Causes of Dental Extractions in a Teaching Hospital: A Retrospective Study

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ABSTRACT

Objectives: The aim of the study was to examine the reasons for dental extraction and to determine the pattern of extractions in patients seeking care at the Dr. Ishrat ul Ibad Institute of Oral Health Sciences (DIKIOHS) over a period of 5 months. **Methods:** A cross-sectional study on 1300 patients aged between 4-80yrs was conducted at the Oral Biology Department of DIKIOHS. Information regarding the patients age, sex, type of tooth extracted and reason for extraction was recorded. Results were compiled and analyzed using SPSS version 15. **Results:** Total 1300 study cases with 1705 extractions were evaluated. Out of the total 594 (45.69%) were females while 706 were males (54.3%) with 780 and 925 extractions respectively. The most common reason for tooth extraction for both genders was caries. The total population was divided into 3 age groups, 4 – 20 yrs, 20 – 40 yrs and 40 – 80 yrs. The number of extractions in each group was 240, 807 and 658 respectively. Hence the age group with the most frequent number of tooth extractions was 20 – 40 years. The most common type of extracted tooth in the study population was tooth number 36 (mandibular permanent left first molar) and the least common was tooth number 81 (mandibular deciduous right central incisor). **Conclusion:** The most common reason for extraction in the present study was found to be dental caries. The age group with the most extractions was between 20 - 40 years which indicates that awareness regarding oral hygiene needs to be improved in young adults.

INTRODUCTION

Teeth play an important role in the maintenance of a positive self-image.[1] The loss of tooth results in significant disabilities, which can profoundly disrupt social activities. Exodontia (tooth extraction) has resulted in being a popular procedure in Pakistan due to, lack of awareness, careless attitude towards oral care and access to primary treatments by the masses. Thus it is mandatory to change the attitude of public towards oral care and educate them with the basics of primary health care system. In doing so we should know the actual cause of extractions so as to determine information regarding relevant aspects needed for prevention.

Previous data collected in various countries on the most common reason for tooth extraction include Finland[1], Kenya[2], Norway[3], UK[4], Scotland[5], Japan[6], France[7], Tanzania[8], China[9], Germany[10], Antigua[11], Afghanistan[12], Canada[13], Italy[14], Singapore[15], Kuwait[16], and Brazil[17]. In all of the above studies caries remained the most common reason for tooth extraction before 40 – 50 years, whereas periodontal disease was seen to be most common in age groups more than 50 years except in Italy & Singapore where both the reasons remained equally prevalent.[14,15.] However in Germany, periodontal diseases (27%) was seen to be the most common cause unlike dental caries (21%).[10]

In Pakistan too, study conducted in Quetta in 1999 shows caries as the most common reason for extraction (77.6%)[18] and a recent situation analysis of the dental disease status in Pakistan indicated that 90% of the treatment provided in hospitals is tooth extractions while only 3% preventive treatments like scaling and prophylaxis are given[19] Hence further indicating the dire need of preventive procedures and dental health education in Pakistan.

The purpose of our study was to identify the most common reason leading to failure of a tooth to survive and hence determining the treatment needs that could be implemented at the grass root level. The causes have also been correlated with age groups, gender and the tooth number. Analyzing the age group would help us in planning the proper implication for oral health education. Assessment of the most common tooth to be extracted could lead to further studies and researches into studying the reasons why that particular tooth has a high susceptibility. Since gender difference prevails in the awareness and attitude towards oral health care,[20, 21] it may show a significant difference in the total number of extracted teeth as well.

MATERIAL AND METHODS

A cross sectional study was conducted at the Oral Biology Department of Dr. Ishrat ul Ibad khan institute of oral health sciences. The record of 1300 patients that came to the DIKIOHS surgery department for extractions during August 2007 - January 2008 was reviewed. Information regarding the patients age, sex, type of tooth extracted and reason for extraction was recorded. The forms that had incomplete data were excluded from the study. Extraction of broken down roots was also included.

