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Patient satisfaction level and awareness of hygiene practices among patients with fixed dental prosthesis

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Abstract
Introduction: There are several prosthetic alternatives for replacing missing teeth, including removable partial dentures, fixed partial dentures, and dental implants. Fixed Partial Dentures (FPDs) are a commonly utilized technique for prosthodontic rehabilitation. Prosthodontic treatments can range from restoring a single damaged tooth with a crown to replacing one or more missing teeth using either a conventional tooth-supported Fixed Partial Denture (FPD) or an implant-supported restoration. While it restores aesthetics and function, proper maintenance is equally important to ensure it works effectively over the long term.
Aim: This survey aimed to evaluate the awareness of hygiene practices and the satisfaction levels among patients who received fixed dental prostheses in the Department of Prosthodontics, Crown and Bridge, at GDCH in Ahmedabad, Gujarat.
Materials and Methods: A cross-sectional clinical survey to evaluate patients' awareness of hygiene practices and their satisfaction levels with wearing FPDs/crowns was conducted among the patients visiting the Outpatient Department of Prosthodontics, GDCH, Ahmedabad, Gujarat.
Results: In this study, 300 participants with FPD/crown were examined. Approximately 55.67% of the participants were female, and 44.33% were male. 87.67% of the participants reported brushing their teeth only once a day, while only 15.67% reported flossing their teeth. Around 40.67% of the patients experienced problems with food lodgement, and 42.67% of participants reported discomfort and pain after the cementation. The survey also revealed that 77% of the patients were not advised by their dentists on the maintenance protocols for the prosthesis.
Conclusion: Considering the study's limitations, it can be concluded that the most frequent complaints from patients regarding fixed partial denture prostheses were food impaction and pain. Enhancing the long-term prognosis of the prosthesis necessitates cooperation between the dentist and the patients.

Keywords: Food lodgement, oral hygiene practice, fixed dental prosthesis, clinical survey

Introduction
Advancements in dentistry have introduced various treatment options for addressing missing teeth, including Removable Partial Dentures (RPD), Fixed Partial Dentures (FPD), Complete Dentures, and Implant-supported prostheses. The choice of an appropriate treatment is influenced by several factors, such as the number of missing teeth, the condition of the abutment teeth, patient preferences, and financial considerations [1].
While each of these treatment modalities has its own set of advantages and disadvantages, Fixed Partial Denture (FPD) emerges as one of the most commonly selected options among patients [2, 3].
The success of prosthodontic rehabilitation is influenced by numerous factors, given that dental treatments have a direct impact on patient satisfaction, particularly concerning aesthetics and functionality [2, 4, 5].
Patient satisfaction with prosthodontic treatments is determined by various elements, including the appearance of the prosthesis, the ability to chew properly, and speech improvements [2, 6, 7]. Consequently, it is crucial to thoroughly evaluate the patient's needs and circumstances during the initial consultation phase to ensure an optimal treatment approach [8].
Post-rehabilitation with FPD, it is essential for patients to engage in regular maintenance and follow-up checkups to ensure the longevity and functionality of the prosthesis.

However, many patients tend to neglect these ongoing care requirements. This negligence could stem from either inadequate instructions from the dentist regarding the maintenance protocols or the patient's failure to adhere to the provided guidelines, which may eventually lead to prosthesis failure [4, 5, 7].

While there is a wealth of literature regarding fixed prostheses, there is a noticeable gap in data concerning patients' awareness of hygiene practices and their satisfaction with these prosthetic solutions [6, 9-11]. Understanding these aspects is crucial for improving patient outcomes and ensuring the long-term success of prosthodontic treatments. Hence, this study seeks to evaluate the awareness of hygiene practices and satisfaction levels among patients who wear FPDs or crowns.

Materials and Methods

A cross-sectional clinical survey was conducted among patients visiting the Outpatient Department of Prosthodontics at the Government Dental College and Hospital in Ahmedabad, Gujarat, to evaluate their awareness of hygiene practices and satisfaction levels with Fixed Partial Dentures (FPDs) or crowns. Ethical approval for the study was obtained from the Institutional Ethics Committee GDCH, Ahmedabad (IEC GDCH/PROS.6/2023). The survey was conducted over a period of four months (January 2024 to April 2024). A total of 300 consenting participants were examined for the study. Participants were provided with a written consent form in both Gujarati and English, which was explained to them, and their consent was obtained through signatures. The sample size was determined based on preliminary information about hygiene maintenance and practices.

