

PATTERN OF MISSING TEETH IN PATIENTS SEEN IN PROSTHODONTIC DEPARTMENT IN A TEACHING HOSPITAL OF KARACHI

¹ANUM BAQAR, BDS

²DAUD MIRZA, BDS, MSc

³SHAKEEL AHMED, BDS

⁴SAMAN HAKEEM, BDS, FCPS

ABSTRACT

The objective of the study was to determine the frequency and pattern of missing teeth and to establish its relationship with gender. The study was conducted in the Prosthodontics Department of Hamdard Medical and Dental College, Hamdard University, Karachi. A cross sectional study comprised of 500 subjects were selected using utilizing convenience sampling technique. Data were collected through specialized proforma and analyzed using Microsoft Excel Statistical Program. Out of total patients, 262 (52.4%) were males and 238(47.6%) were females. The affected peak age group was 61-70years in males and 41-50 years in females. First molar in maxilla (28.38%) and in mandible (21.45%) was the most commonly missing tooth while canine being the least one with (5.42%) in maxilla and (9.09%) in mandible. Insignificant differences noted between right and left side of the arch. Hence the current study shows the base line data to depict the frequency and pattern of missing teeth in context to the local population of Karachi and highlights the oral health care system and rationale behind prosthodontics.

Key Words: Missing teeth, Oral health, Prosthodontics

INTRODUCTION

Tooth loss is a major clinical dental problem and it is considered an inevitable outcome of old age. It has been documented in the literature that age and missing teeth show a direct relationship.^{1,2} However, this may vary from one individual to another on the basis of education level^{3,4} and socioeconomic class^{3,4} or even the treatment plan.^{3,4} Type of food intake and the life style are also the factors that would affect the tooth condition and influence pattern of bone loss and tooth loss.³

Literature has shown that tooth loss is more prevalent in maxilla than in mandible,^{3,5,6} posterior tooth loss follows anterior one.^{1-3,7-17} Males are affected more

than females.^{1,3,10,16,19} The etiology associated with tooth mortality is multifactorial which comprises of periodontal problems, caries, traumatic injuries, orthodontic and prosthodontic indications; impactions, hypoplasia, supernumerary teeth, loss of tooth material, supra-eruptions, neoplastic and cystic lesions.^{1,15,20} Caries is the major reason for tooth extraction followed by periodontitis in relation to various publications worldwide.^{1,4,13,21,22} High tobacco consumption,^{1,10} certain metabolic diseases like diabetes, cardiovascular disorders, lower respiratory diseases may also contributes to it.²

Documenting the prevalence and pattern of missing teeth is an essential diagnostic step in the treatment plan regarding prosthodontics.²³ A clear understanding of the pattern of missing teeth in either arch enables clinician to understand oral rehabilitation needs of prosthetic replacement and materials to be used.⁵ Also, it is regarded as one of the important measures for assessment of standard, availability and utilization of curative and preventive oral health care system.²

Hence the aim of this study was to determine the pattern of tooth loss according to gender and age in

¹ **Correspondence:** Dr. Anum Baqar, Mailing Address: Flat C-1/4 Hunaid City, Gulistan-e -Jauhar, Karachi.

E mail Address: dr.anumbaqar@hotmail.com Cell Number: +923452261663

Lecturer, Prosthodontics, Bahria University Medical and Dental College, Karachi.

² Assistant Professor & HOD, Oral Pathology. BUMDC

³ Senior lecturer, Prosthodontics, Jinnah Medical & Dental College

⁴ Assistant Professor & HOD, Prosthodontics. BUMDC

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both maxillary and mandibular arches and to compare it with previous relevant studies locally and globally.

METHODOLOGY

This cross sectional study was conducted from February 2009 to December 2010 at the Department of Prosthodontics Hamdard University Medical & Dental College, Hamdard University Dental Hospital, Karachi. The sample size of 500 patients was selected utilizing convenience sampling technique. The inclusion criteria encompassed partially dentulous arch (either upper/lower or both) with age above 18 years. Patients having permanent dentition were also included in the present study. Physically/mentally handicapped patients and edentulous subjects were excluded from the study. Verbal consent was taken from the patients. Dental chair examination was performed by house officers under supervision of faculty members with sterilized mouth mirrors in appropriate light. Data collection was done through specialized proforma which composed of demographic details, missing tooth/teeth with involved arch and quadrant. The anonymity and confidentiality of employed subjects for the study were preserved. Descriptive statistics were used for calculating frequency, mean and standard deviation as appropriate of missing teeth. The comparative analysis was performed by using Microsoft Excel Statistical Program.

