

## **EVALUATION OF POST TREATMENT PATIENT ORAL HYGIENE MAINTENANCE FOR CASES TREATED WITH FIXED PARTIAL DENTURE PROSTHESIS-A QUESTIONNAIRE BASED SURVEY**

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### **ABSTRACT**

**Aim:** The aim of the study was to evaluate the postoperative maintenance of fixed partial denture by means of a questionnaire filled using telephonic conversation.

**Material and Methods:** A Cross-sectional, descriptive study was conducted in an institution, on randomly selected individuals. The study group consisted of adult patients who attended the outpatient Department of Prosthodontics from June 2019- March 2020. 4500 case sheets were evaluated and Chi-square test and frequency analysis was used to explore the relationship between two variables.

**Results:** Most participants brushed in the region of fixed partial denture (98%), however very few of them used special aids (11.3%). Most participants that didn't use special aids cited lack of awareness as the reason (56%). Females used special aids more commonly than male ( $p=1.00$ ). Most patients that used special aids were in the age group 20-40 years. This result wasn't statistically significant ( $p=0.271$ ).

**Conclusion:** The authors found that patients with FPDs do carry out basic oral health hygiene functions like brushing, however don't follow less common procedures like use of special aids that frequently. Dentist's need to recall patients more frequently and motivate them to maintain their oral hygiene. However, the findings of this study needed to be compared to those of other studies on diverse populations with greater sample sizes.

**KEYWORDS:** fixed partial denture; oral hygiene; special aids; innovation

### **INTRODUCTION**

Fixed partial dentures (FPDs) have become the treatment of choice for the replacement of missing teeth as they are economical and provide the patient with a fixed treatment option[1]. The success of fixed dental prosthesis depends on multiple factors, which should be considered during treatment planning of the patient. Tooth decay, gingival inflammation and periodontal disease are the most common biological implications of fixed dental prosthesis<sup>[[2],[2, 3]]</sup>.

These failures are caused by bacteria accumulated in the dentogingival plaque due to insufficient oral hygiene. Hence for maintenance of oral health an appropriate oral hygiene regimen is crucial<sup>[14]</sup>.

In patients apart from desirable pontic design and favourable material selection it is also essential to apply oral hygiene measures for the removal of bacterial plaque and prevention of mucosal inflammation<sup>[5]</sup>. In addition to regular tooth brushing, the use of special aids such as interdental brush, superfloss, and water flossers can improve the biological maintenance and health of fixed dental prostheses<sup>[6],[7]</sup>.

The dentist has a major role in patient education and motivation<sup>[7, 8]</sup>. Educating the patients regarding their oral hygiene status and its maintenance can motivate them to improve their oral hygiene measures which increases the success of fixed partial dentures<sup>[9]</sup>. The dental literature has around 7000 articles on FPDs, however, only a few deal with patient's awareness on oral hygiene. Our team has extensive knowledge and research experience that has translated into high quality publications [10–24][25–31]. The aim of this study was to evaluate the postoperative maintenance of fixed partial denture by means of a questionnaire filled using telephonic conversation.

## **MATERIALS AND METHOD**

This study was carried out in a university setting at Saveetha Dental College and hospital, Chennai, India by the department of prosthodontics and implantology. The study consisted of a data collector and 1 data reviewer. The disadvantage of this study was the geographical limitation of the study. This study was approved by the institute ethical board committee (ethical approval number:0619-0320).

Data of patients visiting Saveetha Dental college and Hospital's Department of Prosthodontics between June 2019- March 2020 was collected by method of simple random sampling. A total of 29,000 case sheets were reviewed. All patients treated with FPD were asked to answer a questionnaire consisting of 20 close-ended questions that assess the patient's perceptions of importance of oral hygiene measures and the ease and practice of cleaning. A telephonic survey was conducted. Measure taken to minimise sampling bias was that all case sheets of patients undergoing fixed partial denture treatment at the prosthodontics department were included. External validity is that it is applicable to the South Indian population.

The data collected was entered in MS Excel spreadsheet and tabulated. The data was imported in spss software version 23 and variables were defined. Statistical analysis of data was carried out using descriptive frequency analysis and chi square tests. Independent variables were the requirement of prosthetic rehabilitation and dependent variables were age, gender. Data transfer was done using spss software version 23.

