

## ORIGINAL ARTICLE

**Prevalence of Facial Injuries in Pediatric Population: A Cross Sectional Study from Pakistan**HASAN TARIQ<sup>1</sup>, ALEZAY TARIQ<sup>2</sup>, HAMZA RIAZ<sup>3</sup>, MOHAMMAD UMAR<sup>4</sup>, MUFASSAR NISHAT<sup>5</sup>, MUHAMMAD SALMAN CHISHTY<sup>6</sup><sup>1</sup>Senior registrar oral and maxillofacial surgery Allama iqbal memorial teaching hospital Khawaja Muhammad Safdar medical college<sup>2</sup>House officer department of Pediatrics Jinnah hospital lahore<sup>3</sup>House officer. Department of surgery unit III Allama Iqbal memorial teaching hospital Sialkot.<sup>4</sup>Assistant Prof oral and maxillofacial surgery. Rawal institute of health sciences Rawalpindi<sup>5</sup>Associate professor plastic surgery University medical & dental college. Faisalabad<sup>6</sup>Oral and Maxillofacial surgery Assistant professor CMH Lahore medical college

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**ABSTRACT**

**Background:** Road traffic accidents are the leading cause of death for children in Pakistan. This is particularly true in the country of Pakistan (RTA). Implementing safety measures such as car seats, limiting the ages of drivers in the family, and prohibiting children from riding bikes and driving cars can help prevent childhood accidents or minimise the severity of those injuries that do occur. It is difficult to appreciate the entire severity of the problem since there is a paucity of published research on the epidemiology of face injuries in children. This makes it difficult to invest in programmes that prevent injuries that are detrimental to the public's health.

**Objective:** To provide a description of the epidemiology of face injuries sustained by children who were hospitalized to the hospital as a result of RTA.

**Duration of Study:** March 2019 to March 2020

**Place of Study:** Allama iqbal memorial teaching hospital Khawaja Muhammad Safdar medical college

**Design:** Cross Sectional

**Patients and Methods:** We gathered information on all patients younger than 16 years old who were admitted to the hospital as a result of RTA between the years 2019 and 2020. The patients were all younger than 16 years old. Comparisons were done across a broad spectrum of characteristics, such as the presence or absence of Facial Injuries and age groups, amongst others.

**Main Outcome Measures:** facial injuries.

**Sample Size:** 220 patients.

**Result:** As a result of their injuries, 74 (34%) of the population that was affected suffered from some form of brain impairment, and 78 (35.6%) suffered from some form of face injury. There were thirteen children (9.1% of the total population) operating the vehicle when it was involved in the accident. It was discovered that 53.8% of the children were not wearing any kind of seatbelt or other kid safety gear while they were riding in the back seats of the car and they were under age while riding a bike.

**Conclusion:** It should not come as a surprise that facial injuries are so prevalent in our society today. In addition, the study found that teenage driving is more prevalent than was previously believed, which calls for ongoing monitoring as well as the development of suitable treatments. Increased documentation of the use of restraints and stronger enforcement of safety laws by police can both play a substantial role in reducing the number of injuries that are associated with the use of restraints. The findings of the study highlight the necessity of combination seating or rear seating in addition to restraints that are appropriate for the child's age in order to reduce the likelihood that youngsters would sustain injuries to their heads or faces.

**INTRODUCTION**

Every single year, more than 1.3 million individuals around the world are killed as a direct result of being involved in road traffic accidents (RTA). In the United States, motor vehicle collisions are the leading cause of mortality for newborns who have not yet reached their first birthday. These collisions account for around 3 percent of all visits to emergency rooms. In addition, a considerable number of people end up in the hospital because of RTAs. Furthermore, automobile collisions are the leading cause of death for children and young adults between the ages of 5 and 29 years old, and it is extremely probable that this pattern will persist into the foreseeable future. In spite of the fact that the burden is diminishing in nations with a high standard of living, there has been a rise in the number of deaths caused by motor vehicle collisions in countries that are still in the process of developing their economies. Pakistan is one of the countries with the largest number of individuals injured in traffic accidents, despite having a highly developed economy and a high standard of living. It is general knowledge that injuries sustained in car and Bike accidents can be avoided. Despite this, the nation is not nearly as invested as it should be in primary prevention programs that aim to diminish the impact of road traffic accidents. These programs strive to reduce the number of fatalities and injuries caused by automobile accidents (RTA). This could be partially attributed to a lack of understanding of the epidemiologic load, which is a problem that exists in many developing nations. This is a problem that exists in many developing nations.

