

**A Retrospective Study To Determine Patients' Satisfaction With Fixed Dental Prostheses Provided during the Period 2015 – 2018 in the dental clinic at IBN SINA National college for medical studies, Jeddah, Saudi Arabia.**

<sup>1</sup>Dr Karunakar Shetty, BDS, MDS (Prosthodontics), FICOI, Associate professor, Dentistry program, IBN Sina National College of Medical Sciences, Jeddah, Saudi Arabia.

<sup>2</sup>Dr Othman wali, BDS, MSc, Swedish board in Periodontology, Perio-Prosthodontics, Fellowship from University of Florida, USA, Vice Dean of Dentistry program, IBN Sina National College of Medical sciences, Jeddah, Saudi Arabia

<sup>3</sup>Lama Abdallah Aldhaheeri, BDS, Intern, Dentistry Program, IBN Sina College of Medical studies, Jeddah, Saudi Arabia.

<sup>4</sup>Nada Saeed Alzahrani, BDS, Intern, Dentistry Program, IBN Sina College of Medical studies, Jeddah, Saudi Arabia.

<sup>5</sup>Arwa Ibrahim Alatieque, BDS, Intern, Dentistry Program, IBN Sina College of Medical studies, Jeddah, Saudi Arabia.

<sup>6</sup>Amnah Abdulkarem Alzahrani, BDS, Intern, Dentistry Program, IBN Sina College of Medical studies, Jeddah, Saudi Arabia.

<sup>7</sup>Mohammed Sameer Abdulhamayl, BDS, Intern, Dentistry Program, IBN Sina College of Medical studies, Jeddah, Saudi Arabia.

**Corresponding Author:** Dr Karunakar Shetty, BDS, MDS (Prosthodontics), FICOI, Associate professor, Dentistry program, IBN Sina National College of Medical Sciences, Jeddah, Saudi Arabia.

**Type of Publication:** Original Research Paper

**Conflicts of Interest:** Nil

**Abstract**

**Background:** The Assessment of prosthetic treatment provided is essential to determine oral health care needs in a systematic manner and to gather the information required to bring about change beneficial to the oral health of the population. The objective of this study was to determine the level of patient satisfaction among the crown and bridge patients who received treatment in the Dental clinic at IBN Sina National College for medical studies, Jeddah during the period between 2015– 2018.

**Materials and Methods:** 250 patients wearing fixed prosthesis were interviewed and questionnaires were filled by the researchers. The questionnaire included the subjective perception of treatment with fixed prosthesis, patients' perception of clinical outcome, regarding esthetics, masticatory function, and speech, along with patient's attitude toward oral hygiene measures.

**Results:** Results showed that 46% of the patients were extremely satisfied with their fixed prosthesis, while only 35.2% of patients were just satisfied and 6.8% were not satisfied. With regard to concern with esthetic outcome, 82% of patients showed that they were satisfied with the esthetic appearance. A highly significant number of patients did not use any form of interdental aids' to clean their fixed prosthesis (84%).

**Conclusion:** A high percentage of patients were satisfied with their fixed prosthesis, however, majority of the patients showed a lack of knowledge regarding post fixed prosthodontics instructions and the significance of maintenance of fixed prosthesis using dental aids'.

**Keywords:** Fixed Dental Prostheses, Patient Satisfaction, Removable Partial Denture.

## Introduction

Prosthodontics, as a specialty, has evolved abundantly in past few years. Materials and technological advances keep changing every day. The twentieth century has witnessed remarkable changes with regard to human longevity worldwide, and the twenty-first century is set to carry forward the gains in longevity further, both in the developing and the developed world (1).

Tooth loss can have negative impacts on facial appearance, speech, and mastication. The replacement of missing teeth by appropriately designed prostheses is in demand, and is required to maintain a good health status and normal life. There are several modalities of treatment for rehabilitation of partially edentulous patients (2). These include implant supported prostheses, teeth-supported bridges, and Removable Partial Denture (3). FDP may be indicated in short span edentulous arches where the presence of sound teeth can offer sufficient support adjacent to the edentulous space. It may also be indicated for mentally compromised and physically challenged patients who cannot maintain removable prosthesis. However, are contraindicated in conditions with large amount of blood loss as in trauma, young teeth with large pulp chambers, In Periodontally compromised patients, in long span edentulous and bilateral edentulous spaces. Medically compromised and mentally compromised patients who cannot cooperate with sensitive treatments and very old patients (4).

