# FREQUENCY AND PATTERN OF REMOVAL OF TEETH IN A SAMPLE OF POPULATION OF SOUTHERN PUNJAB

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#### ABSTRACT

Removal of non-restorable teeth is a routine cost-effective procedure. A cross-sectional study was conducted in the Department of Oral and Maxillofacial Surgery, Nishtar Institute of Dentistry, Multan, Pakistan from 1st April 2016 to 30th October 2016 to find out frequency and pattern of teeth removal in southern Punjab population. Both genders were included and causes of extraction were categorized. Chi square test applied to assess the significance of association.

Two thousands and seventy two teeth were extracted from 1700 patients (786 male 45.2%, and 932 female 54.8%) presented to oral surgery department. Mean age of the sample was  $40 \pm 15.01$ . A total of 1339 (64.6%) were extracted due to advanced dental caries, the leading cause of tooth extraction followed by periodontal disease 217 (10.5%). Molars (45%) were most common teeth extracted.

It was concluded that there was strong need for directing more financial resources to community awareness programs to prevent premature teeth loss.

Key Words: Caries, Periodontitis, frequency of teeth removal, oral hygiene.

#### **INTRODUCTION**

A good oral health status is a crucial element for the healthy person and it have to be covered within the delivery of health caring facilities and the design of community programs. Oral cavity is main route for nutritional supplementation. Any disease that affects the tissue of oral cavity directly or indirectly affects the general health. Leading dental diseases are caries and the periodontal diseases.<sup>12,4</sup> Altered speech, eating difficulties, poor facial appearance may be the consequences of poor oral health.

Financial burden and time consumption are two major factors for restoring a decayed tooth or a missing tooth.<sup>1</sup> Role of oral health care providers is to provide safe preventive measures on a mass scale like fluoridated water supply for the public, young adults consuming sufficient amount of fluoridated milk, educate and motivate adults for abeyance tobacco usage, and pits and fissure sealants applied on the teeth, all these measured reduced the incidence of dental caries.<sup>15</sup> However, in the most of the under-developing

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countries, it has not been properly organized due to the poverty and low-class economical condition and it has also been commonly observed early loss of tooth in these population.<sup>1,10</sup> The pathophysiology of the mouth disease and its mild to severe grading status varies in diverse population groups, however, dental caries almost impact in all communities.<sup>4,5,6,10</sup> Sever oral disease may be minimized by adopting preventive measures, educating people and following appropriate treatment protocol.

The objective of this study was to determine the frequency and pattern of loss of teeth in a sample of population of southern Punjab and to recommend the health authorities to transfer more funds towards preventive oral health.

#### METHODOLOGY

This cross-sectional study was investigated at the Oral & Maxillofacial Surgery Department, Nishter Institute of Dentistry, Multan, Pakistan from 1st April 2016 to 30th October 2016. The approval for conducting this study was given by the Institutional Review Board of the hospital. Informed consent was taken from all patients willing to participate for this research.

After the clinical examination and appropriate radiographs were used to make a definitive diagnose in every single patient and a particular cause of tooth extraction was established. Any bias for the tooth extraction in patient was only obtained by the competent examiner. There were nine different groups of categories

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according to the causes of tooth extraction, including, grossly tooth caries, irreversible periodontal disease, irreparable tooth trauma, failed endodontic treatment, orthodontics reason, prosthodontics purpose, affected patient willing or socio-economic status, local pathology or impacted tooth. The single or multiple teeth extractions was also recorded respectively.

According to the patient's age, the three group were structured. The SPSS version 20 was used to analyze the whole data. The CHI square test were used to evaluate the statistical significance of association among the following characteristics, including, cause of teeth extraction, age groups, sexual category and type of tooth removal (central or lateral incisors, canine, 1st and 2nd premolar, and 1st, 2nd, and 3rd molars).

#### RESULTS

In this study, 1700 patients were included and a total number of 2072 teeth extraction were performed. From the 1700 participants, the 786 (45.2%) and 932 (54.8%) were male and female, respectively. The age range was 10 to 70 years and 40  $\pm$  15.01 was mean  $\pm$  SD of samples. It has been clearly presented in distribution of male and female Fig 1.

It has been perceived in this study that the age group from 31 to 50 years old patients were commonly included in the maximum number of teeth extraction group. The most common cause of teeth extraction was grossly dental caries, 1339 (64.6%) number of teeth extracted and second common cause of teeth extraction was severe periodontal disease about 217 (10.5%).