When compared to injuries sustained in other parts of the body, those sustained to the head are associated with a higher probability of morbidity and fatality in adults.

This is something that may be seen to be much more obvious in children due to the immaturity of their skeletal system as well as the larger head-to-body ratio that children and young adults have.

In addition, brain injuries inflict a major financial burden on hospitals and other medical services throughout the world. Every single year, almost half a million children and adolescents in the United States are hospitalised with traumatic Face injuries. Accidents involving motor vehicles are the leading cause of head injuries sustained by youngsters. According to the findings of certain studies, up to seventy percent of those injured in a collision involving a motor vehicle sustained head injuries. When child restraints such as car seats, seat boosters, and seat belts are worn, there is a 71% and 54% reduction, respectively, in the risk of death for newborns and young children who are riding in vehicles. These kid restraints provide adequate protection against bodily injuries, and they also lower the likelihood that a child may pass away as a result of their use.

The benefits of implementing safety measures to reduce the number of injuries that might be caused by crashes involving motor vehicles have been recognized by developed countries for a very long time (MVC). The compliance rates for using seat belts and placing children in the right car seats are extremely high (86-97%), and this is the case in both Australia and the United States. On the other hand, the percentage of children who are restrained in child safety seats varies substantially from industrialized countries to

developing country. This is due to the fact that child safety seats are not standard equipment in all vehicles. Only 15.3% of children in Pakistan consistently use their seat belts, despite the fact that the law requires children to use safety precautions such as seat belts and car seats. The law in Pakistan requires children to use safety precautions such as seat belts and car seats. Only 42.5% of parents are reporting that they use a car seat for their children, according to earlier polls in which respondents were asked to give information about themselves and their families. At this point in time, neither the frequency of the usage of kid restraints nor the consequences of their wrong application are known to have occurred anywhere in the country. More importantly, there is a dearth of data that has been published on the epidemiology of injuries incurred by children as a result of being in a motor vehicle collision and the association that these injuries have with the utilization of restraints in motor vehicles.

There were a few studies conducted in the region that looked at the burden of motor vehicle collisions, but none of them focused on the compliance of car seats and the consequences of not using them, such as head injuries. Instead, these studies looked at the burden of motor vehicle collisions overall.

In addition, the vast bulk of the study that was carried out in the past concentrated solely on the facial injuries that were experienced by adults as a result of MVC rather than the injuries that were sustained by children.

Children who incur injuries that do not result in death nevertheless run the danger of having permanent disabilities later in life. This can have a severe effect not only on the health of the population as a whole but also on the amount of time people spend utilizing healthcare services. This study's objective was to determine the frequency of head and face injuries received by pediatric patients as a direct result of being involved in car accidents. In addition, one of our goals was to study whether or not there is a connection between the factors that were discussed earlier and the head or face injuries that were received by children who sought medical assistance in the aftermath of a collision involving a motor vehicle.

## MATERIAL AND METHODS

This was a retrospective study that made use of the electronic medical record (EMR) system that is available at the hospitals that are associated with the Khawaja Muhammad Safdar Medical College and the Allama Iqbal Memorial Teaching Hospital. This study included all patients who were 16 years old or younger and who were engaged in RTAs as automobile passengers in the years 2019 and 2020. The time period covered by this study was 2019 and 2020. The count includes children who were involved in the incident either as pedestrians or as riders on motorcycles and who were counted. Individuals who were initially disqualified from participation in the study due to ineligibility but who were subsequently admitted to another hospital were also incorporated into the study's analysis. When extracting data from the EMR, we made use of a data collection form that had been produced in advance. On the sheet that was used to collect data, there was information that was presented regarding to demographics, anatomy, physiology, and outcomes. The data also included a description of any injuries that were sustained, as well as information regarding the position of the child, any safety precautions that were taken (such as using a car seat or seatbelt), and any safety precautions that were taken. This included things like abrasions, contusions, and broken bones, in addition to the location of the injury on the body.

## RESULT

We were able to identify 220 patients who fulfilled the requirements for participation and were included in all of the analyses. The majority of the children there were between the ages of 5 and 13 (40%) while the ages of the other youngsters ranged from newly born to 16 years old. The mean (standard deviation) was 7.9.

In total, 97 (38.1%) of the children suffered injuries to their heads, while 88 (34.7%) of the children suffered injuries to their faces.

