

CAUSES AND PATTERNS OF TOOTH EXTRACTION AMONG THE PATIENTS ATTENDING A DENTAL HOSPITAL IN PESHAWAR, PAKISTAN

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ABSTRACT

OBJECTIVE

The aim of this study was to determine the primary reasons for tooth extraction and the type of tooth involved in extraction.

METHODOLOGY

A cross-sectional study was conducted after the approval of the ethical committee of the hospital at the Department of Oral and Maxillofacial Surgery, Sardar Begum Dental Hospital from July 2015 to December 2015. A total of n=4230 permanent tooth extractions were included with female n=2532 and male n=1698. The primary reasons for tooth extraction specified were caries, periodontal diseases, prosthetic and orthodontic purposes, impaction and trauma. The data was analyzed using SPSS-22. Descriptive statistics was applied for causes and frequency of tooth extraction. Chi-square tests were performed using $p \leq 0.05$ significance level to determine if any significant difference existed among the genders.

RESULTS

The mean age presentation was 39.6 ± 15.9 years and the age range 13-70 years. The female patient predominate n=2532 (59.85%) the male patients n=1698 (40.12%). Caries was the dominant cause of extraction in both subjects n=2652 (62.70%), followed by periodontal disease n=930 (22.00%), prosthetic purpose n=366 (8.70%), orthodontic purpose n=156 (3.70%) while cause of extraction due to trauma n=30 (0.70%) was the least one in both subjects. In female the dominant arch is mandibular arch n=1404 (55.45%) than maxillary arch n=1128 (44.55%) while in male maxillary arch n=906(53.36%) predominate the mandibular arch n=792 (46.64%). First permanent molars n=936(11.07%) were the most common tooth type involved in tooth extraction in both genders [upper: n=408 (9.64%), lower: n=528 (12.50%)]. Upper central incisor n=120 (2.84%) is the least common tooth involved in tooth extraction. The chi-square test illustrates that there is no significant difference exist among both subjects (chi-square=0.9797, p=0.323).

CONCLUSION

Caries is the dominant cause of extraction and the most frequent teeth involved in extraction is lower first molar.

KEYWORDS

Tooth extraction, Caries, Periodontal disease, First molar.

INTRODUCTION

Tooth extraction may lead to unwanted dental pain and fear therefore, it is important to minimize the liability of tooth extraction¹. The tooth loss may provokes drifting or tilting of teeth, which may results in caries, periodontal diseases, orthodontics and temporo-mandibular joint problems², psychological stress and development of negative morale³. The cost is another concern for correcting these problems leading to increase load on the patients⁴. The causes of extraction vary amongst different countries. Dental caries was the main cause of extraction⁵⁻⁸, but a few studies revealed that periodontal disease appears

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to be the main cause of tooth loss⁹⁻¹¹. While other studies found that caries and periodontal disease were equally responsible for tooth extraction^{12,13}. In many studies, caries reported to be the most frequent cause for tooth loss in early age group^{5,14} and that of periodontal disease was the main reason for tooth extraction in older patients^{5,15,16}. The aim of this study was to evaluate the primary reasons for tooth extraction and the type of tooth involved in extraction.

METHODOLOGY

A cross-sectional study was conducted after the approval of the ethical committee of the hospital at the Department of Oral and Maxillofacial Surgery, Sardar Begum Dental Hospital from July 2015 to December 2015. A total of $n=4230$ permanent tooth extractions were included with female $n=2532$ and male $n=1698$. All diabetic, hypertensive, immune-compromised and patients undergoing chemotherapy or radiotherapy were excluded. The data was collected from the patients through performas and informed consent taken from each patient. The primary reasons for tooth extraction specified were caries, periodontal diseases, prosthetic and orthodontic purposes, impaction and trauma. Definition of these primary reasons for extraction was modified from study by Klock KS¹⁷. The data was analyzed using SPSS-22. Descriptive statistics was applied for causes and frequency of tooth extraction. Chi-square tests were performed using $p \leq 0.05$ significance level to determine if any significant difference existed among the genders.

