

**Prevalence of Traumatic dental Injuries among school children of Jammu: A cross-sectional survey**

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**Citation of this Article:** Deebah Choudhary, “Prevalence of Traumatic dental Injuries among school children of Jammu: A cross-sectional survey”, IJDSIR- September - 2020, Vol. – 3, Issue - 5, P. No. 250 – 254.

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**Type of Publication:** Original Research Article

**Conflicts of Interest:** Nil

**Abstract**

**Background:** Traumatic dental injuries are more common in childhood but they can happen at any point in life. Aim: To study the prevalence of traumatic dental injuries and related factors among the school children between the age 6-14 years in Jammu, India.

**Material and Methods:** A cross-sectional survey was conducted among school children of 6-14 years. Six schools were randomly selected from Jammu region. Data were collected using the questionnaire and clinical examination. The data regarding the traumatic injuries was recording using Ellis and Davey’s classification of traumatic dental injuries.

**Results:** Prevalence of traumatic dental injuries was found to be 11.59%. The etiology was analyzed; highest frequency was caused by falls, followed by sports activity. Children between the age group of 9-11 years were most commonly affected with mainly enamel and dentin fractures (without pulp exposure).

**Conclusion:** Traumatic dental injuries are not very common among the school children in Jammu. Various

steps should be taken to aware children and school teachers for prevention of these traumatic injuries.

**Keywords:** Dental traumatic injuries, School children, Prevalence, Cross-sectional survey.

**Introduction**

Traumatic dental injuries are a very significant problem that occurs throughout life [1]. The major causes behind these injuries are falls, sports, traffic accidents etc. Dental can be in different forms like minor chipping of enamel, tooth displacement, damage to dentoalveolar structure or avulsion [2]. During the contact play outdoor, school going children can suffer from injuries by fall. The major problem during these times is the fracture of the anterior teeth, mainly the upper anterior teeth [3]. The predisposing factors which increases the rate of dental injuries are increased overjet and incompetent lip which do not provide adequate coverage [4]. 6 to 34% of the people have suffered from traumatic dental injuries during childhood [5].

Dental traumas can lead to emergency conditions in children and requires an immediate management in the

dental operator [6]. The problem of fracture tooth can bring about a negative behavior in children, which can hamper his/her grown in school and other day-to-day life activities.

Many studies recently have documented that there is upward rise in the dental care related to dental caries due to implementation of various programs in the country. However, traumatic dental injuries are showing the rise because of the negligence of the treatment at the time of trauma [7].

Traumatic injuries show prevalence in India due to growing infrastructures in schools, hence the present study was carried out in Jammu region to determine the prevalence of dental traumatic injuries among the school children between the age group of 6-14 years school going children.

**Materials and Methods**

A cross-sectional survey was conducted on 1087 school going children aged 6-14 years, of both the genders, living in Jammu, Jammu & Kashmir, India. The sample consisted of 556 boys and 531 girls (from grade 1 to grade 9) of 6 private schools in Jammu. These schools were randomly selected with a sampling by a probability proportional to the school size.

A prior permission was obtained from the concerned authorities of the schools in order to get a smooth overall examination done. All the children who were present at the day of survey were included except for those having dental anomalies like supernumerary teeth, amelogenesis imperfecta, and dentinogenesis imperfecta. The study was carried out September 2019 to November 2019.

Examination of all the children were done using mouth mirror and probe in natural day light. Ellis and Davey’s (1960) classification was advocated for recording the injuries. Single trained dental surgeon evaluated the children to prevent error.

Data was obtained regarding the age, gender, etiology, type of fractured teeth and lip competence. Class VI injury was not recorded as radiographs were not available at examination level in the school area. The study samples were divided into three groups depending upon the age of the participant as,

Group 1: 6 – 8 years

Group 2: 9- 11 years

Group 3: 12- 14 years

All the recorded data were analyzed using SPSS version 24 (SPSS Inc., Chicago, IL, USA). The Chi-Square test was employed to compare the results. The level of significance was set at  $p < 0.05$ .

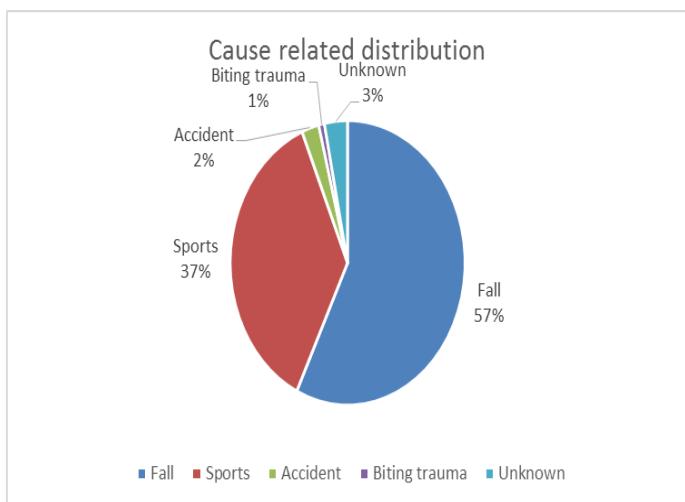
**Results**

A total of 1087 school going children were examined, 51.14% (556) were boys and 48.85% (531) were girls. The overall prevalence of traumatic dental injuries was found to be 11.59%. the observed prevalence of dental trauma was much higher in boys (70.63%) than in girls (29.36%).

