

# CAUSES AND PATTERN OF PERMANENT TOOTH EXTRACTION WITH FREQUENCY AND TYPE OF REPLACEMENT

<sup>1</sup>SYEDA LALA RUKH

<sup>2</sup>SYED NASIR SHAH

<sup>3</sup>RIAZ GUL

## ABSTRACT

*The main objective of the study was to find out the common causes and pattern of permanent teeth extraction with frequency and type of replacement in patients. It was a cross sectional study conducted on 400 patients of age 16 to 65 years. Patients presenting with different dental problems were taken from two dental hospitals at Peshawar i.e. sardar begum dental hospital and Khyber college of dentistry. The study was conducted for duration of three months. Non probability convenient sampling technique was used to select the required sample. Edentulous patients, patients with congenital missing teeth, and those having systemic diseases like diabetes mellitus, cardiovascular diseases and gastrointestinal diseases were excluded from the study. Semi structured questionnaire was used to collect the data. Results of the study shows that the common causes of extraction were dental caries (63.7%), periodontal disease (22.9%), failed RCT (5.79%), impaction (2.60%), trauma (2.60%) and orthodontic reasons (2.31%). Maxillary first molar (48.5%) was the most frequently extracted tooth. The removable partial denture (69.56%) was the most commonly used prosthesis followed by fixed partial denture (26.08%) and implant supported fixed prosthesis (4.34%). Keeping in view the results of the study, Health education regarding oral hygiene is recommended to change the attitude and practices of the community in order to prevent dental problems.*

**Key Words:** Tooth extraction, dental caries, periodontal disease, root canal treatment, removable partial denture, fixed partial denture.

## INTRODUCTION

Although some studies reported that edentulism has declined, a considerable number of adults are still suffering from loss of teeth. Teeth play a vital role in the maintenance of esthetics, speech and mastication. Tooth loss has various harmful effects on an individual resulting in a significant disabilities, which can profoundly disrupt social activities e.g. impairment of masticatory function, unpleasant aesthetics, compromised phonetics, temporomandibular dysfunctions, psychological issues, social withdrawal and decline in confidence level.<sup>1</sup>

To minimize the need of denture wearing, adults should have at least 20 functional teeth to enable them

for a good dietary intake. According to the World Health Organization (WHO), edentulism considerably reduces the quality of life.<sup>2</sup>

Several reasons have been incriminated in tooth extraction. Prominent factors comprise dental caries, periodontal diseases, trauma and orthodontics.<sup>3</sup> The consequently huge financial expenditure coupled with significant deterioration in quality of life, put heavy burden on the public health system.<sup>4</sup>

Documenting the prevalence and pattern of partial tooth loss is very important for identifying the prosthetic needs of the studied community as well as aiding the provision of educational and preventive materials suitable for this population.<sup>5</sup> Recording frequency of such patient at hospital could give a hint to a problem prevailing in them. The objective of current study is to find out the common cause and pattern of permanent teeth extraction with frequency and type of prosthesis in such patients.

## METHODOLOGY

This cross sectional descriptive study with sample

<sup>1</sup> Kabir institute of public health Peshawar

<sup>2</sup> Dr Syed Nasir Shah, Professor and Head of Department of Prosthodontic Department, Sardar Begum Dental College and Hospital, Canal Road University Town, Peshawar **For Correspondence:** Dr Syed Nasir Shah, Department of Prosthodontic, Sardar Begum Dental College and Hospital, Canal Road, University Town, Peshawar

Email: syedshah214@live.com Cell: 0333-9208868

<sup>3</sup> Professor of Community Medicine, NorthWest General Hospital, Peshawar

**Received for Publication:** February 2, 2017  
**Approved:** February 10, 2017

size 400 of subject's age 16 to 65 years was conducted in two dental hospitals at Peshawar i.e. Sardar begum dental hospital and Khyber College of Dentistry. Approval was taken of ethical committee of both colleges. The study was conducted for duration of three months. Non probability convenient sampling technique was used to select the required sample. After taking verbal informed consent from patients, semi structured questionnaire was used to collect the data. Partially dentate patients were included in this study. Thorough intraoral examination was performed in a good light while the patient seated in a dental chair. Number and type of missing teeth were noted on predesigned Performa. Type of prosthesis replacing missing teeth was also noted. Patients were asked about reason for loss of teeth. Edentulous patients, patients with congenital missing teeth, and those having systemic diseases like diabetes mellitus, cardiovascular diseases and gastrointestinal diseases were excluded from the study. The data were analyzed in statistical package for social sciences (SPSS) version 17 frequency and percentage was calculated for data.

