



## Preference of patient opting for implant vs FPD

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### ABSTRACT

Managing the demand, prevalence, and the design of partial tooth loss is imperative to recognize the prosthetic necessities of the patients. A factor that may affect prosthodontic work is the patients' awareness of the most advanced technologies in aesthetic dentistry. The choice of prosthetic replacement is largely defined by the patient's choice and budgetary status, accessible technology and expertise, as well as the number of missing teeth. The aim of this study was to identify the preference of treatment choice from implant and FPD for the patients treated at a private dental hospital. The sample size consisted of 1122 patients who had FPDs or implants. The case sheets of patients were obtained from the patient record system. The data of each patient was obtained and tabulated. In our study, 54.46 % of patients were male, 45.45 % of patients were female, and 0.09 % belonged to the transgender population. 3.21 % patients belong to the age group of less than 20 years, 54.06 % patients in the age group 21-40 years, 35.5 % patients in the age group 41-60 years and 7.2 % patients in the age group above 60 years. The overall FPD were 809 across all age groups with the maximum in the age group 21-40 years (40.59%). Overall implants were 312 across all age groups with the maximum at 21-40 years (13.47%). It was concluded that there is a significant difference in the preference of patients opting for implant vs FPD, in which FPD was highly opted by the patients. Although removable partial dentures extended to play a significant role in prosthetic teeth replacement, the use of FPDs and dental implants showed an increase in number.

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### INTRODUCTION

Managing the demand, prevalence, and the design of partial tooth loss is imperative to recognize the prosthetic necessities of the patients. A factor that may affect prosthodontic work is the patients' awareness of the most advanced technologies in aesthetic dentistry (Salinas *et al.*, 2004). People now favour preserving natural teeth, which may forecast a drop in the number of complete dentures with a rise in the number of fixed partial dentures (FPD) (Bhat *et al.*, 2019). The complete replacement has moved to partial tooth replacement. In the past, the choices

for replacing missing teeth were restricted to only removable dentures and restricted types of fixed partial dentures (Elagra *et al.*, 2019).

Nowadays, there are more treatment modalities and supplies available for the replacement of missing teeth. Newer modalities ensure the prevention of residual ridge resorption. Each modality can work as a potential advantage and provides several benefits and limitations (Zavanelli *et al.*, 2018). The utilization of dental implants for the replacement of missing teeth has been enhanced by the concept of osseointegration has been recognized and taken (Chowdhary *et al.*, 2010) Novel promotion about the benefits of implant dentistry has produced significant interest amongst dental professionals and the public (Henry, 2005).

The report on dental implants suggests that the majority of patients treated with implant-supported prosthesis have reported improvement in their quality of life and self-confidence, along with psychological benefits (Lindh *et al.*, 1998). Furthermore, the awareness of good general health, dental health, and nutrition has led to the longevity of life of humans. Thus, there lies a need to replace the missing teeth with a focus on function as well as esthetics. Although the missing teeth can be replaced by a removable and fixed prosthesis, there are a few disadvantages with both (Kohli *et al.*, 2014). Furthermore, the rate of acceptance of removable prosthesis is minimal in both the young as well as the older individuals, and fixed prosthesis requires the sacrifice of the adjacent teeth to be replaced (Khosya and Devaraj, 2015).

Largest of the investigations on the awareness of dental implants in various parts of India and other countries recommend the use of dental implants in the restoration of partially edentulous and completely edentulous patients in urban cities and among the upper-middle class, wealthy, and trained people (Satpathy *et al.*, 2011; Awooda *et al.*, 2014). As implant therapy is an elective procedure in most of the patient cases complete information on implant treatment and alternative treatments must be provided to guide the patient in the choice of the most appropriate option (Saha *et al.*, 2013). However, little information is available to the patients concerning the procedure and its benefit. This problem is more magnified in developing countries where there is a lack of knowledge and awareness amongst people about dental implants as a dental treatment modality. Dentists signified the main root of information concerning dental implant therapy modality accompanied by friends and electronic media (Ganapathy *et al.*, 2017; Kannan and Venu-

gopalan, 2018).

