ORIGINAL RESEARCH

Prevalence of traumatic dental injuries and their impact on Quality of Life in 12-15 years old school children in Bhubaneswar

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ABSTRACT

Aim: To assess the prevalence of different traumatic dental injuries and their impact on the quality of life in 12-15 years old children in Bhubaneswar. **Materials and Method:** A total sample of 2517 school going children were taken for the study .The survey includes examination of traumatic dental injuries and its impact on quality of life using standardized OHIP-14 questionnaire. **Results:** Male was affected more than the female. Traumatic dental injuries affect the quality of life as it causes pain, children become self- conscious, get embarrassed in front of other people, irritated when interacting with other people. **Conclusion:** From this study following results was obtained: the prevalence of trauma among the over-all population was 17.44%, traumatic dental injuries had some negative impact on the quality of life on the 4 subscales of the OHIP-14.

KEYWORDS: Dental Trauma, Quality of Life, Questionnaire, Oral Health

INTRODUCTION

Traumatic dental injuries to the permanent incisors or anterior teeth are becoming remarkably common among children and often result in partial or total loss of dental hard tissues along with underlying esthetic, physical, social, psychological, functional and therapeutic adverse effects on an individual's quality of life1. It is accepted that the appearance and position of the anterior teeth have psychological and social impacts on children and that the appearance of the face plays an important psychosocial role in human life and relationships. The prevalence of dental injuries increased in the last 10-20 years and has evolved into major public health problem. The prevalence of traumatic dental injuries among adolescents in the Americas and Europe ranged from 15% to 23% and 23% to 35% respectively.[4,5,6] Corresponding prevalence rates among adolescents in Asia and Africa ranged from 4% to 35% and 15% to 21% respectively .Great variation in reported rates can be attributed to a number of different factors, including types of study, trauma classification, methodology, study size and population, geographical location and differences in cultural behaviour.

Therefore the purpose of this study was to find the prevalence rate of diffent traumatic dental injuries and their impact on quality of life in 12-15 years old school going children of bhubaneswar, India.

MATERIALS AND METHODS

This cross sectional study was conducted in Bhubaneswar from oct 2016 to june 2017. 20 schools were randomly selected from the list of schools of Bhubaneswar to complete the sample size up to 2500 children as estimated in the pilot study of age group 12-15 years.For trauma assessment we used WHO international classification of traumatic dental injuries and for assessment of quality of life standardized OHIP-14 questionnaire was used. OHIP-14 questionnaire consist of 14 question related to physical, symptoms, functional and psychological domain. Each questionnaire item was rated on a 3-point Like rt scale as such: 0—never or not applicable; 1-occasionally; 3—fairly often. Dental examinations were carried out on all students by one of the authors using dental mirror and explorer in a well lit room in the school.

RESULTS

A total of 2517 children participated in this study, including 1400 males and 1117 females.The prevalence of trauma among the over-all population was 17.44 % (Figure 1, Table 1). The trauma was present more among males than the females. The main etiology of trauma among the study population was fall (Table 2). Maxillary Central incisors were the most commonly affected tooth. Fracture of enamel was the most common type of injuries reported. Traumatic dental injuries were more found in 12 years age and it decreases as the age increase. The results of the OHIP -14 shows that 213 (48.67%) children, 121 boys and 92 girls' occasionally felt painful aching in their mouth. (0.05>p) 69.62% children (190 boys and 115 girls) occasionally get self conscious while interacting

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with people. (0.05>p) 70.13% children (190 boys, 118 girls) occasionally get irritated when interacting with people.(0.05>p) .70.13 % (201 boys &106 girls) get embrassed in front of other people due to their esthetic appearance (Table 3).

S.No.	Types Of Tooth Fracture		Numbers	Chi Square Value (X2)Value
1	Enamel Fracture	M	166	**P=.0002 (Significant) P<.05**
		F	106	
2	Enamel + Dentine Fracture	M	59	
		F	48	
3	Enamel+Dentine + Pulp Involvement	M	46	
		F		
	Total		14	

Table 1: Distributions Of Different Types of Tooth Fractures among Males & Females

S.No.	Reassons For Trauma		Numbers	Chi Square Value (X2) Value
1	Fall	M	87	**P=.0002 (Significant) P<.05**
		F	74	
2	Collision	M	69	
		F	26	
3	Traffic	M	35	
		F	19	
4	Sports	M	52	
		F	38	
5	Violence	M	19	
		F	3	
6	Missing	M	15	
		F	2	
	Total		**439**	

