

ORIGINAL ARTICLE

Pattern of Partial Edentulism According to Kennedy's Classification among Patients Presenting in Tertiary Care Hospital of Taxilla

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ABSTRACT

Aim & Objective: This study was conducted with the goal to figure out the pattern of partially dentate arches in patients reporting to Dental Hospital of Taxilla.

Methodology: The study is descriptive cross sectional that was focused on patients visiting the outpatient department of HITEC-IMS Dental College, Taxilla. A total of 224 patients, comprising both males and females, were randomly selected using convenience sampling. Age of the patients was 15-70 years. Informed consent was taken and patients were then visually examined and missing teeth were noted along with demographic information. Partially dentate arches were then classified on the basis of Kennedy's classification. Collected data was evaluated by using SPSS software (27.0). Chi-square test was applied for analysis.

Results: 224 patients were studied for the pattern of partial edentulism. 44.6% patients were presented with partial edentulism in maxilla and 55.3% in mandible. Kennedy class I was 12.9%, Kennedy class II was 25.9%, Kennedy Class III was 54% and Kennedy class IV was 7.2% reported among presenting patients. 45.5% males and 54.5% females show pattern of partial edentulism with Kennedy Class III as the most prevalent class in both maxilla and mandible.

Conclusion: Among the partially dentate arches Kennedy class III is more frequent in mandible than in maxilla. No notable association between pattern of partial edentulism and gender is established.

Keywords: Kennedy's Classification, Partial edentulism, Removable Partial Denture(RPD)

INTRODUCTION

Teeth are indispensable and significant unit of stomatognathic system^{1,2}. Partial edentulism is a general term used to describe a condition where natural tooth or teeth are lost because of certain oral diseases like caries and periodontal diseases, trauma, neoplastic or cystic lesions^{3,4,5}. Myriad of challenges including clinical challenges and compromises in lifestyle are associated with partial edentulism³. Clinical challenges include overeruption of opposing teeth, drifting of adjacent teeth, loss of proximal contact causing food impaction, change in phonetics and alveolar bone resorption effecting the restoration of partially edentulous arch^{6,7}. On the other hand, change in dietary pattern that may lead to weight loss, lack of confidence and confined social activities leading to psychological distress are all consequences of partial edentulism that negatively affects the quality of an individual's life^{3,4}.

Replacement of lost teeth is required to overcome the problems and to restore the function of aesthetics, phonetics and mastication^{2,8}. In literature, more than 65,000 combination of partially edentulous arches have been reported⁹. Addressing these combinations through effective and efficient classification system was required that also facilitates the communication and decision making on treatment planning among various dental practitioners¹⁰. Currently classification system suggested by Edward Kennedy in 1925 is widely acceptable^{11,12} because it provides immediate visualization of partially edentulous

arch being considered. Thus, also provides insight into problems and limitations of prosthesis design¹⁰.

different populations have been evaluated for the pattern of tooth loss around the globe. It should be updated more frequently so that treatment needs of patients and treatment modalities can also be revised accordingly¹³. Moreover, it will also help in modifying guidelines for teaching undergraduate students in teaching college.

METHODOLOGY

The study was cross sectional that was conducted at outpatient department of HITEC-IMS Dental College, Taxilla after approval from Institutional Review Board with reference no. Dental/HITEC/IRB/14/4. Sample size was calculated using EPI calculator. 224 patients were examined and their data was recorded in pre designed proforma. Age range of the patients was 15 -70 years and patients of both genders were included. Patients with missing third molars and those that are completely edentulous are excluded from the study. After taking verbal consent, demographic data such as age and gender was recorded. Selected patients were clinically examined on dental chairs with mouth mirrors in good lightening conditions. Missing teeth were recorded on proforma and classified according to Kennedy's classification. All the procedure was done by the researcher itself.

Recorded data was analyzed using SPSS software. The study variables were gender, age, type of arch(maxilla/mandible) and Kennedy's class. Quantitative variables like age was evaluated for mean and standard

deviation. Percentages were computed for qualitative variables such as gender, type of arch (maxilla/mandible) and Kennedy's class. Data was analyzed using Chi Square test. Results with p-value ≤ 0.05 were observed as significant

RESULTS

224 patients were examined for the pattern of partial edentulism. Gender distribution was 102 males and 122 females i.e. 45.5% and 54.4% respectively. Age range of the patient was 15-70 years and mean age of the patient was calculated to be 40.8 ± 14.5 years as illustrated in table 1.

Table 1: Mean Age Of Patient

Age of patients	Minimum	Maximun	Mean	Standard deviation
	20	70	40.85	14.5

As shown in table 2 maximum number of patients were presented with Class III partially dentate arches. In maxillary arch 57% and in mandible 51.6% patients show Class III partial edentulism.

Table 2: Distribution Of Various Classes In Both Arches

Kennedy's class	Type of arch		P-value
	Maxilla	Mandible	
Kennedy class i	10	19	0.679
Kennedy class ii	26	32	
Kennedy class iii	57	64	
Kennedy class iv	7	9	
Total no.	100	124	

Distribution of various classes in genders also shows the high prevalence of class III as presented in table 3

Table 3: Kennedy's Classes Distribution In Both Genders

Kennedy's classification	Gender		P-value
	Males	Females	
Kennedy class i	12	17	0.005
Kennedy class ii	32	26	
Kennedy class iii	55	66	
Kennedy class iv	03	13	
Total	102	122	

Table 4 and 5 shows the class distribution in maxilla and mandible respectively in both genders.

