

Occurrence of Kennedy's Classes and Associated Compromising Conditions with Class III

Arati Sharma*

Department of Prosthodontics, B.P. Koirala Institute of Health Sciences, Dharan, Nepal

***Corresponding Author:** Arati Sharma, Department of Prosthodontics, B.P. Koirala Institute of Health Sciences, Dharan, Nepal.

Received: January 28, 2021; **Published:** February 25, 2021

Abstract

Introduction: Information on the occurrence of various classes of partial edentulism in a population is important because treatment of partially edentulous patients forms a major part of prosthodontic clinical practice. The purpose of this study was to find out the frequency of Kennedy's classes and the complexity of the most commonly occurring class.

Materials and Method: A descriptive study conducted from April 2017 to September 2017 after taking ethical approval from B. P. Koirala Institute of Health Sciences Review Committee. Informed consent in written form was taken from each participant. A detailed history and examination of each participant was done during which Kennedy's classes were noted down. Criteria examined to evaluate the complexity of the condition were those given by the American College of Prosthodontists. Based on the clinical findings of those criteria the condition was classified as minimally compromised, moderately compromised, substantially compromised and severely compromised.

Results: Number of patients included in the study were among whom 121 (36.9%) were males; 207 (63.1%) females and the mean age was 45.51 ± 14.668 (minimum age = 15; maximum age = 75). Most common Kennedy's class was class III. Forty-two percentage of class III patients were moderately compromised and 29.20% substantially compromised.

Conclusion: Most common Kennedy's class is class III, and among those a large number of patients are moderately compromised and substantially compromised. Thus, Kennedy's Class III is not as simple to restore as it sounds when the compromising conditions are also considered during classification of partial edentulism.

Keywords: *Kennedy's Class III; Partial Edentulism; Removable Prosthodontics*

Introduction

Partial edentulousness is an indicator of oral health and thus, an important issue affecting the quality of life of a person [1]. Treatment of partially edentulous patients forms a major part of prosthodontic clinical practice. Information on the occurrence of various classes of partial edentulism in a population will help the clinicians in proper treatment planning. Many classifications have been proposed for the condition, the most commonly used being Kennedy's Classification. Literature is full of studies done using this classification [2-11]. This classification offers immediate visualization and assessment of removable partial denture design features, but does not consider other clinically compromising conditions which may change the treatment plan.

Aim of the Study

Therefore, present study not only aimed to find out the most prevalent Kennedy's class, but also examined some other clinical criteria associated with the class which will help the clinicians in treatment planning.

Materials and Methods

A descriptive study was conducted from April 2017 to September 2017 after taking ethical approval from B. P. Koirala Institute of Health Sciences Review Committee [12]. Informed consent in written form was taken from each participant. A detailed history and examination of each participant was done during which Kennedy's classes were also noted down.

Criteria examined to evaluate the complexity of the condition (partial edentulism) were those given by American College of Prosthodontists i.e. location and extent of edentulous area(s), condition of abutment(s), whether any occlusal therapy needed or not, height and morphology of residual ridge, conditions creating a guarded prognosis and whether esthetic concern or challenge and/or temporomandibular disorder symptoms present or not [13]. Based on the clinical findings of those criteria the condition was classified under one of the following classes.

Minimally compromised

All the above mentioned criteria minimally compromised and having no TMD and/or esthetic concern. The edentulous span present in one arch only. Maximum number of missing tooth being 2 incisors in maxillary arch or 4 incisors in mandibular arch or 2 premolars, or 1 premolar and 1 molar in posterior region. No any abutment tooth requiring adjunctive therapy like periodontal, endodontic, or orthodontic procedures. All abutment teeth having sufficient structure. Not requiring any pre-prosthetic occlusal therapy and Class I molar and jaw relationships present. Height of the residual bone being ≥ 21 mm in the mandible when measured at the least vertical height on a panoramic radiograph and morphology of residual ridge being resistant to horizontal and vertical movement of the denture base in the maxilla i.e. type A maxilla.

Moderately compromised

At least one of the above mentioned criteria moderately compromised which means presence of one or more of the following characteristics: Edentulous areas present in both the arches. Maximum number of missing tooth not exceeding 2 incisors in maxillary arch or 4 incisors in mandibular arch or 2 premolars, or 1 premolar and 1 molar in posterior region or a missing maxillary or mandibular canine. Abutment tooth requiring adjunctive therapy like periodontal, endodontic, or orthodontic procedures in 1 or 2 sextants. Insufficient tooth structure in 1 or 2 sextants. Requiring enameloplasty on premature occlusal contacts in a Class I molar and jaw relationships. Height of the residual bone being 16 to 20 mm in the mandible when measured at the least vertical height on a panoramic radiograph and morphology of residual ridge being resistant to horizontal and vertical movement of the denture base in the maxilla i.e. type B maxilla.

