ORIGINAL ARTICLE

Pattern of Missing Teeth among Patients Visiting Hamdard University Dental Hospital Karachi

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ABSTRACT

Objective: To evaluate the pattern of edentulism in partially dentate patients according to Kennedy's system of classifying edentulous arches.

Materials and Methods: This cross-sectional study was carried out in the department of Prosthodontics of a tertiary care hospital. A total of 600(336 males and 264 females) patients were enrolled for the study. They were evaluated on a prescribed form. All patients visiting for replacement of missing teeth were included in the study. Completely edentulous and the patients with facial defects were excluded from the study. Collected data was analyzed on Statistical Package for Social Sciences version-16.

Results: Kennedy's Class I comprising patients were 49% while Kennedy's Class II, III & IV comprisingpatients were 15, 21 & 15%, respectively. More male patients reported for their teeth replacement as compared to females.

Conclusion: Evaluation of pattern of edentulism in partially dentate patients according to Kennedy's system of classifying edentulous arches showed Kennedy's class I to be the most common class. More mandibular teeth were found missing as compared to maxillary ones.

Keywords: Partial Edentulism, Kennedy's Classification, Missing teeth

INTRODUCTION:

Partial Prosthodontics has always been a versatile, affordable, easy to deliver and manageable method of treatment for partially dentate patients of any age group. Even though, recent reports have shown a consistent decline in the prevalence of partial edentulism during last few decades, they remain significant variation in tooth loss distribution[1]. The primary purpose for categorizing and classifying the partially dentate arches is to identify potential combinations and relations of teeth to edentulous spans in order to facilitate communications among dental professionals, for the sake of better diagnosis and treatment planning. Teeth are integral components of the stomatognathic system. Their significant loss may affect the normal life and personality of the patients and their different functions like: speech, chewing abilities. These factors may further lead to poor aesthetics and other health issues like malnutrition and indigestion due to improper chewing. A definitive replacement of this partial edentulism is usually required to overcome these functions and aesthetic requirements of the patients, through proper diagnosis and treatment planning.[2] The designing and planning of the partial prosthesisalways depends upon the pattern of partial edentulism. In the absence of a reputable and reliable classification system, the numbers of possible combinations of the teeth present, from absence of a single tooth in mandible or maxilla, to the loss of all but one tooth in both jaws, is almost impossible to comprehend. A universally acceptable classification of partially dentate jaws would not only help to diagnose the potential combinations of teeth to edentatejaws but would help in facilitating communication, discussion, and understanding of the prescribed prosthetic treatment among dental professionals, students and laboratory personnels.[2] Not only this, but it will also facilitate the recording and simplification of exchange of information between dentists and their other supporting staff.[3,4,5]

Tooth loss an age related and almost an inevitable major clinical dental problem. This relation between age and natural tooth loss has been documented in the literature.[6,7] However, this may vary from one person to another on the basis of level of education and socioeconomic position of that individual, which in turn, may even affect the treatment plan.[8,9] Current changes in dietary trends and the life style of people are also among the factors that would affect and alter the oral condition and influence the pattern of loss and teeth and

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their supporting structures.[8]

Different literatures has shown that the ratio of tooth loss is more in males, as compared to the females reporting for partial prosthesis.[6,8,10] Dental caries is considered to be the major etiological factor behind the tooth loss followed by periodontitis and other oral problems as indicated in various publications world-wide.[6,9]

Documentation of the occurrence and configuration of partial edentulism is an indispensible diagnostic step in the treatment planning in all patients in general and in removable partial prosthodontics, in particular.[11] A clear understanding of the pattern of missing teeth in either arch enables clinicians and laboratory professionals to understand the needs and requirements for oral rehabilitation and prosthetic replacement and materials to be utilized in that course of treatment[12]. 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.[7] Only a few studies have evaluated the occurrence of partial edentulism among dental patients in Pakistan so the purpose of this study is to determine the prevalence and pattern of missing teeth in relation to Kennedy's classification among patients visiting the department of Prosthodontics in a tertiary care hospital.

MATERIALS AND METHODS:

This cross sectional study was carried out from June 2008 to May 2009, at the Department of Prosthodontics of Hamdard University Dental Hospital Karachi, Pakistan. Convenient sampling technique was utilized for sample collection. The total sample size incorporated was 600 patients. Ethical approval was sought from the Ethical Review Committee of the University and written consent was taken from the patients. Patients of either gender, age above the fifteen years, having partially edentulous areas in one or both jaws were included in the study. Completely edentulous patients and mentally retarded patients were excluded from the study. A complete clinical examination of both the dental arches of each patient was carried out by using dental mirror on the dental unit. Patterns of partial edentulism were recorded by using the Kennedy Classification and collected data was recorded on a specially designed proforma.

Data was analyzed by using Statistical Package for Social Sciences version-16. Mean and Standard Deviation were calculated for continuous variables like age. Frequencies and percentages were calculated for categorical variables like gender, missing teeth in arch and type of Kennedy Classification. Cross tabulation was done to calculate different modifications of Kennedy classification. P- Value less than 0.05 was taken as significant.

