
Analysis of Partial Edentulism Of Kennedy's Class I Classification Based on Gender and Arch- A Retrospective study

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Abstract: A partially edentulous arches classification helps in identifying the teeth combinations, better communication and planning a good treatment. Kennedy's classification will provide immediate prosthesis support recognition, visualization of risk, and design assessment that needed for a partial denture that will be fabricated. Therefore, this purpose of this study is to evaluate the partial edentulism of Kennedy's Class I based on gender and arch. An institution based retrospective study was conducted among partial edentulism patients who visited Private Dental Hospital, Chennai. Data collection was obtained by reviewing 86,000 patients records between June 2019 and March 2020. The study was done in 103 patients among gender and arch by doing clinical examination for evaluating the partial edentulism of Kennedy's Class I. The data were collected and tabulated in excel sheets which were imported to SPSS version 20. Descriptive statistics and Chi-square test were used to determine the correlation between the variables. In this present study, out of 103 patients, partial edentulism of Kennedy's Class I is more common in males(56%) than females and the most common arch was found to be mandibular arch (52%). This study result concludes that there is no association between the gender and arches for patients with Kennedy's Class I partial edentulism ($p>0.05$).

Keywords: defense Gender; Innovation technique; Partial edentulous; Maxillary arch; Mandibular arch; Visualization.

INTRODUCTION

Missing teeth or edentulism is a key indicator of oral health of a population (Manimaran et al., 2017). Causes of tooth loss occur due to incidence of dental caries, periodontal disease, dental trauma, pulp, and periradicular diseases, and also various systemic diseases (Devishree, Sangeetha and Jain, 2018). In addition, tooth loss which may lead to chewing food difficulty, speech alteration, and poor aesthetics, which may give a huge impact on the quality of life. Missing teeth in the oral cavity will create a significant space in arches and are called as edentulous space. This sort of edentulous space, as mentioned earlier, is the indicator for reflection of preventive dental treatment in that particular population (Patel et al., 2014; Jeyapalan and Krishnan, 2015). Therefore, partial prosthodontics replacement is needed to restore the main function of the oral cavity. (D'Souza and Aras, 2014)

In the oral cavity, teeth are the main functional component that gives various functions such as mastication, esthetics and speech and oral health status play an important role in leading a higher quality of life (Jeyapalan, 2015). Continuous atrophy of the alveolar bone, supporting structures and the adjacent teeth. It influences rehabilitation in a partially edentulous patient. Partially edentulous patients limit dietary food which leads to weight loss, psychological dissatisfaction. Proper oral health and prevention of missing teeth will enhance the diet and nutritional status (Saleh, Tahir and Abdel-Rahman, 2013). The partial edentulism classification also makes the prediction of difficulties that may occur with a particular specific design (Prabhu et al., 2009). There are various edentulous space numbers and locations and their relation to the remaining natural teeth in order to classify the partial edentulous arches (Lone, Shah and Mir, 2019).

The goal of the classification of partial edentulous arches is to provide easy communication between all dental colleagues, students, and specialists, dental technicians regarding the case planning a suitable and good treatment plan the replacement of partial denture (Araby, Almutairy and Alotaibi, 2017). There are various

classifications to classify partially edentulous arches used by prosthodontists to communicate with each other . These Classifications are commonly used for partial edentulous arches such as Kennedy, Applegates, Avant, Skinner, Wild, Bailyn, Cummer, Neurohr. Currently, Kennedy's classification is the most accepted worldwide due to its immediate visualization and ease in differentiation (Moaleem, 2017). Pattern of tooth loss and status of socioeconomic has been correlated and indicated (Madhankumar et al., 2015).

There is literature review that reveals the posterior tooth has more tendencies to tooth loss and among all the teeth in the oral cavity, the first permanent molar was found to be the most commonly missing tooth. (Shivani Jandial, Ritesh Gupta, Satish Sharma, Nanika Mahajan, Bhanu Kotwal, Sharad Kharyal, 08-2017; Pallegedara and Ekanayake, 2005; Anand, Kamath and Nair, 2010) This is due to its early eruption stage and is mostly missing in the mandibular arch if compared to the maxillary arch with females having the more tendency for having tooth loss (AL-Dosari AM, AL-Wazan KA, AL-Garni MS, Abdulmajid, 1997). Tooth mortality information is important in different areas worldwide for evaluating the adequacy of dental care services and improving oral health status. (Al-Ansari, 2014; Moaleem and Al Moaleem, 2016) Tooth loss pattern has been determined in many countries of different populations. Several studies have been done on partial edentulism and tooth loss between geographic regions within countries and there are no specific studies to analyse the partial edentulism of Kennedy's Class I based on gender. Our department is passionate about research we have published numerous high quality articles in this domain over the past years (Kavitha et al., 2014) , (Praveen et al., 2001), (Devi and Gnanavel, 2014), (Putchala et al., 2013), (Vijayakumar et al., 2010), (Lekha et al., 2014a, 2014b) (Danda, 2010) (Danda, 2010) (Parthasarathy et al., 2016) (Gopalakannan, Senthilvelan and Ranganathan, 2012), (Rajendran et al., 2019), (Govindaraju, Neelakantan and Gutmann, 2017), (P. Neelakantan et al., 2015), (PradeepKumar et al., 2016), (Sajan et al., 2011), (Lekha et al., 2014a), (Neelakantan, Grotra and Sharma, 2013), (Patil et al., 2017), (Jeevanandan and Govindaraju, 2018), (Abdul Wahab et al., 2017), (Eapen, Baig and Avinash, 2017), (Menon et al., 2018), (Wahab et al., 2018), (Vishnu Prasad et al., 2018), (Uthrakumar et al., 2010), (Ashok, Ajith and Sivanesan, 2017), (Prasanna Neelakantan et al., 2015). Hence, this aim of this study was to analyse the partial edentulism of Kennedy's Class I classification based on gender and arch.

