

Prevalence And Pattern Of Partial Edentulism According To Kennedy's Classification - A Retrospective Study

Research Article

P. Deeksheetha¹, Kiran Kumar Pandurangan^{2*}, Nashra Kareem³¹Saveetha Dental College and Hospitals, Saveetha Institute of Medical and Technical Sciences, Saveetha University, Chennai 600077, Tamil Nadu, India.²Senior Lecturer, Department of Prosthodontics, Saveetha Dental College and Hospitals, Saveetha Institute of Medical and Technical Sciences, Saveetha University, Chennai 600077, Tamil Nadu, India.³Senior Lecturer, Department of Periodontics, Saveetha Dental College and Hospitals, Saveetha Institute of Medical and Technical Sciences, Saveetha University, Chennai 600077, Tamil Nadu, India.

Abstract

Partial edentulous patients require replacement of missing teeth in order to restore function and aesthetics. The pattern of tooth loss due to trauma, dental caries, compromised periodontal health, poor oral hygiene maintenance. There are numerous methods of classification of partially edentulous arches of which the most commonly used is Kennedy's Classification. The prevalence and pattern of partial tooth loss is foremost important to identify the need for prosthetic replacement and the studied community. Therefore, the objective of this study is to determine the prevalence of partial Edentulism among dental patients according to Kennedy's Classification. A retrospective study was conducted among dental patients by reviewing the 86,000 patient records between June 2019 to November 2019 from which 665 patients of partial edentulism and assessed for pattern, age, gender and arch of partial edentulism. The collected data was tabulated in the excel sheet and the data was transferred to the SPSS version 20 for statistical analysis. Among the 665 patients 366 were males and 299 were females. The prevalence of partial edentulism is more among 41-50 years of age with male predilection. The most prevalent pattern is Kennedy's Class III followed by Class II. The prevalence of age and Kennedy's classification shows a positive correlation.

Keywords: Kennedy's Classification; Oral Health; Partially Edentulous; Tooth Loss.

Introduction

Edentulism is an oral health indicator of a population [1]. Partial edentulism indicates to which one or more teeth are missing. The pattern of tooth loss due to the following factors such as caries, periodontal problems, traumatic injuries, impactions, supernumerary teeth, neoplastic and cystic lesions [2]. Few studies have reported that dental caries as the major inductive agent for tooth loss [3] Maintenance of oral health has a great contribution towards the quality of life. Tooth loss affects the diet and nutrition of an individual which may result in poor general health [4] Partial edentulism can impede the chewing ability and esthetics [5] Replacement of missing teeth is essential to restore the aesthetics, function, phonetics [6] Incidence of tooth loss has been reduced significantly in many countries in recent decades [7] In dentistry, Aloe vera has been used for anticipation of periodontal and gum diseases [8].

They are feasible combinations of partial edentulism are more than 65,000 depending on their prevalence in maxillary and mandibular arches [8, 9]. Prevalence of the various classes of partial edentulism should be checked routinely to provide teaching instructions [8-10] The goal of classification is to facilitate communication among dentist and laboratory technicians[11].

Various methods of classification of partially edentulous arches such as Avant, Applegates, Neurohar, Kennedy, Eichner, ACP (American College of Prosthodontics). Kennedy's classification is the most widely accepted classification [11, 12], due to its immediate visualization of the edentulous site and helps to design the prosthesis [13]. Although it is very difficult in every situation that is suggested by Applegate aimed at integrating the clinical situations [14]. Many studies of partial edentulism have been determined in different countries among various popula-

*Corresponding Author:

Dr. Kiran Kumar Pandurangan,

Senior Lecturer, Department of Prosthodontics, Saveetha Dental College and Hospitals, Saveetha Institute of Medical and Technical Sciences, Saveetha University, 162, P.H Road Chennai 600077, Tamil Nadu, India.

Tel: +91-7010782807

E-mail: kiran.kumar.sdc@saveetha.com

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tions [14, 15]. Prevalence of tooth loss on epidemiologic studies differs between geographic regions within countries and between countries [14-16]. Several studies have been done to record patient details through questionnaires and clinical examination. Previously our team has a rich experience in working on various research projects across multiple disciplines. [17-31]. Now the growing trend in this area motivated us to pursue this project. Hence, the aim of this present study was to determine the prevalence and pattern of partial edentulism according to Kennedy's classification.

Materials and Methods

A retrospective study was conducted among dental patients by reviewing the 86,000 patient records between 01st June 2019 and 30th November 2019 from which 665 patients of partial edentulism and assessed for pattern, age, gender and arch of partial edentulism. The ethical clearance was obtained from the institutional review board, IEC approval number: SDC/SIHEC/2020/DIASDATA/0619-0320 and also informed consents were obtained from the patients. The patients were grouped into five groups, Group 1- 21 to 30 years; Group 2- 31 to 40 years; Group 3- 41 to 50 years; Group 4- 51 to 60 years; Group 5- >60 years. Patients aged 21–80 years and both genders were included in the study. Patients having modifications, complete edentulism, missing third molars and incomplete data were excluded from the study. Clinical examinations of the maxillary and mandibular arch of the patients were analyzed. The data obtained were cross verified with intra oral photographs by another examiner. The data were obtained and tabulated in excel sheets which were imported to SPSS version 20 (IBM corporation). Descriptive statistics and

Chi square test was used to determine the correlation between the variables where P value < 0.05 is considered statistically significant with a confidence interval of 95%.