Crowns are used to restore fractured teeth and teeth with large amalgam or composite resin restorations and they restore function and can improve esthetics and protect the remaining tooth structure. Individual crowns may also serve as retainers on abutment teeth when replacing a missing tooth or teeth (5).

FDPs can be constructed in a wide variety of designs to include a conventional bridge, a resin-retained FDP (or

“Maryland bridge”), and, more recently, implant-supported prosthesis. These prostheses may be fabricated in a wide variety of materials from composite or acrylic resin, to resin-bonded to-metal, complete metal, all-ceramic materials, and the more traditional metal-ceramic FDP(6). The choice of materials often depends on the mechanical and esthetic considerations of a particular clinical case, the availability of these materials or systems, patient and dentist preference, and economics. The newer, all-ceramic products have excellent biocompatibility and provide a natural appearance for the final restoration. However, the brittle nature of ceramics, in general, continues to be a major factor that restricts the universal use of these materials in every clinical situation (7). The success of FDP depends on many factors like the health of the abutment teeth, dental caries and periodontal diseases (8).

FDPs have been the treatment of choice for the replacement of missing teeth for some years with nearly 7000 articles available in literature.. However, only a few of them deal with patients’ perceptions of clinical outcomes and level of satisfaction with FDP Treatments. Studies of satisfaction among partial denture patients have largely focused on those treated with removable partial dentures, although there are some reports on patient groups treated by a variety of prosthodontic means. In these studies, even though patient satisfaction with treatment received was reported as high, it was lower than that as expected before the start of treatment (9).

The general conclusion is that patient satisfaction is a complex and multidimensional phenomenon, much of which remains unclear. Studies to investigate patient’s satisfaction were carried out in different countries, including Sweden, Finland, the Netherlands, Croatia, and Singapore; all of which concluded that patient’s satisfaction with FDP was very high (10, 11,12).

This study was carried out based on these findings, to evaluate the level of patient satisfaction with FDP following placement and assess their awareness of oral health and oral hygiene practices during a three years span from 2015 to 2018 in a small section of the western region of KSA. This research project intended to help dental students and dentists to identify areas for improvement of fixed prosthetic work when treating future crown and bridge Patients' at the institute therefore improving our patient satisfaction rating and the institutes' quality of care for patients.

### Materials and Methods

This Retrospective study which was conducted at Ibn Sina National College for Medical studies was approved the Ethical committee of the institute.

A list of patients who received fixed prosthetic treatment from the Dental clinics, IBN SINA National College during the period 2015-2018 were obtained from the dental records. Patient inclusion criteria included the following: age between 20 and 60 years, ability to communicate by phone, availability of accurate and complete dental records of the patient and detailed treatment plan and procedures. Patients with severe disabilities or systemic diseases that may affect oral health, such as uncontrolled diabetes and oral cancer, were excluded. A total of 520 patients treated with FDPs "Between" 2015 to 2018 were then contacted by telephone; out of which 250 (109 male and 149 female) patients responded.

A questionnaire consisting of 17 close-ended questions was developed to determine patients' satisfaction with their fixed prosthesis. The questionnaire served as a guide to interview the patient and collect data on perceptions of clinical outcome regarding esthetics, masticatory efficiency, speech, the comfort with the FDP and the importance of oral hygiene measures and the ease and

practice of cleaning and satisfaction. The patients were interviewed over the telephone and the data obtained was then recorded on the questionnaires and subsequently entered into SPSS software v-20 to be analyzed statistically. Microsoft word and excel sheet were used to generate graphs and tables and descriptive statistical analysis was then carried out.

### Results

The study included 109 male patients (43.6%) and 149 female patients with (56.4%), (Table 2). The age of the patients ranged from 20 to 60 years, 20-30 year old patients with (37.2%), 31-40 year old patients with (36.4%), 41 to 50 patients with (20%) and 51 to 60 year old patient with only (2.8%) (Table 3)

Out of 250 patients who participated in this study, 225 patients (90%) were systemically healthy and 25 patients (10%) had medical problems (Table 4).

Among the participants, those who visited the dentist less than 6 months ago were 115(46%), more than 6 months to one year ago were 118 with (47.2%) and more than 1 year ago were 17 (6.8%), (Table 5).

Among the study participants, 93 patients (37.2%) had bridge, 113 patients (45.2%) had crown and 43 patients (17.2%) had combination of crown and bridges (Table 5).

