



Original Article

Prevalence of dental trauma in permanent anterior teeth among school children in Villupuram district

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Abstract

Introduction : Traumatic tooth injuries range in severity from minor fractures of the enamel to whole tooth displacement (avulsion) brought on by a forceful blow to the tooth's supporting components. The aim of this study is to determine the prevalence of fracture in anterior teeth of children aged between 8 - 15 years, in different villages of Villupuram district.

Materials and Methods : This cross-sectional epidemiological study has adopted convenience sampling design. Study was conducted in various schools in Villupuram district. Type III clinical examination was carried out and every participant who showed up on the examination day was included in the study. Patient's demographic details were collected followed by screening fractured teeth using Ellis Fracture classification.

Result : Nearly 15% of the population had fractures in anterior teeth. Boy children had more fractures in anterior teeth compared to girl children. Most of the children had Ellis Class II Fracture followed by Ellis Class I fracture.

Conclusion : Increased prevalence indicates the importance to formulate treatment plan and facilities in primary health centres to treat the injuries.

Keywords : Fracture, anterior teeth, crown fracture

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INTRODUCTION

Trauma is a significant factor in dental injuries and poses a serious public health issue. Yet, the prevalence is relatively significant and has a negative impact on children's quality of life (1). Traumatic tooth injuries range in severity from minor fractures of the enamel to whole tooth displacement (avulsion) brought on by a forceful blow to the tooth's supporting components (1, 2). Children who experience the traumatic loss of their anterior teeth may have severe psychological distress in addition to functional and cosmetic problems (3). 90% of the time, dental injuries mostly damage the front teeth, which makes it difficult to bite, look well, and talk clearly. It is trauma caused by forces placed on teeth as a consequence of accidents or as a result of an attack that varies in extent, intensity, and severity (4).

It has been established that the majority of traumatic dental injuries damage a person's physical, mental, and financial well-being (5). Health-care experts can identify risk factors and preventative actions to parents regarding how to prevent it. Include the value of these preventative actions to maintain a high standard of living and avert dental trauma's detrimental effects (6). It is crucial to have a great database with all the proof that backs up the claim and makes sense to parents. A typical type of dental trauma that primarily affects children is coronal fracture of the anterior tooth area (7). In addition to causing pain and discomfort, this can also have an impact on a person's grin, which is one of their most appealing traits. One's finest asset is a "smile" that reveals stunning, natural teeth.

Low self-esteem has been linked to poor social interactions, long-term deficits that limit learning and growth, and poor oral and dental health (8). A person who has a pain-free, healthy mouth may eat, communicate, and have higher self-esteem. Social psychology covers self-esteem; hence it was decided to include it as a relevant personality attribute in the study. It is the whole of a person's sense of self-worth, confidence, and respect (8, 9).

Teeth play a significant role in a person's life since a stunning set of teeth can boost self-confidence and serve as a selling point for a particular job route. When the anterior teeth are compromised, not only does the person start to feel self-conscious about their dental look, but other people may be able to notice the differences more easily during normal social interactions (9) (8). As a result, compared to adolescents who had suffered no traumatic injury, those who had broken incisors expressed much greater dissatisfaction with the way their teeth looked (8, 9).

The aim of this study is to determine the prevalence of fracture in anterior teeth of children aged between 8 - 15 years, in different villages of Villupuram district. This helps to obtain data on prevalence of anterior teeth fracture with which awareness programs in villages with more prevalence can be planned.

MATERIALS AND METHODS

Study Design, Participants and Setting

This cross-sectional epidemiological study has adopted convenience sampling design. Study was conducted in various schools in Villupuram district. This investigation was carried out in December 2021.

Sample Size

Sample size calculation was calculated using G power, the sample size was 150, when power was kept at 95%, effect size at 0.5 (10)

Ethical Clearance and Scientific Board Clearance

The institution's institutional ethical board approved the study. We requested signed consent from each participant's parents after briefly outlining the study's objectives. Those who had problems reading consent forms had them read aloud to them. The study was carried out in accordance with the Declaration of Helsinki.

Data collection

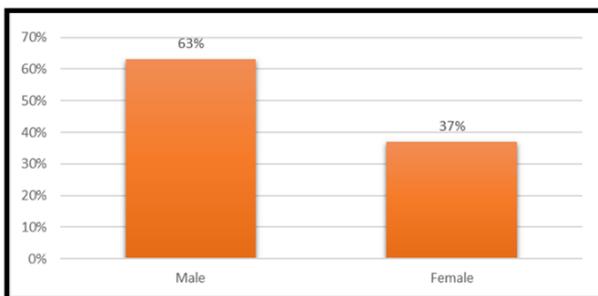
In accordance with WHO recommendations, the dental health of the participants was evaluated using a flat mouth mirror and the Community Periodontal Index (CPI) probe. A Type III clinical examination was carried out in natural light. Every participant who showed up on the exam day was included in the study. Patient's demographic details were collected followed by screening fractured teeth using Ellis Fracture classification and reason for fracture.

