

Evaluation of the Status of Motorcycles Accidents with the Different Pattern of Injuries Following Motorcycles Accident in District Swat

Naeemullah¹ and Qaribullah²

ABSTRACT

Objective: To determine the percentage of houses having Motorcycle, Motorcycle accidents and the different pattern of injuries and their frequencies in various age groups caused in Motorcycle accidents during the last one year in district Swat.

Study Design: Retrospective study.

Place and Duration of Study: This study was conducted at the Department of Community Medicine, Swat Medical College, district Swat from June 2018 to May 2019.

Materials and Methods: Out of 65 union councils we have randomly selected 8 union council. The data was collected from the heads of the houses by a pre-tested questionnaire from 536 randomly selected houses in these randomized eight (8) union councils in district Swat, after the informed consent of the heads of the families. Both sex of all ages were included.

Results: 204 (38.1 %) out of 536 houses were found to have motorcycles. The percentage of the houses involved in motorcycle accidents were 14.7%. The common injuries found were that of head and neck (31.8%), followed by lower limbs (20.5%) injuries.

Conclusion: Motorcycle related morbidities and mortalities remain to be a major public health issue in Swat as well as all over Pakistan. There is an urgent need for an efficacious interventional programs to decline the burden of motorcycle related morbidity and mortalities.

Key Words: Motorcycle accidents, Motorcycle injuries, Public health. Road traffic accident.

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INTRODUCTION

The increasing use of motorcycle as mode of transportation has become important source of morbidity and mortality. These injuries and disability are a major public health problem and constitute an enormous burden for individuals, families, society and the country¹. The drivers involve in majority of these accidents are either under age or without license. Unregistered motorcycles with improper or no number plates are used in street crimes and in target killings². The potential of motorbikes as an alternative means of

commuting to public transport, and it has many advantages such as low initial price, easy to drive, easy maintenance easy passages in rush. In a third world country like Pakistan, motorcycles tend to be the lifeline for masses. The auto industry in Pakistan is fast evolving as a robust industry. Some sub-sectors of this fast growing industry, like motorcycle production, have already achieved economies of scale³.

The increase in the motorbike numbers is visibly causing congestion on the roads, adding to noise and air pollution and fatal accidents⁴. In the city the main source of traffic noise are the motors and exhaust systems of autos, smaller trucks, buses and motorcycles. Noise has become a very important "stress factor" in the environment of man. The term "noise pollution" has been recently used to signify the hazard of sounds which are consequence of modern day development, leading to health hazards of different types⁵.

Certain studies (e.g., Sezgin et al. 2003; Banerjee 2003) have indicated that the most common heavy metals introduced to the environment by overland transport are zinc, copper and lead⁶.

These accidents constitute an enormous burden for individuals, society and the country. All over the world, motorcycle accidents are one of the major causes of

¹. Department of Community Medicine, Saidu Medical College, Saidu Sharif Swat.

². Department of Community Medicine, Swat Medical College, Saidu Sharif Swat.

Correspondence: Correspondence: Dr. Qaribullah, HoD Community Medicine Department, Swat Medical College, Swat.

Contact No: 03419033609

Email: qaribullahdrsmc@gmail.com

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road death and injuries¹. The risk of injury and death per mile with motorcycles are 3 to 16 times more than with cars⁷. In 2010, the number of motorbikes in Karachi was one million³. In Karachi, 16,000 road traffic accidents were recorded in the January-June period of 2012. About 63% motorcyclists were injured, which is more than other types of vehicles injuries⁸. Motorcycles with improper or no number plates are used in street crimes and in target killings². Lack of respect for traffic rules, over speeding and stunts by bike enthusiasts and youngsters results in majority of bike accidents. Lower limb abrasions and fractures (56.8%) were the most common injuries⁹. motorcycle riders have a 34-fold higher risk of death in a crash than people driving other types of motor vehicles. The commonest injuries among motorcyclists are lower-extremity and head injuries¹⁰. Several studies have also addressed the high rates of lower extremity, chest, and abdominal injuries following motorcycle crashes. Motorcyclists, of whom approximately two-thirds (66%) were 39 years of age or less. The vast majority (95%) of injured riders were men¹¹. Head injury represents a common cause of morbidity and mortality following motorcycle injuries in our environment¹². As the population of the Khyber Pakhtunkhwa is increasing, the traffic situation is worsening day by day. The motorbike use is increased in district Swat from the last few years¹³. This is due to the fact that law and order situation become worsen, relatively easy passage through check posts, low cost, less fuel consumption. We arranged this study with a randomized sampling technique in community/ population of district Swat to assess the prevalence and pattern of motorcycles injury with the following objectives.