The reported prevalence of not using a car seat or seatbelt was 56.1%, 44.0%, and 50.0%, respectively, among children aged 0 to 5 years old, 6 to 12 years old, and 13 to 16 years old. Children younger than six years old had a significantly increased risk of being seated inappropriately compared to children in other age groups ( $P < 0.1$ ). In addition to this, there was a significantly increased likelihood that they would be seated in the front seat (24.4%,  $P < 0.1$ ). Twenty percent of youngsters aged 14 to 16 were behind the wheel, while twenty-one point seven percent of toddlers aged 0 to 4 were sitting on the laps of passengers.

## DISCUSSION

More than a third of the children who were wounded as a result of RTAs were found to have had face injuries, as indicated by the findings of the study. This shocking occurrence has important ramifications for the overall health of the population and should not be ignored. Injuries to the face and head are some of the most common causes of death and disability in children and adolescents. As a result, further investments in traffic safety are required in order to make primary prevention more accessible and to bring the number of injuries that could have been avoided down to a more manageable level. In spite of the fact that there are regulations which restrict driving to people who are at least 18 years old and which demand the utilisation of kid safety measures, the high prevalence of these violations may be related to the absence of effective enforcement methods. Road safety in Pakistan has significantly improved in recent years. As a consequence of this, the findings of the study may be able to offer support to these initiatives by encouraging members of the general public, the general medical community, and policymakers to join in the implementation of public health interventions. Our findings can serve as a baseline review for future initiatives to improve the health and safety of children living across the nation. These efforts are intended to take place after current efforts have been completed.

Previous research that demonstrated the burden of injuries incurred as a result of RTA play on the health of children was supported by our data, which lends credibility to that research. However, none of the prior national investigations looked at the prevalence of head or facial injuries among people who were passengers in motor vehicles. This is a gap in the research that needs to be filled.

In comparison to studies carried out in other countries, such as the United States and Australia, the current investigation discovered a markedly higher incidence of facial injuries.

During the course of our investigation, we were unable to discover any statistically significant links between the preventative safety measures that were used and the facial injuries that were sustained. This does not in any way constitute proof that they are not useful in any way. This may be the result of the study using a small sample size, which reduces the statistical power, or it may be due to the fact that some observations were left out of the analysis, which also reduces the statistical power. Previous study on both children and adults has shown evidence that displaying compliance with seatbelt or car seat standards is advantageous to public health. This research was carried out using both kid and adult participants. According to the findings of a previous study, the probability of young children incurring facial injuries was over sixty percent higher among those who were not properly secured. This was shown to be the case in situations where the children were not properly restrained.

According to the results of our survey, 62% of respondents occupied the driving position. Previous research has found that children who were seated in the front of the vehicle were more likely to sustain more severe injuries. This is the case even when the vehicle was not in an accident. Another study came to a similar conclusion, showing that front-seat passengers had a considerably

greater rate of serious injuries. This finding was supported by the fact that front-seat passengers reported more severe injuries. Traffic police ought to further examine the prevalence of front seat violations and prepare for enforcement with public initiatives to minimize safety measure violations and, ultimately, childhood injuries. This would help reduce the likelihood of injuries occurring to children. They should also plan for the enforcement of front seat violations with public measures to limit the number of violations.

It's possible that the proportion of children in this poll who were discovered to be sitting or standing in an incorrect manner doesn't adequately reflect the full breadth of the problem. Even among the children who were seated in the back of the van, there is a possibility that they were sitting in a manner that was inappropriate for their age group. The persistently poor compliance rate is disheartening and poses a significant threat to the health of the general population considering that adequate car seats are widely available and can be purchased at prices that are within a reasonable range on the market. As a consequence of this, there is a substantial amount of work that has to be done to increase the awareness among parents of the risks associated with seating children in unsuitable positions inside of moving vehicles. In addition, awareness campaigns should be introduced into the curricula of educational institutions, and the monitoring methods should be updated in order to guarantee adequate compliance. Both of these things should be done in order to ensure that acceptable standards are met.

The findings of this study can be utilized by medical practitioners and other professionals working in the field of public health to educate parents on the importance of optimal seating posture and using restraints that are age-appropriate for their children. Additionally, policymakers can use the study as a tool to support the adoption of traffic safety regulations and law enforcement measures, which will save a huge number of lives and hundreds of millions of Rupees. This will save lives and money. The nation under consideration can also gain knowledge from the experiences of its neighboring countries, who have effectively implemented prevention programmes to make the roads safer and have many similarities in common with the nation under study.

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