

Reasons for Tooth Extraction Among Children Aged 5-12 Years in Tetovo

Armend Demiri¹, Seha Mustafai^{1,2*}, Jetmire Alimani- Jakupi², Amella Cana², Kaltrina Beqiri¹

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Abstract

Introduction; Due to the high Prevalence of oral diseases, the extraction of primary teeth is a common and major concern in developing countries. These teeth are given the least importance as they are believed to fall out automatically, thus leading to serious problems such as crowding and malocclusion. This study aimed to investigate the main reasons for tooth extraction in children aged 5-12 years.

Materials and Methods: Patients randomly selected for this retrospective study were identified by analyzing the dental records of children aged 5-12 years receiving dental treatment at the 1st Dental Clinic “Vivadent”, Tetovo. A total of 325 patients and their panoramic radiographs were seen. The patient’s age and gender, number of extracted teeth, and reasons for extraction were recorded.

Results: A total of 325 (27 permanent, 689 primary) extractions were performed in 325 (142 female, 183 male) patients. The reasons for extraction were; caries:512 (72.52%), orthodontics:32 (4.53%), trauma:37 (5.24%), eruption:94 (13.31%), treatment failure:14 (1.98%), ...

Conclusions: The results of this study show that caries is the main cause of extraction in children aged 5-12 years old. This result may be due to the lack of oral hygiene habits in children aged 5-12 years old. These findings are crucial for understanding and addressing the high prevalence of tooth extraction in children.

Keywords: Extraction, children, primary teeth, caries

Introduction

Humans have two successive sets of primary (milk) and permanent (permanent) teeth, which is why they are better known as diphodonts. Primary teeth were previously also known as milk or milk teeth, which make up a total of 20 teeth (10 in each arch).

These teeth begin to develop at 6 weeks of intrauterine life. The first primary tooth erupts into the oral cavity at the

age of 6 months, and this eruption sequence is completed by the age of 2 years.

The first primary tooth erupts into the oral cavity at the age of 6 months, and this eruption sequence is completed by the age of 2 years. These teeth are functional at the age of 5 to 12 years, after which the permanent teeth begin to erupt into the oral cavity. Primary teeth are not just placeholders for permanent teeth, but they also play a crucial role in oral health, and their premature loss can lead to serious issues.

Primary teeth help in chewing food, speech, and aesthetics, and also act as a template for the permanent teeth to take the correct position in the dental arch. The most common cause of premature loss of primary teeth is most often related to dental caries.

Although the Prevalence of dental caries in young children has decreased significantly in recent years, caries continues to affect many children in the general population. This underlines the importance of preventive measures and education in maintaining oral health. Other causes of tooth extraction may include trauma, ectopic eruption, congenital disorders, and arch length deficiencies that cause resorption

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* **Corresponding author:**

Seha Mustafai MD

✉ dr.sehamustafi@gmail.com

1 Dental Clinic “Vivadent”, Tetovo, North Macedonia

2 Study Program Dentistry, Faculty of Medical Sciences, State University of Tetovo, North Macedonia

of primary teeth. Loss of primary teeth also predisposes to crowding, rotation, and impaction of permanent teeth, further highlighting the need for early intervention and education.

Access to oral health care is minimal, especially for rural children. It is also believed that primary teeth do not need treatment as new teeth will erupt automatically. This belief may be attributed to the lack of education and attitude of parents towards dental treatment of primary teeth. Many parents may not understand the importance of early dental care for their children, leading to a lack of preventive measures and increased risk of tooth decay.

Materials and Methods:

Patients randomly selected for this retrospective study were identified by analyzing the dental records of children aged 5-12 years receiving dental treatment at the Dental Clinic "Vivadent", Tetovo.

A total of 325 patients and their panoramic radiographs were seen, and 27 permanent teeth and 689 primary teeth were extracted.

The patient's age and gender, the number of teeth extracted, and the reasons for extraction were recorded.

The reasons for tooth extraction were divided into the following categories based on those described by Kay and Blinkhorn.

1. Caries: Primary and secondary caries plus all sequelae, including periapical abscess and failed pulpotomy.
2. Orthodontic: Tooth extracted to prevent or correct malocclusion.
3. Trauma: Tooth extracted as a direct result of acute trauma.
4. Loss: Tooth extracted due to mobility; time for exfoliation.
5. Periodontal disease: Loss of function, periodontal abscess, and pain.
6. General medical reasons: Prophylactic extraction.
7. Economic reasons: The tooth may have healed, but the patient found the treatment service too expensive.
8. Patient/parent request: The tooth could have been repaired, but at the patient/parent's insistence, the tooth was extracted.

