

## Original Article

## REASONS OF REPLACING MISSING SINGLE TOOTH IN PATIENTS, REPORTING TO KHYBER COLLEGE OF DENTISTRY, PESHAWAR

**\*Muhammad Irfan, \*\*Sajid Ali, \*\*\*Asifullah Khan, \*\*\*\*Mohammad Waqar Hussain**

\*Khyber College of Dentistry, Peshawar Pakistan

### **ABSTRACT**

**Objective:** To determine the reason for replacing the single missing tooth in patients reporting to Khyber College of Dentistry, Peshawar, and to determine the effect of gender and educational level on the reason for replacing the single missing tooth.

**Materials and Methods:** a detailed history and examination 100 patients having a single missing tooth from anterior incisors to the second molars were included in the study through consecutive sampling from April 2014 to 15th Sep 2014 in Khyber College of Dentistry. Patients who had more than one missing tooth already replaced a tooth and those who did not wish to replace it were excluded from the study. Age, gender, educational level, and the reason for replacement of missing tooth was recorded. It was a cross-sectional study with simple random technique. Study duration was six months. Chi-square test was applied to relate reasons for replacement of missing tooth among genders, age groups, and educational levels.

**Results:** Males were 61(61%), and females were 39(39%). The mean age was  $30.3 \pm 12.27$  years. The most common missing tooth was premolar (40%), molar(30%) and incisor(25%) in the mouth. The commonest concern among the patients having a single missing tooth to be replaced was a function(47 (47%) and aesthetics(20 (20%). Fifteen percent patients have the concept that there should be a full complement of teeth. To attract other as the reason for replacement was found in 8% patients. In this sample, 10% patients reported that if not replace there will be some adverse sequelae leading to malocclusion.

**Conclusion:** The commonest concern among the patients having a single missing tooth to be replaced was function followed by esthetics. Females were more concerned about esthetics to replace missing tooth while males were more interested in function and to have a full complement of teeth and occlusion maintenance.

**Keywords:** Missing tooth, Function of teeth, Reason for replacement, Prosthodontics treatment

### **INTRODUCTION**

To restore function and esthetics of patients, it may be necessary to replace the missing teeth. Variety of treatment modalities may be used for replacing a single missing tooth; i.e., removable partial denture (RPD), fixed partial denture or dental implant. Each modality is a possible treatment option and has its own merits and demerits.<sup>1</sup> There are several factors influencing the final treatment decision concerning the replacement of a missing tooth; these factors are case specific.<sup>2</sup>

**Correspondence:**

**Dr. Muhammad Irfan**

Resident FCPS-II Prosthodontics Khyber College of Dentistry, Peshawar

Cell: 0334-9167491

Email address: irfanbds1986@gmail.com

RPD is a versatile, cost-effective, minimally invasive and reversible treatment method for replacing missing teeth and further tooth loss often can be managed because the prosthesis could be altered easily.<sup>3</sup> It is a popular option in developing countries.<sup>4</sup> However, it appears that the state of the art is – whenever possible – to place a single implant-supported crown to replace a single missing tooth.<sup>5</sup>

One of the most challenging and complex treatment modality is the replacement of single anterior tooth. This can be overcome by different treatment options such as implant-supported restorations as well as conventional porcelain-fused-to-metal, resin-bonded fixed partial dentures and RPD in some cases. Drifting of teeth into the edentulous area may

reduce the available pontic space; whereas a diastema existing before an extraction may result in excessive mesiodistal dimension to the pontic space.<sup>6</sup>

