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PREVALENCE OF PARTIAL EDENTULISM OF KENNEDY'S CLASS I CLASSIFICATION BASED ON DIFFERENT AGE GROUPS AND ARCH - A RETROSPECTIVE STUDY

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ABSTRACT

Partial edentulism indicates missing one or two teeth in the dental arches. The goal of partial edentulous arches classification provides communication between students, dental practitioners, technicians for planning a treatment and help to design the partial denture. Classification will also predict the removable partial denture design. Hence, the aim of the present study was to evaluate the prevalence of partial edentulousness (Kennedy's Class I) among different age groups and arch. An institution based retrospective study was conducted among dental patients who visited Private Dental Hospital between 1st June 2019 and 30th Nov 2019. We reviewed patient records and analysed the data of 86000 patients at the private dental hospital. The study was done in 103 patients based on age groups and arch by doing oral examination for determining the prevalence of partial edentulism of Kennedy's Class I. Collected data was tabulated in excel sheet and imported in SPSS version 20 for

statistical analysis. Among 103 patients, 51 to 60 years age group patients showed a higher prevalence of Kennedy's Class I (37.9%). Mandibular arch (51.5%) showed higher prevalence than maxillary arch (48.5%).

INTRODUCTION

Partial edentulism indicates missing one or two teeth in the dental arches (Muneeb, Khan and Jamil, 2013). Retain an adequate number of teeth is most important for oral health indicators and improved quality of life (Shamdolet *et al.*, 2008) (Zaigham and Muneer, 2010). Edentulism is mainly associated with age, gender, low family income and rural domicile (Medina-Solís *et al.*, 2006). Tooth loss is mainly due to periodontal diseases, caries (Ehikhamenore *et al.*, 2010), (Saleh, Tahir and Abdel-Rahman, 2013), (Prabhuet *et al.*, 2009), (Reddy *et al.*, 2012). Oral hygiene maintenance is poor in women with low education level and low economic status (Gilbert *et al.*, 1999). Proper oral hygiene is foremost important during pregnancy because there are various hormonal changes in the body that can increase the risk of developing gum diseases which may result in tooth loss (Basha, Ganapathy and Venugopalan, 2018).

Partial edentulism results in drifting and tilting of adjacent teeth, changes in facial appearance, supra eruption of opposing teeth and Temporomandibular disorders affecting the general health and lifestyle of the patient such as impairment, functional limitations, psychological disability (Abdurahiman, Abdul Khader and Sanju John Jolly, 2013). Aloe vera has also been used in dentistry for prevention of gum diseases (Subasree, Murthykumar and Others, 2016). The comfort, function, and esthetics must be restored while treating a partial or completely edentulous patient (Jain *et al.*, 2018).

The continuing degradation of the alveolar bone, supporting structures and the adjacent teeth. It affects the restoration in a partially edentulous patient. Partial edentulous patients restrict dietary food which leads to weight loss, psychological dissatisfaction (Muneeb, Khan and Jamil, 2013). There are recent trends in oral health care that esteem the maintenance of natural dentition, thereby the edentulous patient's number is decreasing (Sadig and Idowu, 2002) and more combinations of partial edentulism patterns in maxillary and mandibular arches. The main advantage of Kennedy's classification is immediate visualisation and recognition of prosthesis support (Curtis *et al.*, 1992). Kennedy's Classification plays an important role in partial edentulous arches and facilitates better communication among different dental community (Sunnegårdh-Grönberg *et al.*, 2012), (Patel *et al.*, 2014). The patterns in the incidence of various classes of removable partial dentures should be reviewed periodically to serve as teaching guidelines (Judy, 2018).

Several studies of partial edentulism have been assessed in many selected populations in different countries (Sapkota, Adhikari and Upadhaya, 2013). Studies on edentulism and tooth loss in prevalence between geographic regions within countries and as of now studies there are no studies that have investigated the prevalence of partial edentulism of Kennedy's Class I. Hence, the aim of present study was to determine the prevalence of partial edentulousness of Kennedy's class I based on different age groups and arch.

MATERIALS AND METHODS

An institution based retrospective study was conducted among partially edentulous patients visiting Private Dental Hospital, Chennai. Ethical approval was obtained from the Institutional Ethical Committee, IEC approval number: SDC/SIHEC/2020/DIASDATA/0619-0320. Data collection was done by reviewing the 86000 patient records from 1st June 2019 and 30th Nov 2019 from which 103 patients of Kennedy's Class I were included in the study and assessed for age groups and arch. The inclusion criteria include both genders, aged between 21 years and 80 years with patients of Kennedy's Class I partially edentulous area and exclusion criteria includes patients with completely edentulous arches, dentulous and incomplete dental records were excluded from the study. Patients were randomly divided into 5 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. All case sheets were cross verified by another examiner. Collected data were recorded and tabulated in excel. The data was imported and transcribed in Statistical Package for the Social Sciences, version 20 (SPSS, IBM corporation). Descriptive analyses were based on quantitative variables and frequencies for categorical variables. P less than or equal to 0.05 was considered statistically significant with a confidence interval of 95%.