The extractions were categorized as belonging to any one of these 6 groups:

1. **Extraction due to caries:** Included grossly carious teeth.. The judgement of extraction of such teeth was made either by the clinician based on the fact that too much coronal tooth tissue was lost in order to salvage it.
2. **Extractions due to periodontal disease**: These included the teeth that were extracted due to impaired function, mobility and/or associated periodontal abscess secondary to advance bone loss and presented with no other option then to extract it.
3. **Extraction due to prosthodontic reasons:** Included extraction of those teeth advised by the prosthodontist due to various prosthetic considerations. the included teeth maybe mobile, broken down or firm.
4. **Extractions of impacted teeth:** Included 3rd molars impacted within the jaw bone or partially erupted and presented with symptoms of pericoronitis
5. **Extractions of the retained teeth:** all the teeth that were present in the retained form whether left over roots or retained deciduous teeth.
6. **Extractions due to 'other' reasons:** Included reasons for extraction like orthodontic reasons, when the dentist prescribes an extraction for the purpose of increasing arch space, cosmetic reasons like the extraction of a badly shaped or broken incisor to be replaced by a bridge and extractions due to trauma.

The entire data was entered in SPSS version 15 and analyzed. The statistics used for the data were descriptive statistics and chi square tests were applied with the statistical significance set at p value of 0.05. Frequency distribution of patients according to their age, sex and type of tooth extracted were compared to the reasons given for their extraction. Reasons for tooth extraction were also compared for each tooth type in upper and lower dental arches.

RESULTS

Total 1300 study cases with 1705 extractions were evaluated. Out of the total 594 (45.69%) were females while 706 were males (54.3%) with 780 and 925 numbers of extractions respectively. The most common reason for tooth extraction for both genders was caries. (Fig. 1) The statistics related to both the genders showed that the most common tooth extracted was 36 (the mandibular left 1st molar) and the least common was 81 (the mandibular right central incisor). There were more extractions in the lower arch then the upper arch.

The results clearly showed the reasons and their distribution for extraction. The reasons for extraction being caries, periodontal disease, impactions, retained teeth, prosthodontic requirement and other reasons which included trauma, cosmetics or orthodontics.

The most common reason for extraction in the entire study population was caries which was 865 teeth out of a total of 1705 extractions

(50.73%), followed by periodontal disease as a cause of extraction which consisted of 146 extractions (8.56 %) other reasons like impactions, retained teeth, prosthodontic and other reasons consisted of a total of 138, 78, 18 and 6 extractions respectively (8.09%, 4.57%, 1.05%, 0.35%) Hence caries was the most common reason for extraction whereas trauma, cosmetics and orthodontics the least common (Fig. 2).
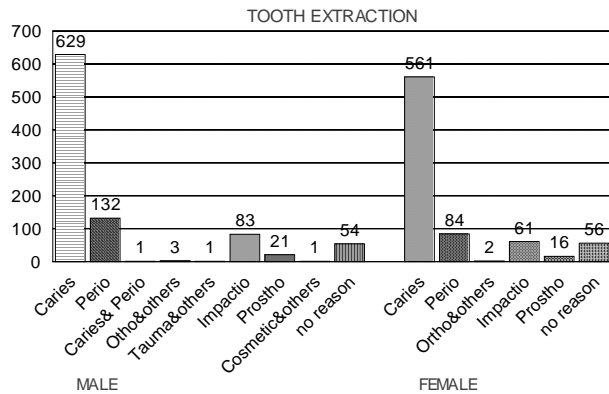

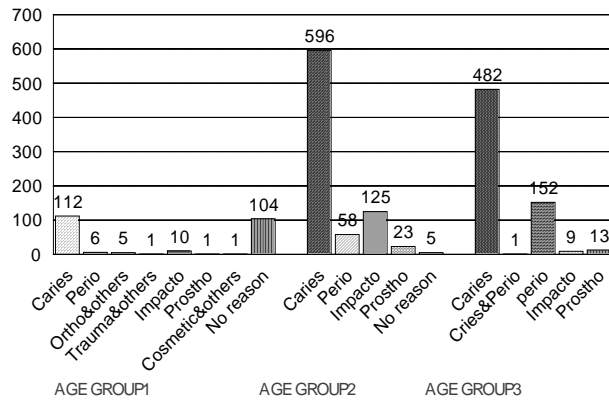**Fig. 1. Sex wise frequency distribution of reasons of tooth extraction.**

Fig. 2: Frequency distribution of reasons of tooth extraction according to age groups.

