

Incidence of Traumatic Dental Injuries in Children Aged 3–18 Years in Tirupathi

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Abstract

Background: Traumatic dental injuries (TDI) are considered to be an important issue due to its high prevalence, mainly in areas of high social privation. They have a strong impact on children's and adolescent's life quality because they cause physical and emotional distress, and in children, they might have a high negative impact on the social relationships. Involvement of children in sports activities and increase in traffic accidents have contributed to transform these TDI an emergent public health problem. **Aim and Objectives:** The current retrospective study is to determine the prevalence of TDI reported to Department of Pedodontics and Preventive Dentistry, CKS Teja Dental College, Tirupathi, during the years 2011–2016. **Methodology:** Sample size is the total number of patients reported to the Department of Pedodontics and Preventive Dentistry, CKS Teja Dental College, Tirupathi, within the period of 2010–2016. The data were retrieved from medical records of patients who reported to the department. **Results:** All recorded data were analyzed using the Statistical Package for the Social Sciences statistical software program (2012). The results were evaluated by Chi-square test. A total of 324 patients aged between 3 and 18 years met the inclusion criteria and were enrolled in the study. The highest frequency of TDI was in the 10–12-year-old participants and lowest frequency was in 3–6-year-old children. The etiology of TDI was analyzed; highest were caused by falls, followed by sports activities and then striking objectives and then followed by accidents and cycling. The most common type of injury was uncomplicated crown fracture (without pulp exposure) followed by avulsion and complicated crown fracture (with pulp exposure). **Conclusion:** Study observed the children in mixed dentition period as the population at risk. Hence, prevention through health promotion and correction of predisposing risk factors should be carried out in early mixed dentition period to reduce the prevalence of dental injury and to avoid the financial costs of treatment.

Keywords: Dental traumatic injuries, permanent dentition, prevalence, retrospective analysis

INTRODUCTION

One of the greatest assets a person can have is a “smile” that shows beautiful, natural teeth. An untreated and unsightly fracture of an anterior tooth can affect the behavior of a child, his/her progress in school, and can have more impact on their daily living. Trauma to anterior teeth is undesirable, and prevention of this is beneficial to the personality development of the child.^[1]

Dental injuries may occur throughout life, but traumatic dental injuries (TDI) are a very significant problem among children. The main etiology being accidents such as falls, fights, and during sports. They are associated with biological, socioeconomic, psychological, and behavioral factors.^[2] The predisposing dental risk factors include increased incisal overjet, open bite, protrusion, and lip incompetence.^[3]

It is a dental emergency situation in young patients and requires immediate assessment and management because many permanent teeth continue their development in those ages.^[4] The improvement of TDI in permanent teeth illustrates important aspects that must be carefully planned, requiring several follow-up appointments, mainly due to the possible appearance sequels in the developing permanent dentition.^[5]

The importance of assessing the prevalence of traumatized teeth by the survey was pointed out by Andreasen and Andreasen in 1994. Epidemiological data provide a basis for evaluating the concepts of effective treatment, resource allocation, and planning within any health environment.^[6]

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Access this article online

Quick Response Code:



Website:
www.ijpedor.org

DOI:
10.4103/ijpr.ijpr_19_17

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How to cite this article: Reddy KV, Kumar KN, Venkatasubramanian R, Togaru H, Kannakiah S, Reddy R. Incidence of traumatic dental injuries in children aged 3–18 years in Tirupathi. *Int J Pedod Rehabil* 2017;2:73–6.