RESULTS AND DISCUSSION

Previously our team has conducted numerous original studies (Ashok *et al.*, 2014; Venugopalan *et al.*, 2014; Ganapathy *et al.*, 2016; Selvan and Ganapathy, 2016; Subasree, Murthykumar and Others, 2016; Vijayalakshmi and Ganapathy, 2016; Jyothiet *et al.*, 2017; Basha, Ganapathy and Venugopalan, 2018; Jain *et al.*, 2018; Anjum, Ganapathy and Kumar, 2019; Inchara, Ganapathy and Kumar, 2019; Ramya, Pandurangan and Ganapathy, 2019; Reddy, Ganapathy and Kumar, 2019; Shree, Kumar and Ganapathy, 2019; Pandurangan *et al.*, 2020) over the past 5 years. The idea for this study stemmed from the current interest in our community.

According to the present study, we found that the prevalence of partial edentulism of Kennedy's Class I was high prevalence among 51 to 60 years (37.9%) and least prevalence among 21-30 years (1.9%) of age group (Figure 1). Since elder patients being most commonly affected with tooth loss and the prevalence of partial edentulism could be more at this age group (Fayad, Baig and Alrawaili, 2016). Several studies proved the prevalence of partial edentulism which increases with age (Devishree, Sangeetha and Jain, 2018). But the results of both studies are not statistically significant. There was a variation in study that showed lower prevalence of partial edentulism above 50 years of age (Akinboboye, Azodo and Soroye, 2014).

In the present study, there was a higher prevalence rate of partial edentulism in mandibular arch (51.5%) compared to maxillary arch (48.5%) (Figure 2). The results are contradictory with study done by Madhan Kumar *et al.*, found that the most involved arch was a higher prevalence in maxillary arch 54.4 % compared to the mandibular arch (47.2%) (Madhankumar *et al.*, 2015). The related Study was done by (Patel *et al.*, 2014) found that the most commonly involved arch was mandibular arch (51.3%). In contrast, a study showed

higher prevalence of partial edentulism rate in maxillary arch (Shinawi, 2012). In the present study, an insignificant association was found between age and arch (Figure 3), which was found to be with other study (Patel *et al.*, 2014).

Early diagnosis and treatment helps in improving the quality of life of the patients.

Within the Limitation of this study, this may be due to fewer sample sizes of the study and single centered study. Hence further studies should be done based on bigger sample size, multi-location studies and to emphasize the oral education among them.

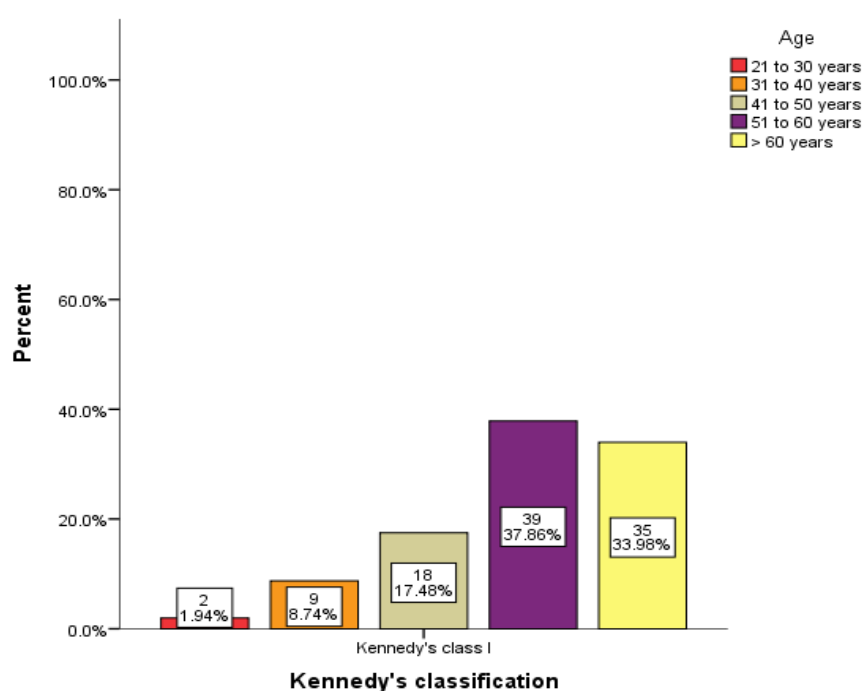


Figure 1: Bar chart depicting the age wise distribution of patients with Kennedy's Class I partial edentulism where red colour denotes 21 to 30 years, orange colour denotes 31 to 40 years, brown colour denotes 41 to 50 years, purple colour denotes 51 to 60 years and yellow colour denotes greater than 60 years. X axis denotes the age distribution and Y axis denotes the percentage. High prevalence is seen in age group 51-60 years (37.9%) and least prevalence is seen in age group 21-30 years (1.9%).

