



Preference of Fixed partial denture in aesthetic anterior vs functional posterior regions of patients.

Ahmed Hilal Sheriff¹, Rakshagan V^{2*}

¹Research Associate, Saveetha Dental College and Hospitals, Saveetha Institute of Medical and Technical Science, Saveetha University, Chennai 77

Email: 151501076.sdc@saveetha.com

²Senior Lecturer, Department of Prosthodontics, Saveetha Dental College and Hospitals, Saveetha Institute of Medical and Technical Science, Saveetha University, Chennai 77

Email: rakshagan.sdc@saveetha.com

ABSTRACT

The fixed partial denture has been regarded as the standard of replacement of single or multiple missing teeth over the years. Esthetic and functional replacement of the missing anterior teeth plays a major role and is quite challenging. Most common cause of missing anterior teeth is due trauma. Failure to replace a missing posterior tooth may result in disruption of the occlusion and making it difficult to replace in the future as the adjacent tooth might tilt or extrusion of the opposing teeth may occur. This was a retrospective study which was performed in a university setting where the required data of patients treated for fixed partial denture patients in the department of prosthodontics at a private teaching hospital, Chennai from June 2019 to March 2020, was collected by reviewing patients records and the analysis of data of 86000 patients. The collected data was cross verified using photographs, reviewed by a reviewing expert and tabulated in Microsoft excel . The Sample size of the study included n=809 fixed partial dentures fabricated for 632 patients which included 343 male patients and 289 female patients with a mean age of 38.41 ± 12.5 . The number of fixed partial dentures fabricated in the anterior region n=391, posterior region n=418. The tabulated data was imported to SPSS software (statistical package for social studies) version 22.0 (IBM corporation) for statistical analysis . To minimize sampling bias, collection of data was done by simple random sampling methods within the university. There is high internal validity and low external validity. Incomplete , censored and repeated data were excluded from the study. Total number of patients involved in this study included 632 patients of which 343 male patients and 289 female patients with a mean age of 38.41 ± 12.5 . The total number of fixed partial dentures fabricated for 632 patients were n=809 of which 48.3% of the fixed partial dentures were fabricated for the anterior region while 51.7% were fabricated for the posterior region. Association between gender and age with site of fixed partial denture showed statistical significance with males commonly treated for anterior fixed partial denture and females mostly for posterior region, while with regard to age the fixed partial denture was mostly fabricated among the age group of 31 to 50 years old patients. From this study it can be observed that most of the patients were treated for fixed partial denture in the posterior region (n=418) than anterior region.

ARTICLE HISTORY

Received October 11, 2020

Accepted November 05, 2020

Published December 09, 2020

KEYWORDS

Anterior, extrusion, fixed partial denture, implant

* **Contact:** Rakshagan V, Senior Lecturer, Department of Prosthodontics, Saveetha Dental College and Hospitals, Saveetha Institute of Medical and Technical Science, Saveetha University, Chennai 77

rakshagan.sdc@saveetha.com

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INTRODUCTION

The possible course of action to replace a single missing tooth can be based on the primary decision that the restorability of the tooth is in doubt. Many teeth are affected by incipient or recurrent caries, trauma, endodontic complications of periodontal diseases that leads to extraction.[1–3] Loss of teeth is not just a physiological problem but also a problem that affects the patient psychologically. It is considered an upsetting experience or a serious event in the life of a person.[4–6] Extraction of one or more teeth greatly affects the person physically, socially, emotionally, and psychologically. [7–9]

