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# Pattern of presentation of dental trauma at the paediatric dental clinic of Lagos State University Teaching Hospital, Lagos

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## Abstract

**Background:** Dental trauma is an injury to the mouth, especially teeth and periodontium, caused by an external mechanical force. It is the effect of an accidental event that involves the hard and the supporting structures of a tooth. It is rampant in younger people accounting for 17% of injuries to the body in those below the age of 6 years.

**Methodology:** A retrospective study carried out amongst children who attended the Paediatric dental unit, Lagos State University Teaching Hospital. The dental records of children who visited the clinic for a period of six years were retrieved. Those with dental trauma were noted among them. Some of the information extracted from the case notes include causes of dental trauma, types of dental trauma, the teeth affected and the treatment rendered.

**Results:** One thousand, eight hundred and eleven children were seen during the period under review. The prevalence of trauma within that period was 11.4%. The major cause was falls (89.0%). The commonest type of dental trauma in this study involved enamel and dentin (31.4%). The most affected teeth were upper permanent central incisors (61.3%). Simple composite restoration was the commonest treatment carried out in 31.8%.

**Conclusion:** Parents, guardian and teachers are enjoined to ensure that their children do not fall while playing at home and in school. Proper supervision and preventive measures should be put in place during their play times to mitigate against injuries.

**Keywords:** Dental Trauma; Traumatic Dental Injuries; Parental supervision; Paediatric dentistry

## 1. Introduction

Dental trauma has a major effect on the quality of life because it affects children physically, esthetically, and psychologically. [1] It is an injury to the mouth, especially teeth and periodontium, caused by an external mechanical force. [2] It may be the effect of an accidental event that involves the hard and the supporting structures of a tooth. [3] A traumatic dental injury (TDI) is a public dental health problem because of its frequency, occurrence at a young age and continuity of the treatment for the rest of the patient's life. [4]

Dental trauma is more frequently observed in males compared to females and this may be attributed to the behavioural factors, with the boys tending to be more energetic and inclined toward vigorous outdoor activities as compared to girls.

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[5, 6, 7] Although there is a male preponderance to dental trauma among children, a higher female prevalence was observed by Enabulele and Chukwumah [8] in a study involving both adults and young people. It is however more rampant in younger people accounting for 17% of injuries to the body in those below the age of 6 years compared to an average of 5% across all ages. [9, 10]

TDI is a common occurrence in very young children because the rudimentary stage of development of reflexes characterized by lack of motor coordination may lead to falls which in turn leads to traumatic injuries. [11, 12] Apart from the main etiology being road traffic accident (RTA), falls, fights and contact sports, other risk factors include Class II malocclusion division 1, some special health care needs (like visual impairement and cerebral palsy) and child abuse. [13, 14, 15, 16]

Dental trauma is a distressing experience on an individual's physical level and may also have an effect on emotional and psychological levels thereby having more impact on daily living. [11] Children with dento-facial deviations caused by missing teeth or visible trauma to the anterior teeth, for example, experience teasing, embarrassment and lack of social acceptance among their peers. [17, 18] Also, it may lead to pain, loss of function, disturbed mastication and it may adversely affect the developing occlusion and aesthetics thereby having a consequential negative effect on the lives of children. [19]

Over one billion people are affected by dental trauma worldwide, with a prevalence of around 20% for children up to 12 years. [20, 21] The prevalence of dental trauma in Nigeria is increasing. [22] A prevalence of 11.4% was seen among paramilitary and nonparamilitary schoolchildren in Nigeria by Ogordi et al [23] in 2019. Taiwo and Jalo [24] also reported a prevalence of 15.2% among 12-year-old children. Brullman et al [25] in their review of different articles, found the prevalence of dental trauma for ages 6 to 17 years to be 6.4 - 37.9%. Similarly, children seen in Paediatric neurology unit in University College Hospital, Ibadan had a prevalence of dental trauma of 39.3%.[26]

Traumatic dental injuries usually affect a single tooth, but certain traumatic events, such as sports, violence and traffic accidents result in multiple tooth injuries. [10] The majority of dental injuries in permanent and primary dentitions involve the anterior teeth, especially the maxillary central and lateral incisors, regardless of the type of the study. [10]

This study was aimed at bringing out the pattern of presentation of paeduatric dental trauma at the Lagos State University Teaching Hospital, Lagos.