## RESULTS

Results of the study shows that out of total 400 patients, 345 patients got their teeth extracted while 55 patients were given conservative treatment. Among the patients who got their teeth extracted, 191 were males while 154 were females. (Table 1)

Total number of extraction performed in 345 patients were 628. Out of these the most affected area within upper and lower arches was maxillary left quadrant having 194 teeth extracted. Within maxillary left quadrant the first molar was the most frequently extracted tooth (48.5%), In maxillary right quadrant

TABLE 1: DISTRIBUTION OF PATIENTS ACCORDING TO THEIR GENDER AND TREATMENT PROVIDED

Treatment Option	Gender Distribution		Total
	Males	Females	
Extraction	191	154	345
Conservative	24	31	55
Total	215	185	400

TABLE 2: FREQUENCY OF TEETH EXTRACTED IN DIFFERENT QUADRANTS

Tooth number 'n'	Quadrants				Total
	Maxillary right n=188	Maxillary left n=194	Mandibular right n=124	Mandibular left n=122	
Central incisor	4(2.1%)	10(5.1%)	05(4.3%)	03(2.4%)	22
Lateral incisor	4(2.1%)	04(2.1%)	01(0.8%)	04(3.2%)	13
Canine	6(3.2%)	03(1.5%)	05(4.0%)	03(2.4%)	17
First premolar	20(10.6%)	24(12.4%)	12(9.6%)	10(8.2%)	66
Second premolar	23(12.2%)	31(15.9%)	15(12.1%)	17(13.9%)	86
First molar	85(45.2%)	94(48.5%)	53(42.7%)	60(49.2%)	292
Second molar	23(12.2%)	11(5.6%)	09(7.3%)	09(7.4%)	52
Third molar	23(12.2%)	17(8.7%)	24(19.4%)	16(13.1%)	80
Total	188	194	124	122	628

TABLE 3: DISTRIBUTION OF PATIENTS ACCORDING TO THEIR GENDER AND CAUSE OF TOOTH LOSS

Causes of extraction	Gender wise distribution		Total
	Males	Females	
Caries	124	96	220(63.76%)
Periodontal disease	42	37	79(22.89%)
Failed R.C.T	08	12	20(5.79%)
Impacted tooth	06	03	09(2.60%)
Trauma	06	03	09(2.60%)
Orthodontics	05	03	08(2.3%)
Total	191	154	345

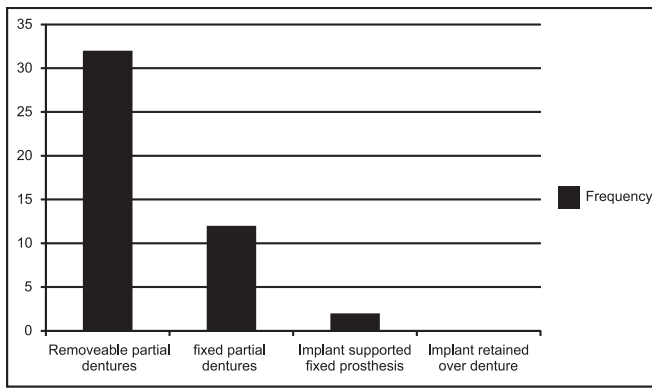


Fig 1: Frequency of prosthesis replacement

also first molar (42.7%) was the most common tooth extracted. In lower left and lower right quadrants again first molar was frequently extracted tooth (49.2%, 42.7%) respectively. The least common tooth extracted was mandibular right lateral incisor (0.8%). (Table 2)

When frequency of causes were assessed it was found that out of 345 patients, 220 (63.76%) had their teeth extracted due to caries, 79 (22.89%) patients due to periodontal disease, 20 (5.79%) patients due to failure of root canal treatment, 9 (2.60%) due to impaction, 9 (2.60%) due to trauma, while 8 (2.3%) patients got their teeth extracted for orthodontic reasons. (Table 3)

Results of study shows that in majority of cases partial dental prosthesis was the treatment modality (69.56%) followed by fixed partial dental prosthesis (26.34%). Implant supported fixed dental prosthesis was found to be the least common treatment modality (4.34%). (Fig 1)

## DISCUSSION

High level of tooth loss influences general health in terms of weight loss, eating problems social handicaps related to appearance, drifting and tilting of adjacent teeth, supra eruption of opposite teeth, altered speech and psychological dissatisfaction and communication.

In current study most common extracted tooth is first molar in all quadrants. Which corresponds with the study conducted by Talabani et al<sup>6</sup>, and Bagar et al.<sup>7</sup> It is the first tooth which erupts in posterior sextant. So it gets early exposure to cariogenic effect. Moreover, it is present in oral cavity in early childhood period when most of the children use candies and other sugar products. In our study more extraction was observed in males as compared to females which corresponds with study conducted by Thomas and Eyad Al-Maqdassy<sup>8</sup> but contradict with the study conducted by Natto et al<sup>9</sup> and Shinawi et al.<sup>5</sup> This may be due to the fact that females in our society are more careful about their oral hygiene and less prone to cariogenic food.