Results & Discussion

A total of 665 patients with the partial edentulism 366 were males (55.04%) and 299 females (44.96%) aged between 21 and 80 years which shows that male predilection (Figure 1). Among age groups 41-50 years (26.32%) of age showed high prevalence of partial edentulism and least prevalence age groups 21-30 years (12.33%) (Figure 2). The incidence of various patterns of partial edentulism was found to be Class III type (50.23%) followed by class II (18.65%), class I (15.64%) and class IV (15.49%) (Figure 3). The results showed the incidence of Class III partial edentulism was more in both the maxillary arch (48.2%) and mandibular arch (51.8%) when compared to others (Figure 4). Similarly, the Class III Kennedy's was found more in all age groups respectively (Figure 5). In the study, the occurrence of Class III Kennedy's was high in both male and female patients of about 55.1% and 44.9% (Figure 6). Males showed higher prevalence than females in both the arches (Figure 7). Among age groups 41-50 years showed more prevalent in both the arches.

Previously our team has conducted numerous original studies [32-45] over the past 5 years. The idea for this study stemmed from the current interest in our community. Oral hygiene is a key indicator towards the quality of life such as psychological, biologic and social levels [46].

In the present study, among 665 patients with the partial eden-

Figure 1. This bar chart depicts gender wise distribution of partial edentulism patients. The X axis represents gender of the patients, Y axis shows the number of Patients with partially edentulous arches. A total of 299 female patients (Blue colour) and 366 Male patients (Red colour) were observed. Male predominance was observed among partially edentulous patients.

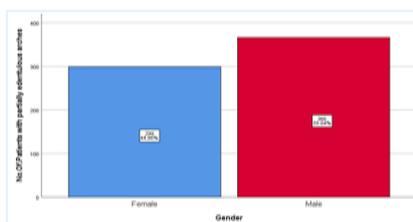


Figure 2. This bar chart depicts age wise distribution of partial edentulism patients. Prevalence of partial edentulism was more in the age groups of 41-50 years (26.32%) (Green colour), followed by 51-60 years (24.96%) (Orange colour), above 60 years (22.11%) (Yellow colour), 31-40 years (14.29%) (Red colour) and 21-30 years (12.33%) (Blue colour).

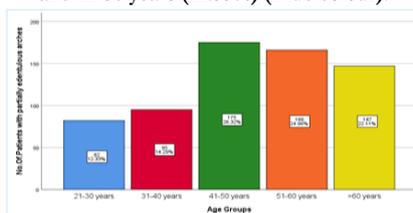


Figure 3. This bar chart depicts various classes of Kennedy's classification among partial edentulism. The incidence of various patterns of partial edentulism was more in Class III type (50.23%) (Green colour), followed by Class II (18.65%) (Red colour), Class I (15.64%) (Blue colour) and Class IV (15.49%) (Orange colour).

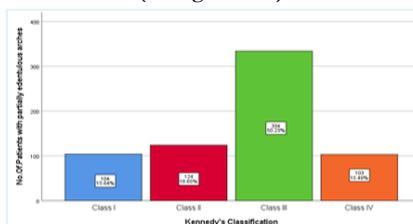


Figure 4. This bar chart depicts the association between Kennedy's Classification and partially edentulous Site. X axis represents partially edentulous site and Y axis represents the Number of Patients with partially edentulous arches. Blue colour represents Class I, red colour represents Class II, green colour represents Class III, orange colour represents Class IV. Class III more predominant in both maxillary and mandibular arches. Incidence of Class III 51.2% in mandibular arch and 48.2% in maxillary arch. In this graph, Class III is more prevalent in mandibular arch. Chi square test shows statistically not significant. [Pearson's Chi-square test showing p value=0.835 (p >0.05)]

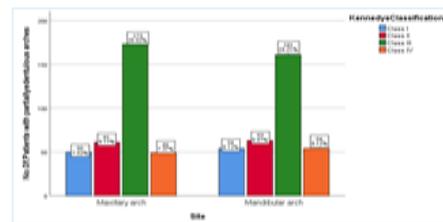


Figure 5. This bar chart depicts the association between age of the patients and Kennedy's classification. X axis denotes age of the patients and Y axis denotes the number of Patients with partially edentulous arches. Blue colour denotes Class I, red colour denotes Class II, green colour represents Class III, orange colour denotes Class IV. In this graph, Class III Kennedy's most prevalent in the 41-50 years age group. Overall incidence of class III 50.23%. Chi square test shows statistically significant. [Pearson's Chi-square test showing p value = 0.000 (p <0.05)]

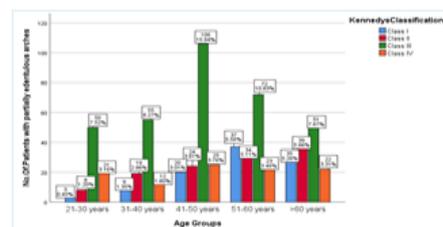


Figure 6. This bar chart depicts the association between gender of the patients and Kennedy's classification. X axis denotes gender of the patient and Y axis denotes the Number of Patients with partially edentulous arches. Blue colour denotes Class I, red colour denotes Class II, green colour denotes Class III, orange colour denotes Class IV. In this graph, Class III Male (55.1%) female (45.9%), incidence of class III in Male patients was found to be more than females. Chi square test shows statistically not significant. [Pearson's Chi-square test showing p value =0.401 (p >0.05)].

