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Research Article

**TO KNOW THE AETIOLOGY OF PERMANENT TEETH  
EXTRACTION IN PEOPLE OF KARACHI****<sup>1</sup>Dr Zahid Akhter, <sup>2</sup>Dr Hafiz Muhammad Ummad, <sup>3</sup>Dr Abeera Zahid**<sup>1</sup>Associate Professor, Department of Prosthodontics, Baqai dental college Karachi.<sup>2</sup>BDS Hamdard University, Karachi<sup>3</sup>BDS Baqai Medical University, Karachi**Abstract:**

**Objective:** Tooth loss is one of the main indicators of general oral health in a given population. The purpose of this study was to evaluate the causes of permanent tooth extraction and its relationship with gender and age.

**Study design:** A cross-sectional study.

**Methods:** Data were collected from Abbasi Shaheed hospital, Karachi and general dental specialists from the dental clinics in Karachi for one-year duration from June 2018 to June 2019. Inclusion criteria is more than 10 years old and is indicated for permanent tooth extraction. The 424 patients were males and females were 267 and they were according to their age groups alienated into 6 groups. Data were entered into SPSS version 20.0 program and the results were analysed.

**Results:** In young patients of 20 to 29 years; highest percentage of extraction was noted. The most important cause of tooth extraction was dental carries in the 20 to 29 age group (33.3%), after that orthodontics was measured as a major reason for extraction of tooth in the similar age group. The periodontal diseases were the utmost supreme reason of tooth extraction in the forty to forty nine (23.4%) and fifty to fifty nine age group (37.5%). The lowermost reason for tooth extraction in men and women was when trauma and periodontal disease are in combination.

**Conclusions:** While tooth decay was the foremost cause of tooth extractions followed by orthodontics in young patients, in older patients the main cause of tooth extraction was periodontal diseases.

**Keywords:** Extraction, tooth, periodontal disease, caries.

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**INTRODUCTION:**

Tooth loss affects speech, causes chewing difficulties and can end with poor aesthetics that affect the life quality of any population<sup>1-3</sup>. In many countries, research has been conducted on the causes of tooth loss and some discussions have been made as to whether periodontal diseases or tooth decay are the foremost reason of tooth loss<sup>4-5</sup>. Other studies have suggested that the causes of such extractions are periodontitis, dental caries, trauma, orthodontics and prosthetic treatments. Many studies report that the utmost usual cause of tooth extraction is tooth decay in early ages, while others report that periodontal disease and tooth decay are equally responsible. Various analysis have reported that periodontal disease accounts for most dental extractions in older patients, but some report that tooth decay is the major reason for tooth loss at any age<sup>6-7</sup>. In the presence of preventive measures, in the 46-65 age group the major reason for extraction is periodontal disease, while orthodontic extractions may replace caries as a common cause of extraction in young populations<sup>8</sup>. In less than 20 years in Canada and Germany, studies have testified that periodontal disease is the usual reason for tooth extraction, while studies in Singapore and Italy have reported nearly the same proportion of tooth decay and periodontal disease. Although periodontal disease and tooth decay are the major causes of tooth extraction in association with age, sex, attitude characteristics and socioeconomic behaviour, they tend to affect teeth retention in the population. In the past, several studies have been conducted to assess the tooth extraction causes in the Pakistani population<sup>9</sup>. Evaluation of dental mortality data in various regions of the globe is important to assess the appropriateness of preventive oral health programs and dental care. In addition, considerate the comparative contribution of the 2 major oral diseases, periodontal disease and tooth decay to the

rates of tooth loss should help appropriately allocate existing dental resources helped in decreasing these rates<sup>10</sup>. A limited number of epidemiological studies have been conducted in Pakistan to explore the causes of tooth loss in their populations. Therefore, the purpose of this analysis was to inspect the causes of tooth extraction and its relationship with gender and age.

**MATERIALS AND METHODS:**

In this cross-sectional study, Data were collected from Abbasi Shaheed hospital, Karachi and general dental specialists from the dental clinics in Karachi for one year duration from June 2018 to June 2019. The criteria of inclusion was patients from equally genders, 10 years above age and designated for permanent tooth extraction. A total of 691 subjects, 424 males and 267 females were selected for the study. The selected subjects were divided into 6 groups according to their age (10-19), (20-29), (30-39), (40-49), (50-59) and (> 60 years) respectively. All causes of the extracted teeth were recorded and the collected data were recorded. The possible extractions causes list was changed from those used in the earlier studies. The causes of extraction were caries, periodontal disease, caries / periodontal disease combination and trauma. In addition, the causes of prosthesis and orthodontic treatment were recorded. Data were analysed and processed using the SPSS version 21.0. The variables distributions of frequency were calculated distinctly for male and female subjects. For men, women and age groups comparisons; Chi-square test was used.  $P < 0.05$  was taken significant statistically.

**RESULTS:**

691 total subjects were selected for the study. The total number and percentages of male subjects were 424 (61.2%) and women were 267 (38.2%).

**Table 1: Number and percentage of patients in relation to age group**

Age group (Mean age)	10 – 19	20 – 29	30 - 39	40 - 49	50 – 59	60	Total
N	133	111	99	140	110	98	691
%	19.2	16.0	14.3	20.2	15.9	14.1	100

Table 1 shows descriptive statistics ranging in age from 10 to > 60 years. The highest age group and percentage were in group 40- 49 (20.2%) followed by 10 – 19 (19.2%) years old, while the lowest age and percentage was in the group of 60 years and above (14.1%).