RESULTS

The sample comprised of 500 patients with 262 males (52.4%) and 238 (47.6%) females. Regarding male gender, more cases of partial dentulism were observed in the age group of 61-70 years while in females the peak age group was 41-50 years (Table 1). The total reported missing teeth were 1680 which involved 979 maxillary (58.27%) and 701 mandibular teeth (41.72%).

TABLE 1: AGE AND GENDER IN FREQUENCY (N) AND PERCENTAGE (%) N = 500

Age	Male		Female		Total	
	N	%	N	%	n	%
18-30	11	4.19	07	2.94	18	3.6
31-40	16	6.10	09	3.78	25	5.0
41-50	35	13.35	89	37.39	124	24.8
51-60	80	30.53	44	18.48	124	24.8
61-70	98	37.40	70	29.41	168	33.6
<70	22	8.39	19	7.98	41	8.2
Total	262	99.96	238	99.98	500	100.00

n = Total number of subjects

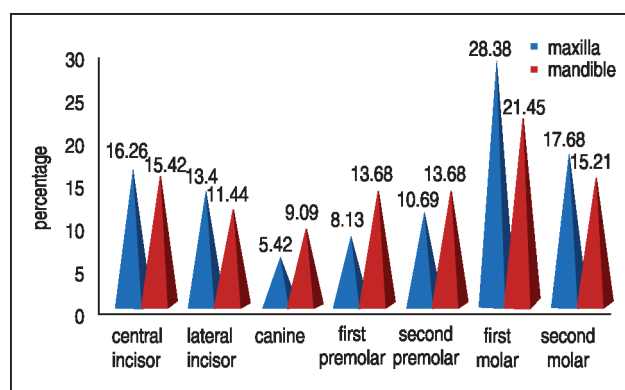


Fig 1: Comparison of pattern of missing teeth between maxilla and mandible

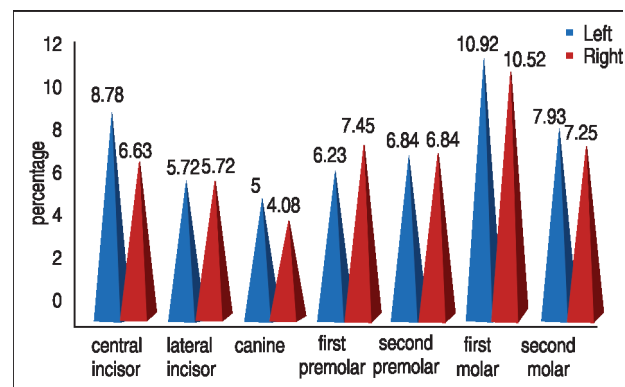


Fig 2: Comparison of pattern of missing teeth between left and right side of maxilla

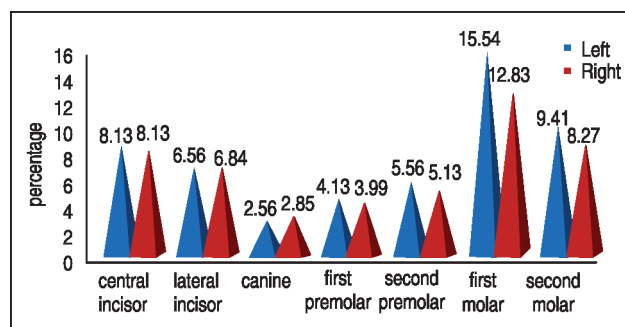


Fig 3: Comparison of pattern of missing teeth between left and right side of mandible

The analysis of the results showed that first molar was the most commonly missing tooth encountered in either arch with 28.38% in maxilla and 21.45% in mandible while canine was the least common in maxilla with 5.42% and 9.09% in mandible. (Figure 1).

Regarding right and left quadrant of maxilla, the most significant difference in pattern of missing teeth noted was central incisor, left (8.78%) and right (6.63%) (Figure 2) while in mandible the remarkable variation stands for the first molar, left (15.54%) and right (12.83%) (Figure 3).