187 patients (74.8%) had their prosthesis for with regard to oral hygiene, less than a year and 63 patients (25.2%) more than a year (Table 6). 20 patients (8%) never brushed their teeth, 77 patients (30.8%) brushed once a day, 131 patients (52.4%) brushed twice a day and 22patients (8.8%) brushed more than twice a day (Table 7). 40 patients (16%) used special oral hygiene aids and 210 patients (84 %) never used special oral hygiene aids (Table 8). 115 patients (46%) were very satisfied with their fixed prosthesis, while 88 patients (35.2%) were just satisfied and while only 17 patients (6.8%) not satisfied (Table 9).

Regarding food impaction 190 patients (76%) never had any problems, 24 patients (9.6%) rarely had any problems, 20 patients (8%) sometimes had problems, 11 patients (4.4%) always had problems. Bleeding gum 192 patients (76%) never had any problems, 26 patients (10.4%) rarely had problems, 18 patients (7.2%) had problems some times, and 10 patients (4%) always had problems. Regarding difficulties in cleaning the prostheses, 200 patients (80%) never had any problems, 23 patients (9.2%) rarely had problems, while 5 patients (2%) always had problems. Regarding mouth odor 195 patients (78%) never had any problems, 26 patients (10.4%) rarely had any problems, and 5 patients (2%) always had problems. Regarding difficulty in mastication 204 patients

(81.6%) never had any problems, 14 patients (5.6%) rarely had problems, 11 patients (4.4%) always had problem. Regarding speech impairment, 221 patients (88.4%) never had any problems, 16 patients (6.4%) rarely had any problems while only 4 patients (1.6%) always had problem. Regarding esthetic concern, 207 patients (82.4%) never had any problems, 20 patients (8%) rarely had any problems, and 12 patients (4.8%) always had problems (Table 10).

Additionally, 82% of patients showed that they were satisfied with the esthetics, especially the shade of the prosthesis. 241 (96.4%) patients did not have porcelain fracture, whereas 9 patients (3.6%) had porcelain fracture. 2 patients had incisal edge fracture, 2 patients had porcelain fracture over the labial surface and 5 patients had palatal/lingual surface of the porcelain (Table 10), Out of which 3 patients were not bothered, whereas 6 patients bothered about porcelain fracture (Table 11).

## Discussion

Patient satisfaction is an indicator of how well the patient is being treated. The “how well” part refers not necessarily to the *quality* of care but to how content a patient is with the care

they received. Patient satisfaction is a growing factor in the effectiveness of hospital care. More and more hospitals are starting to pay attention to patient experience. (10) Patient satisfaction plays an ever-increasing role in the way hospitals are judged. The perception of care is almost as important as the *quality* of care. Introducing these changes to the hospital culture is difficult but necessary. Healthcare is an industry that directly affects people’s lives at their most vulnerable moments. Satisfaction is an important element in evaluation of the treatment. The satisfaction level of the patient determines the success rate of the treatment. Patient satisfaction surveys help to identify the lacunae in our treatment modalities, which in turn translates into better care and happier patients (13)

Well-designed and properly placed FDP can not only restore function but also actually improve esthetics. Individual crowns may also serve as retainers on abutment teeth when replacing a missing tooth or teeth. The relatively low response rate could be attributed to the non-availability of the patients to participate in the study in spite of repeated reminders but it did not affect our study results as we achieved the desired sample size. One of the primary aims of dental treatment is to win the patients’ satisfaction and it is an important criterion for judging the success and quality of dental care delivered. Health care providers all over the world consider patient satisfaction as a major concern in their treatment delivery systems.

The aim of this study was to collect information regarding the attitude of patients who received fixed prosthesis treatment. The replacement of missing teeth by appropriately designed prostheses is in demand, and is required to maintain a good health status and normal life. There are several modalities of treatment for rehabilitation of partially edentulous patients. These include implant supported prostheses, teeth-supported bridges, and RPD. Majority of the patients belonged to the age group of 20-

60 years, which is in contrast to the results of previous studies in which the number of subjects in the above-mentioned age group was more. The satisfaction with the treatment procedure was not related to the age of the patient similar to the findings of the study done by Tin-Oo *et al* (14).

Most of the patients had porcelain fused metal crown and bridges and some of them had combination of crown and bridges and only few of them had all ceramic crown and bridges.

Most of them were brushing their teeth twice a day, some of them brushing once a day and only few of them did not brush their teeth at all. Only few of them used special oral hygiene practices whereas most of them did not use special device.

