

Oral Hygiene in Patients with Fixed Partial Dentures

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Abstract

Fixed prosthodontics is the area of prosthodontics focused on permanently attached dental prosthesis. Patients with FPD require regular lifelong professional maintenance with repeated interventions and reinstructions regarding maintenance of proper oral hygiene around fixed prosthesis. The aim of the study is to evaluate the oral hygiene in patients with Fixed Dental Prosthesis. A total 86000 patients data were analysed and the samples were taken from the patients who checked into the hospital from June 2019 to April 2020. A total of 958 patients were taken and analysed for oral hygiene status. Data collection was done from the dental archives of the patient management software system patented by Saveetha dental college. The data was obtained from the category fixed dental prosthesis. The results were analysed using SPSS software version 20 by IBM. The results observed was that the patients with FPD were prevalent to gingival inflammation and periodontal problems. Noticeable lack of awareness about oral hygiene after the fixed partial denture is found among patients wearing Fixed Partial Denture.

Key words: FPD patients, oral hygiene status, periodontitis, gingivitis.

Introduction

Fixed prosthodontics is the area of prosthodontics focused on permanently attached dental prosthesis. FPD stands for Fixed Partial Denture. A partial denture that is luted or otherwise securely retained to natural teeth, tooth roots and / or dental implant abutments that furnish the primary support of the prosthesis. Many studies have investigated the influence of the fixed partial dentures (FPD s) on the health of alveolar mucosa underneath pontics ¹. The success of fixed dental prosthesis depends on many factors which should be considered during treatment planning. Tooth decay, gingival inflammation and periodontal disease are quoted as the most common biological complication of the fixed dental prosthesis.^{2 3}.

Among this, tooth decay is the most frequent reason for failure of the prosthesis.⁴ Tooth decay of the abutments due to the poor oral hygiene and lack of easy access to the abutment teeth leads to the failure of the fixed partial dentures. There may be a requirement of the Endodontic treatment of the failed abutment teeth which may also lead to the failure of the fixed partial dentures.

In patients with average oral hygiene, plaque accumulates more underneath pontics in comparison to axial surfaces of (FDPs) fixed partial dentures. ⁵. The loose pontics designs and the spaces between the interproximal areas may be a cause of the plaque accumulation. The bacterial and plaque accumulation may lead to gingival irritations and periodontal breakdowns. Even with the desirable pontic design and favourable material partial dentures, applying the best oral hygiene measures is necessary for removing the bacterial plaque and preventing mucosal inflammation ⁶. In addition to regular tooth brushing the use of special aids such as superfloss, interdental brush and water flosses can improve the biological maintenance of fixed partial dental prosthesis ^{7 8}. The dentist also plays a major role in oral hygiene education and patient motivation. ⁹.

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There were also studies done on our institute based on various prosthesis^{10 11 12 13 14 15} and studies were also done on various health related oral problems^{16 17 18 19 20 21 22 23} and studies also on prevention of oral related problems²⁴. In this study we attempt to determine the presence of oral hygiene related diseases in patients with fixed partial dentures visiting The Saveetha dental college.

Materials and Methods:

This study is done under the university setting. The similar characteristics of the study is that it is done with available data under similar ethnicity of the population. The disadvantage of this study can be that the geographic location is similar. This study was approved by the institutional ethics board. Two reviewers are involved in the study. A total 86000 patients data were analysed and the samples were taken from the patients who checked in the clinic from June 2019 to April 2020. Total number of sample data includes 958 patients who were subjected to fixed partial denture treatments. The case sheets were verified with the help of photographic examination and interim procedure notes. To minimise sampling bias we included all the data available and there was no sorting of data done. Internal validity of the study included all these undergoing fixed partial denture treatment. The external validity of the measurement is to find the replication of results in different time periods.

Data collection was done from the dental archives of the patient management software system patented by

Saveetha dental college. The data was obtained from the category fixed dental prosthesis. The necessary data like the name, age, gender, related oral hygiene problems were obtained and tabulated. The data was reviewed by the external reviewer. The data was imported to SPSS and the variables were defined. chi square tests were done on the data, obtained using SPSS software version 20 by IBM. The age, gender were independent and the oral hygiene related diseases were dependent variables.

Results and Discussion

The data collected from the patient management software were tabulated in SPSS and the statistics were obtained. out of 958 patients 520 were male patients, 436 were female patients and two were transgender's. Among the 958 patients 241 patients had good oral hygiene and the remaining 717 patients had oral hygiene related pro. The frequencies calculated and tabulated and depicted as Table- chi square tests were done between the gender and the oral related problems. Oral hygiene was better among the female fixed partial denture wearers than the males (Figure 1) with statistically significant difference (Chi square test ; $P = 0.00, P < 0.05$) (Figure 3). Regarding oral hygiene related problems among the FPD patients, patients aged between 20-40 years had poorer oral hygiene than the other age groups (Figure 2) with statistically significant difference (Chi square test ; $P = 0.00, P < 0.05$) (Figure 4). The most commonly prevalent oral hygiene problem was generalised chronic gingivitis. The patients were more prone to generalised chronic periodontitis than the localised chronic periodontitis.