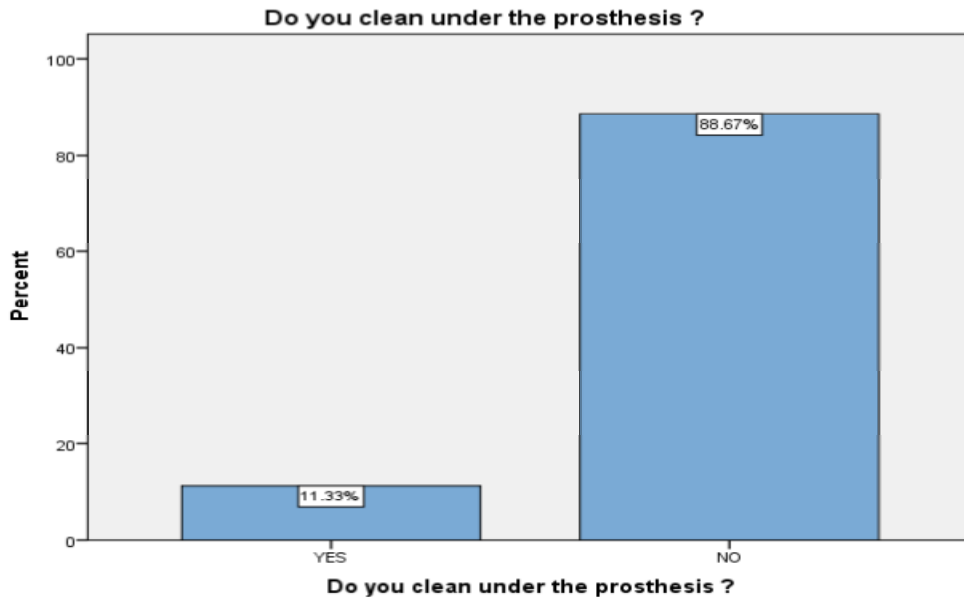
## **RESULT**

The total sample size was 146 questionnaires, regarding the gender male participating, were 31.8%, and the females were 68.2%.

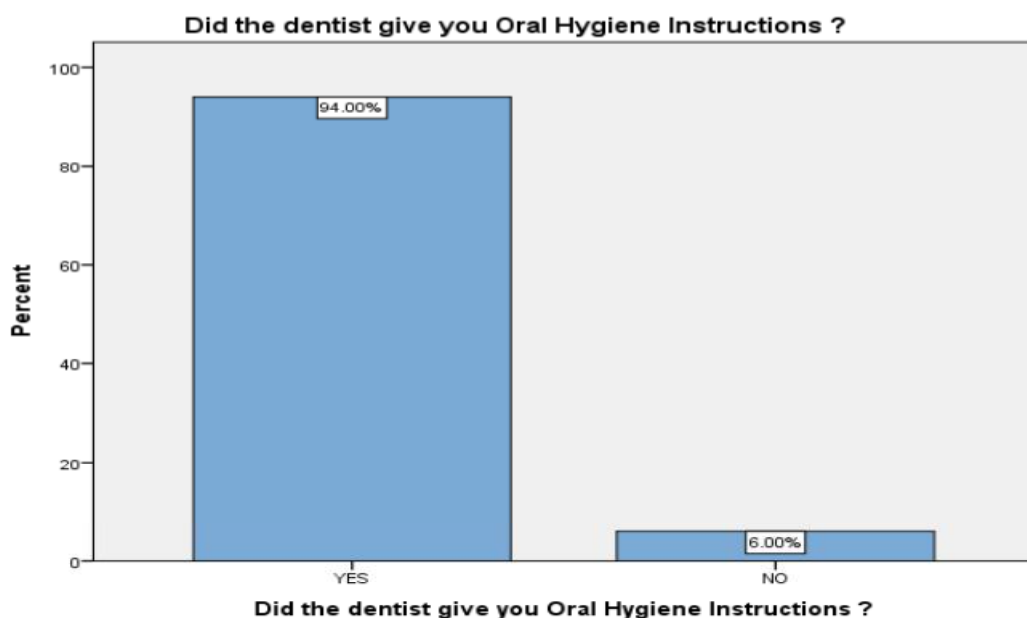
The patients were questioned about their oral hygiene procedures. Although 98% patients frequently brushed in the region of the FPD, only 11.3% patients cleaned under the pontics (**Graph1**).

