

REASONS FOR EXTRACTION OF TEETH IN YEMEN

Abdulwahab I. Al-Kholani, BDS, MSc, PhD*

Restorative Department - College of Dentistry
Sana'a University – Sana'a, Republic of Yemen

Abstract

Objectives: To investigate reasons for tooth extraction and its association with age and gender in Yemen.

Materials and Methods: A cross sectional survey was conducted. A record of all tooth extractions performed in Sana'a the capital city of Yemen between 2007 and 2009 was logged on specially designed study forms. The patient's age and gender, number of teeth extracted, and the reason(s) for the extraction were recorded.

Results:

A total of 5140 teeth were extracted in 2602 patients. An examination of the different age groups revealed that caries was the most common reason for extraction of teeth among young patients between the age of 16 and 30 years. Beyond 30 years however, the rate of extraction due to periodontal disease markedly increased. Trauma accounted for 4 % of the teeth lost.

Conclusions: The data show that caries is the principal cause for extractions in younger patients, while periodontal disease accounts for the majority of tooth extractions in older patients. Furthermore, this study indicates that more teeth per patient are lost to periodontal disease than for any other reason.

Key Words: Tooth extraction; Caries; Periodontal disease; Tooth loss; Yemen

Introduction

The results of this study indicate that caries and periodontal disease are the main causes of tooth extractions performed in (KDC) in Sana'a the capital city of Yemen.

This is the first study conducted to investigate the reasons for tooth extraction and to examine the association of age and gender with patterns of tooth loss in Yemen.

Tooth loss is an important oral health problem among Yemeni people that shows the tendency to increased severity as time passes [9-10].

Tooth loss is particularly important due to the functional, psychological, social, and financial impact that may result from the

substantial number of teeth being lost. While dental caries appears to be the main cause of tooth loss, chronic destructive periodontal diseases also contributes to this problem[4,5]. The relative impact of either caries or periodontal etiologies for tooth loss seems to vary across countries, age groups, levels of access-to-care, and opportunities to use different care-delivery models. Diverse studies have examined the tooth loss phenomena from various perspectives in different countries[6,7].

Extraction of permanent teeth is performed for several reasons, including caries, periodontal disease, orthodontic treatment, traumatic injuries, prosthetic indications, and tooth impaction [1]. However, caries and

periodontal disease have consistently been shown as the two main reasons for tooth loss [2]. The historically prevailing view that caries was responsible for the majority of tooth loss in younger patients while periodontal disease was the principal cause of tooth loss in adults has been repeatedly challenged by the results of several studies implicating caries and its consequences as the main reason for tooth loss in all age groups [11]. Surveys of the reasons for tooth loss in different countries have been undertaken and have produced some controversy regarding whether caries or periodontal disease was the dominant reason for tooth loss and whether age differences existed in patterns of tooth loss. The majority of studies have reported caries to be the main reason for overall tooth loss [12,13, 14, 15,]. Some studies reported that periodontal disease was the main reason [16,17], while others found that caries and periodontal disease were equally responsible [18, 19]. Furthermore, although the majority of these studies reported periodontal disease to account for the majority of tooth extractions in older patients [12, 20–21, 22], some reported caries as the main reason for tooth loss in all ages [23, 24, 25].

Assessment of tooth mortality data in different parts of the world is essential for evaluating the adequacy of dental care and preventive oral health programs [26]. Additionally, understanding the relative contributions of the two major oral diseases, caries and periodontal disease, to tooth loss rates should aid in the proper allocation of available dental resources aimed at reducing such rates.

No data on the reasons for tooth extraction in Yemen are available. Therefore, the aims of this study were to investigate the reasons for tooth extraction and to examine the association of age and gender with patterns of tooth loss in Yemen.

Materials and methods

A cross-sectional study was carried out in the Dr. Kholani Dental Center (KDC) in Sana'a

the capital city of Yemen, using a convenience sample of different age groups who had consulted and been treated by one author (AIA) between 2007 and 2009.

A complete list was compiled of all patients above the age of 16 years who had had at least a tooth extracted at the Dental Center (KDC). The records of the patients were reviewed and information retrieved included: the patient's name, age and sex. Diagnosis referred to the condition which ultimately led to the tooth being extracted. Data concerning the missing teeth were collected and classified using the criteria set by Ainamo et al [8] with some modifications as follows:

- **Caries:** Whenever the primary cause of extraction is associated with caries, remaining root, failed endodontics, periapical abscess or fracture of tooth weakened by caries or endodontics.
- **Periodontal disease:** when the reason for extraction is pronounced periodontal breakdown, a loose suppurating tooth or in cases when a periodontally involved tooth is removed before prosthetic therapy.
- **Impaction:** for extractions due to partially or fully impacted tooth.
- **Prosthetics:** when a firmly attached tooth which is intact or could be repaired and retained is removed before making full dentures.
- **Trauma:** when a non-carious associated trauma to tooth is the reason for its removal.
- **Orthodontics:** whenever a tooth is removed during orthodontic treatment or because of crowding.
- **Others:** for extractions due to other reasons.

Information gathered from each patient's record were then collected and the data were analyzed.