In a systematic review by Scheuber et al<sup>7</sup> concluded that initial costs for single implant crowns and conventional fixed partial dentures(FDPs) on teeth are similar, but this may vary between tariff systems. The conditions of neighboring teeth and the alveolar ridge define the complexity (costs) of the treatment. Failure rates reported with single implant crowns and FDPs on teeth are similar. The long-term financial, economic comparison shows a similar outcome for single implant crowns and FDPs. Other factors than costs and survival rates such as a patient or provider-reported factors may be more decisive when choosing between implant crowns and FDPs on teeth. The utility for the patient to keep healthy adjacent teeth unprepared makes the implant crown more economical. The most important reason why patients seek prosthetic replacement of missing teeth is to improve their appearance. Other reasons include the restoration of speech, mastication, confidence, and psychological well-being.<sup>8</sup> This study aimed to determine the reason for replacing the single missing tooth in patients reporting to Khyber College of Dentistry, Peshawar, and to determine the effect of gender and educational level on the reason for replacing the single missing tooth.

## MATERIALS AND METHODS

This cross-sectional study was carried in the Department of Prosthodontics, Khyber College of Dentistry Peshawar from April 2014 to 15th Sep 2014. The purpose, procedures, and benefits of the study were explained to the participant. An informed consent and their willingness and participation in the study were ensured. They were assured of maintaining the confidentiality of their personal and other data collected from their records.

After detailed history and examination of 100 patients having a single missing tooth from incisors to the second molars was selected by Consecutive, nonprobability sampling. Patients who had more than one missing tooth already replaced a tooth and those who do not want to replace it was excluded from the study. Age, gender, educational level, and the reason for replacement of missing teeth were recorded. Data were analyzed using SPSS version 20.0. The mean and standard deviation was calculated for a numerical variable like age. Frequency and percentages were calculated for

categorical variables like gender, educational level, and the reason for replacement. Chi-square test was applied to relate the reasons for replacement of missing tooth among genders, age groups, and educational levels.  $P<0.05$  was set to the level of significance.

## RESULTS

One hundred patients who had missing single tooth and wanted a replacement by prosthodontic therapy were the participant of this study. Males were 61(61%), and females were 39(39%). The age ranged from 16 to 53 years, and the mean age was  $30.3\pm12.27$  years. The maximum number of patients were presented in the age group 21 to 30 years (30%) followed by 41 to 55 years (25%) as depicted in table 1. Of total 100 patients, 13% were non-educated, 22% had a primary, 29% had secondary, 18% had interme-

**Table 1:** Age distribution of the patients having single missing tooth

Age (years)	Frequency	Percent	Cumulative Percent
16-20	24	24.0	24.0
21-30	30	30.0	54.0
31-40	20	20.0	74.0
41-55	26	26.0	100.0
Total	100	100.0	

**Table 2:** Reasons for replacing missing tooth

Reasons	Frequency	Percent	Cumulative Percent
Esthetic	20	20.0	20.0
Function	47	47.0	67.0
the attention of other	8	8.0	75.0
missing should be replaced	15	15.0	90.0
maintenance of occlusion	10	10.0	100.0
Total	100	100.0	

**Table 3:** Reasons for replacing missing tooth stratified by gender

Reasons for replacing missing tooth	Gender			
	Male		Female	
	N	%	N	%
Esthetic	7	7.0	13	13.0
Function	29	29.0	18	18.0
attention of other	5	5.0	3	3.0
Missing should be replaced	13	13.0	2	2.0
Maintenance of occlusion	7	7.0	3	3.0

\*Chi-square=10.195; Df=4; P=0.037

**Table 4: Reasons for replacing missing tooth stratified by educational level**

Reasons for replacing missing tooth	Educational level									
	Nil		Primary		Secondary		Intermediate		University	
	N	%	N	%	n	%	n	%	n	%
Esthetic	4	4.0	5	5.0	6	6.0	3	3.0	2	2.0
Function	7	7.0	10	10.0	15	15.0	8	8.0	7	7.0
Attention of other	2	2.0	2	2.0	2	2.0	1	1.0	1	1.0
Missing should be replaced	0	0.0	3	3.0	3	3.0	3	3.0	6	6.0
Maintenance of occlusion	0	0.0	2	2.0	3	3.0	3	3.0	2	2.0