(Duraishamy *et al.*, 2019; Ganapathy *et al.*, 2016) Previously our team had conducted numerous studies which include in vitro studies (Ajay *et al.*, 2017), clinical trials (Ranganathan *et al.*, 2017; Ashok *et al.*, 2014; Venugopalan *et al.*, 2014), a systematic review (Vijayalakshmi and Ganapathy, 2016) and epidemiological surveys (Ashok and Suvitha, 2016) and hence the aim of this study was to identify the preference of treatment choice from the implant and FPD (Basha *et al.*, 2018) among patients in Saveetha Dental College and Hospitals. (Ariga *et al.*, 2018; Selvan and Ganapathy, 2016; Subasree *et al.*, 2016)

## MATERIALS AND METHODS

The present retrospective study was carried out in the Department of Prosthodontics of Saveetha Dental College and Hospital, Chennai, Tamil Nadu. The study was carried out in a university setting. The advantage of using a university setting is that data is readily available, and patients are of similar ethnicity. The disadvantage of this type of setting is that it covers a specific geographic area and trends in other locations are not assessed. Ethical approval was obtained from the Institutional Ethical Committee-SDC/SIHEC/2020/DIASDATA/0619-0320. A non-probability sampling of the available data was done. A total of 86000 patients had reported to the hospital in the time frame between June 2019 and April 2020, out of which 1122 patients had undergone fixed replacement procedures. The case sheets of the patients who had visited the institution were reviewed and the dental data regarding the patient's history or chief complaint regarding the replacement of missing teeth were retrieved. The data was cross-checked and verified by an examiner to avoid any missing records. Inclusion criteria included all the patients with FPDs and implants.

Data collection was carried out using dental archives obtained from the patient management software. It included various parameters such as age, gender, fixed partial denture and implant prosthesis. Cross verification of all the diagnosis reports, intraoral pictures and dental case records were done.

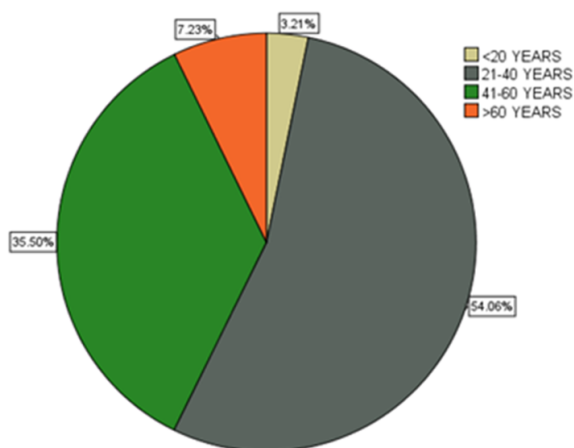
### Statistical Analysis

The data was imported to SPSS software developed by IBM for statistical analysis. Frequency, percentage of parameters was employed in the analysis. Chi square test was used to detect the

significance between gender, age, implant and FPDs placed, a p-value less than 0.05 was considered statistically significant.

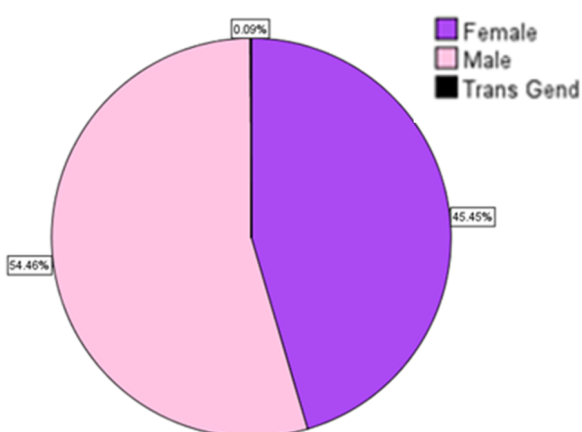
## RESULTS AND DISCUSSION

In this study, we conclude that there is a significant difference in the preference of patients opting for implant vs fixed partial denture (FPD), in which FPD was highly opted by the patients. A total of 809 FPDs and 312 implants have been placed from June 2019 to April 2020.



