

Original Research

Extraction as an indicator of dental oral health of a population

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ABSTRACT

Introduction: In dental clinics, the dental extraction is one of the most routine procedure. There are a number of reasons to extract a tooth, but based on the literature, the main reasons listed are: caries, periodontal diseases and extraction for further orthodontic treatment. **Material and methods:** This was a retrospective study carried out at one of the largest clinics in the country. 327 clinical cases documented with periapical radiographs were included in the study and were analyzed in detail to find the reason of extraction. Once identified radiographic reasons for extraction, scored individual ones of the three major groups: endodontic reasons, periodontal reasons and other reasons. **Results:** The first group represented by 50% of extractions, with caries as primary cause. The second group represented by 30% of extractions, with periodontal diseases as the primary cause. Group III represented by 20% of extractions with many different reasons, other than those two above groups. Caries was the main cause for extraction in the age group 20-40 years and above 70 years, whereas in the age 40-70 years old more than 50% teeth were extracted because of periodontal reasons. **Conclusion:** The financial cost of replacing an extracted tooth, as with prosthetic methods or with implants, has led the extraction to be evaluated as the first choice in the absence of funds; having devoted more attention to improving oral hygiene, the use of prophylactic methods, as well as more detailed analysis in finding alternative treatments, which lead to increased longevity of a tooth.

Key words: extraction, periodontal diseases, caries, oral health indicator

Dental extraction is carried out only when it is indicated, but the final total or partial absence of teeth, set in dilemma: dental prophylaxis or prostheses? There are a group of reasons why we need to extract a tooth, but based on the literature, the main reasons listed are: caries, periodontal diseases and extractions for further orthodontic treatment. The best indicator for the extraction of teeth due to caries were age, sex, marital status, time since the last visit to the dentist and tooth type [1]. It is noted that dental caries and orthodontic evaluations were the main reasons for tooth extraction in Saudi Arabia. According to this study again, there is reduced rate of extractions due to caries, as result of implementations effect of preventive programs [2].

Study conducted in a Brazilian population shows that some dental extraction were therefore depending on age, and the two most common reasons for extraction are caries and periodontal disease [3]. Dental caries was the most common reason for tooth extraction and the teeth that were extracted most often were molars, followed by premolars for orthodontic reasons. The highest percentage was found among women aged 10-30 years [2]. The purpose of this paper is to evaluate and compare from the available clinical data, the different reasons for extractions of teeth. Also to evaluate the role and influence of periodontal status at dental extractions. These data are the first comparative and reflective look around closely linking the various branches of dentistry (periodontology-endodontic)

and socio-economic status of the population in different countries.

MATERIAL AND METHODS

This retrospective study was conducted at one of the largest clinics in the country. A total of 327 clinical case records along with preoperative periapical radiographs were evaluated. Every periapical x-ray was analyzed in detail to find out the reason for extraction of tooth/teeth. For the purpose of this study, once the radiographic reasons for extraction were identified, the cases were scored and divided into the following three major groups. The first group included all the cases where teeth were extracted only because of caries such as dental caries, periapical infections and fracture of teeth due to decay (Figure 1).



Figure 1: Cases included in group 1- dental caries with periapical infection

Depending on the position of bone destruction, the cases were grouped as extractions because of periodontal diseases. Therefore the second group included cases where teeth were extracted only because of periodontal disease (Figure 2).

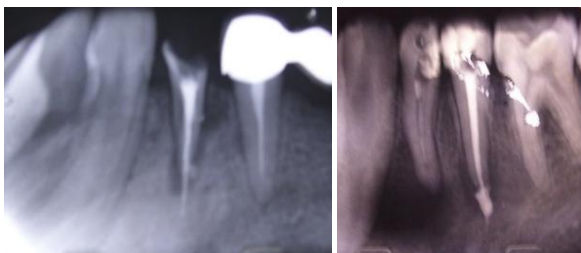


Figure 2: Cases included in group 2: periodontally compromised teeth

In the third group, all cases where the teeth were extracted because of reasons other than dental caries and periodontal diseases were included. The cases included were orthodontic indications, temporary teeth, retained

teeth, teeth fractured by external trauma, ectopic teeth with aesthetic indications (Figure 3).



Figure 3: Cases included in group 3

RESULTS

In our study, 163/327 (49.8%) belonged to group I consisting of extractions because of caries only. Among which 76 were males and 87 were females. Average age of patients in this group was 32 years. Group II consisted of patients who underwent extractions for periodontitis only. 98/327 (29.96%) belonged to this group with average age of 57 years, of which 32 were males and 41 were females. The third group consisted of all the other cases where extraction was carried out for reasons other than caries and periodontitis. 66/327 (20.2%) with average age of 24 years belonged to this group, of which 32 were 32 were males and 34 were female patients. (Table 1)

Table 1: Distribution of cases in groups

Groups	The motives	No. of cases	Male/Female cases (%)
Group I	Caries	163	76/87 (49.8%)
Group II	Periodontal disease	98	32/41 (29.96%)
Group III	Other reasons	66	32/34 (20.2%)

Among the 327 cases included in the study, correlation of age with periodontal disease and caries were assessed. There was an increase in the percentage of dental extractions for dental caries, from age 6 to 40 followed by reduced rate as age progresses. The opposite was seen with periodontal disease. Percentage of tooth extraction for periodontal reasons noted to increase from the age of 18 to reach equilibrium with the percentage of extractions due to caries at age 40. All these data are grouped in the Figure 4.

