

# Analysis of the Prevalence of Types of Traumatic Dental Injuries in Young Children in Lahore

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## ABSTRACT

**Aim:** To analyze the prevalence of type of dental traumatic injuries in young children in Lahore, Pakistan.

**Method:** A descriptive cross-sectional study was conducted at a Co-Education school named the Ali Public School of Raiwind over a period of one month. The sample of total 280 students were used in this study. The data for all students were collected on type of dental traumatic injuries, age and gender. This data was analyzed using SPSS version 23.0.

**Results:** The most frequent TDI involved is Type-I (58.9%) having age group 11–13 years (63.3%) with males (62%) predominance. The result of that study reveals that Type-I fracture of anterior teeth was most common in males who were more vulnerably subjected to traumatic dental injuries than females.

**Conclusion:** There should be cautionary measures taken to avoid dental traumatic accidents that most frequently occur at home and on the roads.

**Keywords:** Traumatic Dental Injuries, Enamel fracture

## INTRODUCTION

Smile is the prettiest thing you can wear and this is only due to an individual's teeth. Unaesthetic anterior teeth due to fractures/cracks or any other dental problem can have an awful impact on individual daily life. Previous studies shows, Traumatic dental injury has a prevalence of 11.5%. Studies manifest that the most commonly growing problem among the school going children were traumatic dental injuries, which neglected by both the students and their parents. Causes of the negligence were expensive treatment, low standard of living, lack of knowledge about the importance of dental treatment and that was the challenging problem to health care professionals. According to studies, traumatic dental injuries are increasing day by day. Dental trauma can cause many problems like displacement fracture, avulsion, and even loss of tooth. It can distress the child in many ways like chewing, cutting and grinding of food. It can also affect phonation and aesthetics. School going children were mostly in their mixed dentition phase, trauma to the deciduous teeth can create problems in eruption of succedaneous teeth, problems in the formation of a tooth-like hypoplasia and discoloration. The most common reason of traumatic dental injuries were accidents or during sports like basketball, football, cricket, etc.

Children who have proclined anterior teeth with overjet more than 7mm are more prone to traumatic dental injury. Traumatic dental injury is frequent reason for increased overjet and incompetent lips. According to literature review, among all dental traumatic injuries, there were 6% dental traumatic injuries occurs in school going young children.

According to complication, dental traumatic injuries are of two types uncomplicated and complicated. In uncomplicated dental injury, only enamel and dentine are involved and is 29% of the total dental traumatic injuries and complicated dental injury involve the pulp that is 18% of the total dental traumatic injuries. Uncomplicated dental injuries are more common.

WHO Classification of Dental Traumatic Injuries	
Type-I	When only enamel is involved.
Type-II	When enamel and dentine both are involved
Type-III	When enamel dentine and pulp all are involved

Acknowledgment about the dental traumatic injury is essential, as children with trauma to deciduous teeth are vulnerable to further trauma in succedaneous dentition. The focus of this study is to analyze the type and frequency of dental

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traumatic injuries in children. The importance of this study is to aware the teachers, students and their parents about how traumatic dental injuries can affect their health.

Many other studies from Africa, Asia, and Europe have a different prevalence of dental injuries ranging from 4 to 58%. This data shows that TDI has wide prevalence depending on the size of the sample and study design.

The objective of the study was to analyze the prevalence of type of dental traumatic injuries in young children in Lahore, Pakistan.

## METHODOLOGY

After IRB permission, expert dentist conducted dental examinations of students in cross-sectional study. During this study, we only included 280 students whose ages were ranging from 11 to 15 years and excluded students with orthodontic appliances, hypo-mineralized tooth or tooth with developmental defect, supernumerary teeth, and students above or below this age. During the survey, students were examined in classrooms where torch light was used to illuminate the oral cavity. The status of each tooth was examined using a dental mirror according to WHO classification.