Graph 1: Frequency distribution of age groups of patients with Fixed dental prosthesis and Implant prosthesis.

Graph 1 shows Brown color denotes patients in the age group of less than 20 years, Grey color denotes patients in the age group of 21-40 years, green color denotes patients in the age group 41-60 years, and orange color denotes patients in the age group above 60 years.

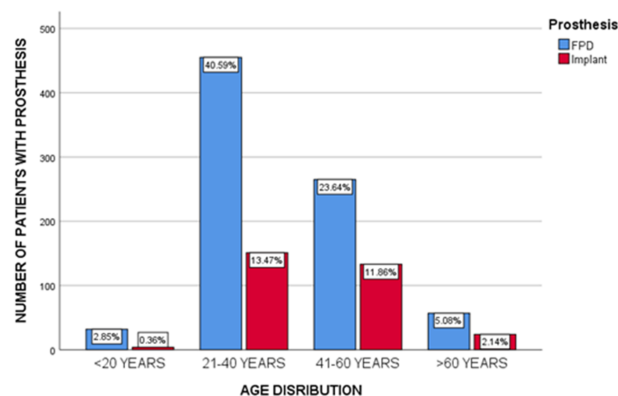


Graph 2: Frequency distribution of gender of the patients with Fixed dental prosthesis and Implant prosthesis.

Of the overall 1122 patients, 3.21 % patients belong to the age group of less than 20 years, 54.06 %

patients in the age group 21-40 years, 35.5 % patients in the age group 41-60 years and 7.2 % patients in the age group above 60 years. The frequency distribution of age groups of patients with Fixed dental prosthesis and Implant prosthesis. Of the overall 1122 patients, 3.21 % patients belong to the age group of less than 20 years, 54.06 % patients in the age group 21-40 years, 35.5 % patients in the age group 41-60 years and 7.2 % patients in the age group above 60 years.

Graph 2 shows Pink colour denotes patients in the male population, purple colour denotes patients in the female population, and black denotes patients in the transgender population. Of the overall 1122 patients, 54.46 % of patients were male, 45.45 % of patients were female, and 0.09 % belonged to the transgender population. The frequency distribution of gender of the patients with Fixed dental prosthesis and Implant prosthesis. Of the overall 1122 patients, 54.46 % of patients were male, 45.45 % of patients were female, and 0.09 % belonged to the transgender population.



Graph 3: Bar chart showing a comparison of age and number of patients with prosthesis.

Table 1 and Graph 3 shows a comparison of age and prosthesis; Overall FPD were 809 across all age groups with the maximum in the age group 21-40 years (40.59%). Overall implants were 312 across all age groups with the maximum at 21-40 years (13.47%). This graph represents the association between age and number of patients with a prosthesis where blue denotes Fixed Dental Prosthesis (FPD), and red denotes implant prosthesis.

The X-axis represents the age distribution, and the Y-axis represents the number of patients with prosthesis. In all the age groups, FPD was the most commonly used and implant was the least used prosthesis. (Pearson Chi-Square Value-13.885, p-value-0.003, <0.05) Chi-square test was used p<0.003, association between the two parameters age group

**Table 1: Comparison of age groups and the number of patients with prosthesis**

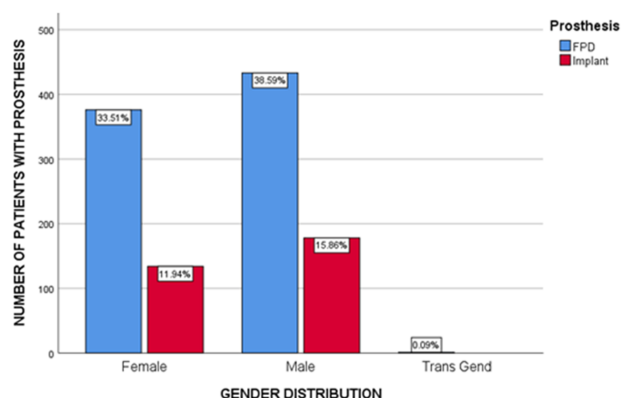
Age Groups	Prosthesis			Chi Square Value	P Value
	FPD	Implant	Total		
< 20 Years	32	4	36	13.885	0.003
21-40 Years	455	151	606		
41-60 Years	266	133	399		
> 60 Years	57	24	81		
Total	810	312	1122		