Chi-square=12.048; df=16; P=0.741

**Table 3: : Reasons for replacing missing tooth stratified by educational level**

Reasons for replacing missing tooth	Age group							
	16-20		21-30		31-40		41-55	
	N	%	n	%	N	%	n	%
Esthetic	7	7.0%	4	4.0%	4	4.0%	5	5.0%
Function	11	11.0%	14	14.0%	9	9.0%	13	13.0%
attention of other	1	1.0%	3	3.0%	0	0.0%	4	4.0%
Missing should be replaced	2	2.0%	4	4.0%	6	6.0%	2	2.0%
Maintenance of occlusion	3	3.0%	5	5.0%	2	2.0%	1	1.0%

Chi-square=19.157; df=16; P=0.261

diate, and 18% had university level of education. The most common missing tooth was premolar (40(40%) followed by molar (30(30%) and incisor (25(25%) respectively. Missing canine was only in (5(5%) cases. The commonest concerned among the patients having a single missing tooth to be replaced was a function like chewing and phonation(47%) followed by esthetics (20%). Fifteen percent patients have the concept that there should be a full complement of teeth. Esthetics reason for replacement was found in 8% patients. In this sample, 10% patients reported that if the tooth does not replace, there will make some sort of adverse sequelae of occlusion. (Table 2) Females were more concerns about esthetics to replace missing tooth while males were more interested in function and to have a full complement of teeth and occlusion maintenance. These differences were statistically significant ( $P=0.037$ ). (Table 3) To replace single missing tooth reason ethics was more in low-level education, to restore function was more concern in a patient having a secondary level education. But these differences were not statistically significant ( $P=0.741$ ). (Table 4)

Table 5 shows that in young age esthetics was more concern while in old age the function was a common reason to replace the single missing tooth. But these were not statistically significant ( $P=0.261$ ). (Table 5).

## DISCUSSION

The number of teeth needed for the satisfactory performance of various oral functions has been the topic of many studies. The World Health Organization identified the maintenance of a natural dentition of not less than 20 teeth throughout life as one of the global indicators for the year 2000.<sup>9</sup> A systematic review which was conducted over two decades later to evaluate the relationship between the dentition and oral function has also reported that a dentition consisting of 20 teeth would assure an acceptable level of oral function.<sup>10</sup> However, Steele et al<sup>11</sup>, based on the findings of their study on the effect of tooth loss on oral health impacts and quality of life conducted among two national samples from England and Australia, argued that the threshold of 20-21 teeth for a functional dentition would never be universally applicable.

The patient's psychology has a prime role in prosthodontic treatment.<sup>12</sup> It is the patient who decides his treatment decision. So the present study aim was to determine why the patient wants to replace a single missing tooth and how it varies among males and females, in a different level of education, age groups.

In the current study, the age ranged from 16 to 53 years, and the mean age was  $30.3 \pm 12.27$  years . The permanent dentition becomes complete after 12 years.

In early age, the individuals are more energetic and mobile so more prone to trauma and loss of anterior. The second reasons for loss of teeth are caries. First permanent molar is commonly carious tooth because<sup>13</sup> its early erupt and children are less careful about oral hygiene. In the current study premolars and molars were common missing teeth.

In the current study, the common missing tooth was premolar (40%) followed by molar (30%) and incisor (25%) respectively in both arches combined. Missing canine was only in 5% cases. Posterior teeth are susceptible to caries due to their surface anatomy. Canine anatomy makes it resistant to the loss of caries and trauma. Sanya et al<sup>14</sup> determined the causes and pattern of missing permanent teeth among Kenyans and reported that the upper and lower posteriors were the commonest missing teeth. These results are in accordance with the current study. In the current study, the commonest concern among the patients having a single missing tooth to be replaced was a function like chewing and phonation (47%) followed by esthetics (20%). Fifteen percent patients had the concept that there should be a full complement of teeth. Esthetics reason for replacement was found in 8% patients. Teeth play an important role in the maintenance of a positive self-image. The loss of teeth results in significant disabilities, which can profoundly disrupt social activities. Tooth loss is very traumatic and upsetting and is regarded as a serious life event that requires significant social and psychological readjustment.<sup>15</sup>

As in our study, the posterior were more commonly missing than anterior. Posterior teeth have a great role in function. That's why in our study, to restore function was the second common reasons.

