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THE PREPONDERANCE OF KENNEDY'S CLASSIFICATION IN THE POPULATION OF GODAVARI DISTRICTS OF ANDHRA PRADESH – A 10 YEAR RETROSPECTIVE STUDY

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ABSTRACT

Aim of the study - To assess the incidence of different Kennedy's partially edentulous classification in the two Godavari districts and find its relationship with age, gender in 10 years at Lenora Institute of Dental Sciences, Rajanagaram. **Objectives of the study:** To evaluate the incidence of various Kennedy's classification of partial edentulous conditions, assess the gender ratio among the partially edentulous subjects and the epidemiological features of partial edentulousness in the age group 15-30,31-45,46-60 and above 60 years at Lenora Institute of Dental Sciences, Rajanagaram based on the post-treatment of Kennedy's classification situations. **Materials and methods:** Examined post-treatment patient records for various Kennedy's classes of partial edentulism in the department of prosthodontics, Lenora Institute of Dental Sciences, Rajanagaram, from 2010 to 2019. **Results:** A total of18046 post-treated patient records were found, out of which males were 9308 and females 8738. Patients with Kennedy's Class III were found more in number, and class IV was less. **Conclusion:** Kennedy's Class I was less in number thanClass III, whereas in females, Class I was more than other classes.

INTRODUCTION

Edentulism may be considered identical to dental carnage. Among the origin of diversified dental problems, edentulousness consider as a whole situation. Loss of teeth will consider as dental carnage. In India, with varied cultures, contrasting socioeconomic conditions mixed with the non-availability of wealth for dental treatment accord more to pine exclusively to treat partial edentulousness.

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Due to traditions, faith and habits will lead to the challenges and approach to health care restricted in India's rural population. It is mandatory to classify the partially edentulous arches to visualize the underlying condition and inter-operator communication better. Kennedy's classification of partially edentulous arches is universally acceptable and followed in this study. Edward Kennedy originally proposed Kennedy's category in 1925. Kennedy's type permits immediate visualization of partially edentulous arches and allows early distinction between tooth-supported and tooth tissue-supported cases (Manimaran, 2017; Burt, 1985). A simple estimation of the proportion of partially edentulous persons is a rough

indication of the prevalence of dental diseases and the success or failure of dental care. It forms a background for the assessment of treatment needs.[3] Despite advances in preventive dentistry, edentulism is a significant public health issue worldwide.

Loss of teeth is a debilitating and irreparable situation and is considered the 'terminal marker of disease hardship' for oral health. Loss of teeth reflects a significant public health problem in many countries and shows a substantial impact on health and the overall quality of life (Jaleel, 2014; D'Souza, 2014). In a country like India with various and diversified cultures, different socioeconomic status levels combined with the non-availability of dental treatment resources leave much to be desired, especially where partial edentulousness is concerned. In a rural population, the beliefs based on tradition and habits increase the challenge, and access to healthcare is limited. It is mandatory to classify the partially edentulous arches to visualize the underlying condition and inter-operator communication better. Therefore, a universally accepted classification method is adopted; this forms a background for assessing treatment needs. Being a vast population of India, a nationwide survey is challenging to conduct. Future studies can undertake by conducting surveys on the patients attending the dental departments of teaching institutes and dental hospitals.[3] The prevalence and patterns of tooth loss have been studied to a certain extent in other countries, but a few studies have been carried out in India. Hence, this retrospective study aimed at the predominance of Kennedy's Classification situation in the Godavari districts of Andhrapradesh.

METHODOLOGY

This retrospective study was carried out at the clinical department of Prosthodontics at Lenora Institute of Dental Sciences, Rajahmundry, Andhra Pradesh. 10 years period from 2010 to 2019, case records of partially edentulous patients were checked. A total of 18046 post-treated partially edentulous patient records were found. The patients' age was grouped into 15-30, 31-45, 46-60, and above 60, and followed Kennedy's classification to classify the post-treatment records of the patients. Kennedy's classes I, II, III, and IV were categorized according to the age and gender of the patient.

Statistical Analysis: Data was entered in Microsoft excel sheet (2019). Data was analyzed using SPSS version 23.0 software. Descriptive statistics were generated.

RESULTS

As Table-1 shows, out of 18046 patients, the maximum percentage scored by Class III situation 29.01% (5236), then Class I with a share of 27.4% (4948) succeeded by Class II with a percentage of 25.7% (4639) and finally by Class IV with 17.8% (3221).