## 2. Material and methods

This research was a retrospective study carried out amongst children who attended the Paediatric dentistry unit of the Department of Child Dental Health, Lagos State University Teaching Hospital (LASUTH) Ikeja between 2018 and 2024.

Ethical approval was obtained from the Health Research and Ethics Committee of LASUTH.

Relevant information was obtained from the dental records. These include:

- Biodata: Age and gender
- Relevant medical and dental histories.
- The cause of the injury, where the injury occurred and how it occurred
- The type of injury: categorized according to the classification proposed by the World Health Organization. [27]
- The teeth affected; whether primary or permanent dentition, number of subject's teeth affected.
- The treatment carried out on the affected teeth.

Data generated from the study were inputed and analyzed using the Statistical Package for the Social Sciences (SPSS) version 21.0 software (for Windows, Armonk, NY: IBM Corp). The results were presented as tables and charts. Categorical variables were presented using frequency and percentages.

## 3. Results

A total of 1,811 children were seen during the period under review. Those that presented with dental trauma were 207, with the prevalence as 11.4%. Among those that had traumatic dental injuries, 129 (62.3%) were males, while 78 (37.7%) were females. Also, the age group most frequently affected by TDIs was 9 – 12 years (Table 1). Two hundred and eighty-seven (287) teeth were affected in all. The most affected teeth were upper permanent central incisors (61.3%) (Table 2). The commonest form of dental trauma in this study involved enamel-dentin (31.4%) (Figure 1). The major cause was falls (89.0%) (Figure 2). Simple Composite restorations were the commonest treatment carried out in 31.8% (Figure 3).

**Table 1** Gender and Age distribution of subjects

| Variables | Frequency | Percentage (%) |
|---|---|---|
| Gender | | |
| Male | 129 | 62.3 |
| Female | 78 | 37.7 |
| Age (years) | | |
| <1 | 3 | 1.4 |
| 1 – 4 | 40 | 19.3 |
| 5 – 8 | 49 | 23.7 |
| 9 – 12 | 61 | 29.5 |
| 13 – 15 | 54 | 26.1 |
| Total | 207 | 100.0 |