Substantially compromised

At least one of the above mentioned criteria substantially compromised which means presence of one or more of the following characteristics: Presence of any posterior edentulous area or the edentulous span extending postero-anteriorly. The number of missing tooth being greater than 3 teeth or 2 molars or any edentulous area including anterior and posterior areas of 3 or more teeth. Abutment tooth requiring periodontal, endodontic, or orthodontic procedure in 3 sextants. Abutment teeth having insufficient structure in 3 sextants. Requiring reestablishment of entire occlusion without any change in the occlusal vertical dimension or presence of Class II molar and jaw relationships. Height of the residual alveolar bone being 11 to 15 mm in the mandible when measured at the least vertical height on

a panoramic radiograph and morphology of the residual ridge influencing minimally to resist horizontal or vertical movement of the denture base in the maxilla i.e. type C maxilla.

Severely compromised

At least one of the above mentioned criteria substantially compromised which means presence of one or more of the following characteristics: Presence of any edentulous area or combination of edentulous areas that require a high level of patient compliance. Indication of periodontal, endodontic, or orthodontic procedure in ≥ 4 sextants. Insufficient abutment tooth structure in ≥ 4 sextants. Height of the residual vertical bone being ≤ 10 mm in the mandible when measured at the least vertical height on a panoramic radiograph and residual ridge offering no resistance to horizontal or vertical movement in the maxilla i.e., type D maxilla.

Results and Discussion

Number of patients included in the study were 328 among whom 36.9% (n = 121) were males; 63.1% (n = 207) females and the mean age was 45.51 ± 14.668 (minimum age = 15; maximum age = 75) [12]. Most common Kennedy’s class was class III (Table 1). A large number of Kennedy’s Class III patients were moderately compromised and substantially compromised (Figure 1). Among those class III patients majority had edentulous areas in both the arches and needed adjunctive therapy (periodontic/endodontic/orthodontic) in 2 - 3 sextants. Many had edentulous area of three teeth missing. Some required reestablishment of entire occlusion without any change in the OVD, whereas some others required enameloplasty. One had residual bone height of 16 to 20 mm in the mandible. One had type C maxillary residual ridge. Few had TMD and high esthetic concern.

Kennedy’s Classes n (%)						
Class I	Class II	Class III	Class IV	Combination1*	Combination2**	Total (N)
14 (4.3%)	38 (11.6%)	195 (59.4%)	26 (7.9%)	47 (14.3%)	8 (2.4%)	328 (100%)

Table 1: Presence of the Kennedy’s classes in the population under study.

Here; ‘N’ represents number of patients; *: Combination of Class III and Class I or Class III and Class II or Class I and Class II or Class IV and Class I or Class IV and Class II; **: Combination of Class III and Class IV.

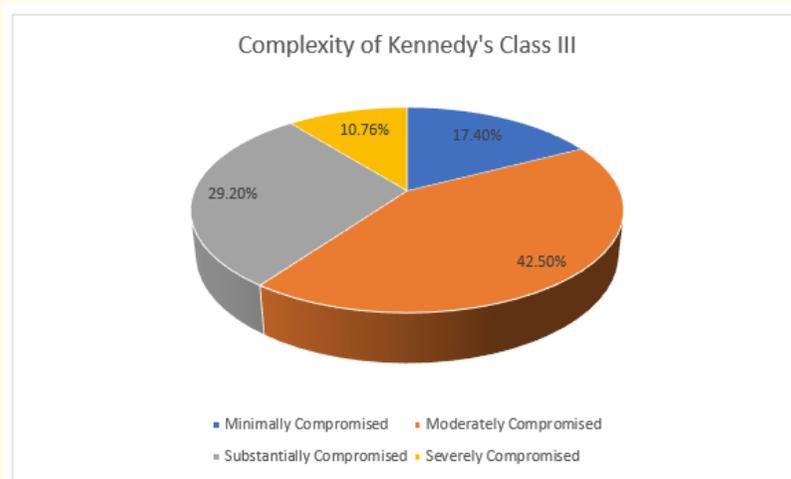


Figure 1: Compromising conditions found in Kennedy’s class III patients.