RESULTS:

Male and female patients were 56% and 44% (336 males and 264 females) respectively. Male female ratio was 5.6:4.4. The mean age was 41.15, while the minimum age was 16 years and maximum age was 78 years with age range of 62 years (Table 1), 58.2% and 20.3% teeth were missing in lower jaw and upper jaw respectively while 21.5% teeth were missing in both jaws (Table 2). According to Kennedy classification 49% patients fall in Class-I, 15% in Class-II, 21% in Class-III and 15% in Class-IV (Figure 1). According to Modification of Kennedy classification, in class-I the modification-1, modification-2 and modification-3 was seen in 27%, 7.5% and 0.7% patients respectively, in class-II the most common modification was modification-1 and least common was modification-3 and in Class-III the common modification was modification-1 followed by modification 2 and 3 (Table 3)
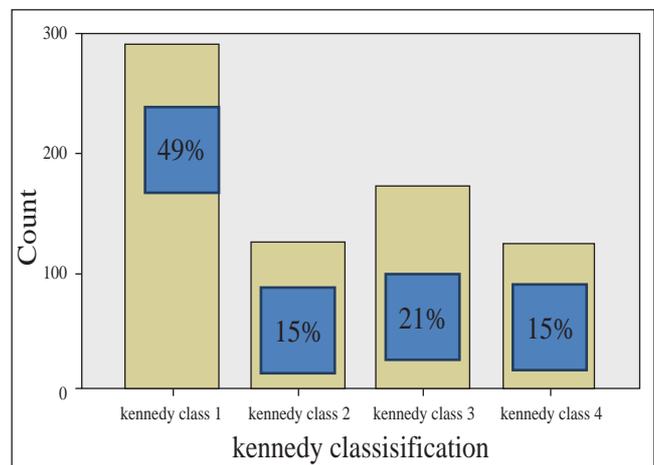
Table:1
Frequency of gender

Gender	Freqency	Present(%)
Male	334	55.7
Female	266	44.3
Total	600	100.0

Table:2
Frequency of missing teeth according to arch

Type of Arch	Frequency	Present(%)
Mandible	349	58.2
Maxilla	122	20.3
Both	129	21.5
Total	600	100.0

Figure:1
Frequency of Kennedy classification

Table: 3
Frequency of modification of Kennedy classification

Modification of Kennedy classification				
Kennedy Classification	Modification-1	Modification- 2	Modification- 3	No-Modification	Total
Kennedy Class-I	80 27.1%	22 7.5%	2 .7%	191 64.7%	295 100.0%
Kennedy Class –II	16 17.4%	6 6.5%	1 1.1%	69 75.0%	92 100.0%
Kennedy Class –III	30 24.2%	18 14.5%	10 8.1%	66 53.2%	124 100.0%
Kennedy Class –IV	0 .0%	0 .0%	0 .0%	89 100.0%	89 100.0%
Total	126 21.0%	46 7.7%	13 2.2%	415 69.2%	600 100.0%

DISCUSSION:

The primary purpose in using a classification for removable partial edentulous cases is to simplify the description of potential combinations of teeth to ridges. In this study, Kennedy's system of classification was preferred to fulfill this purpose[13] as it remains the most widely acceptable system for the purpose.

The results of the present study showed that more number of patients belonged to male gender which resembles the results of similar study by Butt[14]in contrary to the results of study by Zaigham[15]which reported for majority of female patients in their results. This contrast for more males presenting in our study with partial edentulism may be due to the local tradition and cultural values and difference in eating habbits of local population. In less developed countries like ours, females seek treatment less frequently; like dental restorations, especially if these are to be provided by male dentists. Poor socio-economic position and lack of awareness in local population may also be counted as an additional factor to this difference[16]. This contradiction may be due to the different socio-economic background and mal-habits like smoking and consumption of high sugar containing diets.

One of the principle advantages of the Kennedy classification is that it permits the immediate visualization of the partially edentulous arch, and enables a logical approach to the problems of design, and is therefore termed as a logical method of classification.[1,17,18,19,20,21,22] It is also among the most widely accepted classification of partially edentulous arches. When evaluated clinically for Kennedy classification the results of our study showed that the most common class was Class-I while Class-II & IV were least common among reported patients.[23]This result is in agreement with the study results of Judy.[18]This attribution may be the result ofpaying less attention and care to the posterior teeth, making them more vulnerable and susceptible to dental decay and resulting the loss of these teeth by extraction, while at same time the patients paid more hygienic attention to their anterior teeth, resulting in their integrity and retention in the oral cavity.[24,25]During clinical examination for the missing teeth in both arches,it was revealed that the frequency of missing teeth was more in lower arch as compared to upper arch which is in

concordance with the research results of Butt[14] and Curtis [19]. This again may be the result of poor oral hygiene and inaccessibility for proper cleaning, which ultimately leads to tooth decay and requirement for tooth extraction.

CONCLUSION:

Evaluation of pattern of edentulism in partially dentate patients according to Kennedy's system of classifying edentulous arches showed Kennedy's class I to be the most common class. Mandibular partial edentulism seemed to be more common than maxillary ones and male patients were affected more than females. Prevalence of class I is indicative of patients lack of care for their posterior teeth and they needed to be convinced for proper oral care for all teeth on equal levels. Though there has been considerable decline in tooth loss but still public awareness regarding over all oral health care needs to be lifted up, to guide the local population in saving their teeth.

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