94% of the patients stated that the dentist gave them post-cementation oral hygiene instructions, while 6% patients stated that they received no oral hygiene instructions from the dentist (**Graph2**). Special aids are

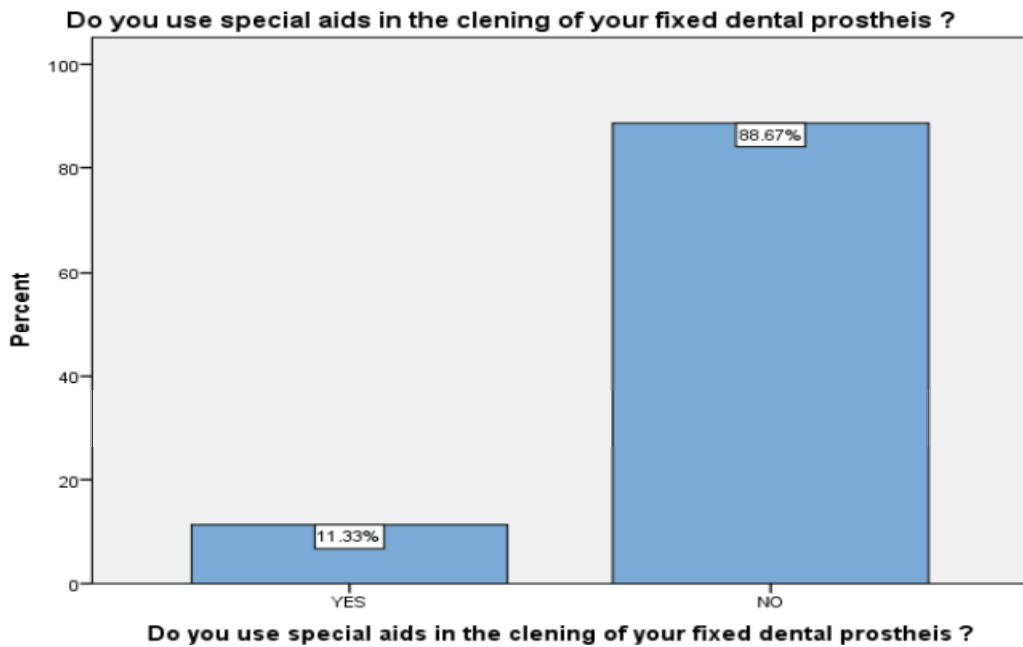
essential for the maintenance of the fixed partial denture. However, 11.3% of the patients used special maintenance aids. Amongst the 88.7% patients that stated they don't use special aids(**Graph3**). 63% of them said that they don't use special aids as they weren't informed by the dentist. 8.27% of the patients stated that they found special aids to be complicated and difficult to use. 24.06% of the patients had an issue with the affordability while 4.51% of the patients stated that special aids weren't easily found(**Graph4**). Amongst the users of special aids most of them were in the age range 20-40 years. Although females used special aids more commonly than males, it wasn't statistically significant(**Table 1**). 98% of the patients were recalled for review, however only 4% of the patients turned for recall.



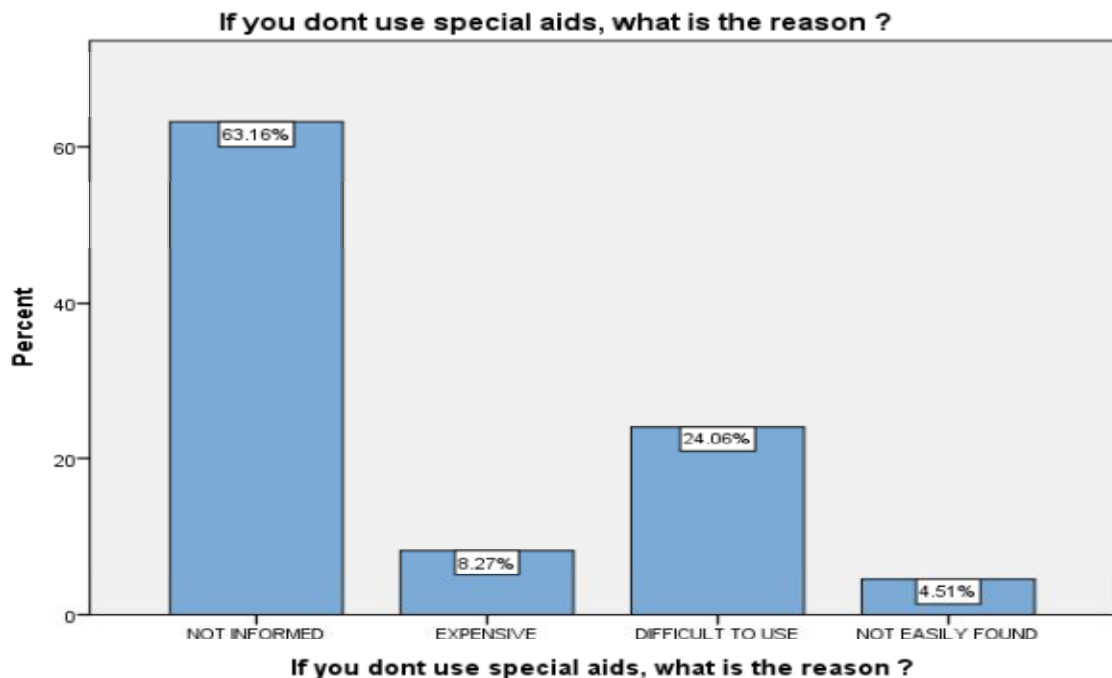
Graph 1- Depicts the percentage of patients that clean under the FPD. The y- axis is the percentage of patients and the x-axis depicts the habit of cleaning under the prosthesis of the patient.