Sample size calculation

$N = 4PQ/L^2$

P = Prevalence Q = 1-P

L= 0.05 = Margin of error P = 80%= 80/100 = 0.80

Q= 1-0.80= 0.20

Substituting in the formula = 4* 0.80*0.20 / 0.052 = 0.64/0.0025

N= 256

Rounded to 300

Selection criteria

Inclusion criteria

a) Participants who were willing to be a part of this study.
b) Patients with single crown and/or FPD that has been fabricated within 5 years. Exclusion criteria.
c) Dental implant prosthesis (complete/partial fixed prosthesis).
d) Patients with any kind of maxillofacial prosthesis.
e) Patients with complete or partial removable dental prosthesis.

Data collection

The questionnaire was translated into the local language, Gujarati, and back-translated into English by a bilingual expert for validation. The survey forms were printed along with individual consent forms in both English and Gujarati. The purpose of the study was clearly explained to each patient in their native language. The questionnaire consisted of 18 items to assess the hygiene practices and satisfaction levels of patients with Fixed Partial Dentures (FPDs). Ten questions provided multiple-choice answers, while eight had yes/no options. All responses were recorded by a single investigator.

Statistical analysis

The collected data were analyzed statistically using SPSS software version 23 (IBM, New York, USA). Descriptive statistical information was generated from this analysis.

Results

The study involved 300 participants with a mean age of 50 years, ranging from 18 to 72 years. The gender distribution of the study participants is detailed in [Table 1]. Approximately 22.33% of the participants reported a habit of chewing tobacco or betel nut. Regarding prosthesis satisfaction, 89.33% of patients expressed contentment with the efficiency of mastication provided by their prosthesis. Nevertheless, around 42.67% of the participants experienced post-operative issues, such as pain or discomfort.

Table 1: Age and Gender details of participants

Age (In Years)	N	Mean Age
18-72	300	50
Gender	Frequency	Percentage
Male	133	44.33
Female	167	55.67
Total	300	100

The study found that 94% of the participants reported a boost in confidence due to their new prosthesis. In 77% of cases, there was no change in the color along the margins of the prosthesis. Additionally, 86% of the participants were fully satisfied with the aesthetics of their prosthesis. About 40.67% of the participants did experience food lodgement under their prosthesis. However, in 79.67% of the cases, the treating dentists did not provide instructions for oral hygiene maintenance.

Regarding oral hygiene practices, 83.66% of the participants used a toothbrush and toothpaste to clean their teeth, with 87.67% brushing only once a day and only 12% brushing twice daily. 93% of the participants did not encounter problems maintaining oral hygiene. Despite this, only 9.67% of the population are using floss and other cleaning aid.

82.67% of the participants did not visit their dentists after treatment unless they encountered issues, and 77% were not using dental aids because their dentists did not inform them about these tools.

Discussion

Numerous treatment modalities exist for replacing missing teeth, including removable partial dentures, fixed partial dentures, and dental implant-supported prostheses. Similar to other prosthodontic interventions, Fixed Partial Dentures (FPD) have specific advantages and disadvantages. However, it remains the most preferred treatment option among all available choices [2, 3, 12, 13].

Factors contributing to this preference include patient favoritism towards a fixed treatment modality, procedural simplicity requiring fewer appointments, shorter overall treatment duration, lower cost relative to implant-supported prostheses, and established long-term success rates [14, 15]. Similar to other treatment modalities, regular maintenance, and periodic check-ups are essential for ensuring the longevity of Fixed Partial Dentures (FPD) [2].

However, the prosthesis can often fail due to either patient negligence or the dentist's failure to adequately inform patients about proper hygiene practices [2].

This study aimed to evaluate the level of awareness regarding FPD maintenance and to assess patient satisfaction with the prosthesis.

According to Anderson's assertion in 1998, evaluating the effectiveness of Fixed Partial Denture (FPD) treatment requires consideration of both the operator's and the recipient's assessment. Therefore, the efficacy of a fixed prosthesis is evaluated based on its impact on chewing function, aesthetic outcomes, and durability [2]. In the current study, 92% of participants found their prosthesis comfortable for speaking, and approximately 89.33% were satisfied with its masticatory function. Over 86% of patients were pleased with the aesthetics of their prosthesis, while 12.67% were not fully satisfied, and only 1.33% were completely dissatisfied. Additionally, 77% of patients reported no noticeable color change in their prosthesis. These findings indicate that patients were generally satisfied with their prosthesis in terms of aesthetics, phonetics, and mastication. Most patients experienced no speech disturbances due to their prosthesis, with 92% reporting no pronunciation issues after receiving their fixed prosthesis. This finding aligns with Wismeijer *et al*.'s study on patient satisfaction with dental implants, which concluded that there was no significant improvement in speech, a result that was challenging to explain [21].

According to a study by Tan K *et al*., all participants expressed satisfaction with this treatment modality in terms of speech clarity, while 96% reported satisfaction with chewing ability.10 In the current study, 18% experienced discomfort, 24.67% reported pain, and 13.67% encountered prosthesis dislodgement. Additionally, approximately 40.66% of patients reported food retention beneath their prosthesis, which may increase the risk of secondary dental decay and periodontal breakdown. 2 Pawar S attributed food impaction to issues such as inadequate pontic design, improper margins, and insufficient contact with adjacent teeth, which are indicative of errors or oversights by the operator. Therefore, it is incumbent upon treating dentists to conduct thorough quality assessments of prostheses before cementation [12].