A dental checkup was done in which all anterior teeth examined inside the mouth of students. Data of the site and type of traumatically injured tooth was mentioned separately on the form that was developed for the study. Then this data was entered in the SPSS version 23. Analysis done using descriptive studies. The percentages was used to represent the qualitative variables like age, gender, quadrant and type of traumatic injury. Then chi-square test applied for outcomes. *P-value* < 0.05 was observed as significant.

## RESULTS

The total 280 students participated in the survey. Out of those 280, the number of males was 156 (55.7%) and that of females was 124(44.3%) (Figure 1b).

The students were divided into two age groups 11 to 13 years and 14 to 15 years. In this study, we concluded that the prevalence of TDI is 13.9% 39/280. The *p-value* was observed as significant, when we compared the total traumatic dental injuries between different age and gender distribution of students. The results showed Type-I Traumatic dental injury had most prevalence 58.9% in which most student were age of 11 to 13 years (63.3%) and males (62%) (Table 1 and Figure 1a)

Table1: Prevalence of types of traumatic dental injuries

Category	Age Group		Total	p-value	Gender Distribution		Total	p-value
	Age Group 11- 13 years	Age Group 14- 15 years			Male	Female		
Type-I	19(63.3%)	4(44.4%)	23(58.9%)	0.011	18(62.0%)	5(50.0%)	23(58.9%)	0.035
Type-II	8(26.6%)	3(33.3%)	11(28.2%)	0.015	8(27.5%)	3(30.0%)	11(28.2%)	0.041
Type-III	3(10%)	2(22.2%)	5(12.8%)	0.012	3(10.3%)	2(20.0%)	5(12.8%)	0.032
Total	30(76.9%)	9(23.1%)	39/280(13.9%)		29(74.3%)	10(25.6%)	39/280(13.9%)	
p-value	0.026				0.073			

Fig. 1a: Percentage of types of traumatic dental injuries among the study groups

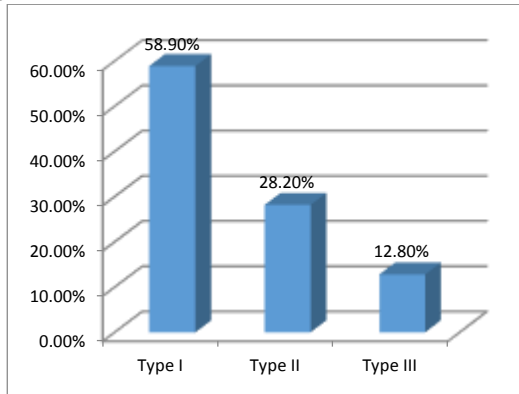
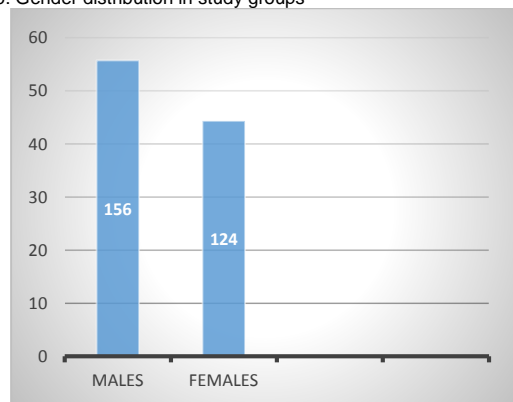


Fig. 1b: Gender distribution in study groups



Prevalence of traumatic dental injuries in students were 13.9% among 280 young children and found more in upper quadrant (54.5%) than lower quadrant (45.5%). (Figure 2a and 2b)