Graph 2- Depicts the percentage of patients that received oral hygiene instructions from the patient. The y- axis is the percentage of patients and the x-axis depicts whether oral hygiene instructions were received or not.



Graph 3- Depicts the percentage of patients that use special aids for the maintenance of the fixed partial denture . The y- axis is the percentage of patients and the x-axis depicts the use of special aids by the patients.



Graph 4- Depicts the percentage of patients that don't use special aids in the area of the FPD. The y- axis is the percentage of patients and the x-axis depicts the reason for not using special aids.

CHI-SQUARE OF SPECIAL AIDS * AGE AND GENDER		
SPECIAL AIDS	CHI-SQUARE VALUE	P-VALUE
GENDER	1.212	0.271
AGE	0.001	1.00

**TABLE 1:** Depicts the correlation between age and gender of the patient and use of special dental aids. It is not statistically significant. (age-P value 1.00), (gender-P value 0.271)

## DISCUSSION

The performance and success of a fixed partial denture greatly depends on the patient's oral hygiene maintenance. Gingival disease and periodontal inflammation are common biological complications of fixed dental prostheses that can be avoided with proper hygiene and maintenance<sup>[[9]]</sup>. Despite this, the majority of patients in the current study stated that they did not use any additional cleaning methods under their FPDs besides regular tooth brushing. The dentist's role in oral hygiene education and patient motivation is just as important as making a good prosthesis<sup>[32][8]</sup>.

According to the current study the majority of patients were not informed by their dentists about the importance of special dental aids to maintain healthy tissue beneath their FPDs. Similar results were observed in a study conducted by <sup>[[7]]</sup>. They had observed in their study that most patients that had undergone fixed partial denture treatment didn't have sufficient knowledge regarding the maintenance of the prosthesis.<sup>[[7, 33]]</sup> in their study had concluded that most patients didn't receive adequate oral hygiene instructions from the dentist post treatment. Hence it is necessary to increase the involvement of the dentist in post operative maintenance of the prosthesis as well.

Patients cited dentist's failure to provide postcementation instructions as the most common reason for not using special cleaning aids. This was supported by the fact that patients who received instructions from their dentists were significantly more likely to use special aids than those who did not. Furthermore, patients who had regular recall visits were more committed to using special aids and keeping their FPDs clean underneath them. These findings corroborated previous studies, which found that patients are more likely to follow their dentist's instructions, and that patient's oral hygiene habits improved with regular professional reinstructions and recall visits<sup>[7]</sup>. Females were found to use special dental aids more frequently than males. Similar results were found in a study conducted by<sup>[[34]]</sup>. They had observed that females when compared to males carried out oral hygiene procedures more frequently and diligently. In the present study it was observed that special dental aids were more commonly used by the younger age group (20-40 years) . This could be due to the greater manual dexterity and understanding in the younger population.

It's worth noting that the study's sample was chosen at random, so the results may not represent all of the patients who wear FPDs. Oral hygiene measures can differ depending on the location of the FPD, the patient's education, social background, and other factors affecting the patient and the dentist.

## CONCLUSION

Within the limitations of the current study, it can be concluded that there is a significant lack of awareness among FPD wearers about the specific measures required to maintain proper hygiene beneath FPDs. Dentists should be required to educate their patients and advise them on how to keep their prostheses clean and to schedule regular recall visits. Even if the prosthesis is well adapted, contoured, and polished, it is critical to instruct patients on proper oral hygiene practises after the prosthesis is placed. Otherwise, the prosthesis may fail due to dental caries and periodontal problems due to a lack of good oral cavity and prosthesis hygiene.

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