**Table 1: Comparison of proportion of trauma in three different age groups**

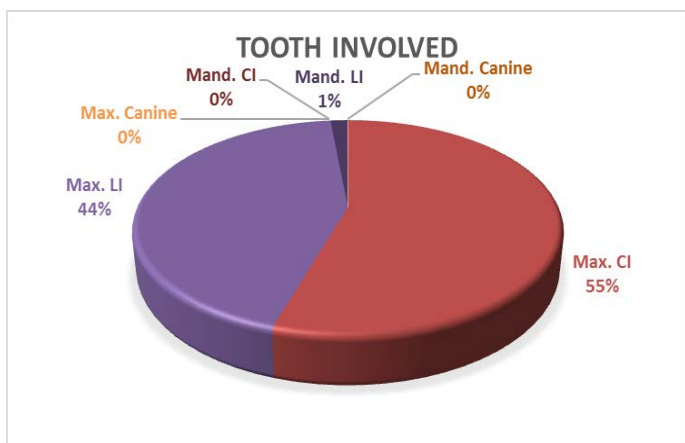
Group	Trauma		p-value
	Present (%)	Not Present (%)	
<b>Group I (6-8 years)</b>	28 (2.57%)	314	
<b>Group II (9-11 years)</b>	53 (4.87%)	281	
<b>Group III (12-14 years)</b>	45 (4.13%)	366	0.05 (Sig)

In the present study, proportion of trauma in Group II (4.87%) was significantly higher than Group I (2.57%) ( $p < 0.05$ ). Also, the proportion of trauma in group III (4.13%) was less than in group II. The study revealed that the maximum amount of trauma occurred between the age group 9-11 years [Table 1].



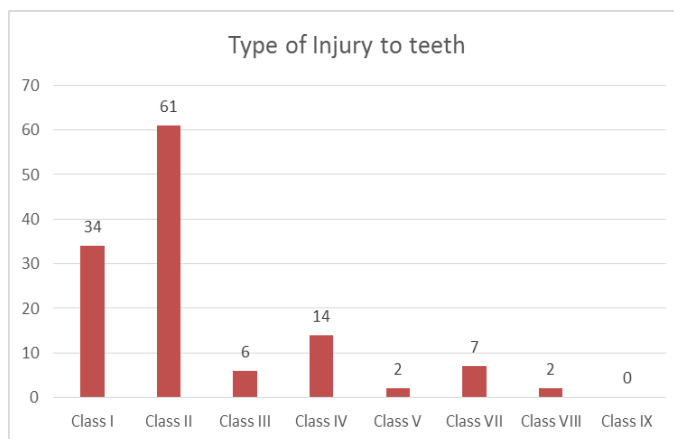
**Graph 1: Cause related distribution of trauma**

Traumatic dental injuries by falls (57.14%) was identified as major etiological factor followed by trauma due to sports (36.50%). [Graph 1]



**Graph 2: Distribution of teeth according to dental injuries**

The most affected teeth were maxillary central incisors (54.76%), followed by maxillary lateral incisors (43.65%) and a few cases of mandibular lateral incisor (1.58%) were also recorded [Graph 2]. The most common type of injury to dentition was enamel and dentin fractures followed by avulsion and exposure of pulp during trauma [Graph 3].



**Graph 3: Type of dental injury to the samples (Ellis and Davey's Classification)**

**Discussion**

In the present study, the prevalence of injury among the male (70.63%) was much higher than females (29.36%). This higher prevalence was also depicted in studies done by Murthy et al [8] in 2014 and Siqueira et al [9] in 2013. The major etiology may be due to more sports activity and energetic behavioral of male child. The age group selected for the study was selected between 6 and 14 years, as maximum physiological growth occurs in this time and also the children were actively involved in participating during the survey [10]. Yaseen et al [11] also have shown similar findings. Age has been known as a risk-factor even though traumatic dental injuries can occur at any age in life, it is slightly more prevalent in school children and teenagers. Previous studies have also demonstrated similar results as our studies that age group between 9-14 are more prone to trauma [12].

The maxillary teeth are more commonly involved in trauma than mandibular teeth. Many studies have revealed that maxillary central incisors are most frequently affected, quite similar findings were observed in this study [7,13,14]. Various factors can be related to this such as position of the tooth in the arch, protruded teeth and also incompetency of lips leading to inadequate coverage.

We have preferred a simple classification to record the type of traumatic injury to the dental tissue. Ellis and Davey's classification were adopted as it been used in previous studies as well [15]. Injuries to the alveolar socket and other oral tissues of the mouth like, oral mucosa and periodontal tissue were not evaluated, thus Andreasen's classification was not supported for this study. The most common type of the injury noted was fracture to enamel or dentine (without exposure of pulp). This was in line with the earlier studies conducted [16,17]. Dental trauma is a very challenging problem to professionals as it can occur at any point of time and is it considered as an emergency dental condition. The educational institutes must conduct awareness programs in school to emphasize the ways to prevent this condition. It has also been a challenge to careers. Emergency management should start at the point of trauma only but not when a patient visits the dentist. Dentist should take a lead in providing awareness in the schools and the general public.

### Conclusion

Traumatic dental injuries are relatively less common in Jammu population. The knowledge of dental injuries among the children and school teachers was inadequate. Educational programs related to prevention of dental trauma should be carried out for teachers and school children.

**Acknowledgement:** I would like to thank all the patients and their teachers who participated in this study.

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