Table 4: Kennedy's Classes Distribution In Maxillary Arch Of Both Genders

	Class i	Class ii	Class iii	Class iv
Males	6	18	25	02
Females	4	8	32	5
Total	10(34.4%)	26(44.8%)	57(47.1%)	7(43.7%)

Table 5: Kennedy's Classes Distribution In Mandibular Arch Of Both Genders

	Class i	Class ii	Class iii	Class iv
Males	6	14	30	1
Females	13	18	34	8
Total	19(65.5%)	32(55.1%)	64(52.8%)	9(56.2%)

All the data from table 4 and 5 is summarized and shown in bar chart in Figure 1.

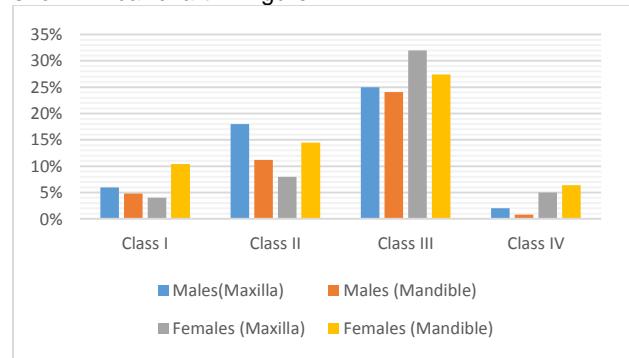


Figure 1: Prevalence Of Various Kennedy's Classes In Maxillary And Mandibular Arches Of Both Genders

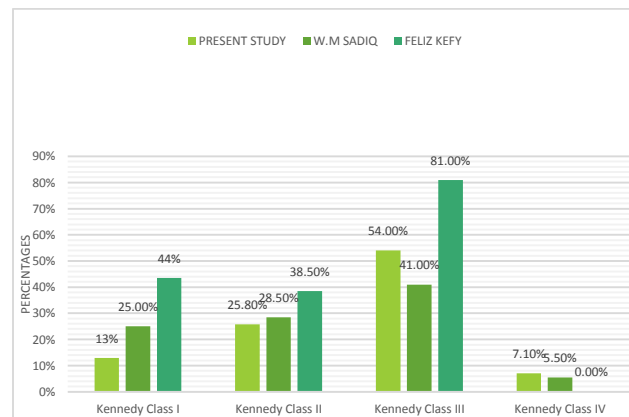


Figure 2: Comparison Of Distribution Of Various Kennedy's Classes In Various Studies

DISCUSSION

Prosthetic treatment of partially edentulous patients can be determined more accurately if the pattern of edentulism is known¹³. This highlights the importance of various classification systems, in particularly Kennedy's classification¹⁴. This not only illustrates the immediate visualization of combinations of teeth and ridges but also potential complications of the removable partial denture design^{12,14}. That is why the prevalence of a particular class of partially edentulous arch in a given population must be studied and documented.

The results of our study shows that partially edentulous arches are more prevalent in mandible than in maxilla in presenting patients. This study is also in accordance with the research done by Hasan and his fellows at Armed Force Institute of Dentistry in 2011². Curtis et al performed the similar study at University of California also has similar results¹⁵. Curtis also reported that class III is the most common partially dentate arches in maxilla while in mandible class I partially dentate arches are found to be the most common¹⁵. In our study class III is the most predominant form of partially edentulous arches in both maxilla and mandible, comprising about 54% of the total sample size. The variance in the results of two studies is due to the differences in mean age of the patients. Mean age of patients in Curtis study is 55 years while on the

contrary in current study the mean age is 41 years. Filiz²¹ (2001) and Walid M. Sadig²² (2002) also carried out the studies for evaluating prevalence of Kennedy's class. In figure no 02, the bar graph shows the correlation of Kennedy's classes in our study with the studies conducted by Filiz and Walid M. Sadig. From the bar graph it is clear that the present study is in concordance with W.M. Sadig's study. Similar results were proposed by Naveed et al² Zaigham et al¹⁶, Souza et al¹⁷ and Prabhu et al¹⁸ in which Kennedy class III was the most predominant form of partial edentulism². However, contrasting results were out-turn of studies done by Khalil et al¹⁹ who arrived at the conclusion that Kennedy Class IV and Kennedy Class I are most overriding pattern.

Current investigation shows a notable divergence in pattern of partial edentulism between

both genders. Mostly women are presented with Kennedy Class IV particularly in mandible while significant number of males are presented with class II arches predominantly in maxilla. Dwairi et al²⁰ also validated these results in his study, who stated that males show more Kennedy Class II pattern of edentulism than females.

Still, significant correlation between both genders and pattern of partially edentulous arches has not been shown by any other study.

The present study can be used efficiently to educate the undergraduate students and to make treatment plans of partially dentate arches. But the limitation of the study is that it is not the representative of entire population and the larger sample including patients from different centers should be evaluated. Moreover, causes of loss of tooth should also be analyzed.

CONCLUSION

According to the results of this study, we can conclude that Kennedy Class III is the most prevalent form of partial edentulism in both genders of presenting patients. There is noteworthy association between gender and patterns of partial edentulism as the p-value comes out to be 0.005. Prevalence of various Kennedy classes in both arches is not significant as the p-value is 0.679.

Conflict of interest: Conflict of interest has not been affirmed by any author

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