There was a need to conduct this study because of insufficient literature discussing those clinical criteria in the classification of partially edentulous patients. The criteria used in this study were those given by American College of Prosthodontists [13]. Significance of categorizing Kennedy's class on the basis of clinical complexity was that some important clinical findings which would have been missed were found. Thus, an immediate decision was possible about whether the patient can be treated by general dentist or needed specialist care. When talking about Kennedy's classes, class III is considered as the simplest one to restore. But, this study has shown that a large number of Kennedy's class III patients were moderately and substantially compromised clinically.

Present study has found that the most common Kennedy's class was class III (Table 1) and thus the finding was similar to many other studies [3-6,8,10,11]. Some other studies have found class I to be the most common Kennedy's class [7,9]. The main difference between this study and other studies is that this study aimed to find out the clinically compromising conditions associated with Kennedy's Class III i.e. clinical complexity of the condition (Figure 1). Studies have been done to find out associations of Kennedy's classes with various demographic variables like age, gender, economic level, upper arch, lower arch, education level etc. [3-6,10,11]. But, there is no any study done to find out clinical complexity of the Kennedy's Class to the author's knowledge. Thus, this study adds to the existing literature.

Conclusion

Most common Kennedy's class is class III, and among those a large number of patients are moderately compromised and substantially compromised. Thus, Kennedy's Class III is not as simple to restore as it sounds when the compromising conditions are also considered during classification of partial edentulism.

Acknowledgements

The author wants to thank all the participants in the study.

Conflict of Interest

No conflict of interest present.

Bibliography

1. Shah VR, *et al.* "Prosthetic Status and Prosthetic Need Among the Patients Attending Various Dental Institutes of Ahmedabad and Gandhinagar District, Gujarat". *The Journal of the Indian Prosthodontic Society* 12 (2012): 161-167.
2. Abdurahiman VT, *et al.* "Frequency of Partial Edentulism and Awareness to Restore the Same: A Cross Sectional Study in the Age Group of 18-25 Years Among Kerala Student Population". *The Journal of the Indian Prosthodontic Society* 13 (2013): 461-465.
3. Madhankumar S, *et al.* "Prevalence of partial edentulousness among the patients reporting to the Department of prosthodontics Sri Ramachandra University Chennai, India: An epidemiological study". *Journal of Pharmacy and Bioallied Sciences* 7 (2015): 643-647.
4. Pellizzer EP, *et al.* "Prevalence of removable partial dentures users treated at the Aracatuba Dental School-UNESP". *Gerodontology* 29 (2012): 140-144.
5. Manimaran P, *et al.* "Partial edentulousness in a rural population based on Kennedy's classification: Epidemiological Study". *Journal of Pharmacy and Bioallied Sciences* 9 (2017): 34-36.
6. Fayad MI, *et al.* "Prevalence and pattern of partial edentulism among dental patients attending college of dentistry, Aljouf University, Saudi Arabia". *Journal of International Society of Preventive and Community* 6 (2016): 187-191.
7. MM Gad, *et al.* "Prevalence of partial edentulism and RPD design in patients treated at College of Dentistry, Imam Abdulrahman Bin Faisal University, Saudi Arabia". *Saudi Dental Journal* 32 (2020): 74-79.

8. Bharathi M., *et al.* "Partial Edentulism based on Kennedy's Classification: An Epidemiological Study". *The Journal of Contemporary Dental Practice* 15.2 (2014): 229-231.
9. Aamir Mehmood Butt., *et al.* "Incidence Of Various Kennedy's Classes In Partially Edentulous Patients Visiting Dental Opd Hyderabad/Jamshoro". *Pakistan Oral and Dental Journal* 35.2 (2015).
10. RA Devishree., *et al.* "Prevalence of partial edentulism according to Kennedy's classification based on age, gender, and arch". *Drug Invention Today* 10.1 (2018).
11. Sapkota B., *et al.* "A Study of Assessment of Partial Edentulous Patients Based on Kennedy's Classification at Dhulikhel Hospital, Kathmandu University Hospital". *Kathmandu University Medical Journal* 44.4 (2013): 325-327.
12. Arati Sharma. "Description of Partial Edentulism among Patients Visiting the Prosthodontic Department at a Tertiary Care Center in the Eastern part of Nepal". *Acta Scientific Dental Sciences* 3.10 (2019): 130-137.
13. McGarry TJ., *et al.* "Classification System for Partial Edentulism". *Journal of Prosthodontics* 11 (2002): 181-193.

Volume 20 Issue 3 March 2021

© All rights reserved by Arati Sharma.