

Pattern of Skullhurt and Injuries among Victims with Motorcycle Crashes with or without Safety Elements and Helmets

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ABSTRACT

Aim: Pattern and severity of skullhurt and injuries in victims involved in bike crashes, whether or not they were wearing a hat.

Methodology: A cross-sectional study was performed from January to December 2021. The sample size was 151. Cases with impeded GCS and brain malformations on CT scan were included. On the basis of GCS, 3–8, 9–12, and 13–15, we classified skull injuries as severe, moderate, or mild. SPSS 22 was used to analyze the data. The chi-square test was used.

Results: The research included 151 people, with 66(43.7%) of them being between the ages of 20 and 29. There were 139 males (92.1%). At the scene of the collision, 120(79.5%) of the victims in bike crashes were travelling the bike. Brain edema was found in the greatest proportion of victims 40 (26.5%), accompanied by cuts and bruises i.e. 36(23.8%). There were 65 victims who were with proper safety elements and helmets at the time of the accident (43.1%). The intensity of skull trauma in relation to helmet use revealed that 42 (82.4%) of the 51 individuals with symptomatic fractured skull were not n proper safety at the scene of the collision.

Conclusion: Skull injuries were always more prevalent in the boys and the extent of the damage was greater in victims who were not wearing a helmet.

Keywords: Skullhurt, motorcycle crash, helmets, skull trauma

INTRODUCTION

Skeleton hurt and concussions are caused by trauma towards the face and neck, skull, or brain. According to the World Health Organization (WHO), skull injuries caused by motorcycles are a leading risk factor for mortality aged 15 to 29¹.

Vehicle accidents have also been identified as a leading cause of death in the particular age group.²Motorcycle accidents are the leading cause of severe skull injuries and pain. Every year, nearly 8, 56,000 people die as a result of crashes around the world. Almost 74% of these occur in impoverished countries³.

Road Traffic Injuries (RTIs) are the primary factor of skull and head trauma and mortality worldwide. It is expected that by 2020, it will become the third most common reason on the entire globe⁴.

Motorcycles are prevalent modes of transportation due to their ease of movement in vehicles and relatively inexpensive for the middleclass. Motorcyclists have become a major public health problem around the globe. It can potentially cause skull pain and injuries, finally leading to greater mortality rate⁵.

Brain and skull injuries account for nearly 61% of fatalities in motorcycle accidents⁶. The use of a helmet lowers the risk of skull concussions. Several links have been found between taking precautions and a sharp decline in skull injuries and deaths among motorcyclist. The age range of patients who experience from skull traumatic injuries of a bike crash ranges from 60 to 88%⁷. As per the research, road crashes account for half of all motorcycle fatalities⁸.

In emerging economies, the most main triggers of these head trauma are inability to wear a helmet, accelerating, and failing to obey speed limits. Trapping of baggy clothing in heavy machines would be another cause of bike accidents in Southeast Asian countries⁹.

Road crashes are the fifth major cause of mortality and the 2nd risk of severe in Pakistan. In Pakistan, the fatality rate in RTAs is 4-5 per million. Non-fatal damages occur at a rate of 200 per 1000 persons in Pakistan's metropolitan areas. Across the country,

the proportion of motorcycles on the road has risen exponentially. In the last ten years, the number of registered and unregistered automobiles nearly six times, exacerbating traffic problems and, as a consequence, a rise in the various traffic accidents. There has been a 14-fold rise in traffic accidents¹⁰.

The objective of the study was to find out pattern of skull-hurt and injuries among victims with motorcycle crashes with or without safety elements and helmets

METHODOLOGY

Upon proper permission from the institutes' research ethics board, this cross-sectional study was undertaken from January 2021 to December 2021. The study's sample population was 151. It was Multicenter study and data was taken from theteaching hospitals of South Punjab i.e. DG Khan Medical College, DG Khan, SZH, Rahim Yar Khan and QMC, Bahawalpur. In our survey, we included individuals of all ages and gender identities, as well as those with impeded GCS and brain anomalies on computerized tomography (CT). They were stabilized in the trauma room after being assessed using advanced trauma resuscitative requirements. A comprehensive view was obtained by use of a well before survey questions. After taking their history, other innovative solutions other than a chest CT, X-ray, or MRI were performed. Victims were classified as serious, tolerable, or mellow based on GCS scores of 3–8, 9–12, and 13–15, in both. Other threatening indications included unconsciousness (LOC) lasting more than 25 minutes, amnesia following a skull injury or hurt, dizziness, and vomiting. Victims were dismissed from Neurotrauma if their CT scans were common and their GCS rating did not change. Victims, who died and had concerns other than skull pain and injuries, and those who were not hospitalized, were not included in the research.The questionnaires were coded and analyzed using SPSS version 22.0.

RESULTS

The study included 151 victims.

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Table I: Demographic status

Variable	Frequency	%age
10-19 years of age	29	19.2%
20-29 years of age	66	43.7%
30-39 years of age	23	15.3%
40-49 years of age	15	9.9%
≥ 50 years of age	18	11.9%
Male	139	92.1%
Female	12	7.9%
Status at time of accident		
Driver	120	79.5%
Back seater	31	20.5%

Table II: Skull injuries in motorcycle crashes

Pattern of Hurt and injuries	n	%age
Subdural hematoma	17	11.3%
Contusions	36	23.8%
Brain edema	40	26.5%
Extradural hematoma	23	15.2%
Pneumocephalus	18	11.9%
Traumatic Subarachnoid hemorrhage	09	6.0%
Depressed skull fractures	08	5.3%

Table III: Helmet use and severity of skullhurt and injuries

Use of helmet	Severity of hurt and injury			Total
	Mild	Moderate	Severe	
Yes	34 (72.3%)	22(41.5%)	09 (17.6%)	65 (43.1%)
No	13 (27.7%)	31(58.5%)	42 (82.4%)	86 (56.9%)
Total	47 (100%)	53(100%)	51 (100%)	151(100%)

$\chi^2 = 29.92$, $df = 2$, $p = <0.0001$

DISCUSSION

According to the outcomes of the research, more than 90% of the victims of skull injuries and injuries caused by motorcycle crashes were men. The greatest majority of victims with skull injuries and injuries as a result of a motorcycle accident, 66, were between the ages of 21 and 30(43.7%). One-fifth of the victims of skull injuries and concussions were between the ages of 10 and 19. Teenagers are more prone to hazard behavior, and they are not allowed by law to ride a bike. Many such data are compatible with the research that was done by Khan S, et al., in which the majority of victims with skull injuries and head trauma in a motorcycle crash were male and between the ages of 20 and 29¹¹. The higher rate of skull injuries between men may be credited to our current societal order, in which men dominate and women are deterred from riding motorcycles.

All victims had CT scans since it recognizes skull and neurological issues in 24 hours. Our findings of the study revealed that brain edema (26.5%) was the most common irregularity identified in motorcycle crash victims, accompanied by facial injuries (23.8%), extra cranial hematoma (15.2%), and pneumocephalus (11.9%), whereas Leong et al. found that

epidural hematoma was the most common malformation discovered in motorcycle accident victims¹². Our research results are line with the observations of Nnadi et al, who discovered that brain edema was the most frequent condition between many motorcycle accident victims with skull injuries. Correspondingly, Zimmerman et al discovered that brain edema was the most frequent occurrence^{13,14}.

CONCLUSION

The male population suffered more skull injuries, and the intensity of the concussions was greater in victims who did not wear a helmet at the time of the collision.

Conflict of interest: Nil

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