Table 2: Distribution Of Reasons For Trauma

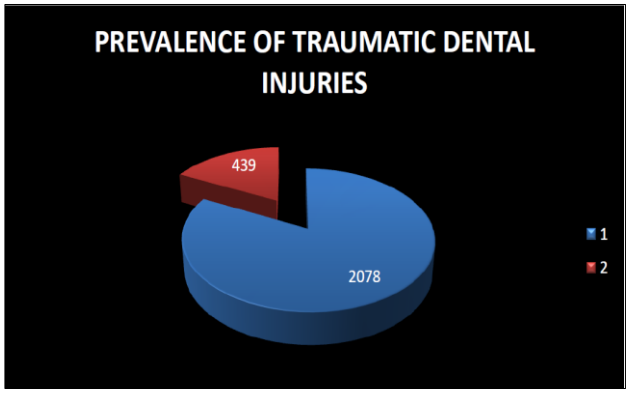

Figure 1: Prevalence of traumatic dental injuries

S.No.	Description Of Item	Never/Hardly Ever (1)	Occasionally (2)	Fairly Often/Very Often (3)
1.	Have You Had Painful Aching In Your Mouth?	167(38.27%)	213(48.67%)*	59(13.05%)
2.	Have You Been Self Conscious?	79(17.52%)	305(69.62%)*	58(12.86%)
3	Have You Been A Bit Embarrassed?	90(20.58%)	307(70.13%)*	42(9.29%)
4	Have You Been A Bit Irritable With Other People?	43(9.8%)	308(70.3%)*	87(19.9%)

Table 3: Oral Health Related Quality Of Life Questionaire. * Shows A Significant Association At .05 Level Of Significance. I.E. (P<.05)

DISCUSSION

The World Health Organization (WHO) defines health as "a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity." The definition of health is complex, and concepts such as those proposed by the WHO may not be able to capture the full meaning of "health." The present concept of health requires the inclusion of psychosocial aspects, such as issues related to quality of life (QOL), which is closely associated with human relationships in contemporary society. Therefore, disruptions in normal physical, psychological, and social functioning are important considerations in assessing oral health. Oral health problems have been increasingly recognized as important factors causing a negative impact on daily performance and QOL.[1]

Traumatic dental injuries to the permanent incisors or anterior teeth are becoming remarkably common among children and often result in partial or total loss of dental hard tissues along with underlying esthetic, physical, social, psychological, functional and therapeutic adverse effects on an individual's quality of life. Perhaps this is one of the dental disturbances that cause much of distress and psychological trauma to their parents also. Moreover, because of their morphology and location they are more susceptible to traumatic dental injuries.[5]

The prevalence of trauma, in the present study among the total study population was 17.44%. Similar results (18.9%) were found by Trabert J et al[6] in Brazil. Lower prevalence rate was reported in Davangere by Ravishankar et al[7] observed 15.1% prevalence among 12 year old school children , Gupta K et al[8] found 13.8% prevalence rate of traumatic dental injury in 8-14 years old school children in South Kanara district India

The results from the all the studies available on traumatic dental injuries are different which may be attributed to difference in experimental design among the studies, differences in the population studied and variation in the age or the size of sample.[5]

In our study the trauma was more among males (19.78%) in comparison to females (14.5%), which was similar to the findings of most of the Indian and other countries epidemiological surveys.[5,8,9,10]

Provided that no other variable was related to the sex, the explanation to the above fact of more number of males suffering from TDIs might be in the higher intensity of the impact; due to boys tending to be more energetic and inclined toward vigorous outdoor activities as compared to girls.

Garcia-Godoy[11] reported the most common cause of injury in both sexes was falling (60.0% in boys and 42.0% in girls). Garcia-Godoy[11] suggested that the causes of injury could vary according to age, sex, climate and socioeconomic level of the children.

In the present study, enamel fracture was most commonly reported injury (61.96%), followed by Enamel & dentin fracture (24.38%) and pulpal involvement found in 13.67% .