Regarding level of satisfaction with prostheses, most of them very satisfied, whereas some of them satisfied and only few of them not satisfied with the outcome of the treatment. Porcelain fracture is one of the problems with fixed prostheses; majority of the participants never had any problem, whereas only few of them had specific problems. Most of them had porcelain fracture over the palatal surface/lingual surface; few of them had fracture over the incisal edge and labial surface and none of them had fracture over the mesial/distal surface. Esthetics is the main concern for most of the patients. Most of the participants were concerned about porcelain fracture, and few of them not bothered about the fracture of the porcelain (15).

Satisfaction of patients is a strong determinant of success with respect to prosthodontic treatment. This fact has been reinforced in a study which says the ability of the patient to use the dentures for mastication or speech, esthetic considerations, psychological factors, all influence his/her ability to adjust to, accept, and manipulate the dentures.

Nearly half the patients in this study had high satisfaction scores. This could be linked to the fact that 3 months period may not have been sufficient enough to elicit difficulties that patients might have encountered subsequently. Most of the patients in this study had some form of prosthodontic treatment earlier. Weinstein *et al.* have stated that such patients probably had their neuromuscular control already adapted to acclimatize them to a denture more quickly than a patient who has had no previous experience, yielding higher satisfaction scores (16).

Although shade and color play an important role in patient's satisfaction with their FPD, 80% of the patients were pleased with the esthetic outcome of the treatment, even though 20% reported not being satisfied with esthetic result. This is accordance with our study, where most of the patients were not having any problems regarding food impaction, bleeding gum, chewing, mouth odor, mastication, speech and esthetics and only few of them not happy with all of the above problems.

## Conclusion

The results of this retrospective study showed that fixed prosthesis is still satisfying patient's needs for replacing their missing teeth. A large majority of patients were satisfied with all functional and esthetic aspects of their fixed prosthesis. The most important finding of this study was that majority of patients showed a lack of knowledge regarding oral hygiene measures and the significance of maintenance of fixed prosthesis using dental aids'. Of particular concern was the majority of dentists did not pay attention to the post-treatment instructions concerning the maintenance of fixed prosthesis.

## References

1. Ravishek Kumar Singh, A survey based evaluation and assessment of satisfaction and continuance of patients wearing fixed partial dentures, International



- Journal of Medical and Health Research, Volume 3; Issue 8; August 2017; Page No. 34-37.
2. Mohsen K. Aljabri,a, Tamer O. Ibrahim, MDb and Rayan M. Sharka, Removable partial dentures: Patient satisfaction and complaints in Makkah City, KSA, Journal of Taibah University Medical Sciences, 2017;12(6):561e564.
  3. Nivedhaa Chezhan, Dr.Abirami, Patience Satisfaction after Receiving a Fixed Partial Denture(FPD), Journal of Pharmaceutical Science & Research, Vol. 8(4), 2016, 208-209.
  4. Smith W1, Rafeek\*, Noel , Ogaki, Goberdhan, Coppin E2, Douglas, Austin, Montano, International Journal of Dentistry and Oral Science (IJDOS), 3(11), 372-374.
  5. Mon Mon Tin-Oo\*, Norkhafizah Saddki, Nurhidayati Hassan, Factors influencing patient satisfaction with dental appearance and treatments they desire to improve aesthetics, BMC Oral Health 2011, 11:6.
  6. Adeleke Oke Oggini, Failures Related to Crowns and Fixed Partial Dentures Fabricated in a Nigerian Dental School. J Contemp Dent Pract 2005 November;(6)4:136-143.
  7. Dr.Amruta P. Jankar, Dr. Sanjay Nilawar, Dr. Swaroopkumar Magar, Dr.Puneet Mutneja Impression materials and techniques used and followed for the fixed partial denture treatment by private dental practitioners in Maharashtra state: A questionnaire study International J. of Healthcare and Biomedical Research, Volume: 04, Issue: 03, April 2016, 83-92 83 www.ijhbr.
  8. Archana K. Sanketh, J. Sridevi, N. Kalavathy, Mitha M. Shetty, Roshan Kumar, T. P. Pavan, srmjrds, August 25, 2018, IP: 95.185.76.85.
  9. Ghada Hassan Geiballa, Neamat Hassan Abubakr, Yahia Eltayib Ibrahim Patients', satisfaction and maintenance of fixedpartial denture, European Journal of Dentistry, August 27, 2018, IP: 95.186.84.151].
  10. Hakestam U, Karlsson T, Soderfeldt B, Ryden O, Glantz P. Does the quality of advanced prosthetic dentistry determine patient satisfaction? Acta Odontologica Scandinavica 1997 ; 55 : 365-371.
  11. Oates AJ, Fitzgerald M, Alexander G. Patient decision making in relation to extensive restorative dental treatment. Part I: Characteristics of patients. Br Dent J 1995; 178:449-53
  12. Tan K, Li AZ, Chan ES. Patient satisfaction with fixed partial dentures: A 5-year retrospective study. Singapore Dent J 2005; 27:23- 9
  13. Prakash, Bhanu. "Patient satisfaction." Journal of cutaneous and aesthetic surgery vol. 3,3 (2010): 151-5. doi:10.4103/0974-2077.74491
  14. Tin-Oo MM, Saddki N, Hassan N. Factors influencing patient satisfaction with dental appearance and treatments they desire to improve aesthetics. BMC Oral Health 2011;11:6.
  15. Näpänkangas R, Salonen MA, Raustia AM. A 10 year follow up study of fixed metal ceramic prosthodontics. J Oral Rehabil 1997; 24:713-7.
  16. Weinstein M, Schuchman J, Lieberman J, Rosen P. Age and denture experience as determinants in patient denture satisfaction. J Prosthet Dent 1988;59:327-9.
  17. Weinstein M, Schuchman J, Lieberman J, Rosen P. Age and denture experience as determinants in patient denture satisfaction. J Prosthet Dent 1988; 59:327-9.

