



## Prevalence of Partial Edentulism in Patients Visiting a University Dental Hospital

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### ABSTRACT

Oral health status of a population depends on edentulism (partial). Tooth loss has an impact in various aspects of quality of life of an individual. The prevalence and extent have been reduced in various countries because of advancing technologies. Various different classifications have been proposed in the previous literature for partial edentulism. This cross-sectional descriptive study was conducted from the period of June 2019 to April 2020 between the age group 25-40 years for the population visiting a private dental college. Data collection was done and statistically analyzed using SPSS Software. Out of the 4829 population included in the study, 42.4 % were female and 57.6% of the males. Based on the age, 50.3% were within 25-30years, 25.1% of them were 31-35 years and 24.6% of them between 36-40 years. Based on gender, Females were 42.3% and males were 57.6%. There was a significant association between the age, gender and missing tooth. It can be concluded that the prevalence of edentulism increases with age, thereby needing prosthodontic rehabilitation.



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### INTRODUCTION

Loss of one or more teeth but not all-natural teeth is a condition called partial edentulous. According to WHO, Indicator of the oral health status of a population is by partial edentulism. One of the major issues concerning the quality of life is oral health (Shah *et al.*, 2012). Factors which can be affected due

to poor oral hygiene are nutritional status, phonetics, psychology and general health (Zaigham and Muneer, 2010). Various microorganisms also play a vital role in oral hygiene maintenance (Selvan and Ganapathy, 2016). Proper planning of dental services can be done by having updated knowledge about the various patterns of partial edentulism (Jeyapalan and Krishnan, 2015).

Lifestyle compromises and clinical challenges can happen to an individual with partial edentulism. Clinical charges include- drifting and rotation of adjacent teeth (Ashok *et al.*, 2014), supra-eruption of opposing teeth, altered facial appearance (Muneeb *et al.*, 2013), masticatory problem and TMJ disorder (Abdel-Rahman *et al.*, 2013). Further losses can also affect the success rate of the restoration in partially edentulism patients (Fure and Zickert, 1990; Hunt *et al.*, 1985). (Mundt *et al.*, 2011) reported that attitude and needs towards dental care have an influence on the use of care.

Fatalistic attitudes given by older people made them less likely to succeed in prosthetic management (Jaleel *et al.*, 2014).

A study conducted by Bruce observed tooth loss in all ages, mainly due to two reasons- dental caries and periodontal disease (Ganapathy *et al.*, 2016). Improvement in oral health can be seen only when there comes a decrease in the edentulousness (Ariga *et al.*, 2018). Also indicates a successful sign of an increase in preventive measures. A decrease in the number of edentulousness can be expected due to the increase in recent technologies (Duraismy *et al.*, 2019; Ganapathy *et al.*, 2017). More than 70,000 combinations of edentulism can be observed in both maxillary and mandibular arches (Ashok and Suvitha, 2016; Jain *et al.*, 2017). Therefore it is important to classify them for ease of communication between the dental professionals for a greater success of the treatment.

Numerous classifications (Pellizzer *et al.*, 2012) have been proposed for partial edentulism in the previous literature. Most commonly used in Kennedy's classification for partial edentulism (Al-Dwairi, 2006; Curtis *et al.*, 1992), an ideal classification includes complete clinical aspects of the case. Disadvantages of Kennedy's classification are no consideration about the abutment condition, occlusion required for treatment planning (Ghulam *et al.*, 2016). The new ACP-PDI classification has rectified all those disadvantages. It aids in better diagnosis and treatment planning of the cases (Subasree *et al.*, 2016).

## MATERIALS AND METHODS

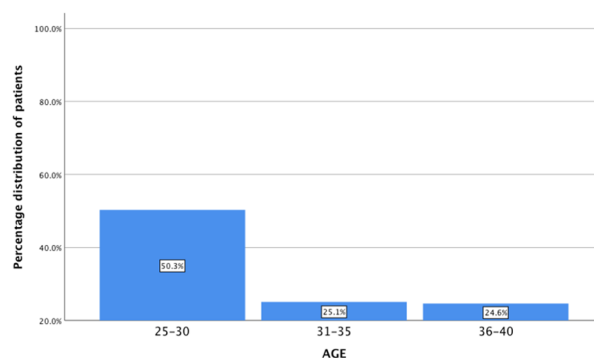
The baseline study population was 4827 case records of patients aged between 25-40 years who visited Saveetha dental college from the period of June 2019 - April 2020. The study setting was the University setting. This retrospective study was approved by the following ethical approval number of the university, SDC/SIHEC/2020/DIASDATA/0619-0320. Type III examination procedure was adopted and 4827 case sheets were reviewed. Cross verification of data for error identification was done. The simple random technique followed to minimize sampling bias. Internal validity taken were non-probability inclusion of all subjects and External validity were Homogenization, replication and cross-comparison.