This result was almost similar to the study conducted by Garcia- Godoy[11], where enamel fracture (51.1%) was the most common injury and by Ravishankar TL et al[7],who also observed that enamel fracture (74.1%) was the most common type of traumatic dental injury in both arches, followed by 17.8% of fractures involving both enamel and dentine, and only 5% involving pulp. Similar findings were observed by many authors in their study both in the Indian as well as other populations.[9,10,12]

The most commonly affected teeth in the present study was maxillary central incisor (92.19%) followed by the maxillary lateral incisor (5.14%). This finding was similar to the various studies conducted by Rajesh A et al[13], Ravishankar TL et al[7] , Delattre JP et al.[14]

It was noticed that the maxillary teeth were more commonly injured than the mandibular teeth. This could be explained by the fact that in the vertical plane, the maxillary arch is located more anteriorly than the mandibular arch as a result of which the impact of injury would be more on the maxillary arch. In addition, upper jaw is fixed to the skull which makes it rigid, while lower jaw, being a flexible part, tends to reduce the impact forces directed on the lower anterior teeth by its movement. Within the arch, the reason for increase in number of trauma to central incisors compared to lateral incisors can be explained by the fact that the central incisors are more proclined and forwardly placed than the lateral incisors in the vertical plane.[15]

The most common affected age for traumatic dental injuries was found to be 12 years (48.29%) and the traumatic dental injuries decrease as the age increase which was similar to the studies conducted by Gupta K et al.[16] The reason could be that as the child become mature and less involved in sports activity hence traumatic dental injuries decreased.

It is accepted that the appearance and position of the anterior teeth have psychological and social impacts on children and that the appearance of the face plays an important psychosocial role in human life and relationships.[17]

The presence of TDI and different types of malocclusions may cause loss of function, aesthetics problems, and effect on emotional and social well-being by themselves in preschool children. The assessment of quality of life has become an integral part of evaluating health programs. In recent years, several instruments used to improve and validate oral health-related quality of life (OHRQoL) in children and adolescents have emerged.[17]

The negative impact of Traumatic Dental Injuries on the children's life includes chewing difficulties, decreased appetite, weight loss, sleeping difficulties, changes in behaviour irritability and low self-esteem and decrease in school performance.[18]

Quality of life measurement in children involves special methodological problems, such as changes in children's ability to understand at different ages, the difficulty of separating the child's perceptions from the parents and the variation in the number of activities with age.[18]

However, the OHIP questionnaire has demonstrated that with appropriate questionnaire techniques, it is possible to obtain valid and reliable information from preschool children concerning their OHRQoL .

The result of this study showed that 48.67% children, 121 boys and 92 girls' with traumatic dental injuries occasionally felt painful aching while taking food.

Similar finding was reported by Cortes MIS et al[17] who reported that children with fractured teeth have difficulty while taking food. Oziegbe EO et al[20] who reported that children with fractured tooth have pain while eating .The similar finding was reported by Trabert J et al[19] who reported that presence of traumatic dental injuries affect quality of life in terms of oral symptoms.

Another finding of this study was that 69.62% children with traumatic dental injuries become self conscious while interacting with people and 70.13% children getting little bit embarrassed in front of other people.

It was also also found in this study that 70.3% school children with traumatic dental injuries show irritating behavior in their daily life.

The similar finding was reported by Cortes MIS et al[17] who reported that children with Traumatic dental injuries avoid smiling, does not properly enjoy food, become emotionally disturbed and were not taking interest in interacting with people.

Another study supported this result was done by Trabert J et al[19] who reported that traumatic dental injuries affect quality of life as it can cause oral symptoms , functional limitation and disturbed emotional well being of children.

The reason for emotional disturbance is that children now days become aware about their looks hence they become psychologically depressed as traumatic dental injuries to the anterior teeth directly affect their appearance. Good oral health is essential to improve individual overall health and well- being as oral health also affects quality of life in children. The present study recommends an educational program for patients regarding information about the importance of dental trauma, ways of preventing trauma, the benefits of immediate attendance and conservation of avulsed and fractured teeth. This would not only reduce the overall rate of dental injuries, but also minimize the sequelae of traumatic injuries.

CONCLUSION

Based on this study's results, the following conclusions can be made:

- Prevalence rate of traumatic dental injuries was 17.44%
- Traumatic dental injuries affect quality of life as it cause pain, children become self conscious, getting

embarrassed in front of other people, and children irritated when interact with other person.

- Prevalence of traumatic dental injuries in school going children should be assessed at regular intervals of time to ascertain the trend of traumatic injuries and need of preventive and restorative care

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