The fixed partial denture has been regarded as the standard of replacement of single or multiple missing teeth. However, due to endodontic, periodontal and structural complication, a significant reduction in the amount of tooth structure is necessary to gain better functional and aesthetic results for Fixed partial denture. General indications for an Fixed partial denture would be considerations for replacement of single or multiple missing teeth by support of abutment teeth with greater or equal root surface area.[10–12] The aesthetic and functional restoration of a missing anterior tooth is one of the greatest challenges faced by the dentists. Loss of anterior teeth significantly affects the social integration for the patient. Loss of anterior teeth can happen due to various reasons like trauma, periodontal disease, dental caries, and persisting oral habits. A well designed prosthesis can completely restore the aesthetic, functional and phonetics. It is a complex procedure to replace a missing anterior tooth, especially incisors, as they have an important role in discluding the posterior teeth in eccentric movements.[13–16]

Failure to replace a missing posterior teeth may disrupt the balance of the stomatognathic system and may lead to a series of consequences.[17–20] The consequences are more likely to be extrusion of the opposing tooth, tilting of the adjacent teeth and disturbances in the periodontal tissue may lead to loss of remaining teeth. These consequences may complicate the restoration of the missing tooth greatly. The opposing adjacent teeth may require orthodontic treatment/ endodontic treatment prior to the replacement in tooth structure leading negative effects on pulpal health of the abutment teeth and retention of the prosthesis.

Previously we have focused our research on various invitro and invivo studies [21–36] We have currently shifted our focus to this retrospective analysis. The aim of this study was to evaluate the preference of Fixed partial denture in aesthetics anterior and functional posterior regions of patients in saveetha dental college.

MATERIALS AND METHODS

This was a retrospective study which was performed in a university setting where the required data of patients treated for fixed partial denture patients in the department of prosthodontics at a private teaching hospital, Chennai from June 2019 to March 2020, was collected by reviewing patients records and the analysis of data of 86000 patients. The collected data was cross verified using photographs, reviewed by a reviewing expert and tabulated in Microsoft excel. The Sample size of the study included n=809 fixed partial dentures fabricated for 632 patients which included 343 male patients and 289 female patients with a mean age of 38.41 ± 12.5 . The number of fixed partial dentures fabricated in the anterior region n=391, posterior region n=418. The tabulated data was imported to SPSS software (statistical package for social studies) version 22.0 (IBM corporation) for statistical analysis. To minimize sampling bias, collection of data was done by simple random sampling methods within the university. There is high internal validity and low external validity. Incomplete, censored and repeated data were excluded from the study.

RESULTS AND DISCUSSION

Total number of patients involved in this study included 632 patients of which 343 male patients and 289 female patients with a mean age of 38.41 ± 12.5 . The total number of fixed partial dentures fabricated for 632 patients were n=809 of which 48.3% of the fixed partial dentures were fabricated for the anterior region while 51.7% were fabricated for the posterior region. Association between gender and age with site of fixed partial denture showed statistical significance with males(29.91%) commonly treated for anterior fixed partial denture and females(28.18%) mostly for posterior region, while with regard to age the fixed partial denture was mostly fabricated among the age group of 31 to 40 years old patients in which posterior Fixed partial denture(27.81%) was more than anterior Fixed partial denture(22.13%).

There are numerous treatment options for the aesthetic replacement of a missing anterior tooth that can be either implant supported single crown, fixed partial denture or removable partial denture.[37,38] Implant supported prosthesis can be contraindicated due to anatomical variations. When a maxillary anterior tooth must be extracted or replaced, the time between the extraction and healing after loss of tooth in the anterior zone can be aesthetically and physically devastating for the patient. Most of the replacement treatment approaches are performed only after the complete healing. Therefore in cases of immediate tooth

replacement it can be done using ovate pontic or a provisional bridge is a good option.[39–44]

The replacement of posterior teeth plays a vital role in maintaining occlusion and harmony in the role in maintaining oral cavity. The most common reason for an extraction of a posterior tooth includes periodontal disease or due to tooth decay.

From this study, it is seen that anterior fixed partial dentures which were fabricated consisted of 48.33% for male and female patients from which we can infer that the rate of anterior tooth replacement was comparatively lower than the rate of posterior teeth replacement(51.67%) as seen in Figure 3. These results coincide with a study done by Singh et. al[45], suggested that the patients were treated mostly for posterior teeth than anterior teeth.