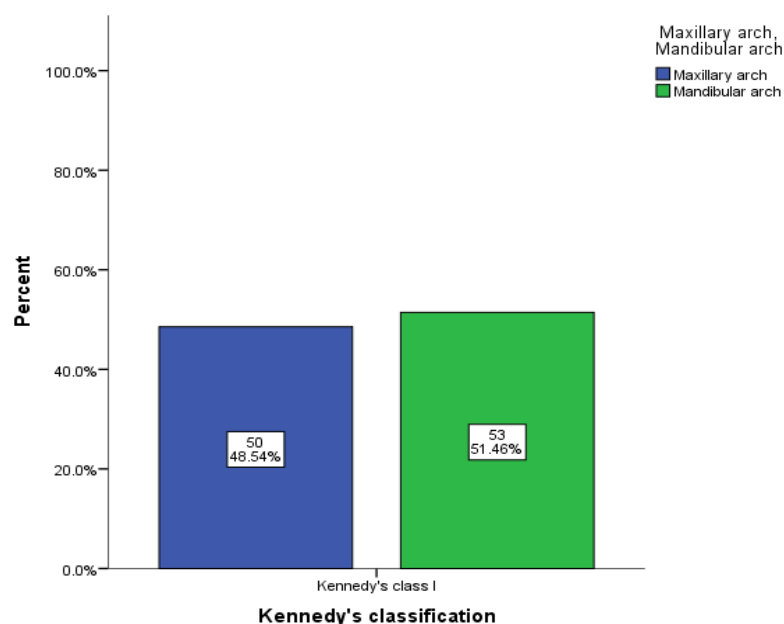


Figure 2: Bar chart depicting the Arch wise distribution of patients with Kennedy's class I partial edentulism where blue colour denotes Maxillary arch and green colour denotes Mandibular arch. X axis denotes the arch distribution and Y axis denotes the percentage of distribution among different arches. Percentage of Kennedy's class I partial edentulism in maxillary arch is 48.5% and mandibular arch is 51.5%. Clearly the mandibular arch was the most affected arch.

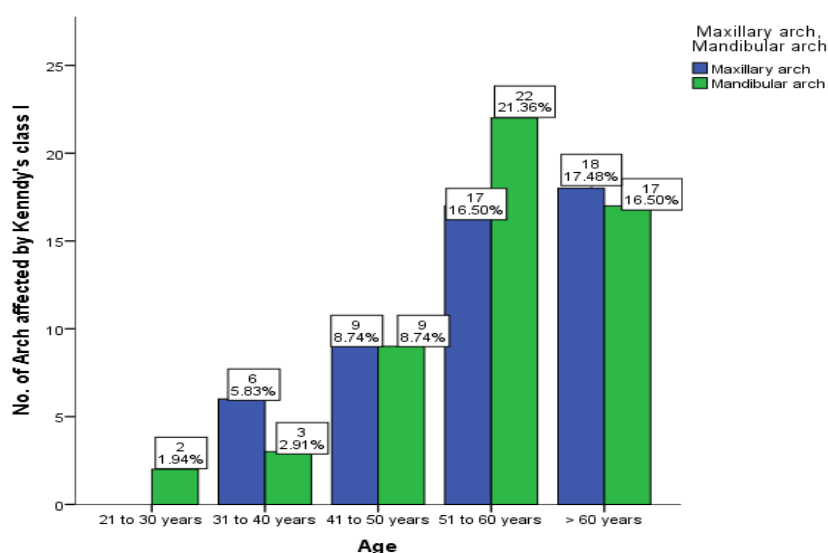


Figure 3: Bar graph representing the comparison of different age groups and arch where blue colour denotes the Maxillary arch and green colour denotes the Mandibular arch. X axis denotes the age groups and Y axis denotes the

frequency of arch affected by Kennedy's class I partial edentulism. Hence, The mandibular arch of 51 to 60 years people was found to be most affected by Kennedy's class I partial edentulism. However, this is statistically not significant (Pearson's Chi square test, $P=0.465 > 0.05$ statistically not significant).

CONCLUSION

Within the limits of the study ,it was concluded that there is no age and arch correlation for partial edentulism. The prevalence of Kennedy's Class I was predominant among the elder population of 51 to 60 years and Kennedy's Class I was the most common in the mandibular arch than maxillary arch.

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AUTHOR CONTRIBUTIONS

Author 1 (Srinisha M), carried out the study by collecting data and drafted the manuscript after performing the necessary statistical analysis. Author 2 (Dr. Kiran Kumar.P) aided in conception of the topic, has participated in the study design, statistical analysis and has supervised in preparation of the manuscript. Author 3 (Dr. Hemavathy) has participated in the study design and has coordinated in developing the manuscript. All the authors have discussed the results among themselves and contributed to the final manuscript.

CONFLICT OF INTEREST

None declared

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