



ORIGINAL RESEARCH PAPER

Dental Science

PREVALENCE OF TRAUMATIC DENTAL INJURIES IN CHILDREN BETWEEN 11- AND 13- YEAR OLD AT AYANAVARAM, CHENNAI, INDIA

KEY WORDS: Prevalence, Traumatic Dental Injuries, Ayanavaram, School children

D. Priyadarshini*	Post graduate student , Department of Pedodontics and Preventive Dentistry, Thai Moogambigai Dental College and Hospital. *Corresponding Author
Sharanya Ravindran	MDS, Senior Lecturer, Department of Pedodontics and Preventive Dentistry, Thai Moogambigai Dental College and Hospital.
Nancy Solomon	Post graduate student, Department of Pedodontics and Preventive Dentistry, Thai Moogambigai Dental College And Hospital.
Joyson Moses	MDS, Professor and Head of the department, Department of Pedodontics and Preventive Dentistry, Thai Moogambigai Dental College and Hospital.

ABSTRACT

AIM: To assess the prevalence of traumatic dental injuries among school going children between 11 and 13 years of age in Ayanavaram, Chennai, India.
MATERIALS AND METHODS: Epidemiological cross-sectional study was carried out to assess the prevalence of traumatic dental injuries between 11 and 13 years of age (n=825) in Ayanavaram, Chennai. Examination was done to assess the type of hard and soft tissue injury.
RESULTS: Out of 825 children examined, only 20% of the population had traumatic dental injuries with more predilection in boys, with the injuries occurring commonly at home and school due to fall. 10.7% had both hard and soft tissue injury and 20% had only hard tissue injury with high existence of Elli's class I fracture.
CONCLUSION: The study enlightens the need for patient education programmes, to establish awareness towards traumatic dental injuries.

INTRODUCTION:

Traumatic dental injuries have been found to be at an increased rate in children due to various environmental factors. It has been reported that oral injuries are the fourth most common area of bodily injuries among 7-30-years-old. (1) In the current scenario, active participation of school going children in sports, gymnastics, and other outdoor activities make them more vulnerable to traumatic dental injuries due to the unavoidable collisions and falls that may occur. However, the modern civilized society and the developing educational institutions have still not enlightened the significance of treatment following a traumatic dental injury. The fracture or loss of a child's anterior teeth can provoke significant psychological disturbance for both the parent and the child due to the deteriorating aesthetics which in turn can affect the quality of life and self-esteem of the child. Presence of all teeth seems to be an important factor in children for the harmonious development to be functionally and aesthetically satisfactory occlusion. Any disastrous event on the developing dentition can cause malformed or malposition of teeth, premature tooth loss and pulpal necrosis with abscess formation. Hence, following a traumatic dental injury, thorough initial examination of the injured site, accurate diagnosis and early treatment should be elicited by the clinician for a good prognosis.

AIMS:

To assess the prevalence of traumatic dental injuries among school going children between 11 and 13 years of age in Ayanavaram, Chennai

OBJECTIVES:

- To assess gender predilection of Traumatic Dental Injuries
- To assess the common cause for Traumatic Dental Injuries
- To assess the awareness of need for treatment following injury

MATERIALS AND METHODS:

A cross-sectional study was conducted during a period of three months in 7 schools located in Ayanavaram, Chennai. The study was approved by the institutional review board, ethical clearance was obtained to conduct the study. Prior permission was obtained from the head of the institution of the respective schools through a letter explaining the purpose of the study. A total of 825 school children were selected using random sampling method with an average of 65-80 students in each school, aged between 11 to 13 years.

A questionnaire was prepared for recording the demographic details of the child and contained questions regarding the presence of injury, site, time of injury, type of injury following which a brief intraoral examination was done to record the type of fracture using Elli's and Davey's classification. The intraoral examination was performed using mouth mirror under natural light illumination. The data obtained in the study was tabulated and subjected to statistical analysis using Statistical Package for the Social Sciences (SPSS Software)

RESULTS:

The results of the present study revealed that, out of the 825 children who took part in the study, 165 children had traumatic dental injuries. The results of gender predilection and the results of other queries obtained from the questionnaire are mentioned in tables 1 and 2 respectively.

Table 1: Depicts the gender predilection among children who had traumatic dental injuries.