It is observed from Figure 1 that there was a higher rate of male patients in case of anterior fixed partial denture(29.9%) compared to female patients while female patients had a higher rate of posterior fixed partial denture(28.18%) when compared to males. These results contraindicated with studies done by Ogunride et al.[46], and Enabulele and Omo et al.[47], in which they stated that females tend to be more particular and apprehensive about their appearances and may tend to demand fixed dental prosthesis treatment; female patients had a higher rate of anterior Fixed partial denture.

From this study it has been observed that the age group 31-50years had the most number of fixed partial dentures as seen in Figure 2, in which posterior fixed partial denture consisted of 27.81% while anterior fixed partial denture was 22.13%. Older people were treated with more anterior fixed partial dentures when compared to young adults (<30) and this was true in case of posterior fixed partial dentures also. These results were statistically significant, although they did not coincide with the study done by Enabulele et al.,[47]. This may be because in his study the parameter for this association was fixed prosthesis that consisted of implant therapy as well, with regard to our study it was isolated to fixed partial denture.

The study was geographically limited and predominantly consisted of the South Indian population. Data which were unclear were excluded thereby reducing the sample size. Within the limit of the study, it was found that most of the patients were treated for posterior fixed partial denture, To ascertain the results of this study and to increase the level of significance, the sample size and the geographic area of coverage should be extended to at least most parts of South India. Conducting a multicentered study with extended geographic area and wide range of population in future we can obtain better results.

CONCLUSION

From this study it can be observed that most of the patients were treated for fixed partial denture in the posterior region (418 patients) than anterior region and with regard to gender males were commonly treated for anterior fixed partial denture and females were commonly treated for posterior fixed partial denture. As a whole the fixed partial denture was fabricated mostly for the age group 31 to 50 years old in which posterior region was the most commonly treated.

AUTHOR CONTRIBUTIONS

Ahmed Hilal Sheriff K: Data collection, Data analysis and interpretation, Drafting the article

Dr. Rakshagan V: Critical revision of the article and final drafting of the article to be published.

CONFLICT OF INTEREST

The authors declare no conflict of interest

FUNDING

Self

ETHICAL CLEARANCE

It is taken from "Saveetha Institute Human Ethical Committee" (Ethical Approval Number-SDC/SIHEC/2020/DIASDATA/0619-0320)

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TABLES AND GRAPHS

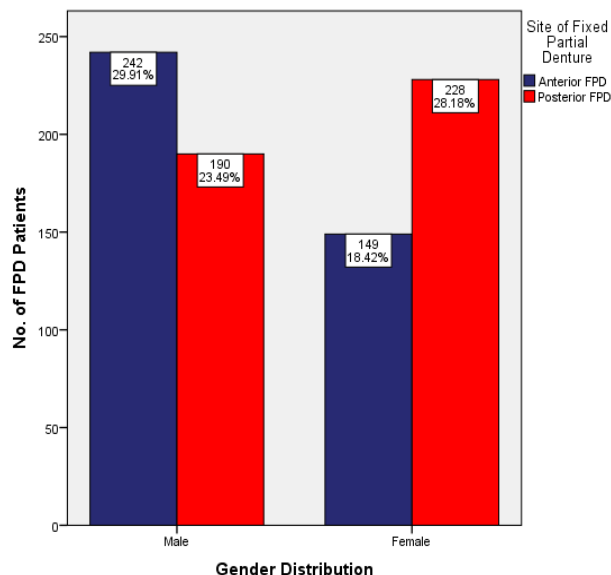


Figure 1: Bar graph showing the association between gender and different sites of fixed partial dentures, X axis represents the gender distribution and Y axis represents the number of patients with different sites of fixed partial dentures. Chi-square test was done and was found to be statistically not significant [chi square value - 21.937; p value (<0.05)]. Anterior Fixed partial dentures (Blue) were more common in male (29.91%) than females (18.43%) and posterior fixed partial dentures (Red) were more common in females (28.18%) than males (23.49%). Chi square test showed significant variations with p value <0.05.

