ORIGINAL ARTICLE

Association of Ellis class 1 fracture in children of age 6–12 years

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J. Adv. Pharm. Technol. Res.

ABSTRACT

Trauma is a well-known issue in children, and its prevalence is on the rise more than that of dental caries in children. The objective of the study is to evaluate the association of Ellis class 1 fracture in children between 6 and 12 years. This study includes 45 males and 55 female patients of age 6–12 years. All the data regarding the study population was extracted from Dental Information Archiving Software-all patient records from management. The data collected were tabulated and imported to SPSS software. Statistical analysis was done using Chi-square tests. Ellis class 1 fracture ordinarily is observed to affect the central incisors. Majority of school children of 6–12 years of age were more vulnerable to dental trauma. There is a strong association between Ellis class 1 fracture in children of 6–12 years of age.

Key words: Children, dental trauma, Ellis fracture, innovative technique

INTRODUCTION

Trauma contributes to a major portion in dental injuries and becomes an important public health problem.[1] However, the prevalence is quite high and tends to affect the quality of life in children.[2] Most of the injuries tend to affect the anterior teeth in 90% of cases which leads to restricted biting, esthetic difficulty, and speaking difficulties.[3] It is trauma with variation in extent, intensity, and severity created by forces exerted on teeth as a result of accidents or as a result of an assault.[3,4] Oral injuries are regular in the first decade of life.[5] In diverse corners of the world, people have studied the effect of traumatic dental injuries have been and showed different results out of which prevalence in Asia refers to be around 4% to 35%.[6]

The majority of traumatic dental injuries have been proven to have an influence on the affected individual's physical, psychological, and financial aspects.[7] Therefore, previous studies and research support the fact that dental problems and academic performance in children were the influential factors having a serious reflection on their activities.[8] Preventive measures and risk factors can be acknowledged by health-care professionals to the parents regarding the ways to prevent it. Incorporate the importance of these preventive measures for a good quality of life and avoid the negative impacts of dental trauma.[9] It is pivotal to have an excellent database regarding all the evidence that supports the issue and sounds sensible to parents.[10]

However, dentists and health-care professionals are more concerned about the treatment aspect rather than educating them on the risk factors and prevention of dental trauma.[11] Increased overjet, ineffective lip covering, and maxillary anterior teeth protrusion have all been linked to dental

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Submitted: 17-Apr-2022 **Revised:** 13-Jun-2022
Accepted: 14-Jun-2022 **Published:** 30-Nov-2022

Access this article online	
Quick Response Code:	Website: www.japtr.org
	DOI: 10.4103/japtr.japtr_118_22

How to cite this article: Aathira CM, Lakshmanan L. Association of Ellis class 1 fracture in children of age 6–12 years. J Adv Pharm Technol Res 2022;13:S31-5.

traumatic injuries. In a nutshell, oral risk factors and environmental and personal behavior are correlated to the happening of dental trauma.[12] At 14 years, the maximum percentage of children have permanent tooth damage, with males outnumbering females by 2:1 and peak prevalence at 8–10 years.[13]

Despite the fact that our team has a wealth of expertise and research experience that has resulted in high-quality publications.[14-26] There is a lack of published articles emphasizing dental trauma and its impact on children of age 6–12 years. Therefore, the current study was conducted in the Chennai population. Our research and knowledge have resulted in high-quality publications from our team.[27-41]

The objective of the research was to evaluate the association of Ellis class 1 fracture in children of age 6–12 years of age.

MATERIALS AND METHODS

The study was carried out after Institutional Review Board approval (IHEC/SDC/PEDO/21/273). Children aged 6–12 years were included in the current study. Data were obtained as of March 1, 2020–March 31, 2021. About 100 patients data were collected from the outpatient department records. Patients' demographic data, teeth number, type of fracture, and missing teeth were gathered from the records. A reviewer did cross-verification of the data.

The data were entered into the SPSS software Version 20.0 (IBM, Chicago), and categorical variables were represented in terms of frequency, with bar graphs displaying the results. The statistical significance of the associations was established using the Chi-square tests.

