Research Article

JRAD Journal of Research and Advancement in Dentistry

J Res Adv Dent 2018;8:2:25-30.

Estimation and Evaluation of Post Operative Complaints in Patients with Fixed Partial Denture: A Questionnaire Based Original Study

Mukesh K Goyal[1*] Shelly Goyal[2] Sunny Jain[3] Nishant Gupta[4] Gunjan Gupta[5] Vikas Gupta[6]

[1]Reader, Department of Prosthodontics, Institute of Dental Sciences, Bareilly, Uttar Pradesh, India.
[2]Reader, Department of Prosthodontics, Jodhpur Dental College General Hospital, Jodhpur, Rajasthan, India.
[3]Reader, Department of Prosthodontics, Shree Bankey Bihari Dental College & Research Centre, Ghaziabad, Uttar Pradesh, India.
[4]Reader, Department of Orthodontics and Dentofacial Orthopedics, Sudha Rustagi College of Dental Science and Research Centre, Faridabad, India.
[5]Reader, Department of Periodontics and Implantology, Sudha Rustagi College of Dental Science and Research Centre, Faridabad, India.
[6]Associate Professor, Department of Orthodontics, Institute of Dental Sciences, Sehora, Jammu, India.

ABSTRACT

Background: Removable denture or fixed partial dentures are options available with dentists in case of missing teeth. Fixed partial dentures (FPDs) have been the treatment of choice for the replacement of missing teeth since decades. The present questionnaire based study was conducted to assess common complications encountered after placement of fixed partial denture.

Materials & Methods: The present study was conducted in the department of Prosthodontics. It included 280 patients who got FPD in the year. Patients were selected from the regular OPD of the department. A questionnaire was prepared which comprised of 15 questions pertained to the nature of complaint, number of units involved, and the type of materials used in fabrication of prosthesis etc. All were given a set of 15 questions and asked to respond. Response was recorded and data was processed statistically to estimate results.

Results: Out of 280 patients, males were 145 and females were 135. Common complaints were reported such as looseness of prostheses (33%), unable to chew (27%), stucking of food (12%), color fade (8%), esthetics problem (15%) and breakage of prostheses (5%). Other complaints were pain in abutment tooth (21%), sensitivity in the region (29%), bad breadth in FPD (23%) and difficulty in maintaining hygiene (27%). The difference was significant (P<0.05) in four different studied parameters in questionnaire [Question No 4 to 7].

Conclusion: Fixed partial dentures are the treatment of choice for missing teeth. Common complaints associated are looseness of prostheses, unable to chew, stucking of food, color fade, esthetics problems and breakage of prostheses.

Keywords: Fixed partial dentures, Oral health, Oral hygiene practices, Satisfaction.

INTRODUCTION

Removable denture or fixed partial dentures are the popular options available with dentists in case of missing teeth. Fixed partial dentures (FPDs) have been popular treatment of choice whenever the replacement of missing teeth is considered. However for the satisfaction of patients, FPD should fulfill all requirements. Literature has shown that usual crown and fixed partial denture therapy is very common in routine practice and is quite successful in rehabilitating the functions of lost or missing teeth. Accurate selection of the patient, correct diagnosis, careful preparation, and a

Received: Apr. 9, 2018: **Accepted**: June. 10, 2018
*Correspondence **Dr. Mukesh K Goyal.**
Department of Prosthodontics, Institute of Dental Sciences, Bareilly, Uttar Pradesh, India.
Email: dr.mukeshgoyal@gmail.com