## TABLE 1: CAUSES OF EXTRACTION OF TEETH IN DIFFERENT AGE GROUPS

<b>Causes of extraction</b>	Age groups			Total	$\mathbf{X}^2$ value	Df	P value
	10-30	31-50	51-70	_			
Caries	280	656	403	1339			
Periodontitis	22	96	99	217			
Trauma	63	49	0	112			
Failed treatment	18	41	5	64			
Orthodontic Rx	48	5	0	53	455.7	16	0.000
Prosthodontic Rx	4	27	33	64			
Socioeconomic	6	13	28	47			
Local pathalogy	48	12	6	66			
Impaction	65	45	0	110			
Total teeth	554	944	574	2072			

 $X^2$ = chi square value, df = degree of freedom

# TABLE 2: EXTRACTIONS OF TEETH ACCORDING TO TOOTH TYPE IN THE MAXILLA AND MANDIBLE

Cause of extraction	ise of Extraction			Total	X2	Df	P value	
	Incisors	Canine	Premolars	Molars	-			
Caries	270	126	324	619	1339			
Periodontitis	52	16	56	93	217			
Trauma	38	7	26	41	112			
Failed Treatment	20	13	7	24	64	118.7	9.4	0.000
Orthodontic Rx	11	7	25	10	53			
Prosthodontic Rx	30	5	5	24	64		<i>2</i> 4	0.000
Socioeconomic	16	6	10	15	47			
Local pathology	11	9	12	34	66			
Impaction	6	6	21	77	110			
Total teeth	454	195	486	937	2072			

 $X^2$ = chi square value, df = degree of freedom



Fig 1: Distribution of genders

The causes of teeth extraction has been particularized according to the sex distribution, different age groups, location and type of teeth. Onwards, the CHI square test was applied to analyze the significance of variables. These all has been mentioned into the following Table 1 and 2.

### DISCUSSION

In this cross-sectional study, the frequency and pattern of teeth extraction in the local population of southern Punjab was perceived at the Nishtar, Institute of Dentistry. The advanced dental caries, which cannot be repairable and manageable dental treatment apart from the tooth extraction, is the most commonly presenting reason for the tooth extraction among all causes of teeth extraction.<sup>1,13,14</sup> The female were the predominantly involved for the teeth extraction procedure in this study. These facts elaborate that generally females are keen and more attentive for their facial look and aesthetics. Therefore, they are inclined to pursue dental treatment on earlier basis and also the hormonal changes in female gender effects overall orofacial health.

All over the world, there have been enormous number of studies conducted to figure out the common cause and reason for the teeth extraction among the various groups of population. It has been also clearly mentioned that the dental caries is the one of most common dental disease and cause for the population to tooth extraction. In this extent, present study is also confirmed and had consistent results to the international prior studies.<sup>2,3,6</sup> In the current study, about 64.6% of tooth extraction was performed due to presences of advanced dental caries. Other studies reported similar results with caries being responsible for majority of the extractions in a wide range from 32.6% to 86.2%.<sup>1,8,11</sup>

In previous studies mandibular molars were most commonly extracted (60%) teeth, maxillary lateral incisors as least (0.7%) but in current study canine were least common teeth for extraction other results are similar.<sup>16</sup> In current study extraction for orthodontic treatment purpose and poor socioeconomic status were rare. And the results are comparable to national and international studies.

The severe periodontal disease is the second common cause for the teeth extraction about 10.5% among all the causes of teeth removal. In the current study, dental caries with periodontitis was the followed cause for teeth extraction in local population. In addition to this, the periodontitis is chief complaint and cause for the teeth extraction amongst the participants of 31-50 years age range group. In the elderly patient, the periodontitis is the major cause for the removal of tooth and these outcomes were also represented into the various international studies similarly.<sup>2,8,12,13</sup>

The failure of root canal therapy was represented to be the most common cause of restoration failure and it was considered the minor cause of tooth extraction amongst all.<sup>3,9</sup> The failure of root canal treatment was frequently observed in the fourth and fifth decades group of life and female are more prone to affected in sex distribution level. The trauma of dento-alveolar region generally prone to crown/root fracture of the tooth, which needs to be removal of tooth.<sup>6</sup> In the various previous studies, the localized pathologies including, odontogenic cysts and benign tumors in the developing mandibular and maxillary bones were rarely observed the cause of tooth extraction, conversely, in this study, the socio-economic position of participants was the least common cause (02%) for the tooth extraction.<sup>7</sup>

People came to hospital those belongs to far off cities and heavy work load routine and social and economical impacts restrict their complex follow up conservative procedures, preferably extracts their teeth. Many developed countries has been reported in their recent researches that the preventive measures for reduction of dental caries are valuable and remarkable in respect to control the rate of growing dental caries and consequently, the rate of tooth extraction would also minimize by this preventive measurements.<sup>5,6</sup>

# CONCLUSION

The most common and frequent cause for the teeth extraction was grossly dental caries. Great attention should be given to preventive measures and public should be made aware about its importance. Health managers should increase and divert more funds towards preventive oral health measures.

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1 Shahmir Akbar Khan:	Data Collection.
2 Ahsan Ullah:	Compiling data, analysis and interpretation.
3 Waqas Ahmad:	Review of written data.
4 Basharat Ullah Baig:	Literature search, drafting of manuscript.
5 Muhammad Ahmad Sadiq:	Data collection.
6 Sehrish Liaqat:	Critical review of written data.