As noted by Shillingburg HT, *et al*., the sustained effectiveness of any prosthesis is heavily reliant on the patient's oral hygiene routines, compliance with home-care guidelines, and the utilization of suitable cleaning tools such as dental floss and interproximal brushes."15 In this study, approximately 79.67% of participants reported that their treating dentists had not provided them with education on maintaining their prostheses. Despite findings showing that nearly 83.66% of patients used toothbrushes and toothpaste for oral hygiene, more than 87.67% brushed their teeth only once daily in the morning. That indicates a lack of awareness among patients regarding the importance of brushing their teeth at least twice daily, as recommended by the ADA. According to the ADA, brushing twice daily and flossing once daily are critical behaviours for preventing oral infections and maintaining oral health [16].

In the current study, approximately 77% of participants were unfamiliar with supplementary cleaning aids, contrasting with Tan K, *et al*. study where 56% of participants were aware of such aids.10 Regarding the use of dental floss for oral hygiene maintenance, only 15.33% of patients inquired acknowledged regular use in Tan K, *et al.* study, a finding echoed by the present study's 9.67% usage rate. Various interdental cleaning aids, such as dental floss, interdental brushes, wooden interdental aids, and oral irrigators, are recommended and utilized to complement toothbrushes in controlling plaque. Marchesan JT, *et al*. recently conducted a study affirming that the use of interdental cleaning devices contributes significantly to promoting optimal oral health. Their research demonstrated that regular interdental cleaning was correlated with reduced incidence of periodontal disease and fewer cases of coronal or interproximal caries [17-19].

According to Rosenstiel SF, *et al*., regular follow-up visits are crucial for ensuring the long-term success of Fixed Partial Dentures (FPD). They recommend an initial follow-up appointment within 7 to 10 days post-cementation to inspect for any residual cement and assess occlusion. Subsequently, patients with cast restorations should be scheduled for recall visits every 6 months to monitor for recurrent caries and periodontal health status [14].

In contrast, findings from the present study indicate that more than 82.67% of patients did not attend follow-up visits to have their FPD/crown condition checked and cleaned. Only approximately 17.33% of patients reported visiting their dentist for routine dental check-ups.

In their review, Goodacre CJ, *et al*. identified eight complications associated with Fixed Partial Dentures (FPD): caries, the need for endodontic treatment, retention loss, periodontal disease, aesthetic concerns, tooth fracture, prosthesis fracture, and aesthetic veneer fracture [20].

In the current study, 56.34% of patients experienced post-operative issues such as pain, dislodgement, or discomfort, which aligns with findings from a study by Pawar S where 45% of patients reported encountering similar post-operative problems [12]. In the current study, 24.67% of participants reported experiencing post-operative pain. Pawar S, *et al*. identified potential causes for post-operative pain, which include pulp stimulation and excessive tooth reduction leading to mild pulp exposure [12]. This survey is valuable for identifying areas where quality care may be insufficient, crucial for ensuring the long-term success of dental prostheses. Such surveys are essential for quality assurance in prosthodontic care, optimizing the allocation of time, energy, and resources toward achieving successful outcomes for prosthetic treatments.

Conclusion

The findings from this survey indicate that fixed prostheses continue to meet the expectations of patients for replacing missing teeth. A significant majority of patients expressed satisfaction with all functional aspects of their fixed prostheses. It's noteworthy that the study exclusively included prostheses fabricated and cemented within the last five years, a relatively short timeframe for evaluating the long-term success of fixed prostheses.

The present study identified that post-operative complications primarily involved prosthesis dislodgement and food lodgement. Patients demonstrated limited awareness regarding regular dental and prosthesis maintenance protocols, aside from basic tooth brushing. Therefore, it is imperative for dental professionals to assume responsibility for educating and motivating patients on home care protocols essential for maintaining prosthesis longevity. Patients should diligently follow these instructions and attend scheduled follow-up visits with their dentists.