MATERIALS AND METHODS

This Retrospective study was conducted at the Department of Community Medicine, Swat Medical College, district Swat from 1st June 2018 to 31th May 2019 with a randomized sample taken from the general population of District Swat. Out of the total number of union councils (65) in District Swat, we have randomly selected eight (8) union councils for our study. The

name of these eight union councils (U.Cs) Tirat, Kanju, Gulkada, Malook Abad, Manglor, Gwalerai, Miandam and kalakalay. Then the total number of houses in each union council was counted by going through house to house. Out of these 10716 houses, 536 houses were selected randomly for data collection. Data was collected from house to house survey from randomly selected houses after the informed consent of the heads of the families. Repeated visits were made to the locked houses and to the houses where the heads of the families were not available till the collection of information. For convenience, the pattern of injury was recorded by dividing the body into regions. Thoracic spinal injuries combined with thorax and lumbar spine combined with the abdomen. The neck, face and head were defined together. Injuries of the shoulder with upper limb and hip joint were included with the lower limb region. Descriptive statistics was used and data presented in the form of percentage in proper tables. Frequency and percentages were calculated for categorical variables.

The result was presented in tabulated form. Percentage of houses with motorcycle, percentage of motorcycle accident in the inhabitants of these houses, age wise distribution of injuries and pattern of injuries caused in these motorcycle accident plotted against the name of the various union councils as shown in Table 1, 2 and 3.

Inclusion Criteria: All houses situated in the boundaries of these 8 U.Cs, injuries due to motorcycle accident during the last one year suffered by the residents of these houses.

Exclusion Criteria: All vacant houses and houses situated outside the boundaries of these U.Cs. All inhabitants of these houses injured in accident of other vehicles or injured due to other cause. Pedestrians injured & passengers other than the residence of these houses. Injured in motorcycle accident before or after the study duration.

RESULTS

204 (38.1 %) out 536 houses were having motorcycles, ranging from 39% in union council Kalakalay to 20% in union council Manglor. 30 (14.7%) out of 204 houses suffered from motorcycle accident with a range of 9.7% to 21.4% in various union councils (table 1).

Table No. 1: Table Showing Status of Houses, Houses Faced Motorcycle Accident.

U.C Name	Status of houses				Houses faced motorcycle accident.	
	Total No. of houses	Houses in sample	Houses having motorcycles	% of houses having motorcycles	Number	%
Tirat	1196	60	25	42%	4	16%
Kanju	1340	67	28	42%	5	17.9%
Gulcada	1460	73	30	41%	4	13.3%
Maalook Abad	1600	80	32	40%	5	15.6%
Manglor	1360	68	14	20%	3	21.4%
Gwalerai	1260	63	24	38%	4	16.7%
Miandam	900	45	20	44%	2	10%
Kalakalay	1600	80	31	39%	3	9.7%
Total	10716	536	204	--	30	--
Average %	--	5 %	38.1 %	--		14.7%

Note: 1. Some of the houses having more than one motorcycle.

Table No. 2: Site & Type of Injuries During Motorcycle Accident

	Injury	Total	%age	G. total	% G. total
Death within 24 hour	Multiple/ Crushed/ head	8	18.8%	8	18.2 %
Survived	Head and neck	14	31.8%	36	81.8 %
	Lower limbs	9	20.5%		
	Upper limbs	7	15.9%		
	Abdomen and pelvic	6	13.6%		

Out of the total numbers (44) of sufferer (injured), 8 (18.2%) persons were suffered with multiple injuries and expired at the spot of accident or within 24 hours after the accident while the other 36 (81.8%) who had single injuries of various type as shown in table 2. The most frequently occurring injury (31.8%) was that of head and neck, followed by lower limbs injuries (20.5%). Motorcyclists and other riders of the motorcycle were included in the above figures while the record of the pedestrians was not available.

Table No. 3 shows that most sufferers (29.5%) were in the 21-30 years' age group; this is followed by the 31-40 years (22.7%) group. The least accident (6.8%) noted in the 0-10 years as well as in 50 and above age groups.

Table No. 3: Age distribution of the Sufferers

Age	Number	Percentage
0-10	3	6.8%
11-20	7	15.9%
21-30	13	29.5%
31-40	10	22.7%
41-50	8	18.2%
50 and above	3	6.8%
Total	44	100%

Note: Some motorcycle has more than one rider.

DISCUSSION

In our study 38.1 % of the houses used motorcycle as means of transportation. This is nearly in accordance with the study done by H. Arif⁴ stated that the motorbike is economical, saves time, provides maneuverability in traffic jams and is spacious enough to accommodate a couple and one child. Below 40 years' age people that faced accidents in our study were 74.9 %. This figure is higher from the figures of the study¹⁴ of whom approximately two-thirds (66%) were 39 years of age or less. The higher rate of injuries in our study was due to the fact that we took randomized sample from the population while their study was hospital base and cross-sectional. However, the distribution of specific part injury involved was different, the most common body region of injury was

head followed by lower extremity in our study. While in their study the most common body region involved was lower extremity followed by upper extremity.

In another study, Francis Faduyile¹⁵, the most common (29.6%) age group suffered was 31-40 year, followed 26.1%) by the group of 21-30 year. This also shows that cranio-cerebral injury was the cause of death in the majority of the victims (50.7%), which is incoherence with our study (50%).