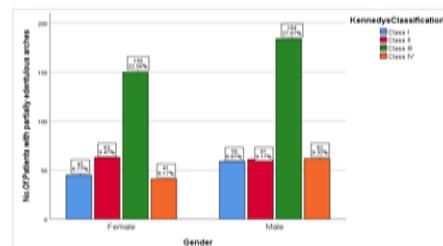


Figure 7. This bar chart depicts the association between genders and edentulous arches X axis denotes partially edentulous sure and Y axis denotes the Number of Patients with partially edentulous arches. Blue colour denotes female patients, while the red colour denotes male patients. In this graph, Partial Edentulism in maxillary and mandibular arches more commonly in male patients than female patients. Chi square test shows statistically not significant. [Pearson's Chi-square test showing p value = 0.78 (p > 0.05)].

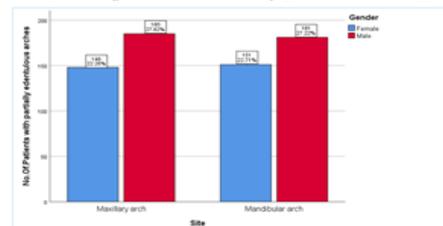
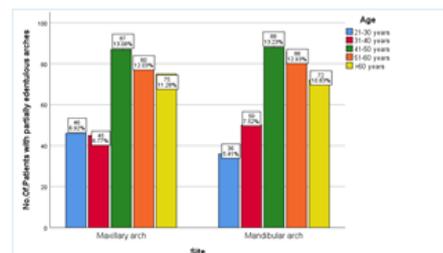


Figure 8. This bar chart depicts the association between age and edentulous arches X axis denotes partially edentulous sure and Y axis denotes the Number of Patients with partially edentulous arches. Blue colour denotes 21-30 years of age, red colour denotes 31-40 years of age, green colour denotes 41-50 years of age, orange colour denotes 51-60 years of age and yellow colour denotes above 60years of age. Highest incidence of partial edentulism in maxillary (49.7%) and mandibular (51.3%) arches belong to the 41-50 years of age patients. Incidence of class III slightly higher in the mandibular arch than maxillary arch. Chi square test shows statistically not significant. [Pearson's Chi-square test showing p value =0.779 (p >0.05)].



tulism 366 males and 299 females. We observed that the prevalence of partial edentulism was more in males when compared to females and similar study seen by Gupta et al, [15] The present study is consensus with previous studies of D' Sousa et

al, (3,46). The most common age groups with the prevalence of partial edentulism was 41-50 years of age group. Similar studies were done by Agarwal et al, [47] and by Hama et al., [48]. In contrast, with the previous studies were done by Madhakumar et al,

[7], Araby et al, [49], Akinboboye et al, [50], with the average age of 36.5 years. Kennedy's Class III pattern is the most common of partial edentulism in this present study. Based on the arch, the prevalence of Kennedy's Class III was observed more in both the genders.

The prevalence of the Class III pattern of partial edentulism was more common in both arches. The result of the present study is in accordance with the studies of Shah et al., [51] Arivan Mahmood Hama et al., [48]. Based on age, there is more prevalence of Class III Kennedy's in 41–50 years and less prevalence of Class IV Kennedy's in 21–30 years. These results are disparity to study by Prabhu et al. [48, 52]. According to the genders, the prevalence of Kennedy's Class III was observed more in male than females and the similar study was done by Prabhu et al., [52] wherein Kennedy's Class III type was more prevalent in males. The result is contradictory with the study of Rana B et al., [53]. The present study shows a significant correlation between age and Kennedy's classification. Few studies have concluded that there is significant correlation between gender and partial edentulism of Kennedy's classification Medina-Sollis et al, [54], Vadavadagi et al, [55]. However, the present study shows no significant association between gender and partial edentulism of Kennedy's classification. Our institution is passionate about high quality evidence based research and has excelled in various fields [56-66]. We hope this study adds to this rich legacy

The limitations of the present study is the limited sample size and was conducted in an institution-based set-up. This was a single centred study and was geographically restricted. Hence, further study is required to explore multi centred aspects of partial edentulism in a larger population along with the assessment of the socio-economics status and the nutritional status.

Conclusion

Within the limits of the study, it can be concluded that the Class III was the most common type of Kennedy's classification and prevalence of partial edentulism is more among 41-50 years of age with male predilection. Information on tooth loss is needed to form a generalized database for the partial edentulism patterns. It will help us to identify the causes of such tooth loss and its prevention.

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