In current study the most common cause of tooth extraction was caries (63.76%) followed by periodontal disease (22.89%) which corresponds with study conducted by Haseeb et al<sup>10</sup>, Nsour et al<sup>11</sup>, Jafarian et al<sup>12</sup>. It could be due to the increased use of refined sugar in our diet, improper brushing technique, lack of awareness of oral hygiene maintenance, lack of proper dental visits and follow ups.

Results of current study shows that in majority of cases partial denture was treatment modality (69.56%) which contradict with the study conducted by Azodo et al<sup>13</sup> where only 1.8% peoples have partial denture replacement but corresponds with local study conducted by Shah SN et al<sup>14</sup> where majority of patients (90.5%) were treated with partial denture. The reason is that partial denture is economic treatment and in most teaching hospitals it is supplied free of cost for student education purposes. Secondly replacement criteria for partial denture replacement is broad, so it is provided in most of the situation. In our study fixed partial denture was (26.34%) and Implant supported fixed prosthesis was (4.34%) which also contradict with study conducted by Ozkurt and Kazazoglu<sup>15</sup> where replacement of missing teeth with fixed partial denture and implant supported prosthesis was 46.3% and 10.6% respectively. The main reason is that majority of patients who attend teaching hospital are with low socioeconomic background. They cannot afford the cost of bridge or implant supported prosthesis and opt for removable dental prosthesis. Secondly no dental insurance has been provided in our country by government.

## CONCLUSION

From current study it was concluded that among patients attending two teaching hospitals first molar was the most common tooth extracted in all quadrants, dental caries is the most common cause of teeth extraction followed by periodontal disease, and removable partial denture is the most common treatment for missing teeth.

## REFERENCES

- 1 Kashif M, Mehmood K, Ayub T, Aslam M. Reasons and Patterns of Tooth Extraction in a Tertiary Care Hospital- A Cross Sectional Prospective Survey. *J Liaquat Uni Med Health Sci* 2014; 13(03): 125-29.
- 2 Khazaei S, Keshteli AH, Feizi A, Savabi O and Adibi P. Epidemiology and risk factors of tooth loss among Iranian adults: findings from a large community-based study. *Bio Med Research International* 2013; 2013: 8.
- 3 Chukwumah N, Azodo C, Oriokpete E. Analysis of tooth mortality among nigerian children in a tertiary hospital setting. *Ann Med Health Sci Res* 2014; 4: 345-49.
- 4 Al-Bluwi GS. Epidemiology of dental caries in children in the United Arab Emirates. *Int Dent J* 2014; 64: 219-28.

- 5 Shinawi LA. Partial edentulism: a five year survey on the prevalence and pattern of tooth loss in a sample of patients attending King Abdul Aziz University - Faculty of Dentistry. Life Science Journal 2012; 9: 2665-71.
- 6 Talabani RM, Abdulateef DS, Gharib DA. Pattern of Missing Tooth with Prosthetic Status among Patients Attending To Dental School. JDMS 2015; 14(7): 72-76.
- 7 Baqar A, Mirza D, Ahmed S and Hakeem S. Pattern of missing teeth in patients seen in prosthodontic department in a teaching hospital of Karachi. Pak Oral Dent J 2014; 34 (2): 366-69.
- 8 Thomas S and Al-Maqdassy SE. Causes and pattern of tooth mortality among adult patients in a teaching dental hospital. Ibmossina J Med Biomed Sci 2010; 2(4): 160-67.
- 9 Natto ZS, Aladmawy M, Alasqah M and Papas A. Factors contributing to tooth loss among the elderly: A cross sectional study. Singapore Dent J 2014; 35: 17-22.
- 10 Haseeb M, Ali K, Munir MF. Causes of tooth extraction at a tertiary care centre in Pakistan. J Pak Med Assoc 2012 ; 62(8): 812-15.
- 11 Nsour HF, Masarweh NA. Reasons for Extraction of Primary Teeth in Jordan - A Study. Pak Oral Dent J 2013; 33(2): 336-39.
- 12 Jafarian M, Etebarian A. Reasons for extraction of permanent teeth in general dental practices in Tehran, Iran. Med Princ Pract 2013; 22(3): 239-44.
- 13 Azodo CC, Akinboboye B. Removable partial denture use among a selected group of Nigerian undergraduates. Eur J Gen Dent 2012; 1: 30-33.
- 14 Shah SN, Bangash TH, Saleem A. A study of tooth loss pattern and treatment in partially dentate patients. Pak Oral Dent J 2007;27(2):267-70.
- 15 Ozkurt Z, Kazzoglu E. Treatment modalities for single missing teeth in a Turkish subpopulation: an implant, fixed partial denture, or no restoration. JDS 2010; 5: 183-88.

#### CONTRIBUTIONS BY AUTHORS

- |                           |  |
|---------------------------|--|
| <b>1 Syeda Lala Rukh:</b> | Principal author                             |
| <b>2 Syed Nasir Shah:</b> | Supervisor                                   |
| <b>3 Riaz Gul:</b>        | Provided substantial help in various aspects |