Figure -1. Number and percentage of extracted teeth in relation to cause.

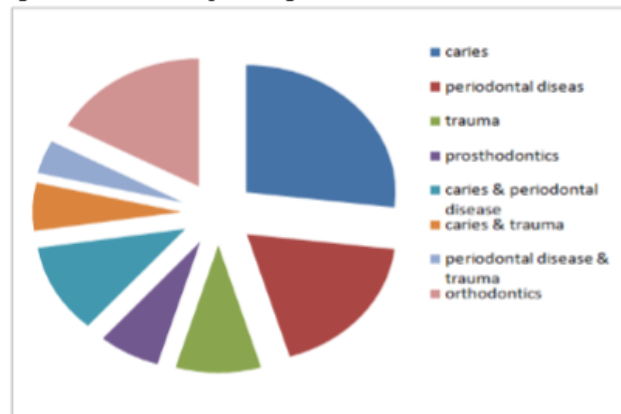


Figure 1 shows common causes of tooth extraction in this study. The most common cause was caries (26.9%) followed by periodontal disease (18.5%) and orthodontic treatment (17.1%). Tooth decay trauma (6.1%) and the combination of trauma and periodontal disease (4.2%) explain the lowest causes of extraction.

Table - 2. Number, percentage and causes of extracted teeth in relation to gender

Gender	Caries	Periodontal disease	Trauma	Prostodontics	Caries & periodontal disease	Caries & trauma	Periodontal disease & trauma	Orthodontics
Male # / %	110 / 25.9	81 / 19.9	37 / 8.7	24 / 5.7	51 / 12.0	27 / 6.4	20 / 4.7	74 / 17.5
Female # / %	76 / 28.5	47 / 17.6	27 / 10.1	22 / 8.2	27 / 10.0	15 / 5.6	9 / 3.4	44 / 16.5
Total 691	186	128	64	46	78	42	29	118
100 %	26.9	18.5	9.3	6.7	11.3	6.1	4.2	17.1
P value	.013*	.003*	.211	.768	.007*	.064	.041	.006*

\*Significance level at 5%

Table -2 shows that the most common tooth decay in males and females is 25.9% and 28.5%, respectively. Approximately equal proportions were found in men and women for the causes of orthodontics and periodontal diseases. In men and women, the lowest cause was respectively with periodontal disease and trauma noted in 4.7% and 3.4%. When the data were subjected to statistical analysis, they showed statistically significant differences in the causes of caries, periodontal disease, caries and orthodontics. As shown in Table 2, there was no significant difference at  $p < 0.05$  among other causes. The tooth decay is the most common cause in both age groups at the ages of 20-29 (33.3%) and 10-19 (21.5%). The reason for orthodontics was accepted as the reason for high tooth extraction in the same age group (32.2%) (56.8%). Periodontal diseases were the most common cause of tooth extraction in age groups of 40-49 and 50-59 years (23.4%) (37.5%), respectively. When the data were analysed statistically, there were statistically significant differences between only tooth decay, periodontal disease caries, periodontal disease with trauma and orthodontics. Although there is no significant difference between the other causes shown at  $p < 0.05$  level.

## DISCUSSION:

The causes of tooth extraction show great geographical and cultural differences between many countries and regions of a country. A limited number of epidemiological studies have been conducted in different regions of Pakistan to investigate such causes of tooth extraction. Lifelong teething retention should be one of the main goals of dental health care providers. Therefore, this study was designed to investigate the causes of tooth extraction by age and gender. We will discuss our findings on geographical, food and cultural health services as well as similarities with the state in relation to studies in nearby countries<sup>11-12</sup>. From our findings, as shown in Table -2 and Figure -1, it is clear that the largest cause of tooth decay is caries. Previous studies showed 60% of Riyadh, 43% in Kuwait, 50.2% in Riyadh, 53% in Al-Baha, 62% in Riyadh and 83% in Jeddah for the same reason<sup>13</sup>. This can be explained by the type and habit of foods containing a small amount of sugar. In our results, approximately the same rates were found between women and men. This is consistent with the previous findings mentioned in the literature. Significant differences were observed in our age groups. Several previous studies concluded that caries were the main cause of tooth loss at an early age, which coincided with the previous finding shown in Table -3. Periodontal disease in both men and women was found to be the second cause of the second tooth loss

in the Pakistani population and increased by 18.5% of the total causes and the highest percentage in the 50-59 age group as subjects aged. In this study, significant differences in gender with a higher percentage in men were evident, because male gender was reported as a risk indicator for the severity of periodontal disease<sup>14-15</sup>. This study shows a high cause of extraction due to orthodontic needs in subjects, as shown in Figures -1, Tables 1 and 2. These findings coincide with studies in Riyadh and Jordan. This can be explained by the increasing aesthetic demands of the patients and free orthodontic services in the state centres.

### CONCLUSION:

From this cross-sectional study, it can result in:

1. Caries are the main cause of tooth extraction, followed by periodontal disease and orthodontics. Prosthesis and trauma were the least causes of extraction.
2. In younger age groups, tooth decay and orthodontics were the main causes of extraction; periodontal disease constitutes the majority of tooth extractions in elderly age groups.
3. The same percentage of caries and periodontal disease causes were found in both sexes.
4. Combinations of either of the two causes were the least likely, with a combination of caries and periodontal disease being slightly more.

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