An Evaluation of Partially Edentulous Patients Visiting Kantipur Dental College: A Hospital-Based Study

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ABSTRACT

Objective: To evaluate data with regards to the current prevalence of various Kennedy's classes of edentulism and their association with age.

Material and Methods: A total of 157 patients were selected, and the prevalence of partial edentulism among the selected patient was recorded. Patients were grouped into three age groups. Kennedy's classification was used to determine the pattern of partially edentulous arches. Data was analyzed using the Statistical Package for the Social Sciences version 20.0 for Windows.

Results: The results showed that the occurrence of Kennedy Class III partial edentulism was 44.9% in the maxillary arch and 67.4% in the mandibular arch, followed by Class II in both the maxillary and mandibular arch with an average of 15.9% in the maxillary arch and 4.9% in the mandibular arch. Based on these results, Kennedy's Class III was the most prevalent partially edentulous pattern 57.8% among the maxillary and the mandibular arch.

Conclusions: Among selected patients, the prevalence of Class I and II was predominant among elderly population of > 50 years, whereas Class III was present among all ages.

Key words: Kennedy's classification, Partial edentulism pattern, Partial denture, and Prevalence of partial edentulism

INTRODUCTION

Missing teeth have a key effect on biological, social, and psychological aspects on the oral health-related quality of life. The prevalence of missing teeth has decreased significantly in different regions in previous years.[1–3]

According to Bruce[4], the principal cause for missing teeth is dental caries (83%) followed by periodontal disease (17%) among all ages. The declining trend in edentulism is considered to be a reflection of the improvement in the oral health of the population.[5,6] It is also thought to be an indicator of the focus placed on preventive dentistry.[1,7] With increased attention being placed on preventive measures and amplified emphasis on the importance of retaining the natural dentition, a decline in the number of edentulous patient is expected.[8]

More than 65,000 possible patterns of partial edentulism can be observed in maxillary and mandibular arches, so it is prudent to classify partially edentulous arches that have similar features. This will allow us to group together similar cases that should be managed with a similar clinical approach, and to simplify coordination among dentists.[9–12]

Conflict of Interest: None

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Different classifications have been recommended for the classification of partially edentulous arches to find possible combinations of teeth and edentulous ridges. At present, Kennedy's classification is regarded as the most accepted classification for partially edentulous arches. Kennedy's classification provides immediate visualization of the clinical situation, support requirements for the planned prosthesis, and analysis of removable partial denture design features.[13–15]

The pattern of tooth loss has been examined in people from different nations.[14–19]

Hoover and McDermount[20] found that the incidence of edentulism is higher in males than females, whereas Marcus et al.[21] found no association between gender and edentulism.

The epidemiological data on health care and its related concerns are crucial for planning and directing future efforts.[22]

Previous studies have highlighted the variation of prevalence of edentulism and tooth loss geographically[23–25], and there are limited studies available that have assessed the prevalence of partial edentulism among subjects in Nepal. The objective of the current study is to gather and evaluate data with regards to the current prevalence of various Kennedy's classes of edentulism and their association with age. This would provide a helpful guide that allows for the concentration of public health efforts as well as clinical management of individual patients thereby promoting the overall oral health of Nepal.

MATERIALS AND METHODS

This study was carried out from November 2022 to February 2023 among dental patients attending the Department of Prosthodontics, Kantipur Dental College and Teaching Hospital, Kathmandu, Nepal. The inclusion criteria include both genders, aged 21 years and above with partially edentulous spaces. Patients with an only missing third molar unerupted or congenitally missing teeth, root tips, and loose teeth that were indicated for extraction were not included in the study.

A total of 157 partially edentulous patients were clinically examined after obtaining written consent. The study has been approved by a ethical clearance committee of Kantipur Dental College.

Selected patients were grouped into three age groups.
Group I: 21–35 years.
Group II: 36–50 years.
Group III: >50 years.

Patients were clinically examined intraorally by two prosthodontists in the outpatients clinic Department. Kennedy's classification[26] was used to determine the pattern of partially edentulous arches. Modification areas were not included in the assessment to avoid complexity. Data was analyzed using the Statistical Package for the Social Sciences version 20.0 for Windows.