Statistical Analysis:

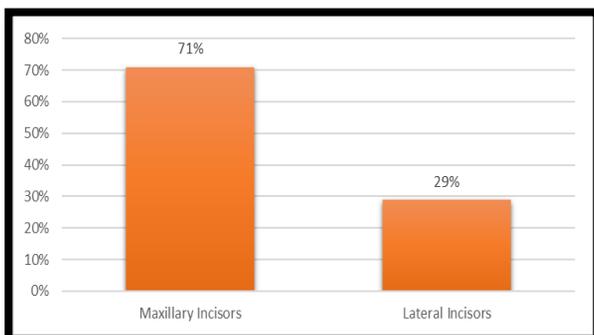
The data was analysed using SPSS, IBM Corporation, Chicago, IL, USA version 21 software package.

RESULTS

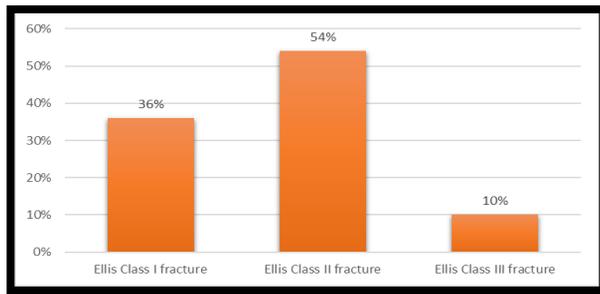
A total of 450 children (261 boys and 189 girls) were present on the day of the survey. The students who weren't present on the day of the dental evaluation weren't replaced. Nearly 15% of the population had fractures in anterior teeth. Boy children had more fractures in anterior teeth compared to girl children. Most of the children had Ellis Class II Fracture followed by Ellis Class I fracture.



Graph 1 represents male and female participants with anterior teeth fracture



Graph 2 represents most commonly fractured teeth



Graph 3 represents percentage of fractured teeth based on Ellis classification

DISCUSSION

The finding from this study states out of 68 children being affected by fracture in anterior teeth, 43 (63%) were boy students and 25 (37%) were girl students. (Graph 1) The most affected teeth are Maxillary Incisors (71%) followed by Lateral Incisors (29%). (Graph 2). Ellis class II fracture was common among the children, had a prevalence of 54 % followed by Ellis class I fracture (36%) and Ellis class III fracture (10%) (Graph 3).

The most affected teeth were Maxillary Incisors (71%) followed by Lateral Incisors (29%). The conclusions of Saroglu I et al (11), Tovo et al (12), Gabris et al(13), Cortes (14), and Glendor (15) are in agreement with this. The maxillary central incisors were found to be most frequently affected (74.3%) in research by Adekoya CA (16). Maxillary incisors are the teeth that are damaged the most commonly, according to a study by Lam et al. and national studies. This is consistent with recent research(17).

Dental trauma can result in anything from minor enamel loss to complicated fractures that impact the pulp tissue and even the loss of the crown structure (17,18). These wounds may harm not just the tooth's hard tissues and pulp, but also the supporting periodontal systems, changing the outlook completely. Hence, correct diagnosis is necessary for accurate treatment. Dental trauma in kids and teens causes bleeding and edema as well as injuries to the perioral soft tissues (19). This might make the parents feel more anxious and seems to encourage early emergency management.

Most of the dental trauma is resulted from collision and fall during sports activity in school grounds. This may be because orofacial injuries from falls, collisions, and contact with hard surfaces are a potential side effect of any sporting activity (9). Only a few other studies have shown that oral trauma frequently results in long-term harm and may cause issues years after the incident (9,19).

Dental trauma can primarily result in decreased appetite, sadness, and increased inattentiveness and distractibility, which can have a detrimental effect on one's self-esteem and result in school failure. The patient's health, developmental stage, and degree of injuries must all be taken into account when creating the therapy plan. For the therapy of severe dental injuries, it's also critical to take into account the patient's willingness as well as the biological, functional, aesthetic, and economic aspects (9,16,19).

CONCLUSION

Awareness about dental injury to be given to the parents and teachers which will help to prevent and treat the injury at the right time. Increased prevalence indicates the importance of formulating treatment plans and facilities in primary health centres to treat the injuries.

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Conflicts of interest

There are no conflicts of interest

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