pISSN 2278-0076
eISSN 2321-9270

professional fabrication of prosthesis are essential to ensure long term success and longevity of restoration with optimal health of surrounding tissues.[1] There is need of removal of significant amount of tooth structure for the construction of fixed partial dentures. The tooth preparation should be adequate and vitality of the prepared tooth has to be maintained. This provisional fixed partial denture is an essential and key step in fixed prostheses.[2] The placement of FPD on the abutment tooth is very important step however there are possibilities of complications that can come up later on. Soon after the cementation of prosthesis on teeth with vital pulp, some patients complain of post cementation complications. The relative occurrence of post cementation complaints and complications is frequently ignored by most clinicians. Dentist should be well aware of complication arising from FPD. The proper knowledge about post cementation sensitivity leads to proper management of the patient. As a proven fact, looseness and repeated dislodgment, unable to chew food, food gets stuck, color fades away and problem with esthetics are some of the most common experiences.[3] The present study was conducted to assess common complications associated after placement of fixed partial denture. Here authors have genuinely attempted to explore the existing outcomes by processing their responses generated through pre-framed questionnaire.

MATERIALS & METHODS

The present study was conducted in the department of Prosthodontics which included 280 patients who got FPD. Patients were selected from the regular OPD of the department. All were informed regarding the study and written consent was obtained. A self prepared, close ended questionnaire was prepared which comprised of 15 questions pertained to the period of the prosthesis in place, the nature of complaint, number of units involved, and the type of materials used in fabrication of prosthesis. We have proceeded with questionnaire based study model as they are extremely useful to obtain detailed information about personal and group perceptions and opinions. They are also capable of saving time and money while comparing subjects at individual levels. Furthermore, they also provide a broader range of information with better clarification. The usefulness of this study was revealed to all patients. The confidentiality of the respondents and their freedom of expression were completely ensured. All were given a set of 15 questions and ask to respond. To ensure completely stress-free responses, the study was conducted in an entirely anxiety free environment particularly in the waiting area of the department. This is was to ensure unbiased responses those may be seen if attempted haphazardly. Results thus obtained was tabulated and subjected to statistical analysis using chi-square test. P value less than 0.05 was considered significant ($P < 0.05$). The recorded data was subjected to suitable statistical tests to obtain p values, mean, standard deviation, chi- square test, standard error and 95% CI.

RESULTS

All the observational findings were compiled and sent for statistical evaluation using statistical software Statistical Package for the Social Sciences version 21 (IBM Inc., Armonk, New York, USA). The obtained data was subjected to relevant statistical tests to obtain p values, mean, standard deviation, chi- square test, standard error and 95% CI. Table I shows that out of 280 patients, males were 145 and females were 135. Table II shows that 82% had FPD, 14% had crown and 4% had both FPD and crown. Graph I shows common complaints such as looseness of prostheses (33%), unable to chew (27%), stucking of food (12%), color fade (8%), esthetics problem (15%) and breakage of prostheses (5%). Graph II shows that other complaints were pain in abutment tooth (21%), sensitivity in the region (29%), bad breadth in FPD (23%) and difficulty in maintaining hygiene (27%). Graph III shows that 70% had single unit, 19% had 2 units and 11% had 4 units FPD. Graph IV shows that materials used in FPD were metal ceramic (62%), all metal (26%), all ceramic (12%). Other responses were also taken into account as per data obtained from questionnaire (Table III & IV). Significance differences [*$p<0.05$ significant] were noticed when they were enquired about a. type of prosthesis b. feeling of prosthesis's looseness c. inability to chew food by prosthesis d. feeling of stucking of food with prosthesis. The observed p values were 0.006, 0.030, 0.030 and 0.000 for above mentioned parameters respectively. Other statistical inferences were also compiled in Table IV.