RESULTS

The mean age presentation was 39.6 ± 15.9 years and the age range 13-70 years. The female patient predominate $n=2532$ (59.85%) the male patients $n=1698$ (40.12%). Caries was the dominant cause of extraction in both subjects $n=2652$ (62.70%), followed by periodontal disease $n=930$ (22.00%), prosthetic purpose $n=366$ (8.70%), orthodontic purpose $n=156$ (3.70%) while cause of extraction due to trauma $n=30$ (0.70%) was the least one in both subjects. In female the cause of extraction due to prosthetic $n=258$ (10.20%) and orthodontic $n=114$ (4.50%) purpose are prominent than male showing that female are more cautious to their esthetic. The causes of extraction is shown in table.1 and percentage of tooth extraction is given in figure.1

The most frequent arch involved in tooth extraction varies in both subjects is shown in figure.2. In female the dominant arch is mandibular arch $n=1404$ (55.45%) than maxillary arch $n=1128$ (44.55%) while in male maxillary arch $n=906$ (53.36%) predominate the mandibular arch $n=792$ (46.64%). Table.2 demonstrates the number of extractions of specific tooth and percentage in male and female patients. First permanent molars $n=936$ (11.07%) were the most common tooth type involved in tooth extraction in both genders [upper: $n=408$ (9.64%), lower: $n=528$ (12.50%)]. Upper central incisor $n=120$ (2.84%) is the least common tooth involved in tooth extraction. The chi-square test illustrates that there is no significant difference exist among both subjects($chi-square=0.9797$, $p=0.323$).

Figure # 1: Percentage of tooth extraction amongst male and female patients

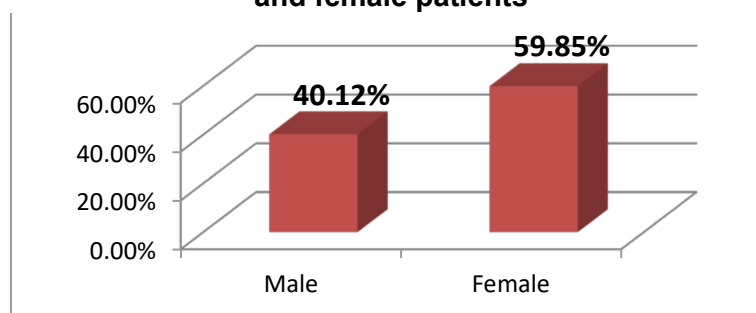
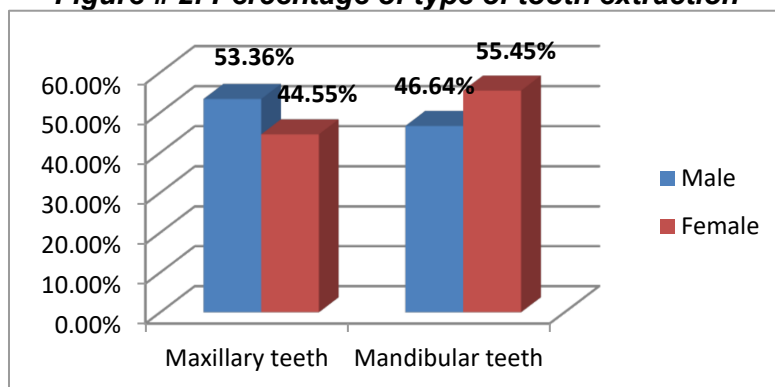


Figure # 2: Percentage of type of tooth extraction**Table 1: Showing causes of extractions in numbers and percentage in male and female patients.**

Causes	Male =n (%)	Female =n (%)	Total =n (%)
Caries	1080 (63.60%)	1572 (62.10%)	2652 (62.70%)
Periodontal diseases	396 (23.32%)	534 (21.10%)	930 (22.00%)
Prosthetic purpose	108 (6.36%)	258 (10.20%)	366 (8.70%)
Orthodontic purpose	42 (2.50%)	114 (4.50%)	156 (3.70%)
Impaction	54 (3.18%)	42 (1.66%)	96 (2.27%)
Trauma	18 (1.06%)	12 (0.47%)	30 (0.70%)
Total =n (%)	1698 (100%)	2532 (100%)	4230 (100%)