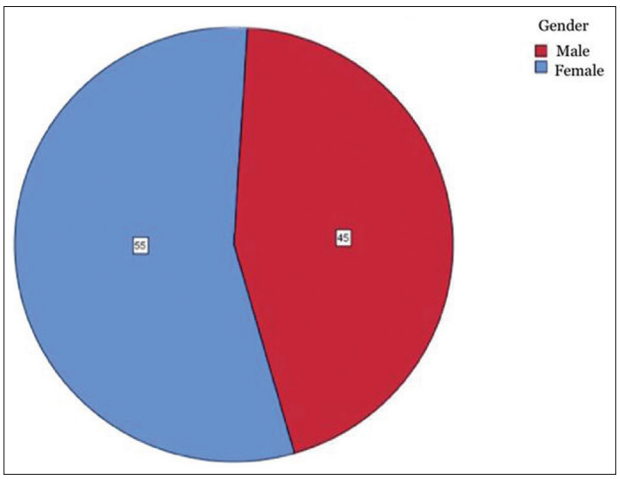

Figure 1: Graph represents the percentage of male and female participants involved in this study. Red represents male and light blue represents female. 55% of females and 45% of males participated in this study

RESULTS

The percentage of participants who took part in the study is depicted in Figure 1. The data of 45 males and 55 females were recorded in this study.

Figure 2 represents the relationship between gender and association of Ellis class 1 fracture and missing tooth in relation to 12,22. About 44% of males and 20% of females had Ellis class 1 fracture in this study.

Figure 3 shows the relationship between gender and association of Ellis class 1 fracture and missing tooth in relation to 11,21. About 45% of males and 10% of females show that they have Ellis class 1 fracture.

Figure 4 explains the relationship between gender and association of the Ellis class 1 fracture and missing tooth in relation to the tooth number. From the above graph, it is proved that central incisors are vulnerable to dental trauma in children between 6 and 12 years.

DISCUSSION

In the current study, 6–12-year-old children were liable to dental trauma. A previous study suggested that 9–10 years is considered the age for most dental trauma. These were supported by other studies.[42] The results obtained in this study clearly tell that Ellis class 1 fracture is the most frequent form of fracture seen in children which are supported by a study conducted by Alireza and others.[43] Opposingly, few studies have suggested dentin fracture to be a frequent type of injury.[44,45] Some difference of results

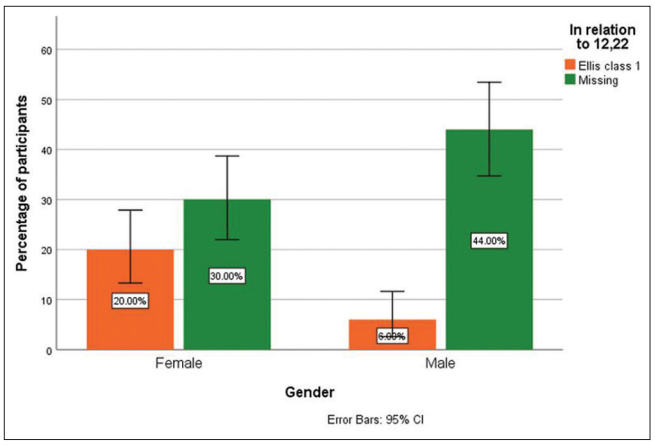

Figure 2: Graph represents the relationship between gender and incidence of Ellis class 1 fracture and missing tooth in relation to 12,22. The X-axis represents the gender and Y-axis represents the number of patients with Ellis class 1 fracture. Orange represents fracture and green represents missing tooth. 44% of males and 30% of females have Ellis class 1 fracture, while 6% of males and 20% of females have missing teeth. The association between variables was statistically insignificant ($P = 0.525$)