MATERIAL AND METHODS

Study Setting

A retrospective cross-sectional study was conducted among partially edentulous patients with Kennedy's Class I visiting Private Dental Hospital, Chennai. Ethical approval for the study was granted by the Institutional Ethical Committee, IEC approval number: SDC/SIHEC/2020/DIASDATA/0619-0320.

Study Subjects

The data were reviewed of 86,000 patient records between 01st June 2019 and 31st March 2020 based on data availability from Dental Information Archiving Software (DIAS) which 103 patients (58 males and 45 females).

Methodology

Informed consent was obtained from the participants. Clinical examinations were analyzed thoroughly and cross verified with intraoral photographs by another examiner.

Inclusion criteria

Parameters were assessed such as gender and arch

Exclusion criteria

Patients having complete edentulism, missing third molars and incomplete data

Statistical Analysis

The data were recorded and tabulated in excel sheets which were imported into SPSS Statistics software for Windows, Version 20.0. Chicago (IBM corporation) for statistical analysis. 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 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), (Jyothi et al., 2017), (Reddy, Ganapathy and Kumar, no date; Shree, Kumar and Ganapathy, no date; Subasree, Murthykumar and Dhanraj, 2016; Vijayalakshmi and Ganapathy, 2016; Ariga et al., 2018; Basha, Ganapathy and Venugopalan, 2018; Anjum, Ganapathy and Kumar, 2019; Inchara, Ganapathy and Kumar, 2019; Ramya, Pandurangan and Ganapathy, 2019; Pandurangan, Veeraiyan and Nesappan, 2020) over the past 5 years. The plan for this study stemmed from the current interest

in our community. Based on the present study, out of 103 patients of partial edentulism of Kennedy's Class I were explored, it was found that 58 were males (56.3 %) and 45 were females (43.7%) (Figure 1) which indicated that it is more common in males than females. The results of this present study, similar to the previous study of Saleh et al., (Saleh, Tahir and Abdel-Rahman, 2013) where males have a higher prevalence when compared to females. In contrast, a study was done by Araby et al. (Araby, Almutairy and Alotaibi, 2017). Tooth loss is a common problem throughout the world. It is an irreversible situation which may result in functional destruction, physical, psychological, and social issues.

In the present study, partial edentulism was more common in mandibular arch (51.5%) than maxillary arch (48.5%) (Figure 2). Similar studies were conducted by Patel et al., and Manal et al., found that the most common arch was mandibular arch (51.3%). The disparity with previous studies of Madhankumar et al., Sharma et al., where the most affected arch was a higher prevalence in maxillary arch (54.4 %) when compared to the mandibular arch (47.2%) (Madhankumar et al., 2015; Sharma, 2019). The results of this present study, showed that there is no significant association between the gender and arches ($p > 0.05$) (Figure 3). Certain literature reviews reveal that missing teeth may differ in different arches, where the maxillary arch have more edentulous space compound to the mandibular arch, and there is also an establishment between the correlation of the tooth loss pattern and socioeconomic status (Patel et al., 2014).

The limitation of the present study is limited sample size. It is a single centered study and it does not include other ethnic populations. In the future, the present study can be a plan in better scope with a bigger sample size and involving all dental centers in the region. Further studies will aid in the forethought of the need of the community regarding prosthesis and assist in evolving preventive programs to avoid losing their teeth.

CONCLUSION

Within the limits of this study, the study showed that Class I Kennedy's classification of partial edentulism was more common in males than females and most commonly present in the mandibular arch. There are various factors that contributed to the findings such as different levels of education and socioeconomic status.

Authors Contributions

All authors contributed equally for the study.

Conflict of Interest

There is no conflict of interest.