Table I: Distribution of patients

Total- 280		
Male	Female	P value
145	135	1.0

*p<0.05 significant

Table II: Type of prostheses

FPD (Bridge)	Crown	Both
82%	14%	4%

Table III: Questionnaire used for the study

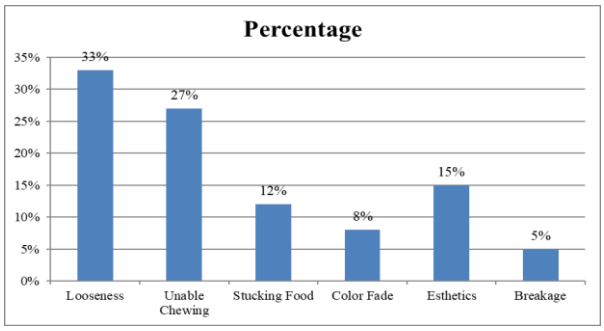
Demographic Responses		
Question 1	Name	
Question 2	Age (Yrs)	
Question 3	Sex (M/F)	
Clinical Responses		Inferences
Question 4	Which Type of Prosthesis do you possess ?	Crown/Bridge/Both
Question 5	Do you ever feel Prosthesis's looseness ?	Yes/No
Question 6	Are you unable to chew food by Prosthesis ?	Yes/No
Question 7	Do you feel Stucking of food with prosthesis ?	Yes/No
Question 8	Have you noticed discoloration of prosthesis with time ?	Yes/No
Question 9	Are you esthetically satisfied with prosthesis ?	Yes/No
Question 10	Did your prosthesis ever break/fracture in its long term usage ?	Yes/No
Question 11	Do you ever experience any pain associated with prosthesis ?	Yes/No
Question 12	Do you ever feel sensitivity associated with prosthesis ?	Yes/No
Question 13	Do you ever sense bad smell associated with prosthesis ?	Yes/No
Question 14	Do you think that marinating hygiene of prosthesis is a difficult task ?	Yes/No
Question 15	What kind of material dose your FPD possess ?	All Ceramic/All Metal/PFM

Table IV: Basic statistical inferences with level of significance evaluation using pearson chi-square test

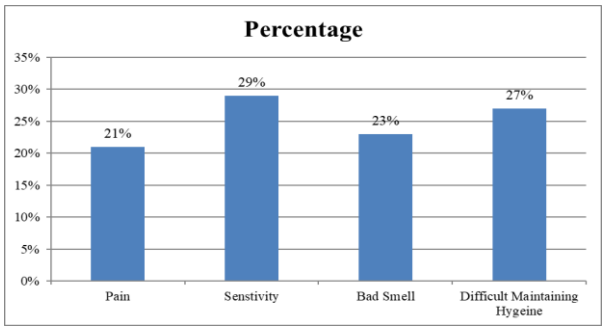
Question No.	Mean	Std. Deviation	Std. Error	95% CI	Pearson Chi-Square Value	df	Level of Significance (P value)
4.	2.32	1.322	0.100	1.96	2.632	2.0	0.006*
5.	2.76	0.563	0.028	1.96	2.342	1.0	0.030*
6.	2.31	1.00	0.070	1.96	2.998	1.0	0.030*

7.	2.82	0.405	0.028	1.96	1.006	2.0	0.000*
8.	2.88	0.834	0.027	1.96	2.220	3.0	0.060
9.	1.76	0.135	0.023	1.96	1.463	1.0	0.435
10.	1.01	0.123	0.014	1.96	1.221	1.0	0.341
11.	2.53	0.536	0.066	2.23	0.219	1.00	0.324
12.	2.32	2.233	0.133	1.96	2.135	3.00	0.371
13.	2.76	1.562	0.100	1.96	0.813	4.0	0.937
14.	2.21	0.263	0.018	1.96	1.263	1.0	0.235
15.	2.87	1.00	0.090	1.96	1.991	1.0	0.541