			Gender		Total
			Male	Female	
Presence of Trauma	Yes	Count	112	53	165
		% within Presence of Trauma	67.9%	32.1%	100.0%
	No	Count	350	310	660
		% within Presence of Trauma	53.0%	47.0%	100.0%
Total		Count	462	363	825
		% within Presence of Trauma	56.0%	44.0%	100.0%

Table 2: Depicts the results obtained for other queries in the study

		Frequency	Percent	Valid percent	Cumulative percent
PRESENCE OF TRAUMA	Yes	165	20.0	20.0	20.0
	No	660	80.0	80.0	100.0
WHERE	No trauma	660	80.0	80.0	80.0
	School	66	8.0	8.0	88.0
	Home	66	8.0	8.0	96.0
	Playground	33	4.0	4.0	100.0

REASON	No trauma	660	80.0	80.0	80.0
	Fall	66	8.0	8.0	88.0
	Fight	33	4.0	4.0	92.0
	Sports injury	33	4.0	4.0	96.0
	Others	33	4.0	4.0	100.0
TYPE OF INJURY	No injury	660	80.0	80.0	80.0
	Hard tissue	79	9.6	9.6	89.6
	Both	86	10.4	10.4	100.0
SOFT TISSUE INJURY	No injury	737	89.3	89.3	89.3
	Lips	73	8.8	8.8	98.2
	Tongue	2	.2	.2	98.4
	Gums	3	.4	.4	98.8
	Others	10	1.2	1.2	100.0
HARD TISSUE INJURY	No injury	660	80.0	80.0	80.0
	Ellis class I	99	12.0	12.0	92.0
	Ellis class II	33	4.0	4.0	96.0
	Ellis class III	33	4.0	4.0	100.0
TREATMENT DONE	No trauma	660	80.0	80.0	80.0
	Yes	33	4.0	4.0	84.0
	No	132	16.0	16.0	100.0

From the above results, there was an overall prevalence 20% of dental injuries in the examined population most of which occurred at school and home due to fall (8%) majorly followed by sports(4%), fight(4%) and other causes (4%). 10.4% of the children had suffered of both the hard and soft tissue injury. Most of the hard tissue injury involved only the enamel (12%) and lip was the commonly affected soft tissue site of injury (8%). The percentage of children left untreated (16%) following trauma was remarkably higher than the treated (4%) that poses an urge to educate the certain arenas.

DISCUSSION:

In the present study, traumatic dental injuries accounted for 20% of the examined population in Ayanavaram, Chennai. O'Brien (2) found a prevalence of 25% for 12-year-old boys and 20% for 14-year-old boys which is in accordance with our results which is also a close figure as reported by Todd and Dodd (3) who encountered a prevalence of 29% for 12-year-old boys.

In the study undertaken in Bhopal city, India, out of 1204 school going children examined, 252 children had fractured teeth, giving the overall prevalence rate of 20.9% (4) which is almost similar to the current study at Ayanavaram, Chennai, India

There was a prevalence of 11.5% of traumatic dental injuries to the permanent incisors of 11-13-year-old school children in Maduravoyal, Chennai (5), which was much lesser than our results. The prevalence of dental trauma as reported by UK National Survey in 1983 was 33% for 14-year-old boys, 34% in 12-14-year-old Saudi boys as reported by Al Majed et al (6) and 34% in 11-14-year-old children in Greater Manchester as reported by Hamilton et al (7) which were higher than our current study results.

In the current study, the proportion of fractured maxillary incisors involving only enamel (Elli's class I) was 12%, enamel and dentine (Elli's class II) was 4% and enamel, dentin and pulp (Elli's class III) was 4%. In the study conducted by Al Majed et al, fractures involving enamel and dentin was 15.2% and fracture involving enamel, dentine and pulp affected only 4.9% of the fractured maxillary incisor which is almost similar with the results obtained from the current study. These findings also agree with results of Garcia-Godoy et al (8). These types of dental fractures require immediate dental care with close review and adherence to follow up appointments to reduce complications caused by delaying treatment(9)

The male to female ratio as observed in the current study is 2:1 which was similar to the study done by Adekoya et al (10) whereas, the difference in frequency of dental injuries was 4:1 in Maduravoyal, Chennai people which is higher than that occurred in the current study.

