

# ORIGINAL ARTICLE

## Analysis of Traumatic Dental Injuries in Children- A Retrospective Study

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### ABSTRACT:

**Background:** Dental trauma is most common in younger people, accounting for 17% of injuries to the body in those aged 0–6 years compared to an average of 5% across all ages. The present study was conducted to assess the traumatic dental injuries in children.


**Materials & Methods:** The present study was conducted on 380 children. Type of trauma, type of dentition and causes of trauma was recorded in all subjects. **Results:** Out of 380 subjects, boys were 220 and girls were 160. Age group 4-8 years had 45 boys and 40 girls, 8-12 years had 115 boys and 90 girls and 12-16 years had 60 boys and 30 girls. Boys had 340 teeth and girls had 235 teeth which showed traumatic injury. The main reason for traumatic injuries was sports injury (boys- 75, girls- 50), fall (boys- 50, girls- 35), traffic accidents (boys- 45, girls- 20), bicycle riding (boys- 30, girls- 25) and fight (boys- 20, girls- 30). The most common injury was Ellis class I (125) followed by class II (105), class V (95), class VI (60), class VIII (50), class IV (48), class III (37), class VII (30) and class IX (25).

**Conclusion:** Dental trauma is quite common in children. Deciduous teeth are more prone to get traumatized. The most common cause is sports injury and fall. Boys show higher prevalence of traumatic injuries.

**Key words:** Ellis class Fracture, Fall, Trauma

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### INTRODUCTION

Dental trauma in children occurs in hard tissue such as teeth and periodontium and soft tissues such as the lips, tongue, etc. The study of dental trauma is called dental traumatology. Traumatic injuries occur mostly at 1-3 years in a primary dentition and 8-11 years in permanent dentition. In preschool period, fallings and crashing can be seen frequently. In preschool children, dental injuries make up 18% of all injuries that need treatment.<sup>1</sup>

Dental trauma is most common in younger people, accounting for 17% of injuries to the body in those aged 0–6 years compared to an average of 5% across all ages. It is more frequently observed in males compared to females. Traumatic dental injuries are more common in permanent teeth compared to deciduous teeth and usually involve the front teeth of the upper jaw.<sup>2</sup>

At adolescence, people who are interested in boxing, skiing, riding, and swimming are more prone to facial trauma. In children between 6-12 years, sport accidents, falling off bicycle, and crashing may cause dental injury. Mentally retarded people and epileptic patients have motor

coordination deficiency so they often fall down during the attacks. In the primary dentition, luxation injuries are the most common traumatic dental injuries, whereas crown fractures are more commonly reported for the permanent dentition.<sup>3</sup>

The injuries of anterior teeth may result into phonetic, functional, and aesthetic problems in children and also disrupt occlusion. Consequently, children's psychological development can be affected. After an injury, an appropriate and immediate treatment is important for a good prognosis of treated tooth.<sup>4</sup> The present study was conducted to assess the traumatic dental injuries in children.

### MATERIALS & METHODS

The present study was conducted in the department of Pedodontics. It included 380 children of both gender. Parents were informed regarding the study and informed written consent was obtained. Ethical clearance was taken from institutional ethical committee.

General information such as name, age, gender etc, was recorded. Type of trauma, type of dentition and causes of

trauma was recorded in all subjects. Results were tabulated and subjected to statistical analysis using chi- square test. P value less than 0.05 was considered significant.

**RESULTS**

**Table I** Distribution of subjects

Total- 380		
Boys	Girls	P value
220	160	0.02

Table I shows that out of 380 subjects, boys were 220 and girls were 160. The difference was significant (P- 0.02).

**Table II** Age wise distribution of subjects

Age group (years)	Boys	Girls	P value
4-8	45	40	0.01
8-12	115	90	
12-16	60	30	
<b>Total</b>	220	160	

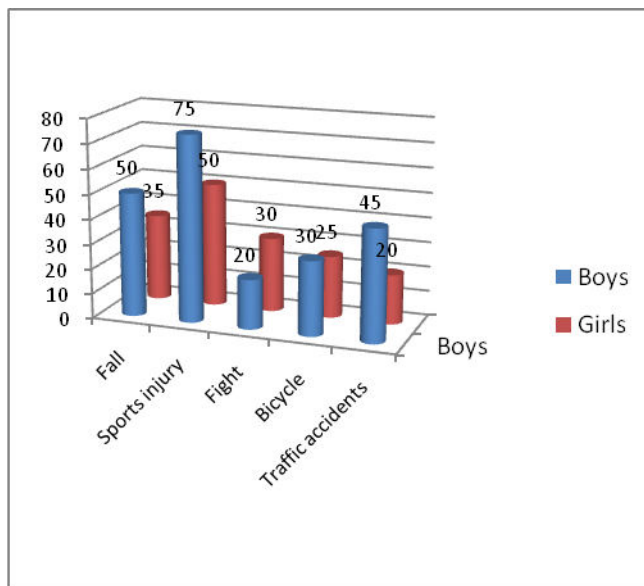
Table II shows that age group 4-8 years had 45 boys and 40 girls, 8-12 years had 115 boys and 90 girls and 12-16 years had 60 boys and 30 girls. The difference was significant (P- 0.01).