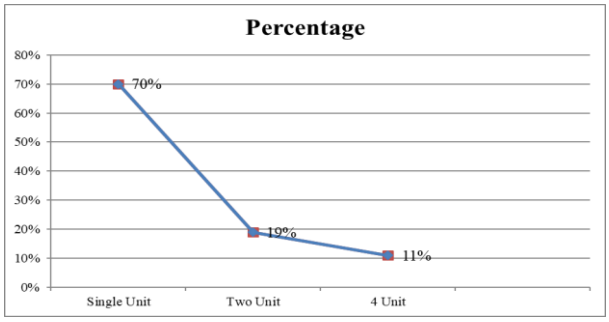
*p<0.05 significant



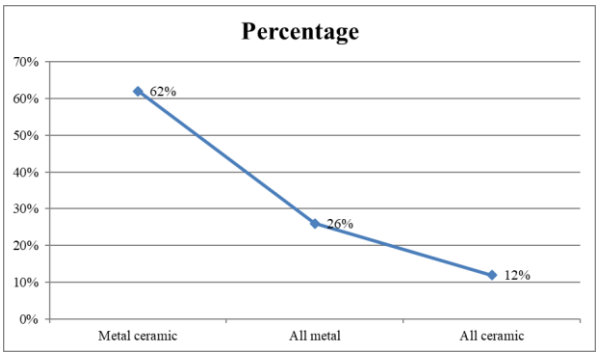
Graph 1: Post operative complaints.



Graph 2: Post operative complaints.



Graph: Number of FPD units.



Graph 4: Type of material used in FPD.

DISCUSSION

Missing teeth can be managed with either complete denture, removable partial denture or by fixed partial denture. There are patient related, infection related, load related and technique and design related factors which affects the success of FPD. Many of the pioneer workers have seen that majority of the prosthesis failures are attributable to bad hygiene maintenance. However problems could be arising because of defective design and inadequate implementation of clinical and laboratory processess.[4] Literature has evidenced many survey based studies that typically evaluated patient's response data. This is a vital source of information that can guide dentists to deliver right prosthodontic rehabilitative therapies exactly according to patient's expectations. Dento-facial dilemmas are well known to negatively affect patient's satisfaction. They also affect esthetics, performance, and function. The present study was

completed to assess common complications associated after placement of fixed partial denture. In this study, out of 280 patients, males were 145 and females were 135. We found that 82% had FPD, 14% had crown and 4% had both FPD and crown. Similar study was performed by Charles J et al.[5] We found that common complaints were looseness of prostheses, unable to chew, stucking of food, color fade, esthetics problems and breakage of prostheses (14%). This is in agreement with the study results of Alex selby et al.[6] Other complaints were pain in abutment tooth (41%), sensitivity in the region (31%), bad breadth in FPD (51%) and difficulty in maintaining hygiene (61%). In this study 62% patients had single unit, 14% had 2 units and 6% had 4 units FPD. 10% patients had single crowns whereas 4% had multiple crowns. Similar results were seen in study by Marxkors et al.[7] Materials used in this study were metal ceramic, all metal and all ceramic. This is in accordance to study done by Caesar et al.[8] Usually patients complaints regarding the time taken by the dentist to fabricate their FPD. Generally patients think that the "permanent" crown or fixed prosthesis is just like permanent forever.[9-12] They expected nothing more is required to maintain this condition as in natural conditions. It is the responsibility of the dentists to inform their patients that additional care is required to preserve the restoration and the remaining teeth.[13-15] The most important finding of the old investigation was that most of patients reported that patients did not use any form of dental aids to maintain their prosthesis, which had showed the lack of knowledge regarding the importance of maintenance of fixed prosthesis. The major reason was the lack of post treatment instruction which usually been provided by the treating dentist.[16-17] Therefore, for the success of FPDs, all complaints have to be addressed and resolved by the dentist. Post operative complications are not uncommon, especially when FPDs are placed in the vital teeth. Furthermore, literature has well evidenced that fixed partial dentures had been the treatment of choice for the replacement of missing teeth for many years. The dental literature has confirmed more than 7500 articles on the topic of FPDs. Nevertheless, only a few number of them deal with patients' perceptions of clinical outcomes and level of satisfaction with FPD treatment. Studies to investigate patient's satisfaction were carried out in different countries, including Sweden, Finland, the Netherlands, Croatia, and Singapore all concluded that patient's satisfaction with FPD was very high.[18]

CONCLUSION

Our study results showed that fixed partial dentures are the treatment of choice for missing teeth. Common complaints associated are looseness of prostheses, unable to chew, stucking of food, color fade, esthetics problems and breakage of prostheses (least common). Pain, sensitivity and bad smell were other noticeable problems with long term FPD usage. Our study results could be treated as suggestive for predicting clinical outcomes for crucial situations. Though, we expect other demographic studies to be conducted that could further establish certain concrete guidelines in this field.