DISCUSSION

After evaluation of the individual periapical x-rays and identifying the cause of extraction, the cases were

categorized into 3 groups. The first group represented by was caries. The second group represented by 30% of extractions, where the primary cause for extraction was periodontal diseases. Group III represented by 20% of the extractions for reasons other than those two above groups. These results were compared with USA statistics; wherein, the first group included 50% of the extractions, the second group 35%, and 15% for the third group.

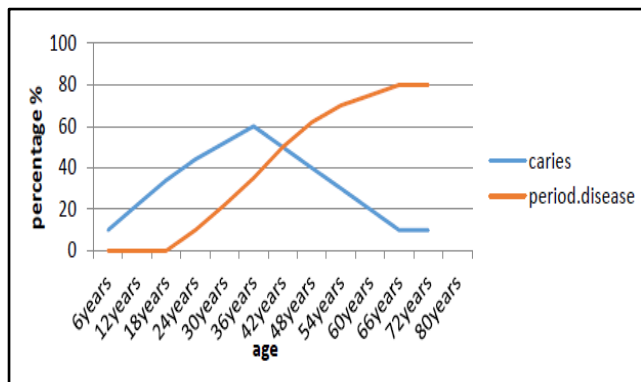


Figure 4: Correlation of extraction with dental caries and periodontal diseases

The results show that the percentage of extractions by reason of their performance, are the same in both countries. It is noted that caries is one of the main reasons leading to indications for extracted teeth. This indication has the same prevalence in both studies (50%). Small changes are found in the second group, in which periodontal disease in extractions, occupies a small percentage in our study (30%), compared to USA statistics (35%). Certainly, in the third group are grouped the expected changes as a result of the first two groups results.

Caries was the main cause of extractions in the age group 20-40 years and above 70 years. In the age 40-70 years old more than 50% of the extracted teeth were for periodontal reasons [4]. In our study the average age of patients who underwent dental extractions for periodontal reasons was 57 years old. Ignorance, economic status, discontinued therapeutic treatments are vital issues related to extraction. It must be seen that attraction of the population's attention on her knowledge on oral health, aimed at changing the approach and bringing about the necessary care for oral health [5].

Based on questionnaires and surveys, we know that there is a close link between age and the reasons that

50% of extractions, where the primary cause for extraction determine the indications for extraction. Thus, it is concluded that by the age of 40-45 years, tooth extraction achieved mainly due to caries and its subsequent diseases. In adults more than 50 years old, the goal of extractions shifted against periodontal disease. Summing up the results of our working with these epidemiological data about age, it should be pointed out that: As an age limit somewhat the reasons dental extraction, there should be a limit on the issuance of primary oral care, which should also be based on the separation by age. Both as caries, as well as destructive periodontal disease caused by bacteria, have the "intention" at the destructiveness of bone. Depending on the level of bone destruction, we group the extractions due to caries lesions and due to extractions from periodontal lesions. And have we ever asked the question, of where lies the radiographic border for recognition of these lesions? Or, much of endodontic lesions turn into periodontal lesions and vice versa? Then, starting from this reasoning, 29% of periapical x-rays are counted twice in our paper.

Today's trend is increasingly towards preservative and not the extraction of a tooth; then, the task of a dentist is to recognize the causes extractions and reflect the percentage of them to eliminating where possible, the cost of prosthetic replacement for a tooth. The fracturing tooth is a logical reason for tooth extraction in the fifth decade of life. In this way it is better to increase diagnostic methods of cracking the tooth at this age, to prevent the further fracturing as a result of cracking progression [6]. Let's be careful about maintaining oral hygiene and not to forget the regular visits to dentists at least once a year to maintain the line of pleasant smile and optimal oral health [7].

In general, Brazil shows a trend towards reduction in dental extraction over the past 15 years, obtained in the study. Human development and access to oral hygiene appliances have significantly influenced the rate of tooth extraction [8]. The results of this study show that dental caries still the main element for dental extractions, accompanied by periodontal diseases as the second cause listed. The number of patients seeking orthodontic treatment is growing as a result the number of extractions of teeth due to orthodontic correction is increased, compared with the past. Dental problems are more common in females than in males. Posterior mandibular molars are more often extracted, compared with maxillary molars [9].

CONCLUSION

On the basis of our study, we conclude that most of the extractions performed are due to carious lesions. These lesions can cause progressive destruction and occasionally irreparable damage to teeth and bones. One of the other reasons for the extractions are destructive periodontal diseases. The prevalence of extractions carried out for reasons of destructive periodontal disease, resulting in somewhat lower levels, in the case of extractions examined. In conclusion, Oral health of patients has a strong association with extraction of teeth.

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