Table 1: Number of traumatized teeth according to the gender

Gender	n	%	P
Male	217	67.2%	.000
Female	106	32.8%	.000

Table 2: Distribution of teeth according to the age of patients

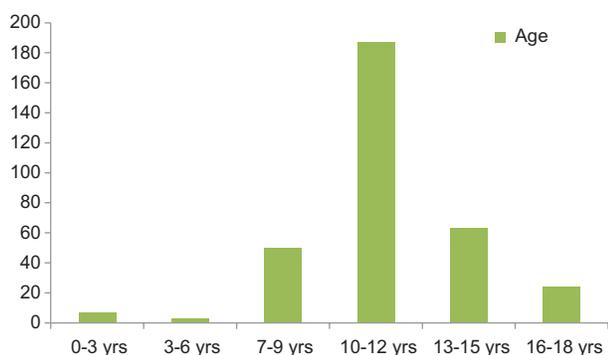
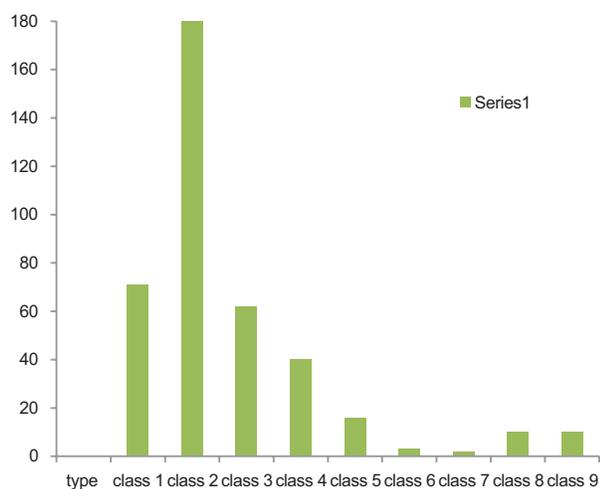


Table 3: Distribution of teeth according to the type of the injury



Hence, the purpose of the current retrospective study was to determine the prevalence of traumatic injuries in 3–18-year-old children who reported to Department of Pedodontics and Preventive Dentistry, CKS Teja Dental College, Tirupathi.

METHODOLOGY

The present retrospective study was carried out in Department of Pedodontics and Preventive Dentistry, CKS Teja Dental College and Hospital, Tirupati, India. Ethical clearance was

obtained from Institutional Ethical Committee, CKS Teja Dental College.

Sample size is the total number of patients reported to the Department of Pedodontics and Preventive Dentistry, CKS Teja Dental College, Tirupathi, within the period of 2010–2016. The data were retrieved from medical records of patients who reported to the department. Their distribution according to age, gender, cause of the injury, type of injury, and teeth injured was recorded. Cases with incomplete documentation or TDI affecting primary dentition were excluded. The type of TDI was classified, according to the system described by Ellis classification.

A total number of 324 children reported, out of which 217 were boys and 106 were girls between the age of 3 and 18 years of age. All recorded data were analyzed using the Statistical Package for the Social Sciences (SPSS, IBM Ltd, India) statistical software program (2012). The results were evaluated by Chi-square test. The association between the occurrence of dental injuries with relation to age, sex, and number of injured teeth is statistically significant.

RESULTS

A total of 324 patients aged between 3 and 18 years met the inclusion criteria and were enrolled in the study [Tables 1 and 2]. The highest frequency of TDI was in the 10–12-year-old participants and lowest frequency was in 3–6-year-old children. The distribution of patients by gender showed that males were more often affected (67.2%) than females (32.8%).

When the etiology of TDI was analyzed, highest were caused by falls, followed by sports activities and then striking objectives and then followed by accidents and cycling. The most affected teeth were the maxillary central incisors, followed by the maxillary left lateral incisors and then mandibular incisors.

The most common type of injury was uncomplicated [Table 3] crown fracture (without pulp exposure) followed by avulsion and complicated crown fracture (with pulp exposure) [Tables 4–6]. When it comes to the type of occlusion, Class 2 div 2 type of malocclusion had increasing frequency of trauma.

DISCUSSION

Traumatic dental injury is not a result of disease but a consequence of several factors that will accumulate throughout life if not properly treated. For this study, children between 3 and 18 years of age were chosen, as during this period, there is the maximum physiologic growth and development and the children are actively involved in lot of outdoor activities.^[6]

Epidemiological knowledge of TDI adds valuable information on public health, and when associated with clinical observations and trials, it provides essential evidence to all the science segments.^[5] The retrospective epidemiological evaluation developed in the present study was based on the verification of