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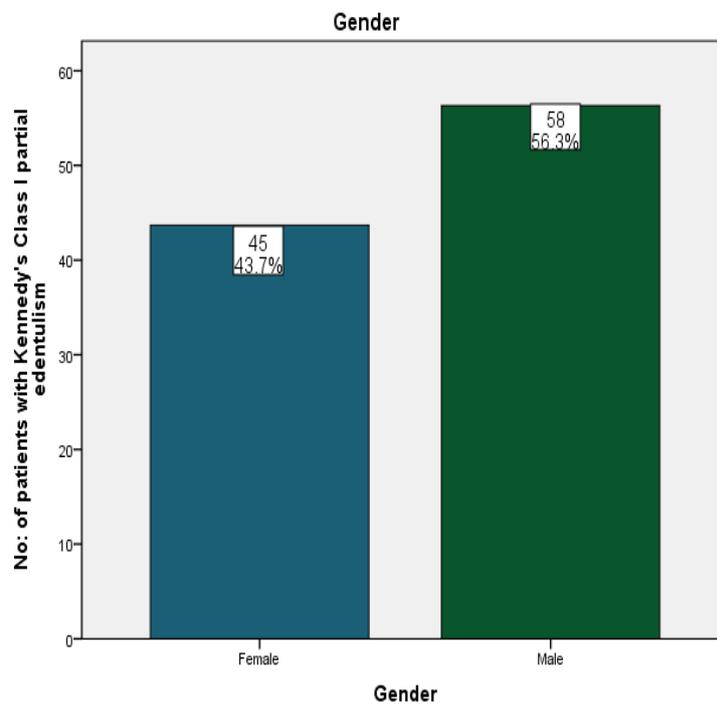


Fig.1: Bar chart showing the gender wise distribution of patients with Kennedy's Class I partial edentulism. X-axis denotes the gender of the patients and Y-axis denotes the number of patients reported with Kennedy's Class I partial edentulism. From the graph we can understand that the most common gender affected were males (green colour).

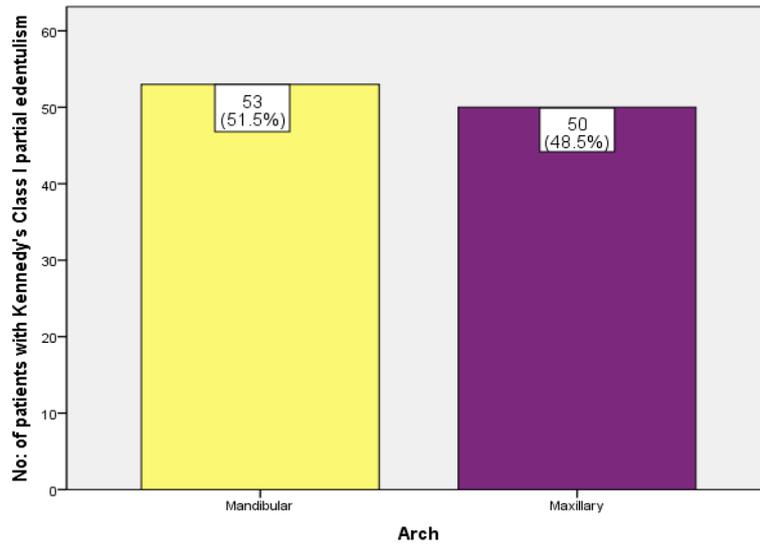


Fig.2: Bar chart showing the distribution of patients reported with Kennedy's Class I partial edentulism based on arch. X-axis denotes the different arches and Y-axis denotes the number of patients reported with Kennedy's Class I partial edentulism. Kennedy's Class I partial edentulism was more common in mandibular arch (yellow color).

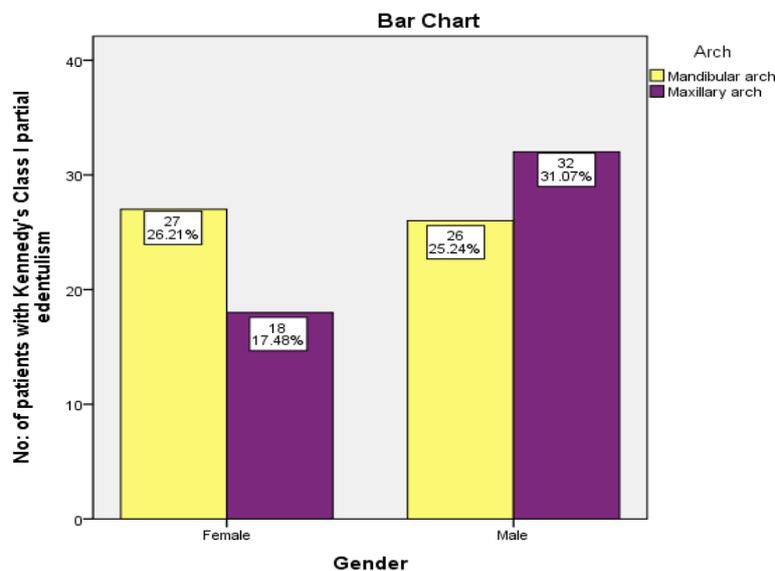


Fig.3: Bar chart depicting the association of the gender and different arch for patients with Kennedy's Class I partial edentulism. X-axis represents the gender and Y-axis represents the number of patients with Kennedy's Class I partial edentulism. From the graph we can conclude that in males, maxillary arch (purple colour) is more common meanwhile in females, mandibular arch (yellow colour) is more common, however it is statistically not significant. (Chi-Square test, p value=0.126, P>0.05, which is statistically not significant).