## List of Table

### 1. Age wise distribution of study participants (TABLE 1)

AGE CATEGORY (YRS)	N	%
LESS THAN 20	5	2
20-30	93	37.2
31-40	91	36.4
41-50	52	20.8
51-60	7	2.8
MORE THAN 60	2	0.8

### 2. Gender wise distribution of study participants (TABLE 2)

GENDER	N	%
MALE	109	43.6
FEMALE	141	56.4

### 3. Distribution of study participants based on their medical condition (TABLE 3)

	N	%
PRESENT	25	10
ABSENT	225	90

### 4. Distribution of study participants based on their past dental history (TABLE 4)

TIME SINCE LAST VISIT	N	%
≤ 6 Months	115	46
6 Months-1 Year	118	47.2
> 1 Year	17	6.8

5. Distribution of study participants based on the type of prosthesis (TABLE 5)

TYPE OF PROSTHESIS	N	%
Bridge	93	37.2
Crown	113	45.2
Implant supported	0	0
Porcelain	1	0.4
Combination	43	17.2

6. Duration of prosthesis (TABLE 6)

DURATION	N	%
Less than a year	187	74.8
More than a year	63	25.2

7. Brushing habits (TABLE 7)

	N	%
Do not brush	20	8
Once a day	77	30.8
Twice a day	131	52.4
More than twice	22	8.8

8. Special Oral Hygiene practices (TABLE 8)

	N	%
Yes	40	16
No	210	84

9. Level of Patient satisfaction (TABLE 9)

	N	%
Not Satisfied	17	6.8
Nearly Satisfied	30	12
Satisfied	88	35.2
Very Satisfied	115	46



10. Problems related to fixed dental prosthesis (TABLE 10)

	Never N (%)	Rarely N (%)	Sometimes N (%)	Often N (%)	Always N (%)	Total
Food Impaction	11(4.4)	5(2)	20(8)	24(9.6)	190(76)	250(100)
Bleeding Gums	10(4)	4(1.6)	18(7.2)	26(10.4)	192(76.8)	250(100)
Difficulty in cleaning	5(2)	5(2)	17(6.8)	23(9.2)	200(80)	250(100)
Mouth odour	5(2)	12(4.8)	12(4.8)	26(10.4)	195(78)	250(100)
Difficulty in mastication	11(4.4)	6(2.4)	15(6)	14(5.6)	204(81.6)	250(100)
Speech Impairment	4(1.6)	3(1.2)	6(2.4)	16(6.4)	221(88.4)	250(100)
Esthetic concern	12(4.8)	5(2)	6(2.4)	20(8)	107(82.8)	250(100)

11. PORCELAIN FRACTURE (TABLE 11)

	N	%
PRESENT	9	3.6
ABSENT	241	96.4

12. LOCATION OF PORCELAIN FRACTURE

	N	%
Incisal edge	2	22.2
Labial surface	2	22.2
Palatal/lingual surface	5	55.6
Mesial/ Distal surface	0	0

13. Study participants concern about porcelain fracture

	N	%
Not bothered	3	33.3
Noticeable	6	66.7
Un-Noticeable	0	0