Al-Quran et al<sup>2</sup> carried out a study on the reason for single tooth replacement in Jordan population. The most common reason for replacement of single missing tooth was function followed by esthetics. These results are similar to the current study. To our knowledge, no local study has conducted on this topic. In another study by Ashish et al<sup>1</sup> to determine the various factors for single tooth replacement on Indian population showed that the most common reason for replacing single missing tooth by removable partial denture, FPDs and implant was esthetics and function. These results are also in consistent with the current study.

## CONCLUSION

- The most frequent concern among the patients having a single missing tooth to be replaced was function followed by esthetics.
- Females were more concerns about esthetics to replace missing tooth while males were more interested in function and to have a full complement of teeth and occlusion maintenance.

## REFERENCES

- Ashish P, Punit K. Various Factors Influencing The Treatment of Single Tooth Replacement. Bhavnag Univ J Dent 2013;3(3):8-17.
- Al-Quran FA, Al-Ghalayini RF, Al-Zu'bi BN. Single-tooth replacement: factors affecting different prosthetic treatment modalities. BMC Oral Health 2011;11(1):34.
- Graham R, Mihaylov S, Jepson N, Allen P, Bond S. Determining 'need' for a Removable Partial Denture: a qualitative study of factors that influence dentist provision and patient use. Br Dent J 2006;200(3):155-58.
- Joshua OT, Olaide GS. Removable partial dentures: Patterns and reasons for demand among patients in a teaching hospital in southwestern Nigeria. Eur J Prosthod 2014;2(3):82.
- Christensen GJ. Three-unit fixed prostheses versus implant-supported single crowns. J Am Dent Assoc 2008;139(2):191-94.
- Dandekar SS, Dandekeri S. Single anterior tooth replacement by a cast lingual loop connector-a conservative approach. J Clin Diagnostic Research 2014;8(9): ZD07.
- Scheuber S, Hicklin S, Brägger U. Implants versus short-span fixed bridges: survival, complications, patients' benefits. A systematic review of economic aspects. Clin Oral Implants Research 2012;23(s6):50-62.
- Olusile A, Esan T. Pattern of demand for removable partial dentures in Ile-Ife. Nig J Health Sci 2002;2:6-8.
- Internationale FD. Global goals for oral health in the year 2000. Int Dent J 1982;32(1):74-7.
- Gofredsen K, Walls AW. What dentition assures oral function? Clin Oral Implants Research 2007;18(s3):34-45.
- Steele JG, Sanders AE, Slade GD, et al. How do age and tooth loss affect oral health impacts and quality of life? A study comparing two national samples. Comm Dent Oral Epidemiol 2004;32(2):107-14.
- Augusti D, Augusti G, Re D. Prosthetic restoration in the single-tooth gap: patient preferences and analysis of the WTP index. Clin Oral Implants Research 2014;25(11):1257-64.

13. Askari J, Kalhoro F, Nadya S, Saad A. Dental caries experience in patients attending Dr. Ishrat-ul-ebad institute of oral health sciences, DUHS, Karachi. *J Pak Dent Assoc* 2009;18:67-69.
14. Sanya B. Causes a pattern of missing permanent teeth among Kenyans. *East Afric Med J* 2004;81(6):322-25.
15. Shigli K, Hebbal M, Angadi GS. Attitudes towards the replacement of teeth among patients at the Institute of Dental Sciences, Belgaum, India. *J Dent Educat* 2007;71(11):1467-75.