Chi square test used, p-value <0.05, hence statistically significant

**Table 2: Comparison of gender and number of patients with prosthesis**

Gender	Prosthesis			Chi Square Value	P Value
	FPD	Implant	Total		
Male	376	134	510	1.517	0.468
Female	433	178	611		
Transgender	1	0	1		
Total	810	312	1122		

Chi square test used, p-value >0.05, hence not statistically significant



Graph 4: Bar chart showing a comparison of gender and number of patients with prosthesis

and number of patients with prosthesis were statistically significant.

Table 2 and Graph 4 shows a comparison of gender and prosthesis; the male population have replaced a maximum of their teeth with FPD and implants (38.59% and 15.86% respectively) in comparison with the female population. This graph represents the association between gender and number of patients with a prosthesis where blue denotes Fixed Dental Prosthesis (FPD), and red denotes implant prosthesis. The X-axis represents the gender distribution, and the Y-axis represents the number of patients with prosthesis. In both male and female population, FPD was the most commonly used and

implant was the least used prosthesis. There is no significant difference between the male and female population. However this is not statistically significant (Pearson Chi-Square Value-1.517, p-value-0.468, >0.05)

The reformation in dentistry is a perpetual manner. Because the circumstances influencing prosthetic reconstruction can vary from one time to another and from one area to another, it was essential to examine the course in prosthetic replacement in our area, and connect it globally and try to review the factors that might influence the drift.

The bulk of the patients were males, the majority of the patients in our sample were from the middle age group, which was again compatible with a study by Al-Quran *et al.* (2011). Whereas the majority of the population was from the young adult group in a study conducted by Ogunrinde *et al.* (2015).

In the study by Bhat *et al.* (2019) 93.4% of patients had understood about dental implants, the majority of them between the age group of 26-45 years this could be associated with increased interest and awareness of progression in dental technology among the more youthful generation (Shinawi, 2012). Thus, the age and level of education have affected the findings of this investigation.

Lower posterior teeth were the most frequently replaced teeth; this finding was in compliance with several previous studies, most of which indicated



that caries was the one among the reasons for the loss of the mandibular posterior teeth. However, a study in the Ibadan population found that posterior mandibular teeth are the most preserved teeth in their population (Sayegh *et al.*, 2004).

Periodontal disease, if not treated, causes irreversible results such as insertion and bone loss. According to Kourkouta *et al.* (2007) in patients with a notable loss of periodontal support, it is better to opt for rehabilitation with fixed than a removable prosthesis. Besides, the fixed restorations provide more ease and protection, especially in cases in which there was periodontal involvement. According to literature Karoussis *et al.* (2003), results indicate periodontal involvement as one of the main biological failures. The prostheses limit the natural stimulation of supporting structures, thus adding to the accumulation of dental plaque. This plaque accumulation, gingival inflammation, insertion, loss, periodontal pockets, and bone loss are possible sequelae in prostheses users (Alfredo *et al.*, 2004)

Our study has limitations that must be taken into account for an adequate understanding of its results, such as geographic limitation, confounding factors. It does not represent all ethnic groups or populations from around the world.

Future Scope of the study includes extensive research to be done in diverse populations which can help in further diagnosis and treatment planning.

## CONCLUSION

Within the limitations of the study, it was concluded that there is a significant difference in the preference of patients opting for implant vs FPD, in which FPD was highly opted by the patients. Although removable partial dentures continued to play a significant role in prosthetic teeth replacement, the use of FPDs and dental implants showed an increase in number.

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## Conflict of Interest

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

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