes of death for 20 age groups in 1990 and 2010: a systematic analysis for the Global Burden of Disease Study 2010. *Lancet* 2012; 380: 2095-128.
23. Insurance Institute for Highway Safety Available from: <http://www.iihs.org/iihs/topics/t/motorcycles/fatalityfacts/motorcycles> Accessed on 5th October, 2017
24. Global Goals for Sustainable Development Available from: <http://www.globalgoals.org/> Accessed on 10th October, 2017.
25. Head and Spine Injuries Sustained by Motorcyclists in Head-Leading Collisions With Fixed Roadside Objects Available from: <https://www.researchgate.net/publication/262339765> Accessed on 5th October, 2017.
26. Houston DJ, Richardson LE. Motorcyclist fatality rates and mandatory helmet-use laws. *Accid Anal Prev* 2008; 40:200-8.

Article Citation: Randhawa SA, Malik AR, Ashraf I. Pattern of injuries among motorcyclists during road traffic accidents. *JSZMC* 2018;9(2): 1382-1385.