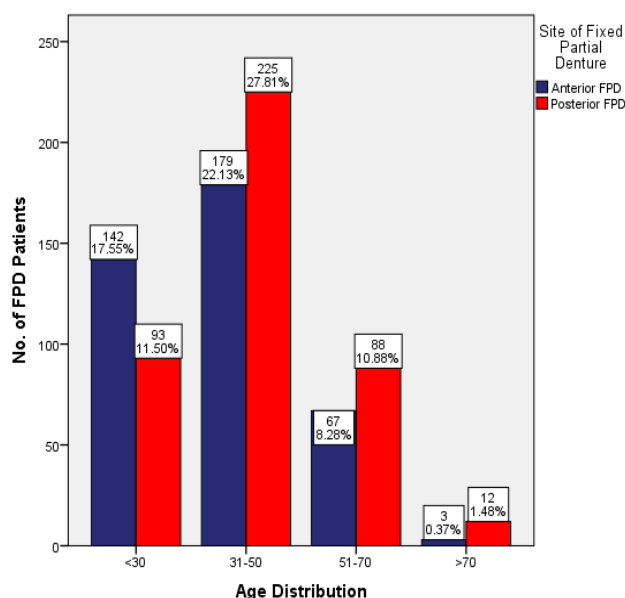


Figure 2: Bar graph showing the association between the age group and sites of fixed partial dentures. X axis represents the Age distribution and Y axis represents the number of fixed partial denture patients. Chi-square test was done and was found to be statistically not significant [chi square value - 22.824; p value (<0.05)] It shows the highest number of fixed partial dentures were seen among the age group 31-50 compared to other age groups in which the posterior site (Red) (27.81%) had a higher percentage of fixed partial denture than the anterior site (Blue) (22.13%).

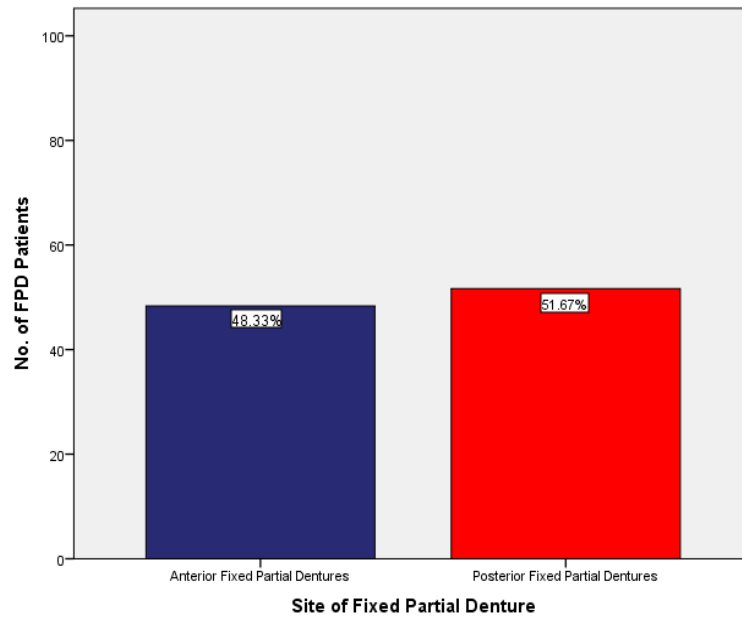


Figure 3: Bar graph showing the distribution of fixed partial dentures based on anterior site and posterior site of the patients in the current study. X axis represents the site of fixed partial dentures and the Y axis represents the number of fixed partial denture patients. From this bar graph it is seen that there was a higher number of posterior fixed partial dentures(Red) (51.67%) involved in this study than anterior fixed partial dentures(Blue) (48.33%).