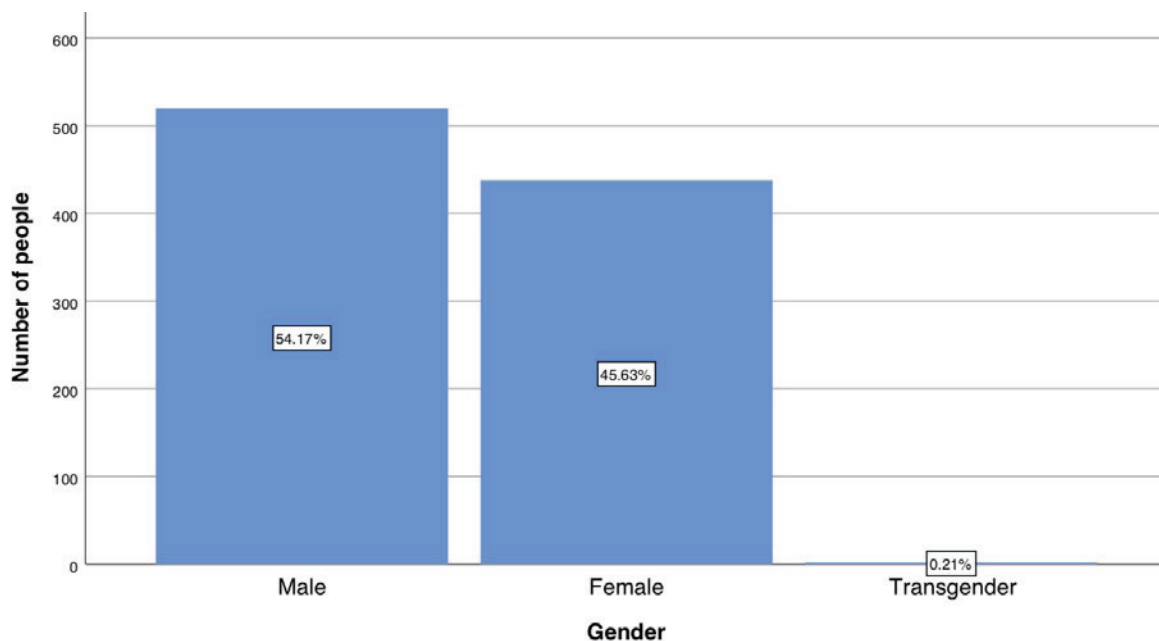


Figure1: Bar chart depicting the gender wise frequency distribution of oral hygiene related problems among the FPD patients. X-axis represents the gender and Y axis represents the number of individuals with oral hygiene related problems among the FPD patients. Oral hygiene was better among the female fixed partial denture wearers than the males.