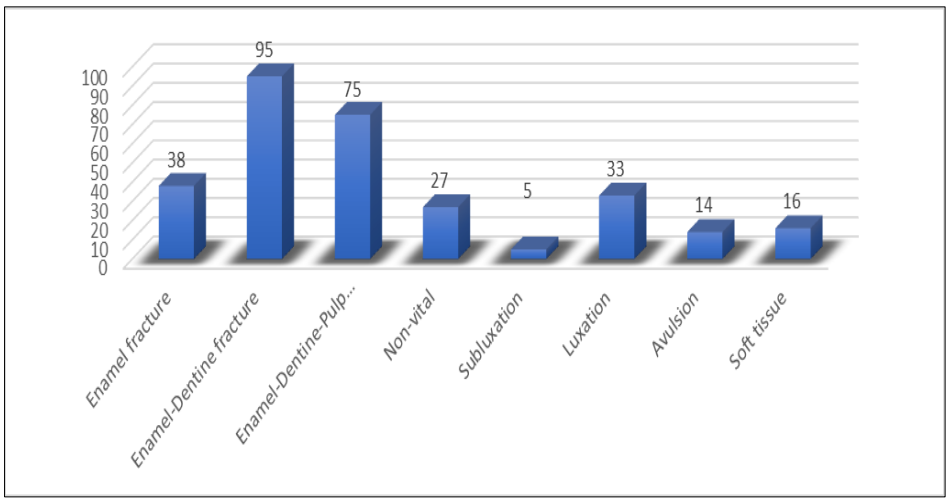


**Figure 1** Types of Traumatic Dental Injuries

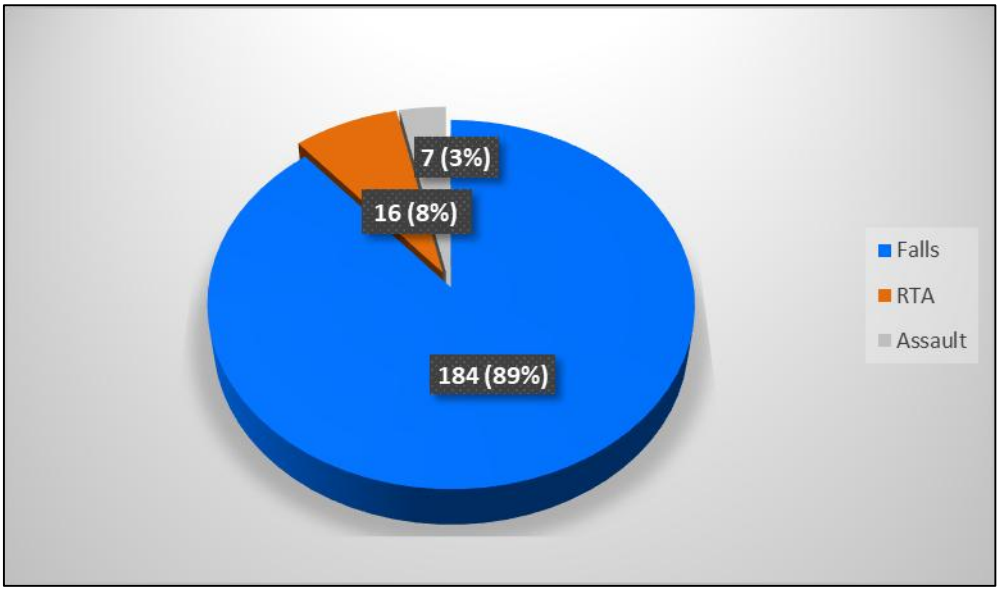


**Figure 2** Distribution according to causes of Traumatic Dental Injuries

**Table 2** Teeth involved according to the arch

| Teeth/Arch | Frequency (Right) | Frequency (Left) | Total | Percentage (%) |
|---|---|---|---|---|
| Upper Arch | | | | |
| Permanent Central Incisors | 90 | 86 | 176 | 61.3 |
| Permanent Lateral Incisors | 14 | 7 | 21 | 7.3 |
| Primary Central Incisors | 23 | 27 | 50 | 17.4 |
| Primary Lateral Incisors | 3 | 4 | 7 | 2.4 |
| Primary Canine | 1 | 2 | 3 | 1.0 |
| Lower arch | | | | |
| Permanent Central Incisors | 10 | 8 | 18 | 6.3 |
| Permanent Lateral Incisors | 4 | 4 | 8 | 2.8 |
| Primary Central Incisors | 1 | 2 | 3 | 1.0 |
| Primary Lateral Incisors | - | 1 | 1 | 0.5 |
| Total | 146 (50.9%) | 141 (49.1%) | 287 | 100.0 |