The most common injuries to permanent teeth occur as a result of

falls according to Caidas AF Jr et al in 2001(11), Adekoya-Softowora C et al in 2000(12) and Rai SB et al in 1998 (13) which is similar to the current study where most of the injuries were because of fall. The next common cause of TDI was sports and accidents in the current study which is similar to the results obtained by Tapias et al in 2003(14), Sakare et al in 2002(15) and Rocha Midc et al in 2001(16)

The attitude and knowledge regarding treatment of injured tooth was not impressive in the present study. It has shown a shocking revelation that dental awareness is very low as evident in the number of children (16%) who had undergone treatment for TDI when compared to children who were not treated by the dental professionals.

CONCLUSION:

An ounce of prevention is worth a pound of cure. Treating the child after being exposed to the dental trauma can be avoided if proper safety protocols are carried out to prevent the uneventful events of dental injury. Educating the school teachers, physical examination trainer and the parents about the usage of mouth guards during play and sports, can prevent the occurrence of traumatic dental injuries at the school. The education should start from the dentist to create an awareness among the general population about both the prevention and treatment measures following trauma.

REFERENCES:

- Peterson EE, Andersson L, Sorenson S, "Traumatic oral vs non-Oral injuries". Swedish Dental Journal 1997;21:55
- O'Brien M. Children's dental health in the United Kingdom 1993. OPCS. London: HMSO; 1994
- Todd JE, Dodd T. Children's dental health in the United Kingdom 1983. London: HMSO; 1985
- Maran S, Shashikiran ND, Ahirwar P, Maran P, Kannojiya PR, Niranjana B. Prevalence of dental caries and traumatic dental injuries among 6-to 12-year-old children in Bhopal City, India. International journal of clinical pediatric dentistry. 2017 Apr;10(2):172.
- Ingle NA, Baratam N, Charania Z. Prevalence and factors associated with traumatic dental injuries (TDI) to anterior teeth of 11-13 year old school going children of Maduravoyal, Chennai. J Oral Health Comm Dent. 2010;4(3):55-60.
- Al-Majed I, Murray JJ, Maguire A. Prevalence of dental trauma in 5-6-and 12-14-year-old boys in Riyadh, Saudi Arabia. Dental Traumatology. 2001 Feb;17(4):153-8.
- Hamilton FA, Hill FJ, Holloway PJ. An investigation of dentoalveolar trauma and its treatment in an adolescent population. Part 1: the prevalence and incidence of injuries and the extent and adequacy of treatment received. Br Dent J 1997;182:91-5.
- Garcia-Godoy F, Dipres FM, Lora IM, Vidal ED. Traumatic dental injuries in children from private and public schools. Community Dent Oral Epidemiol 1986;14:287-90
- Glendor U, Halling A, Andersson L, Eilert-Pettersson E. Incidence of traumatic tooth injuries in children and adolescents in the county of Vastmanland, Sweden. Swed Dent J 1996;20:15-28
- Comfort Ayodele Adekoya - Sofowora, Ramat Brumiah, Eytupe Ogungbenro Ogunbodede: Traumatic Dental Injuries Experience in Suburban Nigerian Adolescents. The international Journal of Dental Science 2005;3(5)
- Caidas AF Jr, Burgos ME. A retrospective study of traumatic dental injuries in a Brazilian Dental Clinic. Dental Traumatology 2001;17:250-53.
- Adekoya-Softowora C, Sote E, Odusanya S, Fagade O. Traumatic dental injuries of anterior teeth of children Nigeria. Pediatric Dental Journal 2000;10:33-39.5.
- Rai SB, Munshi AK. Traumatic injuries to the anterior teeth among south Kamara school children-a prevalence study. Journal of Indian Soc. Pedod Prev Dent 1998;16:44-51.
- Tapias MA, Zimenenz-Garcia R, Lamas F, Gil AA. Prevalence of traumatic crown fracture to permanent incisors in a Childhood population, Mostoles, Spain. Dental Traumatology 2003;19:119-122
- Sakare AB, Jacobsen I Dental Injuries in Norwegians aged 7-18 years. Dental Traumatology 2002;19:67-71
- Rocha Midc, Cardoso M. Tramatized Permanent teeth in Brazilian children assisted at the Federal University of Santa Catarina. Brazil Dental Traumatology 2001;17:245-49.