Conflict of Interest

Not available

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Not available

References

1. Kore AR, Kore SA, Gosavi S, Siddiqui M, Gosavi S. Assessment and evaluation of reasons for not replacing missing teeth in Karad population: A cross sectional survey. Int J Prev Clin Dent Res. 2016;3(3):167-172.
2. Geiballa GH, Abubakr NH, Ibrahim YE. Patients' satisfaction and maintenance of fixed partial denture. Eur J Dent. 2016 Apr-Jun;10(2):250-253. DOI: 10.4103/1305-7456.178313.
3. Al-Quran FA, Al-Ghalayini RF, Al-Zu'bi BN. Single-tooth replacement: factors affecting different prosthetic treatment modalities. BMC Oral Health. 2011 Dec 21;11:34. DOI: 10.1186/1472-6831-11-34.
4. Leao A, Sheiham A. Relation between clinical dental status and subjective impacts on daily living. J Dent Res. 1995 Jul;74(7):1408-1413. DOI: 10.1177/00220345950740071301.
5. Slade GD, Spencer AJ. Social impact of oral conditions among older adults. Aust Dent J. 1994 Dec;39(6):358-364. DOI: 10.1111/j.1834-7819.1994.tb03106.x.
6. Kashbur N, Bugaighis I. Patients' satisfaction, expectation, care, and maintenance of fixed prosthesis. Libyan Int Med Univ J. 2019;4(1):26-32.
7. Jung RE, Pjetursson BE, Glauser R, Zembic A, Zwahlen M, Lang NP. A systematic review of the 5-year survival and complication rates of implant-supported single crowns. Clin Oral Implants Res. 2008 Feb;19(2):119-130. DOI: 10.1111/j.1600-0501.2007.01453.x. EPUB 2007 Dec 7.
8. de Siqueira GP, dos Santos MB, dos Santos JF, Marchini L. Patients' expectation and satisfaction with removable dental prosthesis therapy and correlation with patients' evaluation of the dentists. Acta Odontol Scand. 2013 Jan;71(1):210-214. EPUB 2012 Feb 3. DOI: 10.3109/00016357.2012.654612.
9. Walton TR, Layton DM. Satisfaction and patient-related outcomes in 128 patients with single implant crowns in situ for up to 14 years. Int J Oral Maxillofac Implants. 2017 May/Jun;32(3):667-674. DOI: 10.11607/jomi.5443.
10. Tan K, Li AZ, Chan ES. Patient satisfaction with fixed partial dentures: A 5-year retrospective study. Singapore Dent J. 2005 Dec;27(1):23-29.
11. Creugers NH, Kreulen CM, Snoek PA, de Kanter RJ. A systematic review of single-tooth restorations supported by implants. J Dent. 2000 May;28(4):209-217. DOI: 10.1016/s0736-5748(99)00078-7.
12. Pawar SR. Failures of crown and fixed partial dentures-A clinical survey. Int J Contemp Dent. 2011;2: N. PAG.
13. Sumeet, Sharma, Sethuraman Rajesh, Singh Harvinder, S. Sarbjeet and Wazir Dev Nikhil. Abutment Evaluation-A Boon to Success of Fixed Partial Denture; c2014.
14. Rosenstiel SF, Land MF, Fujimoto J. Contemporary Fixed Prosthodontics. 3rd Ed. St. Louis, Missouri: Mosby Inc.; 2002:782-812.
15. Shillingburg HT, Sather DA, Wilson EL, Caine JR, Mitchell DL, Blanco LJ, *et al*. Fundamentals of fixed prosthodontics. 4th Ed. Chicago: Quintessence Publishing Co, Inc.; c2014, 398.
16. American Dental Association. American Dental Association Statement on Regular Brushing and Flossing to Help Prevent Oral Infections. America's Leading Advocate for Oral Health. August 22, 2013. Available from: https://www.ada.org/en/press-room/news-releases/2013-archive/august/american-dental-association-statement-on-regular-brushing-and-flossing-to-help-prevent-oral.
17. Ng E, Lim LP. An Overview of Different Interdental Cleaning Aids and Their Effectiveness. Dent J (Basel). 2019 Jun 1;7(2):56. DOI: 10.3390/dj7020056.
18. Alqabbaa L, Rayyan MR. Oral hygiene and maintenance habits among fixed partial denture wearers. Saudi J Oral Sci. 2018;5:115. DOI: 10.4103/sjos.SJOralSci_12_18.
19. Marchesan JT, Morelli T, Moss K, Preisser JS, Zandona AF, Offenbacher S, Beck J. Interdental Cleaning Is Associated with Decreased Oral Disease Prevalence. J Dent Res. 2018 Jul;97(7):773-778. EPUB 2018 Feb 26. DOI: 10.1177/0022034518759915.
20. Goodacre CJ, Bernal G, Rungcharassaeng K, Kan JY. Clinical complications with implants and implant prostheses. J Prosthet Dent. 2003 Aug;90(2):121-132. DOI: 10.1016/S0022-3913(03)00212-9.
21. Payne AG, Tawse-Smith A, Wismeijer D, De Silva RK, Ma S. Multicentre prospective evaluation of implant-assisted mandibular removable partial dentures: surgical and prosthodontic outcomes. Clin Oral Implants Res. 2017 Jan;28(1):116-125. DOI: 10.1111/clr.12769. EPUB 2016 Jan 22.

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