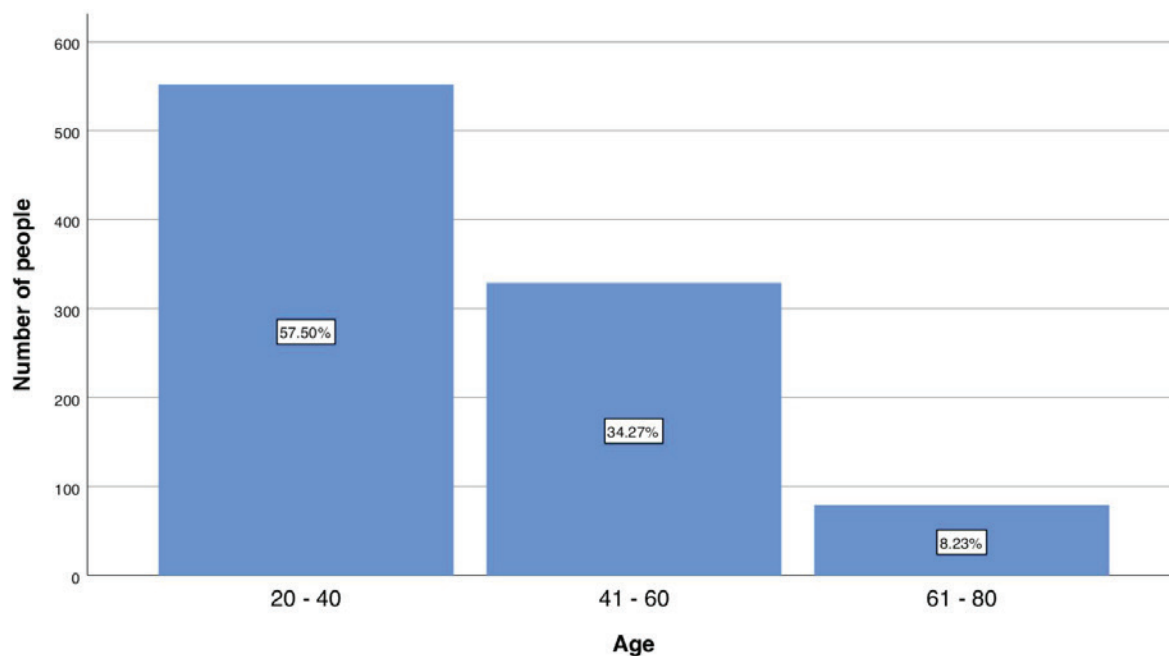


Figure 2: Bar chart depicting the age wise frequency distribution of oral hygiene related problems among the FPD patients. X-axis represents the age and Y axis represents the number of individuals with oral hygiene related problems among the FPD patients. Patients aged between 20-40 years had poorer oral hygiene than the other age groups.

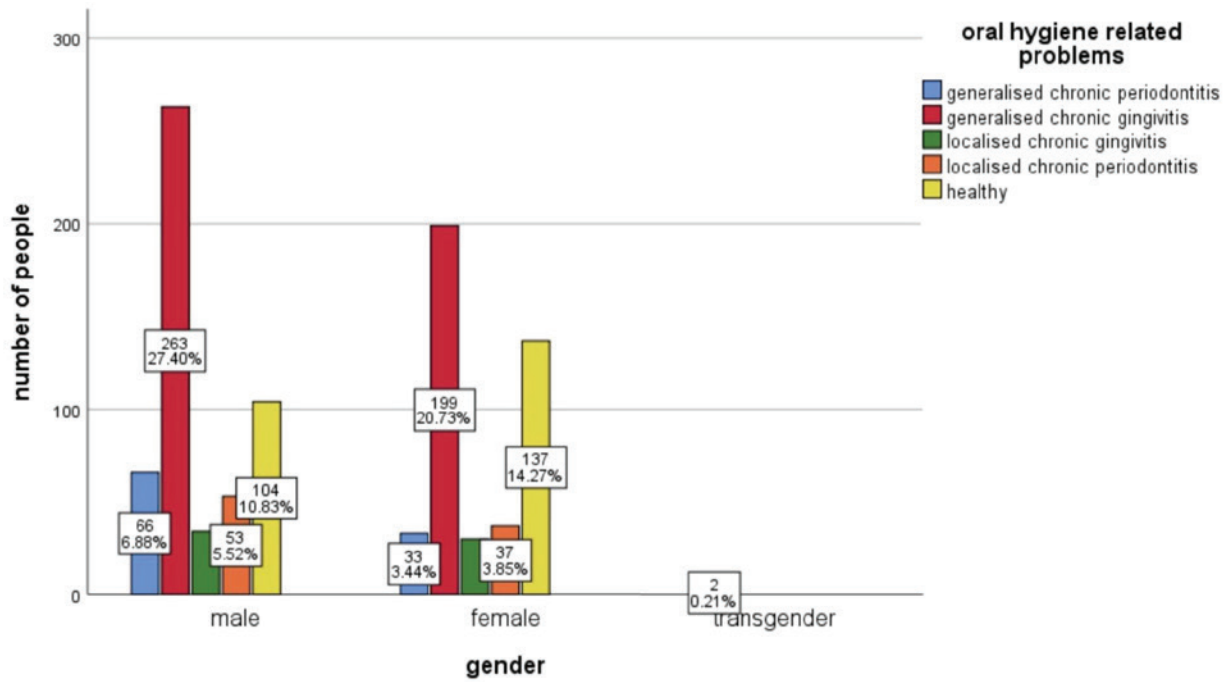


Figure 3: The graph shows the association between the gender and the oral hygiene related problems among the FPD patients. X-axis represents the gender and Y-axis represents the number of people with the oral hygiene related problems among the FPD patients. Oral hygiene was better among the female fixed partial denture wearers than the males with statistically significant difference (Chi square test ; $P = 0.00, P < 0.05$)