Results

A total of 2602 persons were recorded to have had tooth extraction done during the set period. The age group 21-30 years was found

to have the overwhelmingly largest number of patients from whom teeth were removed, although not the largest number of extracted teeth (Table 1). Overall, the patients who had extraction done included slightly more women (1322) than men (1280). By dividing the numbers of teeth extracted by the corresponding number of patients, it was noted that the mean number of teeth lost increased from an average of 1.2 teeth at age 16-20 years to a maximum of 3.9 at age 61-70 years (Table 2), but without significant differences between the sexes. As shown in Table 3, the most common reason for extraction of teeth proved to be periodontal disease. About sixty two percent (61,9 %) of all extractions carried out were on this indication. Thirty one percent (31,4 %) of the total extractions done were due to caries. Trauma accounted for 4 % of the teeth lost. An examination of the different age groups revealed that caries was the most common reason for extraction of teeth among young patients among the age of 16 and 30 years. Beyond 30 years however, the rate of periodontal extraction markedly increased. The periodontal indication for extraction was as expected, infrequent up to the age of 30 years.

Discussion

The results of this study indicate that caries and periodontal disease are the main causes of tooth extractions performed in (KDC) in Sana'a the capital city of Yemen.

This finding is consistent with reports in other countries [11, 20, 21].

A closer look at the younger age groups indicate that dental caries is responsible for more extractions. The higher number of teeth extracted in this age group could be a reflection of the increasing consumption of sugars especially among the affluent young population [28].

It is interesting to make a comparison between studies, but caution must be used in interpretation because of cultural differences in the dental services available. The findings

of this study supports already held belief that periodontal disease is the highest indication for overall tooth loss in this part of the world. A closer look at the younger age groups indicate that dental caries is responsible for more extractions. The higher number of teeth extracted in this age group could be a reflection of the increasing consumption of sugars especially among the affluent young population [10, 11, 12]. So far, studies of the causes for tooth loss or extraction have not examined the relative impact of disease on patients, and treatment philosophy on tooth loss [27], that was patient's wishes, which the dentists of this study could choose. No meaningful analysis was, however, possible because this reason accounted for only 7.7% of all extractions performed on patients older than 20 years of age.

Further studies are recommended to see whether there is any variations in tooth extraction patterns between different parts of Yemen.

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*Dr. Kholani is an associate professor and holds **BDS, MSc** and **PhD** degrees. He has published numerous articles, books and lectures nationally and regionally on Implantology, restorative and community dentistry.

Dr. Kholani is the **member of Restorative Department - Faculty of Dentistry** in Sana'a University – Yemen. and maintains a private practice focused on community dental education, implant dentistry and implant Prosthodontics in Sana'a, Republic of Yemen.

Prof. Abdulwahab Alkholani

Table 1: Total distribution of patients and extracted teeth by age range and gender

| Age groups (years) | Males | | Females | | Total | |
|--------------------|-------|-------|---------|-------|-------|-------|
| | n. | Teeth | n. | Teeth | n. | Teeth |
| 16-20 | 232 | 256 | 332 | 412 | 564 | 668 |
| 21-30 | 370 | 430 | 392 | 552 | 762 | 982 |
| 31-40 | 192 | 376 | 208 | 220 | 400 | 596 |
| 41-50 | 196 | 532 | 108 | 236 | 304 | 768 |
| 51-60 | 166 | 664 | 162 | 564 | 328 | 1228 |
| 61-70 | 88 | 402 | 90 | 298 | 178 | 700 |
| > 70 | 36 | 120 | 30 | 78 | 66 | 198 |
| Total | 1280 | 2780 | 1322 | 2360 | 2602 | 5140 |

Table 2: Mean number of teeth extracted per patient by age group

| Age group (Yrs) | Percentage |
|-----------------|---------------|
| 16-20 | 1.2 |
| 21-30 | 1.3 |
| 31-40 | 1.5 |
| 41-50 | 2.5 |
| 51-60 | 3.7 |
| 61-70 | 3.9 |
| > 70 | 3.0 |
| Total | (100%) |

Table 3: Reasons for tooth extraction by age range

| Age groups (years) | Caries | Perio. | Pros. | Impact. | Ortho. | Trauma | Others | Total |
|--------------------|--------------|--------------|----------|-----------|-----------|------------|-----------|-------|
| 16-20 | 540 | 62 | - | 12 | 10 | 44 | - | 668 |
| 21-30 | 666 | 164 | - | 52 | 20 | 68 | 12 | 982 |
| 31-40 | 232 | 310 | - | 4 | - | 48 | 2 | 596 |
| 41-50 | 84 | 650 | - | 4 | 2 | 28 | - | 768 |
| 51-60 | 64 | 1138 | - | 2 | 2 | 14 | 8 | 1228 |
| 61-70 | 28 | 670 | - | - | - | 2 | - | 700 |
| > 70 | 2 | 190 | 4 | - | - | - | 2 | 198 |
| Total (%) | 1616 31.4 | 3184 61.9 | 4 0.5 | 74 1.4 | 34 0.7 | 204 4.0 | 24 0.5 | 5140 |