CONFLICT OF INTEREST

No potential conflict of interest relevant to this article was reported.

REFERENCES

1. Toogood GD, Archibald JF. Technique for establishing porcelain margins. J Prosthet Dent 1978:40:464–6.
2. Lindquist F, Karlsson S. Success rate and failures for fixed partial dentures after 20 years of service. Int J Prosthodont 1998;133-8.
3. Manappallil JJ. Classification system for conventional crown and fixed partial denture failures. J Prosthet Dent 2008;99:29–8.
4. Joanne N, Walton F, Gardner M, John R. Agar – A survey of crown and fixed partial denture failures. J Prosthet Dent 1986;56:416-21.
5. Charles J, Goodacre K, Bernal G. Clinical complications in fixed Prosthodontics. J Prosthet Dent 2003;90:31–41.
6. Alex S. Fixed Prosthodontics failure; A review and discussion of important aspects. Aust Dent J 1994;8:150-6.

7. Marxkors R, Wulfes H. Laboratory complications in fixed Prosthodontics I. Dental Labor 2002;50:193-203.
8. Caesar H. Die Laboratory complications in fixed Prosthodontics II. Dent Labor 2003;51:1173-75.
9. Bubteina N, Garoushi S. Dentine hypersensitivity: a review. Dentistry 2015;5(330):1061-72.
10. Gupta N, Reddy UN, Vasundhar PL, Ramarao KS, Varma KP, Vinod V. Effectiveness of desensitizing agents in relieving the pre and post cementation sensitivity for full coverage restorations: A clinical evaluation. J Contemp Dent Pract 2013;14:858-65.
11. Hu J, Zhu Q. Effect of immediate dentin sealing on preventive treatment for post cementation hypersensitivity. Int J Prosthodont 2010;1:23-7.
12. Yim NH, Rueggeberg FA, Caughman WF, Gardner FM, Pashley DH. Effect of dentin desensitizers and cementing agents on retention of full crowns using standardized crown preparations. J Prosthet Dent 2000;83(4):459-65.
13. Johnson GH, Hazelton LR, Bales DJ, Lepe X. The effect of a resin -based sealer on crown retention for three types of cement. J Prosthet Dent 2004;91(5):428-35.
14. Denner N, Heydecke G, Gerds T, Strub JR. Clinical comparison of postoperative sensitivity for an adhesive resin cement containing 4 -META and conventional glass ionomer cement. Int J Prosthodont 2007;20(1):73-8.
15. Shetty RM, Bhat S, Mehta D, Srivatsa G, Shetty YB. Comparative analysis of post cementation hypersensitivity with glass ionomer cement and a resin cement: an in vivo study. J Contemp Dent Pract 2012;13(3):327-31.
16. Hassan SH, Azad AA, Niaz O, Amjad M, Akram J, Riaz W. Post cementation sensitivity in vital abutments of metal -ceramic fixed partial dentures. Pakistan Oral Dent J 2011;31(1):88-92.
17. Nandhini GA. Evaluation of Post-Operative Complaints in Complete Denture and Removable Partial Denture Wearers: A Questionnaire Based Study. J Pharm Sci Res 2017;9:1438-43.
18. Geiballa GH, Abubakr NH, Ibrahim YE. Patient's satisfaction and maintenance of fixed partial denture. Eur J Dent 2016;10:250-3.