DISCUSSION

The consequences of tooth loss are drifting and tilting of adjacent teeth, supra eruption of opposite teeth, altered speech, changes in facial appearance and psychological dissatisfaction. Lack of confidence, weight loss and restricted dietary and social activities are some of the major impacts adversely affecting the quality of life.^{1,21,22}

The present study shows the tendency of missing teeth is more common in males. This study is harmonious to the research work by Muneeb et al, Thomas et al, Hassan Naveed et al.^{1,3,16} Studies in Libya¹⁰ and Bangladesh¹⁹ also support our results but this contradicts to Naeem S,¹⁸ Ali R et al,⁴ Lana A,²³ Clarkson JJ et al,²⁴ Axell T et al.²⁵ They commented that females have higher incidence of toothloss than males. Male domination may be due to extractions because of periodontitis,^{26,20,27} less concern to maintain oral hygiene and restorative procedures than females.¹ In this community, low socio-economic status is one of the leading facts contributed to tooth mortality. However, a study in Karachi provides no relationship between gender and toothloss.²

There is a direct relationship between missing teeth and aging.²⁸ Results of the present study are closely identical to Askari J et al,² Naeem S.¹⁸ Although reasons for missing teeth are beyond the scope of this research, more periodontal problems in adults²⁹ might be a contributing factor in the present study. A study in United Arab Emirates³ also revealed that majority of Pakistanis have had extractions mainly due to periodontitis. However, our analysis is in contrast to local^{1,4,30} and studies done abroad³ where most patients belonged to the average age group of 25-35.

Regarding pattern of tooth loss, first molars is the most frequently missing tooth while canine being the least one. This is consistent with other studies like in Karachi.² Molars were reported to be the most common missing tooth in many studies conducted in Pakistan^{1,16,17} and internationally^{3,7,8,12,13,15} as well. The findings of the present study might be due to the early eruption of molars which are more prone to decay especially upper molars, more extractions of molars because of esthetic insignificance; and long root of canine as well as its position being the reason for its long term preservation. In contrast, studies in Jordan⁶ and Italy⁹ stated that premolars were the most commonly extracted teeth for orthodontics purpose followed by molars due to caries. The reason may be the more awareness

and drive for aesthetic in young adults there than in Pakistan. Moreover, the local patients who came to teaching institutes were economically compromised who could not afford expensive treatments like orthodontics together with the lack of dental awareness.⁴

According to the present study, toothloss is more common in maxilla than mandible. This is similar to Thomas S et al,³ Arigbede AO et al,⁵ Baqain ZH et al,⁶ and unlike to Muneeb A et al,¹ Cahen PM et al,⁷ Naveed H et al.¹⁶ This might be due to more susceptibility to caries and other oral diseases because of less saliva accumulation for the upper teeth which provide cleansing effect.³ Another possible factor may be the cancellous bony structure of maxilla which leads to the early tooth loss than mandible which is a compact bone. Uptill now, there is no research work to support the reasons behind the high maxillary toothloss comparative to mandible or vice versa. While analyzing right and left quadrant of the arches, no appreciable findings were obtained in current study.^{2,5}

Present cross sectional study only provides the basic information regarding tooth mortality lacking etiological factors behind the scenario in the regional community of Pakistan. The limited dental awareness and poor socioeconomic status of our population may be attributed to highly encountered toothloss in the present study. There is need to improve public awareness about the importance of oral health which leads to an increase in perceived needs and effective demands for dental care including prosthetic services in Pakistan.

CONCLUSION

The current study provides a general view in a sample of Karachi City. Present research work shows predelection of loss of maxillary posterior teeth in elderly male.

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PEOPLE & EVENTS

Dr. Fazal Ghani, PhD, Associate Professor & Head of Department of Prosthodontics & President Pakistan Prosthodontic Association attended on Monday 11, 2014 the day-long MFDS Part-2 Examiners course at the Royal College of Surgeons of Edinburgh. This course comprised lectures and practical exercises for updating the examiners in their skills of training/trainees evaluation and examination process. Having attended that course he was elected as a member of the Panel of Examiners for MFDS Part-2 of the RCSED for the term ending in May 2019.