**Table II** Total number of teeth with trauma in both genders

Boys	Girls	P value
340	235	0.05

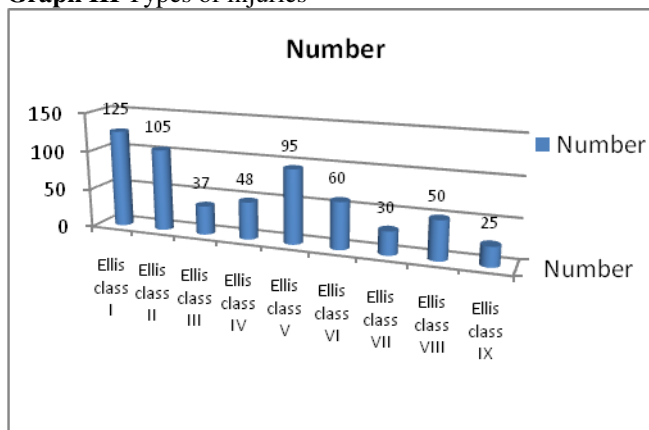
Table III shows that boys had 340 teeth and girls had 235 teeth which showed traumatic injury. The difference was significant (P- 0.05).

**Graph I** Reasons of traumatic injuries



Graph II shows that main reason for traumatic injuries was sports injury (boys- 75, girls- 50), fall (boys- 50, girls- 35), traffic accidents (boys- 45, girls- 20), bicycle riding (boys- 30, girls- 25) and fight (boys- 20, girls- 30). The difference was significant (P- 0.05).

**Graph III** Types of injuries



Graph III shows that most common injury was Ellis class I (125) followed by class II (105), class V (95), class VI (60), class VIII (50), class IV (48), class III (37), class VII (30) and class IX (25). The difference was significant (P-0.01).

**DISCUSSION**

Dental trauma is quite common in deciduous teeth as compared to permanent teeth. Children are more prone to develop injuries. In this study, out of 380 subjects, boys were 220 and girls were 160. We found that maximum trauma was seen in age group 8-12 years (115 boys, 90 girls) followed by 12-16 years (60 boys, 30 girls) and 4-8 years (45 boys, 40 girls). This is similar to Hasan et al.<sup>5</sup>

We found that 340 teeth in boys and 235 teeth in girls had traumatic injury. The main reason for traumatic injuries was sports injury, fall, traffic accidents, bicycle riding and fight. This is in agreement with Kaba et al.<sup>6</sup> We found that most common injury was Ellis class I followed by class II, class V. This is similar to Sae- Lim et al.<sup>7</sup>

When the injured teeth are painful while functioning due to damage to the periodontal ligaments, a temporary splinting of the injured teeth may relieve the pain and enhance eating ability. Splinting should only be used in certain situations. Splinting in lateral and extrusive luxation had a poorer prognosis than in root fractures. An avulsed permanent tooth should be gently rinsed under tap water and immediately re-planted in its original socket within the alveolar bone and later temporarily splinted by a dentist.<sup>8</sup>

In children sports injuries are common cause of dental trauma. Fall while playing or walking are other causes. Viere et al<sup>9</sup> found that in young school children, the craze for sports are more and the prevalence of dental trauma is high in school children. Management of injured primary teeth differs from management of permanent teeth; an avulsed primary tooth should not be re-planted due to the close proximity of the apex of a primary tooth to the permanent tooth underneath. The permanent dentition can suffer from tooth malformation, impacted teeth and eruption disturbances due to trauma to primary teeth. The priority should always be reducing potential damage to the underlying permanent dentition.

One of the most important measures is to impart knowledge and awareness about dental injury to those who are involved in sports environments like boxing and in school children in which they are at high risk of suffering dental trauma through an extensive educational campaign including lectures, leaflets, posters which should be presented in an easy understandable way.

Yassen et al<sup>10</sup> found that avulsion and contusion are main trauma to the dentition. Ellis class I fracture involves enamel only. Ellis Class II involves enamel and dentin fracture without pulp exposure. Ellis class III has crown fracture with pulp exposure. Ellis Class IV traumatized tooth that has become non-vital with or without loss of tooth structure. Ellis Class V is teeth loss due to trauma. Ellis class VI fracture is avulsion from socket. Ellis Class VII is displacement of a tooth without the fracture of crown or root. Ellis Class VIII fracture of the crown en masse and its replacement and Ellis Class IX fracture involve fracture of deciduous teeth.

## CONCLUSION

Dental trauma is quite common in children. Deciduous teeth are more prone to get traumatized. The most common cause is sports injury and fall. Boys show higher prevalence of traumatic injuries.

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**Conflict of interest:** None declared

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