Table 2: Showing number of extractions of specific tooth and percentage in male and female patients

Name of the tooth	Male =n (%)	Female =n (%)	Total =n (%)
Central Incisor			
Upper	48 (2.83%)	72 (2.84%)	120 (2.84%)
Lower	60 (3.53%)	84 (3.32%)	144 (3.40%)
Lateral Incisor			
Upper	72 (4.24%)	96 (3.80%)	168 (3.97%)
Lower	66 (3.89%)	90 (3.60%)	156 (3.69%)
Canine			
Upper	72 (4.24%)	114 (4.50%)	186 (4.40%)
Lower	54 (3.18%)	72 (2.84%)	126 (3.00%)
First Premolar			
Upper	102 (6.01%)	222 (8.77%)	324 (7.66%)
Lower	54 (3.18%)	168 (6.64%)	222 (5.25%)
Second Premolar			
Upper	150 (8.84%)	138 (5.45%)	288 (6.81%)
Lower	84 (4.94%)	168 (6.64%)	252 (6.00%)
First Molar			
Upper	186 (10.95%)	222 (8.77%)	408 (9.64%)
Lower	204 (12.01%)	324 (12.80%)	528 (12.50%)
Second Molar			
Upper	138 (8.13%)	156 (6.17%)	294 (6.95%)
Lower	126 (7.42%)	282 (11.14%)	408 (9.64%)
Third Molar			
Upper	138 (8.13%)	108 (4.27%)	246 (5.81%)
Lower	144 (8.48%)	216 (8.53%)	360 (8.50%)
Total =n (%)	1698 (100%)	2532 (100%)	4230 (100%)

DISCUSSION

This study revealed that caries (62.70%) turn out to be the predominant cause of tooth extraction amongst patient reported to the hospital. This finding is in consistent with the study done at different parts of the world⁵⁻⁸ while some study contradicts our study showing that periodontal diseases is the primary reason for tooth extraction⁹⁻¹¹. Corbetet al¹⁸ in his study found that caries (60%) was the dominant cause of extraction followed by periodontitis which is in agreement with our study. Naz et al¹⁹ found that carries and it's sequelea accounted for 42.2% extractions and was the dominant cause in her study but lower than in our study. Nasreenet al²⁰ revealed that caries (68%) was the cause of dental extraction which support our study. Trauma (0.70%) was the least common cause in both male and female patients while periodontal disease (22%) was the second most common reason for extraction in our study which is in agreement with study done by Gossadiet al²¹. This study shows that female patients (59.85%) dominate male patients (40.12%) in terms of tooth extraction which contradict the western population²² and the study done by HaseebM et al²³ and Gossadi et al²¹ and is in agreement with the study done by Nasreen et al²⁰ and Kashif et al²⁴. The most frequent arch involved in this study is mandibular arch which contradicts the other study²⁰. Jafarianet. al²⁵ showed that the most persistent teeth extracted were lower third molars (18%) followed by upper premolars (14.77%) while lower canines (3%) were the least frequently extracted which contradicts our study in which we found that the lower first molars (12.50%) are the most frequently extracted teeth, followed by upper first molar (9.64%) and lower second molar (9.64%) and the least frequent teeth extracted are upper incisors(2.84%). Regular dental checkups should be a routine pattern of behavior for all and preventive measurement needs to be implemented in order to decrease the level of caries amongst population. Diagnosing caries early before its progression may prevent the least wanted result of tooth extraction. It is also advocated that community awareness programs must be initiated and people must be emphasized for vigorous oral hygiene maintenance and strategies for screening periodontal disease might be required.

CONCLUSION

Caries is the dominant cause for teeth extractions followed by periodontal diseases and lower first molar is the prominent teeth involved in extraction.

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