The total population was divided into 3 age groups, 4 – 20 yrs, 20 – 40 yrs and 40 – 80 yrs. The number of extractions in each group was 240, 807 and 658 respectively. Hence the age group with the most number of extractions was 20 – 40 years. The most common cause of extractions in all the 3 age groups was caries.

Mandibular deciduous 2nd molars (75, 85) were the most commonly extracted teeth in the age group 4 – 20 years where as mandibular left 1st molar (36) was the most common tooth extracted in the age groups 20-40yrs. In age group 40 – 80 years maxillary right 1st premolar (14) was the most commonly extracted tooth. The extractions were more prevalently performed in the lower arch for ages 4 – 20 years and the upper arch for the other 2 age groups. Posterior teeth were more frequently extracted than anteriors at all ages (Fig. 3).
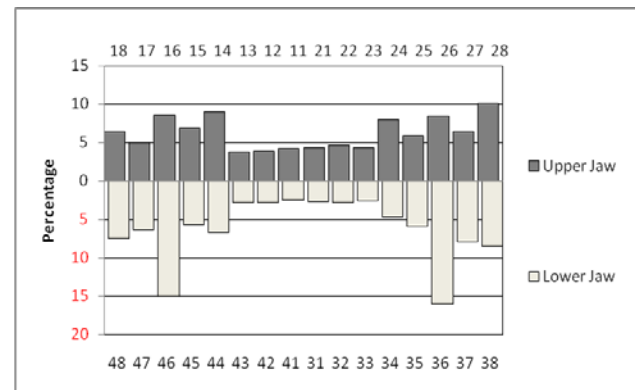

Fig. 3. Percentage of extracted teeth in both jaws.

In the overall study population, the most common tooth extracted was 36 and the least common was 81. In the upper jaw the most common tooth extracted was the 28 and the least common tooth extracted was 13 (the right canine for permanent dentition) and 51, 61 (both the central incisors for deciduous dentition). Where as in the lower jaw the most common tooth extracted was 36 (the left 1st molar for permanent) and 75, 85(left & right 2nd molars for deciduous dentition) and the least common tooth were the 33 (left canine in permanent teeth) and 81(the right central incisor for deciduous dentition).

DISCUSSION

Previously data collected from various countries presented caries as the main cause for tooth extraction in young age groups. This statement has been confirmed for the patterns of extraction of our population where caries dominates in the ages 4

– 40 yrs. According to a previous study, older people make extensive use of medical facilities, but they seem to under use dental facilities.[22] Mobility problems, lack of information, and misconceptions about the value of dental visits have been mentioned as contributing to this apparent disinterest in dental care among geriatric patients. Where as in contrary to most of the studies conducted worldwide, the reasons for extractions in the older age groups between the age of 40- 80 yrs have also been due to caries instead of due to periodontal diseases. Although the periodontal diseases are an endemic in Pakistan and almost 80% of population above 60 years is affected by it yet the rise in DMFT with age is more significant reaching almost 18 in 65+ age groups.[23]

Previous studies have proven the association of high caries incidence in females compared to males.[20] This has been related to various factors like genetic, hormonal, saliva consistency & flow and dietary differences.[21] Where as in our study population it has been shown to be the same, the reason for this can be the low oral health education in the population which leads to almost all the cases of dental caries ending up in tooth extraction. In our study, the number of extractions in both males and females were almost equal and no statistical difference existed between the two. Both males and females had the same most common reason for extraction as dental caries.

CONCLUSION

The most common reason for extraction was dental caries. Males showed little more extractions as compared to females. The age group with the most extractions was between 20-40 which indicates that awareness regarding oral hygiene needs to be brought in young adults who might lag behind in good oral care due to work pressure, time or monetary restraints. The most common tooth to be extracted was the 1st molar indicating the high degree of its chances to get infected, and the left side exhibited more extractions compared to the right side of dentition that might correlate with the masticatory functions of an individual resulting in more food impaction on the left side.

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