Data collection was done through Dental Information Archiving Software. Missing teeth were recorded as follows: if one missing then score 1 was given, 2-4 tooth missing score 2, 5-7 missing score 3, 8-10 missing score 4, if greater than 10 missing

then score 5. Age groups were taken in the range of 25-30 years, 31-35 years and 36-40 years, respectively. Data entered in Microsoft Excel sheet and then imported to SPSS software. Variable definition process was done using a table and graphical illustrations. Descriptive statistics tests and Inferential statistics were used. IBM SPSS version 20.0 statistical software used. Dependent variables taken were Missing tooth, Number. Independent variables were Age and Gender. The data then transferred to a host computer and processed for further analysis.

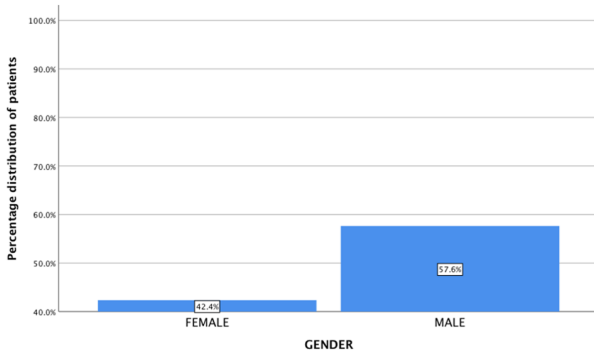
## RESULTS AND DISCUSSION

Based on the age, 50.3%(2427) of them belonged to 25-30 years, 25.1%(1211) of them were 31-35 years and 24.6%(1189) of them between 36-40 years. The X-Axis represents the age group distribution of patients and the Y-axis represents the percentage distribution of patients (Figure 1). Based on gender, Females were 2044(42.3%) and Males-2782(57.6%). The X-Axis represents the gender group distribution of patients and the Y-axis represents the percentage distribution of patients (Figure 2). 20.9% of them had no missing teeth, 46.4% of them had 2 to 4 missing teeth, 18.3% of the 5 to 7 missing teeth and 9.6% of the 8 to 10 teeth missing and 4.7% of them greater than 10 teeth missing. The X-Axis represents the missing teeth distributions of patients and the Y-axis represents the percentage distribution of patients (Figure 3). Within 25 to 30 years of age, 39.08%(948) of them were females and 60.92% (1478) of the males. Between 31-35 years of age, 44.18%(535) were females, 55.82% (676) were males. From 36-40 years, 47.18% (561) were females and 52.82% (628) were males. The X-Axis represents the gender and age group distribution of patients and the Y-axis represents the number of patients (Figure 4).

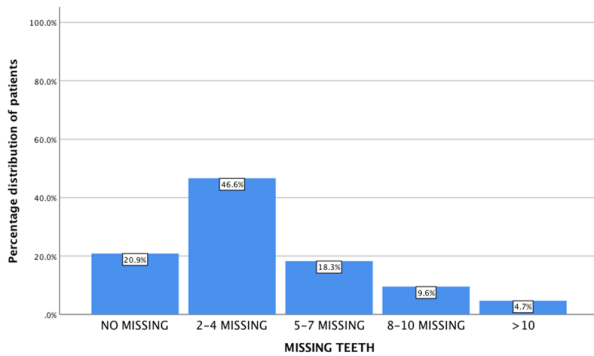


**Figure 1: Bar diagram represents percentage distribution based on the age of patients.**

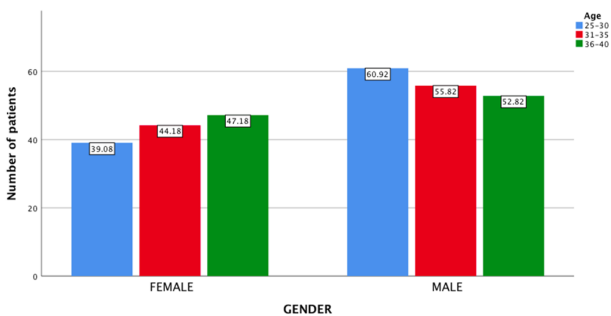
0.70% of the patients had 10 teeth missing in the age group of 25-30 years. In the age group of 31-35