Figure 2a: Proportion of patients with traumatic dental injury in study groups

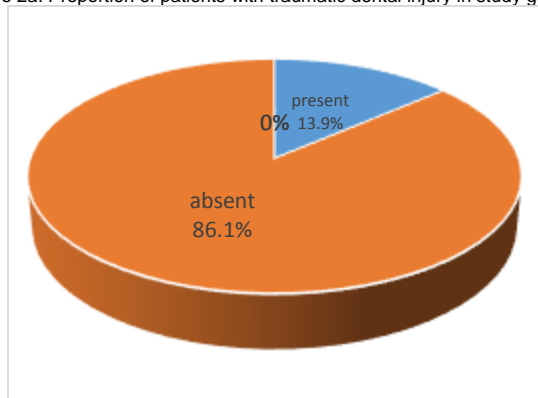
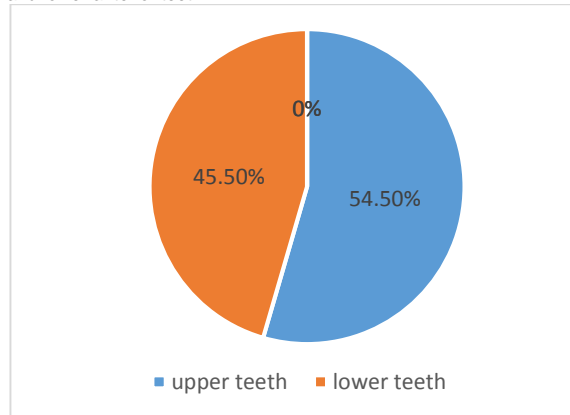


Figure 2b: Proportion of patients with traumatic dental injury involving upper and lower anterior teeth.



**DISCUSSION**

According to the study observation, the prevalence of injuries to anterior teeth is 13.9%. Majority of students who are affected by these injuries were males. Most commonly affected teeth by those class 1 traumatic injuries were maxillary central incisors. Then followed by maxillary lateral and mandibular central incisor in oral cavity.

Many other studies showed similar results in an Indian study by Kumar A and Bansal conducted at a school in Haryana<sup>2</sup> among the children aging between 12 to 15 years the prevalence of TDI was found to be 12.8% less than this study due to difference in sample size. Oyedele study<sup>22</sup> prevalence was 7.9% less than this study due to more sample size in the Kuwaiti study prevalence was 18.7% higher than this study.

In this study manifest that males (74.3%) are at an increased risk of traumatic dental injuries than females (25.7%). Because they were more involved in physical activities like sports and other aggressive types of games. They show violent behavior than females. Different studies like a study done at paramilitary school at Nigeria, De Jesus MA study at Brazil<sup>17</sup>. Chowdary G.N and Vijay Kumar study at Darbhanga town<sup>25</sup> they were all results in male preponderance in traumatic dental injuries as in this study. But some studies show girls preponderance in traumatic dental injuries due to their increase in participation in sports a study was done at Khartoum city of Sudan by Suliema AG and Awooda EM<sup>4</sup> shows that females, are more affected by TDI than males.

According to this study, fracture mostly involve enamel total 58.90%. 28.20% the fracture involves enamel and dentine both .12.80% fracture involves pulp. Enamel is a brittle structure is the outermost layer of the tooth that is why enamel fracture is more common and many studies support this observation Sulemia AG and Awooda EM<sup>4</sup> and Kunal and Bansal at Haryana<sup>2</sup>. Some studies show class 3 fracture were more common like in Khan<sup>23</sup> that was conducted in a hospital at Islamabad Pakistan on a greater no of population, unlike this study that was conducted in a school with small sample size.

This study shows that proclined maxillary anterior teeth most commonly central incisors or maxillary teeth with increased overjet

greater than 7mm and inadequate lip support are more subjected to trauma than mandibular anterior teeth due to their central position in the mouth they are more vulnerable to trauma. this is supported by, sadozi study [24] Choudary G.N<sup>25</sup> Khan<sup>23</sup>.

This study also shows that the age group (11 to 13 years) were more subjected to traumatic dental injuries supported by was similar to another study where 11 years old children were affected. As child's age increases the prevalence of dental injuries decreases that is why in the age group 14 to 15 they were more mature traumatic dental injuries decrease. Prevalence decreases with increasing age; Khan<sup>23</sup> supports this study that 11-year-old children were more subjected to traumatic dental injuries.

## CONCLUSION

The prevalence of traumatic dental injuries was 13.9% with male's preponderance and the most frequently affected tooth was central incisors in upper quadrant of oral cavity with class 1 enamel fracture.

**Disclaimer:** None to declare.

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