RESULTS

Prevalence and pattern of partial edentulism among dental patients attending Kantipur Dental College were studied. The mean age of the selected patients was 48.13 years. The results showed that the occurrence of Kennedy Class III partial edentulism was 44.9% in the maxillary arch and 67.4% in the mandibular arch, followed by Class II in both the maxillary and mandibular arch with an average of 15.9% and 4.9% respectively. Based on these results, Kennedy's Class III was the most prevalent partially edentulous pattern 57.8% among the maxillary and the mandibular arch. (Table I) shows the incidence of different patterns according to Kennedy's classification for the maxillary arch and mandibular arch. Similarly age-wise distribution of various Kennedy's class among maxillary and mandibular arch is shown in (Table 2,3).

Table I: Incidence of different Kennedy's classes between the maxillary arch and the mandibular arch

Class Arch	Maxillary Arch	Mandibular Arch	Total
Class I	27 (25.2%)	34 (23.6%)	61 (24.3%)
Class II	17 (15.9%)	7 (4.9%)	24 (9.5%)
Class III	48 (44.9%)	97 (67.4%)	145 (57.8%)
Class IV	15 (14%)	6 (4.2%)	21 (8.4%)
Total	**107**	**144**	**251**

Table II: The age-wise distribution of the various Kennedy's classes in maxillary arch

Patient Age	Group I	Group II	Group III	Total
Kennedy Class	21-35	36-50	>50	
Class I	0	4	23	27
Class II	0	4	13	17
Class III	12	5	31	48
Class IV	9	0	6	15
Total	**21**	**13**	**73**	**107**

Table III: The age-wise distribution of the various Kennedy's classes in mandibular arch

Patient Age	Group I	Group II	Group III	Total
Kennedy Class	21-35	36-50	>50	
Class I	0	0	34	34
Class II	0		7	7
Class III	40	18	39	97
Class IV	2	0	4	6
Total	**42**	**18**	**84**	**144**

DISCUSSION

The main aim in using a classification for RPDs is to facilitate the description of partially edentulous cases. In the current study, Kennedy classification was selected because it simplifies the description of partially edentulous cases, permits immediate visualization of the partially edentulous arch, provides a logical way to display the problems of design, and to simplify the application of basic principles of partial denture design.[14]prosthodontics, GPRDCH, Kurnool (Andhra Pradesh

The present study was initiated to assess the prevalence and pattern of partial edentulism among dental patients attending the Kantipur Dental College, Kathmandu, Nepal. The findings of the present study showed that the frequency of partial edentulism in the mandibular arch was higher than the partial maxillary edentulism among the study population. Curtis et al. reported that mandibular removable partial dentures are more common than maxillary removable partial dentures, and that the class I mandibular RPD is the most prevalent type of RPD for either dental arch.[9]

Kennedy Class III was reported to be the most common pattern (57.14%) in a sample of the Iraqi population in a study carried out by Hatim et al.[27] In Benin, Ehikhamenor, et al.[28] found that the most commonly restored edentulous area was Kennedy's class III (57.3%). In this study, Kennedy's Class III was found to be the most prevalent pattern of partial edentulism both in the maxillary arch (44.9%) and the mandibular arch (67.4%). The present study was in accordance to the study of Madhankumar[1] and partially in

accordance with Curtis et al.[9] who found that the Kennedy's Class III was only common in the maxillary arches, whereas in the mandibular arches, Kennedy's Class I was the most dominate pattern. The limitation of the present study includes small, nonprobability sample of convenience. The size and homogeneity of the sample limit this study, and hence additional studies are recommended.

CONCLUSION

The present study showed that, among dental patients attending Department of Prosthodontics, Kantipur Dental College, there is an increase in Classes I and II Kennedy classification. The prevalence of Class I and II was predominant among elderly population of > 50 years, whereas Class III was present among all ages. It can be stated that the need for prosthodontics care is expected to increase with age, and hence, more efforts should be made for improving dental education and motivation among patients in Kathmandu region.

DECLARATIONS

Ethical approval and consent to participate.

Ethical approval was taken from institutional review board of Kantipur Dental College, Kathmandu University.

Consent for publication
Not applicable.

Availability of data and materials
The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request.

Competing interests: None.

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