Table 1. Frequency total partial edentulism according to Kennedy's classification

| Kennedy's Classification	Total Percentage
Class I	27.4% (4948)
Class II	25.7% (4639)
Class III	29.01% (5236)
Class IV	17.8% (3223)
Total	18046

This table gives a fair idea that incidence of Class III situation shows more prevelance (Table-1) & Bar graph-1). Table-2 depicts the gender distribution of Kennedy's classification. The males were dominated with 51.5% (9308), whereas the female percentage was 48.5% in the total patients. When the individual Kennedy's Class comes, the male patient percentage in Class III found more, i.e., 30.4% (2832) next Class I with 27% (2518) later Class II of 24.37% and least was Class IV with 18.1% (1689). Whereas in the female patient percentage Class I stood with 27.8% (2430) then Class III with significantly less difference of 27.5% later Class II with 27.1% finally Class IV scored with least percentage of 17.5% (1534).

This table gives a fair idea that male patients' incidence shows more distribution Class III condition than femalesin general, but overall female patients having higher incidence of Class I, than Kennedy's Class III situation (Table-2), (Bar graph-2). Table-3 denotes that the prevalence of Kennedy's classification in different age groups revealed that the maximum victims were falling in the 46-60year group (total of 5272), followed by age group > 60 years. The least was seen in the 15-30 age group (3444). In general, in all the age groups, Kennedy's Class III was seen more, and Kennedy's Class IV was less (Table-3), (Bar graph-3).
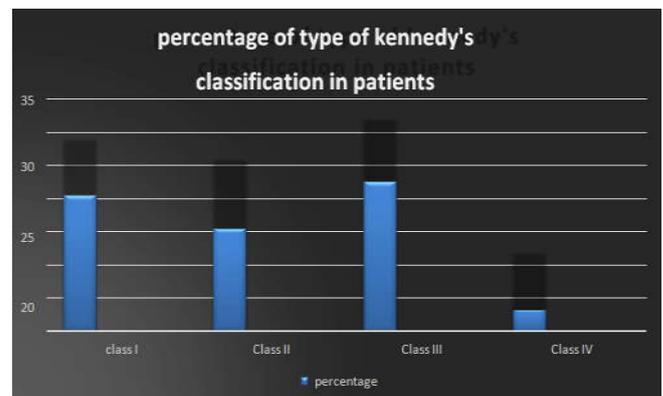
Bar Graph 1. Percentage distribution of Kennedy's Classification

Table 2. Gender distribution percentage among the samples.

Kennedy's Classification	Male	Female
Class I	27% (2518	27.8%(2430)
Class II	24.37%(2269)	27.1%(2370)
Class III	30.4% (2832)	27.5%(2404)
Class IV	18.1% (1689)	17.5% (1534)
Total	51.5% (9308)	48.5%(8738)
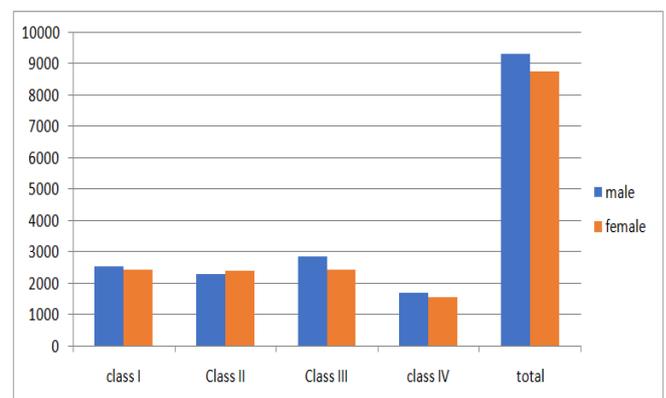
Bar Graph 2. Showing the percentage distribution of Gender among Kennedy's Classes

Table 3. Age distribution among the Kennedy's Classes

Age(Years)	Class I	Class II	Class III	Class IV	Total
15-30	919	884	947	694	3444
31-45	1252	1251	1403	872	4778
46-60	1436	1407	1523	906	5272
>60	1341	1097	1363	751	4552
Total	4948	4639	5236	3223	18046
	(27.4%)	(25.7%)	(29.01)	(17.8)	
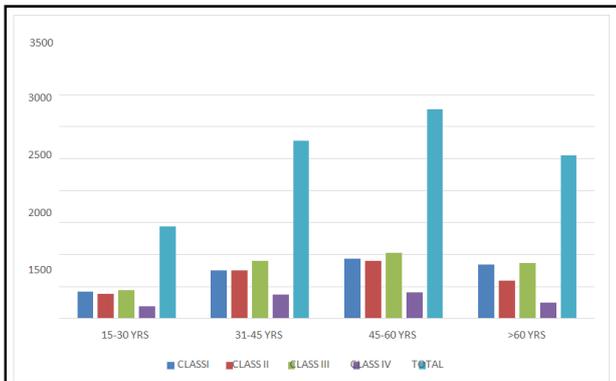
Bar graph 3. Distribution of Kennedy's Classifications among different age groups