Table 4: Type of occlusion

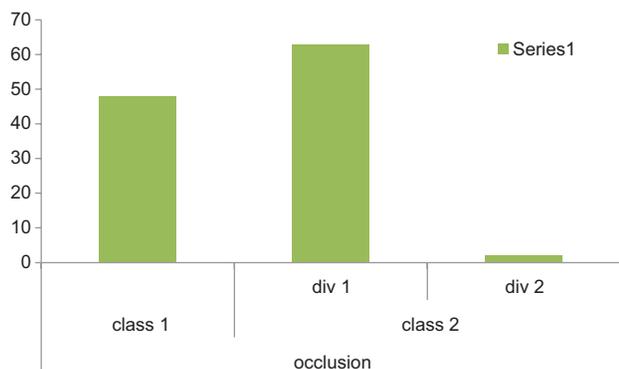


Table 5: Distribution of teeth according to cause

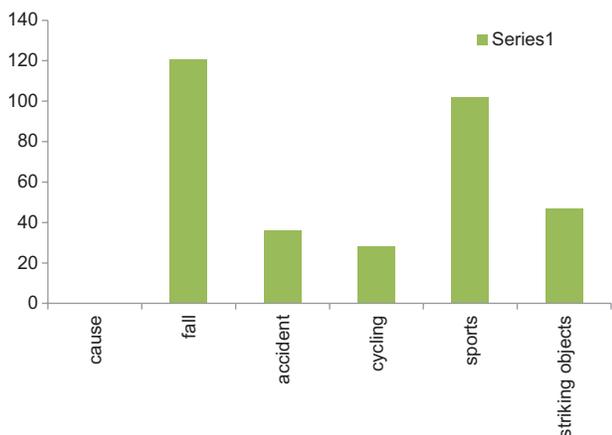
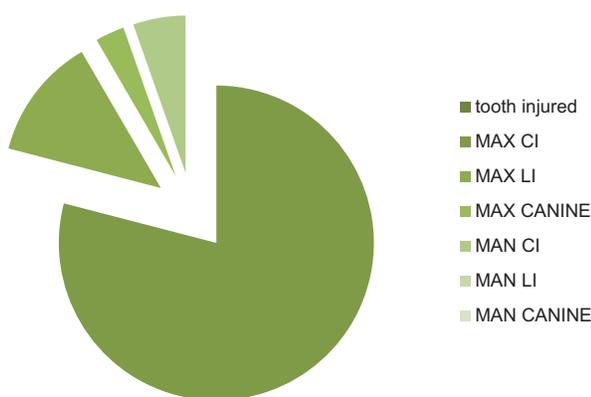


Table 6: Distribution of teeth according to tooth injured



the clinical records of patients with TDI treated at Department of Pedodontics and Preventive Dentistry during the period of 2010–2016.

The present study has shown that gender is a predisposing factor in dental trauma. Increased frequency was seen among boys than girls which was 67.2% which is in accordance with many other studies. Similar result was found in different geographical locations by Hamdan MA, Rajab LD, Nik-Hussein NN, in their study.^[7,8]

Age is another well-established risk factor, and although TDI has been reported in all age groups, it is more prevalent in school children and teenagers. Previous studies have demonstrated that the majority of TDIs occur in childhood and adolescence.^[9] Similar to previously reported findings, the present study has also illustrated the greater prevalence of TDI among children between 8 and 12 years.

The maxillary central incisors were the most frequent injured teeth. This is in line with the findings of Hamdan and Rajab and Nik-Hussein also found that maxillary central incisors were injured in 78% and 79.2% of traumatic cases, respectively.^[10,11]

The main etiological factor of the dental trauma among our study population was fall. Yassen *et al.*^[12] also have shown similar findings. Unlike previous studies, the second cause of TDI in our study was sporting activities (26%); Borssén *et al.* reported similar findings.^[13,14]

The most common type of injury recorded in the present study was uncomplicated crown fracture which is in line with the studies conducted by Hamdan and Rajab and Nik-Hussein.^[10,11]

It is highly recommended to plan a trauma prevention community targeting parents, children, and school staff. In addition, holding proper educational programs to enhance the level of general knowledge about prevention and managing these injuries seems necessary. In these programs, the importance of proper treatment of traumatized teeth, be the primary or permanent, should be stressed to prevent their biologic and psychologic consequences.

CONCLUSION

The study observed the children in mixed dentition period as the population at risk. Hence, prevention through health promotion and correction of predisposing risk factors should be carried out in early mixed dentition period to reduce the prevalence of dental injury and to avoid the financial costs of treatment. An effort can be made to reduce the prevalence of traumatic injuries by taking into consideration the following measures:

- The use of intraoral and extraoral devices which protects the face and teeth from trauma
- Elimination or reduction of predisposing factors in the form of orthodontic treatment
- Educational programs whereby the children and their parents are given information regarding the preventive and treatment aspects of this commonly occurring condition
- Health promotion policies should aim to create an appropriate and safe environment.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

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