**Figure 2:** Bar diagram represents the percentage distribution based on the gender of patients.

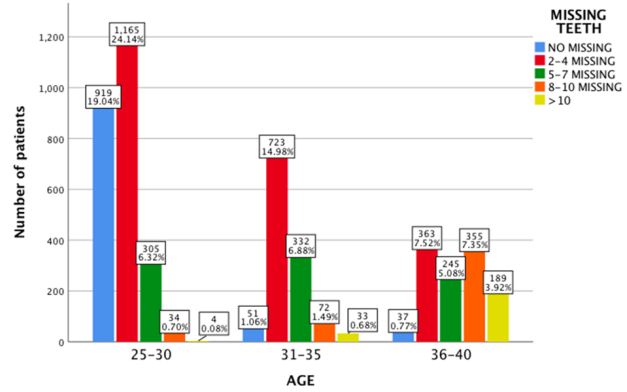


**Figure 3:** Bar diagram represents the percentage distribution of missing teeth of the patients.

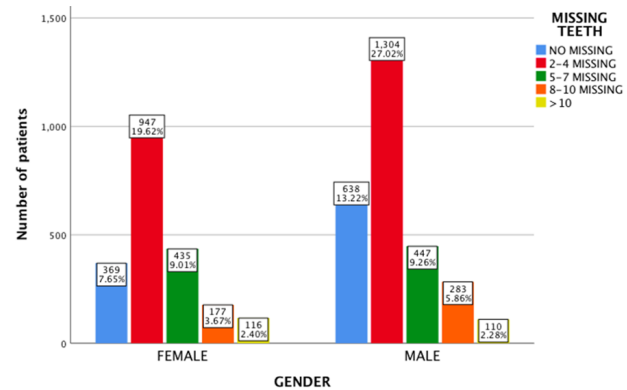


**Figure 4:** Bar diagram depicting the gender and age group distribution of the patients.

years, 1.06% of them had no missing with 0.68% of them greater than 10 teeth missing, 14.98% of them had 2-4 teeth missing, 6.88% of the 5-7 teeth missing and 1.49% of the 8-10 teeth missing. Between the age group of 36-40 years, 0.77% of them had no missing, 7.52% had 2-4 teeth missing, 5.08% of them had 5-7 teeth missing, with 7.35% of the population 8-10 teeth missing and 3.92% of them greater than 10 teeth missing. The association between age and missing teeth was statistically significant [(Pearson Chi-square Test  $p=0.00$ ),  $p<0.05$ ]. The X-Axis represents the age of patients and the Y-axis



**Figure 5:** Bar diagram depicting the association between the age of patients and missing teeth of patients.



**Figure 6:** Bar diagram depicting the association between the gender and missing teeth distribution of patients.

represents the number of patients. (Figure 5)

7.65% of the females had no missing teeth, 19.62% of them had 2-4 teeth missing, 9.01% of them had 5-7 teeth missing, 3.67% of the 8-10 teeth missing and 2.4% of them greater than 10 teeth missing. 13.22% of the males had no missing, 27.2% of them had 2-4 teeth missing, 9.26% of them had 5-7 teeth missing, 5.86% of the 8-10 teeth missing and 2.28% of them were greater than 10 teeth missing. Male patients were more partially edentulous compared to the females with a statistically significant difference. (Pearson chi-square test  $p=0.01$ ,  $p<0.05$ ). The X-Axis represents the gender of patients and the Y-axis represents the number of patients. (Figure 6)

In this study, reported cases have a predominance of male (57.6%) not correlating with studies done by Arati Sharma (Sharma, 2019) in which female predominance was reported. A significant correlation was found between gender and edentulism in the current study, which was also seen in few other studies but few others reported no correlation between the both (Ajay et al., 2017).

Major physical and psychological health problems

are faced by many of the countries due to the loss of teeth (D'Souza and Aras, 2014), it is also observed that there has been a significant impact in overall quality of life (Johnson *et al.*, 2006). Various studies have shown tooth loss has been an impact in esthetic function, psychological and social impact of well being (Basha *et al.*, 2018; Venugopalan *et al.*, 2014).

The two main determinants (Shamdol *et al.*, 2008; Teófilo and Leles, 2007) for the high occurrence of tooth loss are dental caries and periodontal destruction (Jyothi *et al.*, 2017). Many have reported negligence as also a factor for edentulism. Several studies concluded age is strongly associated with missing (Vijayalakshmi and Ganapathy, 2016). The combined effects of dental caries and periodontal destruction associated with the treatment needs have been increased with age (Kannan and Venugopalan, 2018).

Many studies have not shown a significant correlation between age and edentulism, which is in contrary to one study. In the present study, as age increases, the number of edentulism also increases. Another significant correlation was found between the gender and the edentulism, which in correlation with studies done by (Suominen-Taipale *et al.*, 1999).

## CONCLUSION

From the findings of the present study, it can be concluded that significant association was found between the age, gender and partial edentulism. Male predominance with 36-40 years of age more commonly involved partial edentulism. As age increases the partial edentulism also increases. Increased need for prosthodontic rehabilitation, increased awareness and adequate dental education regarding oral hygiene and also need for replacement of edentulousness must be created among the population.

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## Conflict of Interest

The authors declare that they have no conflict of interest for this study.

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