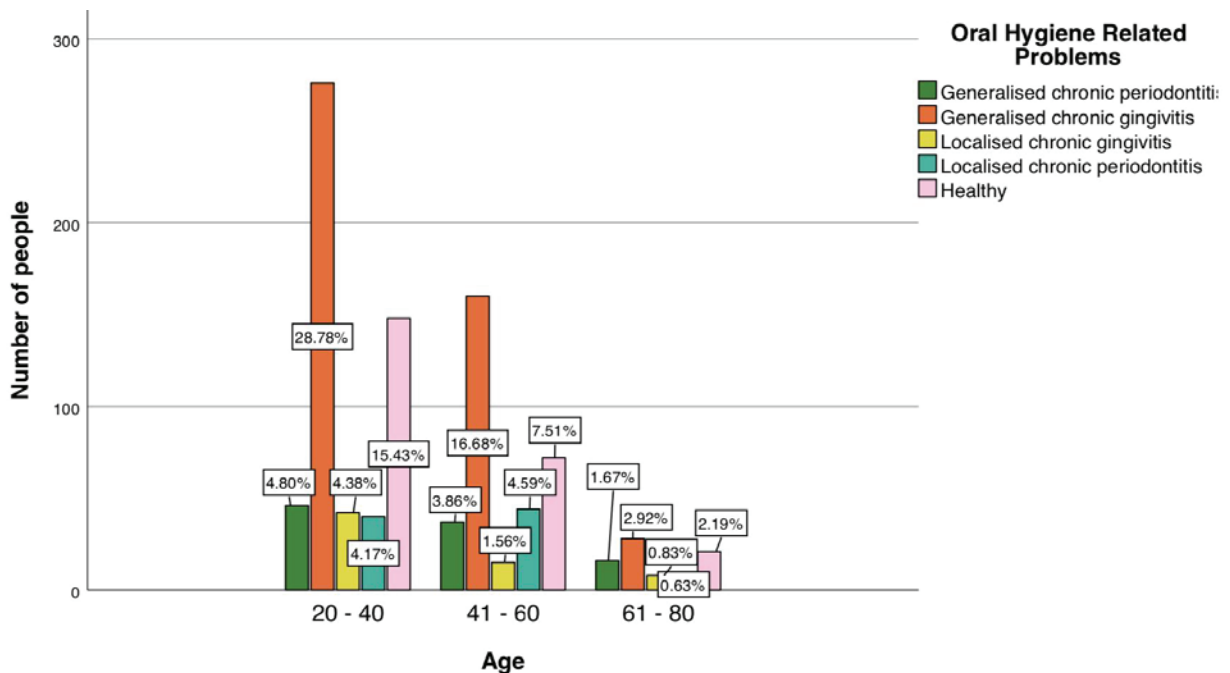


Figure 4: The graph shows the association between the age and the oral hygiene related problems among the FPD patients. X-axis represents the age groups and Y-axis represents the number of people with the oral hygiene related problems among the FPD patients. Patients aged between 20-40 years had poorer oral hygiene than the other age groups with statistically significant difference (Chi square test ; $P = 0.00, P < 0.05$)

A healthy oral hygiene practice is necessary to maintain a good oral hygiene in a fixed denture environment. From this the study proves that the FPD patients are prone to generalised chronic gingivitis. KC Basnyat states that poor oral hygiene leads to negative impact on gingiva.¹ Helle Tolbert states that poor oral hygiene leads to gingival inflammation.⁶ Thus the previous literature gives the same evidence. The influence of the restorations lead to plaque formation. This may be due to plaque accumulation under the fixed partial dental prosthesis. The plaque accumulation may be due to the improper care taken by the patients to maintain the oral hygiene. The patients must follow healthy oral hygiene practices to stop the accumulation of plaque and prevent the gingival inflammation. Our study states that the FPD restorations due to poor oral hygiene influence periodontal health. Keht.L. and DA.Felton has stated in their previous literature that poor oral hygiene increases probing depth and provokes periodontal inflammation.²⁵²⁶ This may be because of the marginal discrepancies. The marginal discrepancies may be due to the bacterial accumulation along with the plaque accumulation on the micro gaps between the margins of the fixed partial dental prosthesis. A proper brushing technique and use of mouth washes should be followed strictly as they help in prevention of the bacterial accumulations. The patients also should take up regular checkups even if they don't have a major problem regarding the fixed partial dentures. The dentists also play a major role in the oral hygiene status of the patients having fixed partial dentures. The dentists should advise the importance of maintaining a proper healthy oral hygiene to the patients. The dentists also should mention the methods by which the patients can prevent the bacterial accumulation and maintain a healthy oral hygiene. This study also reminds the dentist of the role in maintaining proper oral hygiene in patients with fixed partial dentures.

The limitations of the study includes relatively smaller data collection and doesn't represent ethnic groups. The future scope of the study includes awareness on oral hygiene in FPD patients and the clinical implications and importance of implementing preventive procedures.

Conclusion

Oral hygiene is very important in all patients with

fixed partial dentures within the limitations of the current. Study. We can conclude that there is a noticeable lack of awareness among FPD patients regarding the specific measures needed to maintain proper oral hygiene underneath FPD. Dentists should also educate their patients and advise them to maintain proper oral hygiene. The dentists also should mention the methods by which the patients can prevent the bacterial accumulation and maintain a healthy oral hygiene.

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

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