In another study by N wadiaro HC¹³ Head injury (40.1%) was the most frequently occurring injury followed closely by extremity injuries (38.1%), with a peak incidence (37.1%) from 21 to 30 years. The peak incidence (37.1%) from 21 –30 years is a little higher than the value as in our study (29.5%) but our study including multiple injury including head injury as part of it and head injury alone is slightly more (50 %).

In a study done by Patricia C¹⁴, 95.1% were survived and 4.9% were the ratio of death within 24 hours of the motorbike accident. Younger males (34.2%) patients between age 16-30 years were more prone to motorbike injuries. Lower limb abrasions and fractures (56.8%) were the most common injuries⁹. Both of these values were higher as compare to our study. While in our study the survivors were 81.8 % while the death was 18.2%, which is higher. This is due to the fact that our study is randomized study and included all the sufferer in the area and this study was performed in the community. That is why it is more reliable as compared to their studies. Because their studies were cross-sectional and hospital based studies, in which the chance of missing the patients died at the spot of accident were more. Furthermore, some of the dead persons may not reach to the hospitals while others can go to the hospitals of the other areas.

CONCLUSION

38.1 % of the houses had motorcycle while 14.7% of people among the users became victim of motorcycle accident. The common injury in our study is of the head and neck (31.8%) followed by the injuries of lower limbs (20.5%). The most common age group (21-30 years) was the young people. From whom 29.5% were became the victim of various types of injuries followed (22.7%) by the age group of 31-40 year.

Recommendations: Proper driving training, strict enforcement of traffic laws, inclusion of traffic rules in syllabus of primary and secondary education, awareness campaign regarding road safety, good road condition and proper training before issuing driving license. Traumas centers are needed to be established in each District headquarter.

Government needs to make some core courses/ training before the provision of license and traffic police should keep strong check and balance in this regard.

Author's Contribution:

Concept & Design of Study: Naeemullah
 Drafting: Qaribullah
 Data Analysis: Qaribullah, Naeemullah
 Revisiting Critically: Qaribullah
 Final Approval of version: Qaribullah

Conflict of Interest: The study has no conflict of interest to declare by any author.

REFERENCES

- Hemmati H, Cheabok S, Dehnadimoghadam A, et al. Trauma in Guilan (North of Iran). An Epidemiological Study. *Acta MedicaIranica* 2009;47: 403-408.
- Farooq B. Cleanse Karachi of unregistered motorcycles, The express BLOGS, Published: August 27, 2012.
- Automotive industry in Pakistan, published by Galiwala, view 373, Likes 6, p.1-45
- Arif H, Mansoor R. An Exploration into the Potential and Problems of the Rapid Increase in the Use of Motorcycles as a Transport Mode in Karachi, Pakistan. *Motorbike Mass Transit. Int Institute for Environment and Development (IIED) UK* 1-35,
- Muhammad AJ, Muhammad AA, Amna B. Effect of noise pollution on hearing of public transport drivers in Lahore city. *Pak J Med Sci* 2008;24(1):142-146.
- Banerjee ADK. Heavy metal levels and solid phase speciation in street dusts of Delhi, India. *Environmental Pollution* 2003;123:95-105. *Pakistan News Today*, Published in The Express Tribune, August 5th, 2013.
- Hemmati H, Cheabok S, Dehnadimoghadam A, et al, Trauma in Guilan (North of Iran), An Epidemiological Study, *Acta MedicaIranica* 2009;47: 403-408.
- Carrasco C, Godinho M, Berti De Azevedo Barros M, Rizoli S, Fraga G. Fatal motorcycle crashes: a serious public health problem in Brazil. *World J Emerg Surg* 2012;7:S5.
- Ilyas F. Loose dresses and dupattas major cause of road traffic injuries study. *Daily Dawn*. [Online] [cited 2014 July 2].
- Kashif MH, Muhammad J, Ahmed IM, Zeeshan I. Pattern of Injuries in Motorbike Accidents. *J Pak Orthopaedic Assoc* 2018;30(3):123-127.
- Tumwesigye NM, Atuyambe LM, Kobusingye OK. Factors Associated with Injuries among Commercial Motorcyclists: Evidence from a Matched Case Control Study in Kampala City, Uganda. *PLoS ONE* 2016;11(2): e0148511.
- Annu Proc Assoc Adv Automot Med* 2006;50: 237-249.
- URL: Nwadiaro HC, Ekwe KK, Akpayak IC, Shitta H. Motorcycle injuries in north-central Nigeria. *Niger J Clin Pract [serial online]* 2011 [cited 2020 Mar 29];14:186-9. Available from: <http://www.njcponline.com/text.asp?2011/14/2/186/84012>
- Dischinger PC, Ryb GE, Ho SM, Braver ER. Injury Patterns and Severity Among Hospitalized Motorcyclists: A Comparison of Younger and Older Riders, *Annu Proc Assoc Adv Automot Med* 2006; 50: 237-249.
- Faduyile F, Emiogun F, Soyemi S, Oyewole O, Okeke U, Williams. Pattern of Injuries in Fatal Motorcycle Accidents Seen in Lagos State University Teaching Hospital: An Autopsy-Based Study. *Open Access Maced J Med Sci* 2017; 5(2): 112-116.