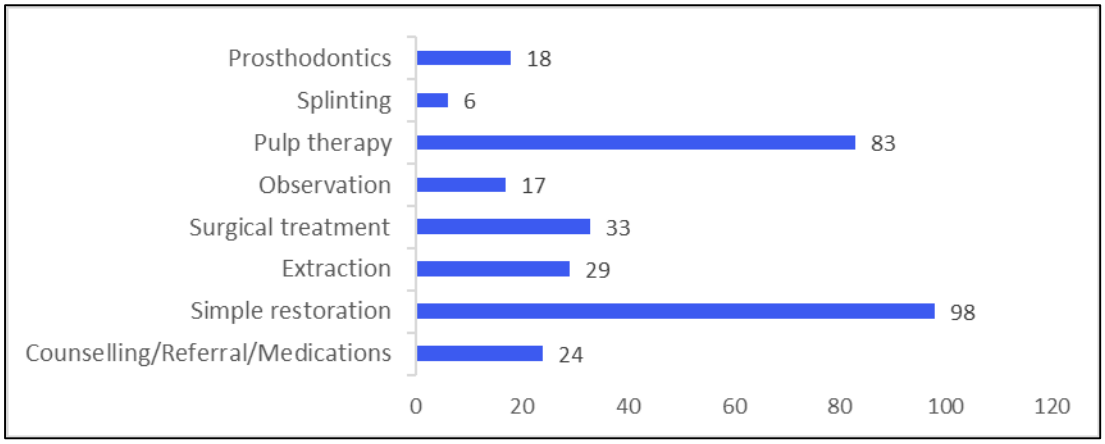


**Figure 3** Treatment done

## 4. Discussion

The prevalence of dental trauma in this present study is similar to the observation of Ogordi et al [23] in their study among children attending paramilitary and non-paramilitary schools. It is however, higher than some studies in other parts of Nigeria. [28, 29] It is also higher than those observed among 7 – 12 year old school children in Dera Bassi, India. [30] On the other hand, it is lower than the findings of Denloye et al [26] among children seen in Paediatric neurology unit in University College Hospital, Ibadan and Taiwo and Jalo [24] among 12-year-old Nigerian pupils in Northern Nigeria.

The most common cause of dental trauma in this study was falls. It is in consonance with previous studies. [7, 23, 29, 30, 31] Other causes of dental trauma include road traffic accidents, assaults or fights and contact – sport related activities. Common locations where traumatic dental injuries occur are usually at home or in school. It was particularly noted that boys tend to be involved more in TDIs in school, while girls mostly experienced TDIs at home. [31] A study by Olatosi et al [32] carried out among school teachers reported that only 30.9% of the participants had received first aid training that included management of traumatic dental injuries. There is a need to sensitize parents and teachers on the vital role they can play in the prevention and first aid management of TDIs as those who are usually present at the site of the incident.

In this study, males were most commonly affected. This is in line with the reports of several studies on traumatic dental injuries. [28, 30, 33] However, it is different from the study by Enabulele and Chukwumah [8] where a male-female ratio of 1:1.04 was reported among patients who had dental trauma at the dental centre of the University of Benin Teaching Hospital. Furthermore, Osadolor et al [28] in their 2021 study of the prevalence of traumatic dental injury among dental patients presenting at a secondary healthcare facility in southern Nigeria, observed that females were more involved with falls than males.

The age group most frequently affected by TDIs in this study was 9 – 12 years. This is contrary to the report of Eigbobo and Etim [34] who observed that dental trauma peaked around ages 1 - 4 years in their study of the pattern of traumatic dental injuries among children in a tertiary health care facility in Nigeria. It is also different from the findings of Ayebameru et al [35] in 2019 who reported that those between 13 and 15 years of age tend to have higher prevalence of dental trauma among institutionalized and non-institutionalized street children in Ibadan. In a trend similar to these previous studies, Okolo et al [29] reported an inverse relationship between age and the occurrence of dental injuries

The most affected teeth were upper permanent central incisors (61.3%). This was similar to most studies carried out on dental trauma among children. [26, 28, 29] This may be attributable to the vulnerable position of the maxillary central incisors on the face with respect to fall and assault [20, 29]

Also, dentino-enamel fracture was the commonest which was also as reported in some previous studies in other parts of Nigeria [7, 29]. This was also the observation of Eigbobo and Etim [34] and Osadolor et al [28] where they reported that uncomplicated fracture involving enamel and dentine was the commonest. It is however contrary to the findings of a study which reported enamel fracture as the most common. [33] In addition, it is different from the findings of Eigbobo and Orikpete [31] in their study among a selected population of adolescents in southern Nigeria where they observed that luxation injury was the most common.

## 5. Conclusion

In conclusion, prevalence of dental trauma is still high in our environment. Parents, guardians and teachers are enjoined to ensure that their children do not fall while playing at home and in school. Proper supervision and preventive measures should be put in place during their play times to mitigate against injuries.

## Compliance with ethical standards

### *Disclosure of conflict of interest*

All authors declare that there are no conflicts of interest as the study was fully funded by all the authors.

### *Statement of ethical approval*

Ethical approval was obtained from the Health Research and Ethics Committee of LASUTH.

### *Statement of informed consent*

Informed consent was obtained from all individual participants included in the study.

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