Results

A total of 325 patients underwent interventions: 142 (43.69% female, 183 (56.31%) males, of the patients. (Fig. 1)

It is observed that the most represented age group in our interventions is 11 years old, with 15.46% followed by 10 years old, with 14.15%. (Fig.2)

The most common reason for tooth extraction is dental caries of 716 in 427 teeth (59.64%), followed by mobility in 128 (17.88%), excessive retention in 74 (10.34%), trauma in 32 (4.47%), and orthodontic reasons accounted for 27 (3.77%) and 28 (3.91%) others. (Fig. 3)

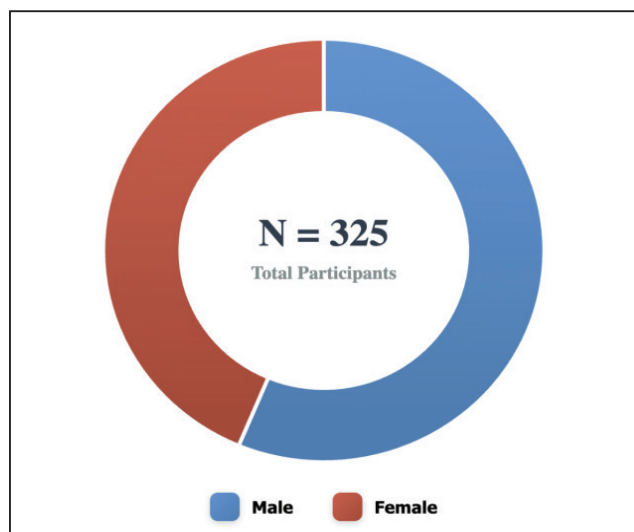


Figure 1. Distribution of data according the Gender.

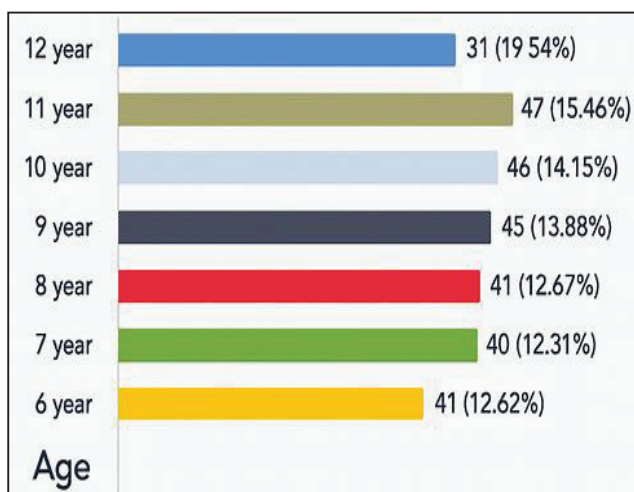


Figure 2 Distribution of data according the Age

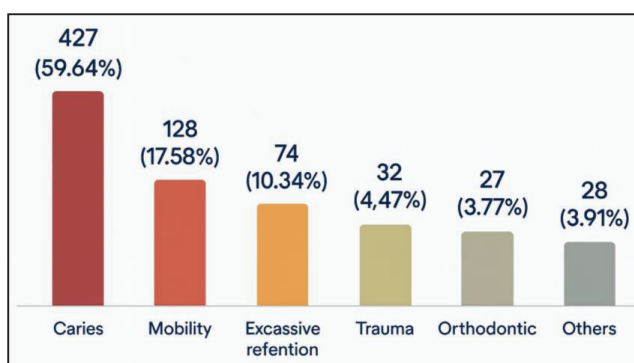


Figure 3. Distribution of data according the Reasons for tooth Extractions

Caries-related extraction was found to be higher in both genders. In total, extraction was performed more in males than in females. Extractions attributed to the category, including pain and abscess, economic reasons, and parental request, accounted for only 28 (3.91%).

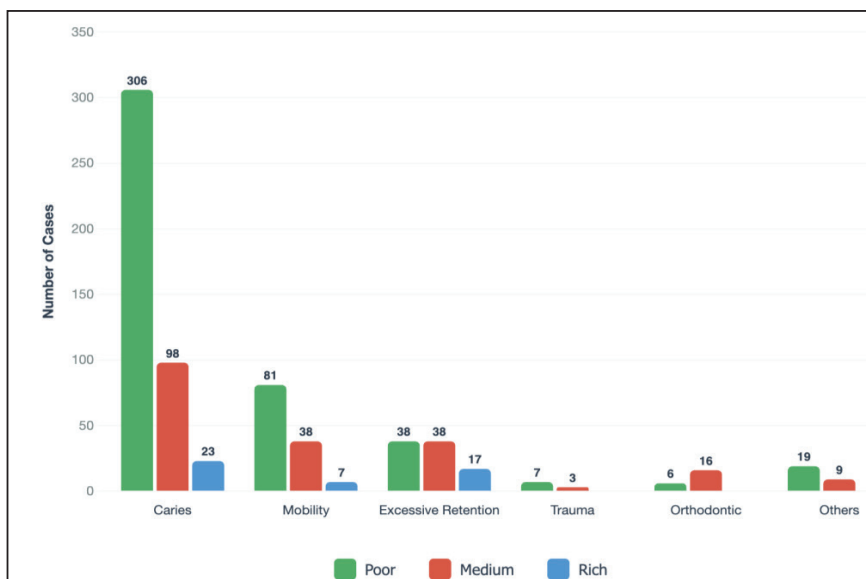


Figure 4. Distribution of data according the diagnosis and economic status

Statistically significant differences were found only among caries-related extractions ($p < 0.005$).