DISCUSSION

In the present study, Kennedy's classification of partially edentulous arches was followed 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 facilitate the application of basic principles of partial denture design (Bharathi, 2014). Many factors affect the prevalence of edentulism, such as education, occupation, personal economic situation, attitude toward dental care, and lifestyle. Preventive strategies to decrease the burden of tooth loss are of great importance. It is highly suggested that population-based studies investigate the epidemiology and risk factors of edentulism and tooth loss in India. It is also essential to evaluate the effect of tooth loss on the quality of life. There are more than 65,000 possible combinations of partial edentulism in opposing arches. It is logical to classify partially edentulous arches that share common attributes, characteristics, qualities, or traits. The primary purpose for the classification of partially edentulous arches is to identify potential combinations of teeth to edentulous ridges to facilitate communication among dental colleagues, students, and technicians. Classification also allows a longitudinal comparison of various classes of R.P.D.s to determine whether the teaching of R.P.D. Design is consistent with the relative frequencies of R.P.D use. Several methods of classification of partially edentulous arches have been proposed and are in use, e.g., Beckett, Godfrey, Swenson, Friedman, Wilson, Skinner, Applegate, Avant, Miller, and others. At present, Kennedy's classification is probably the most widely accepted one. Kennedy's type provides immediate visualization, recognition of prosthesis support, and assessment of design features of a removable partial denture. In correlation to Burt *et al*., (1985) in 1985, Kennedy's Class III was most frequently seen among the other classes. Furthermore, the molars are the first tooth to erupt in the oral cavity; hence, they pose a significant risk for caries development and subsequently lead to the loss of molars; therefore, a Class III situation is

more frequented. The early eruption of the mandibular teeth compared to the maxillary arch could also be why the early loss of mandibular teeth (Manimaran, 2017; Carr, 2005). In the present study, Kennedy class III was the most frequent type of partial edentulousness found in the study group. The results were on par with the study conducted by Prabhu N *et al*.[3]Also present research reports in line with the survey conducted by Hatim *et al*., (2003) in the Iraqi population, and the study conducted by Mohammad Arif Lone and co-workers in Kashmir population (Mohammad Arif Lone, 2019). According to Al-Dwairi ZN[11]in the Jordanian people, bounded saddles (Class III Kennedy classification) were the most common edentulism pattern, concurring with the present study results.The results of Suneel *et al*., (2015) also coincides with the present study,in which Class III was dominant over other classifications. In this study, Kennedy's Classification I stood in second place, followed by Class III and finally Class IV. Literature revealing Kennedy's class IV situation is seen least among all Kennedy's partial edentulism classes. In the present study, results showing class IV situation is the least one. This study results were resembling the study reports of Suneel VV *et al*. (2015). Few studies concluded that, significant gender differences in edentulism. In the present study, 5165 men (51.4%) were partially edentulous compared to women (48.6%). In total, males show more edentulism than females. These results are corresponding with the results of Suominen-Taipale *et al*., (1999) and Hoover *et al*. (Hoover, 1989). According to a study conducted by (Suneel *et al.,* 2015) and Downer, (1991) female patients showed more partially edentulous than males. However,in the present study results were not agreed with the above studie, but the female gender has shownKennedy's Class I situation more than the rest of the categories. Only 14.3% of people from age group 15 to 30 years shownedentulism.This age group of patients had better awareness and knowledge; hence, this could have been the reason for the minimal tooth loss. 45-60 years' age group has the highest proportion of edentulism with 3272 cases with a 32.5% of ratio. The predominance of cases is with Class III with 32.2%, and the lowest incidence is 12.1% of Class IV.

CONCLUSION

Kennedy's Class III (32.2%) is the most common Class of partial edentulousness. Edentulism more predominant in (51.4%) males. The reason for this partial edentulous seems to be more of age factor periodontal cause concomitantly with deleterious personal habits. Reduction in partial edentulousness lower age is because they have awareness for missing teeth replacement than the elderly. As increased age, increased comorbidities, and lack of motivation are associated with higher partial edentulism (58% above 45 years of age), dental professionals should educate these groups of people more intently, and should create awareness for proper dental hygiene and timely replacement of missing teeth.

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