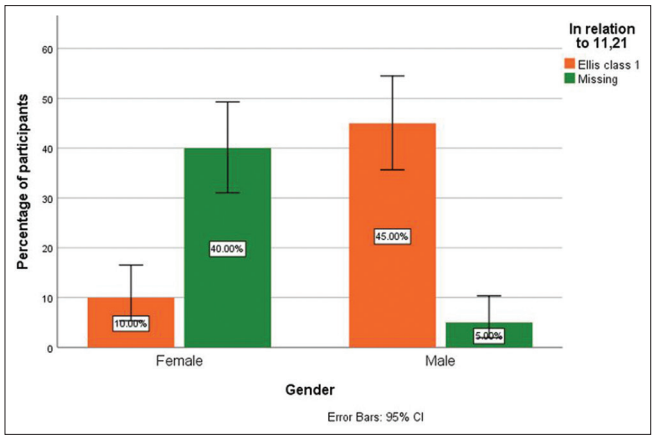

Figure 3: Graph representing the relationship between gender and association to the Ellis class 1 fracture and missing tooth in relation to 11,21. The X-axis represents the gender and Y-axis represents the number of patients with Ellis class 1 fracture. Orange represents the incidence of fracture and Green represents missing teeth. 45% of males and 10% of females have Ellis class 1 fracture, whereas 5% of males and 40% of females have missing teeth. The association between the variables was statistically insignificant ($P = 0.882$)

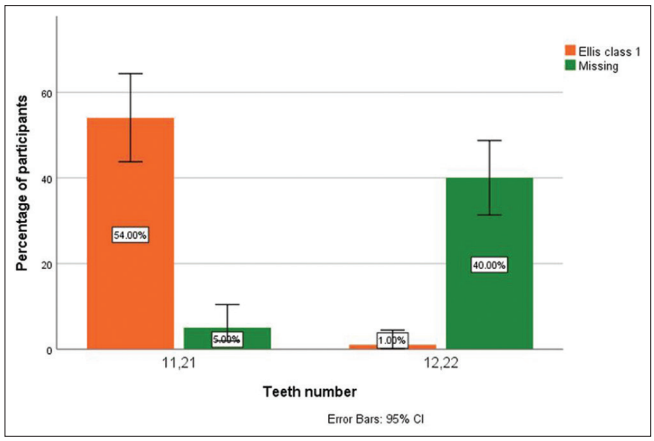

Figure 4: Graph represents the relationship between gender and association of Ellis class 1 fracture and missing tooth in relation to the tooth number. The X-axis represents the tooth number and Y-axis represents the number of patients. Orange represents Ellis class 1 fracture and green represents a missing tooth. 50% show that Ellis class 1 fracture is present in 11, 21, while 60% have missing teeth (12, 22). Statistically insignificant association was found between the variables ($P = 0.128$)

was observed in a few studies due to various factors such as geographic location between the countries, so it is difficult to conclude the etiology of dental trauma in children.[41]

Males show 44% and females show 20% having Ellis class 1 fracture in this study. The findings from other studies reveal that boys suffered from dental injuries more than girls, according to other studies from throughout the world, which suggest a prevalence ratio of approximately 1.7:1 between boys and girls.[45] A study conducted in Iraq showed that 61% school-going boys were affected by dental trauma.[43] The rising incidence of Ellis class 1 may be related to the knowledge that trauma occurs as a result of greater participation of the younger generation in sports that lack safety safeguards, with a higher prevalence in boys.[43]

In the present study, 45% of males and 10% of females suffered from Ellis class 1 fracture. Children with proclined upper incisors were found to have the highest proportion of trauma. Furthermore, males (70%) are more prone to dental trauma than females (30%).[45]

It is evident from the present research that the central incisors are vulnerable to dental trauma in children between 6 and 12 years. Henceforth, awareness must be provided to parents regarding the risk factors of dental trauma.

CONCLUSION

It can be summed up that Ellis class 1 fracture and dental trauma are significantly affecting the children of 6–12 years of age. Specifically, anterior teeth were usually affected.

Acknowledgment

The authors would like to acknowledge the help rendered by Saveetha Dental College and Hospital, Saveetha Institute of Medical and Technical Sciences, Saveetha University, Chennai.

Financial support and sponsorship

The present project is funded by Saveetha Dental College and Hospitals, Saveetha Institute of Medical and Technical Sciences, Saveetha University, and Royal Medicals, Dindigul.

Conflicts of interest

There are no conflicts of interest.

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