It was also found that subjects belonging to the middle and poor socio-economic strata could not afford the cost of treatment, and above all, believed that extraction is the best option for any decayed tooth, as they are baby teeth, and do not require treatment. (Fig. 4) The permanent teeth have not erupted yet. As the age of the children increased, it was found that the number of extractions also increased.

Tooth extraction due to caries was maximum at the age of 12 years (24.7%), and extraction due to excessive retention was maximum at the age of 11 years (26.1%).

Trauma was found to be the most common reason for extraction in 24.4% of children in the 10-year age group. (Fig. 5)

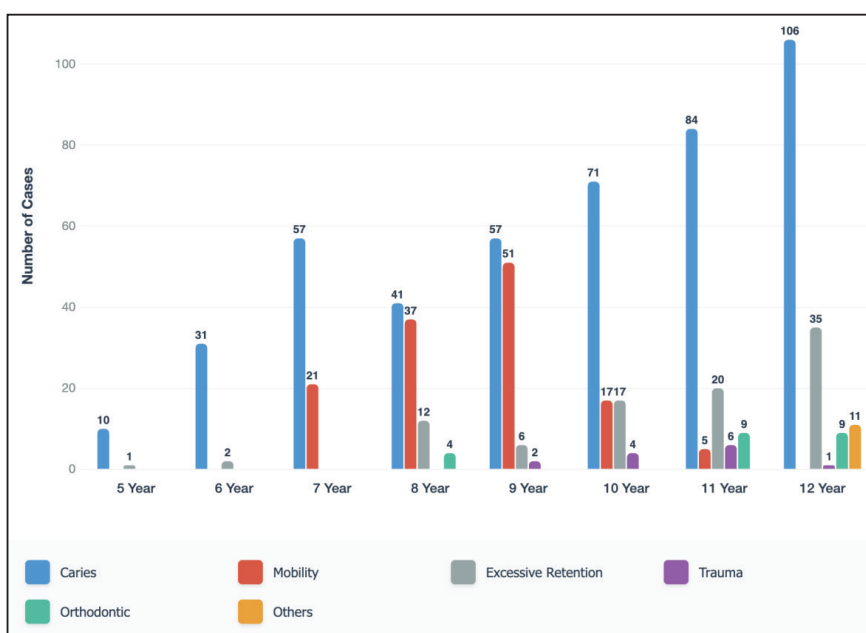


Figure 5. Distribution of data according the extraction precipitation by age

Discussion

The preservation of primary teeth is one of the main concerns for dentists and some parents. These teeth serve as a jewel that enhances the smile and, therefore, the self-esteem of children. This high percentage of primary tooth loss may be due to a lack of knowledge among parents or the belief that the teeth will eventually be replaced again. In our study, it was found that the maxillary and mandibular first primary molars were more affected by caries than the second molars. This was in

contradiction with the study done by *Alamondi N. et al.* [1]. The reason may be that the first primary molar erupts before the second molar and is therefore present in the oral cavity for a longer time.

According to *Lin YT. et al.* [2], Premature loss of a primary molar tooth due to caries also results in loss of not only function. However, it may also lead to an increased possibility of other teeth moving.

According to *Pedersen J. et al.* [3], this may affect the normal development of occlusion and create an increased need for orthodontic treatment. Extraction due to trauma also increased with age.

In the present study, it was found that boys are more affected by trauma than girls, which confirms the findings of other studies by *Cavalcanti et al.* [4].

This may be attributed to behavioral factors, where children of this age tend to be more energetic and prone to vigorous outdoor activities. In our study, the maxillary primary central incisors were found to be the most affected tooth due to trauma. It was similar to the studies done by *Altun C et al.* [5] and *Ferreira JM et al.* [6]

Conclusions:

The results of this study indicate that caries is the leading cause of extraction in children aged 5-12 years. This result may be due to the lack of oral hygiene habits in children aged 5-12 years. Therefore, it is mandatory to provide oral health education among school children and parents. School teachers should also be educated about emergency oral care.

Author Contributions: SM - Study design, surgical procedures, manuscript preparation; JAJ: Data collection, radiographic analysis; AD - Statistical analysis, manuscript review; AC & KB - Patient recruitment, clinical follow-up

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